Francis M. Gomez
Purchasing Agent

Frank J. Picozzi
Mayor

City of Warwick
Purchasing Division
3275 Post Road
Warwick, Rhode Island 02886
Tel (401) 738-2013
Fax (401) 737-2364

To: All Prospective Bidders

From: Francis M. Gomez, Purchasing Agent

Date: March 14, 2024

Re: **Bid2024-322 City Hall Plaza Site Improvements**

Addendum #1

==========

Please be advised that the information provided comprises of Addendum #1.

Attachments:

Attachment 1 – Pre-Bid Sign-In Sheet
Attachment 2 – Specifications
Attachment 3 – Plans

Thank you for your interest in this project.

City of Warwick, RI
Addendum No. 1 to Contract Documents
for
City Hall Plaza Site Improvements
Bid No. 2024-322

The following changes and additional information are hereby made part of the Contract Documents:

Pre-Bid Conference

The Pre-Bid Conference Sign-in Sheet is included as **Attachment 1** to this Addendum.

The following information was reviewed:

The City of Warwick, Rhode Island will accept sealed bids for "CITY HALL PLAZA SITE IMPROVEMENTS" at the City of Warwick Purchasing Department located at Warwick City Hall, Lower Level, 3275 Post Road, Warwick, RI 02886 until no later than **11:00 AM on Thursday, March 21st, 2024**.

Bidding Documents and Contract Specifications will be posted on the City's website at www.warwickri.gov/bids and the RI State Purchasing website at www.purchasing.ri.gov.

A **mandatory Pre-Bid Conference** will be held on **Tuesday, February 20nd, at 10:00 AM** at the Warwick City Hall located at 3275 Post Road, Warwick, Rhode Island. Participants will be asked to sign in and provide an email address as a project contact.

Requests for Information will be due by **Tuesday, March 5th, 2024 by 2:00 PM**. Requests for information or clarification must be made in writing to Dean Pimental, Senior Planner, dean.m.pimentel@warwickri.gov.

The work in this Contract includes, but is not limited to:

- Site preparation and demolition of existing parking lot;
- New (approx.) 60'x 120' outdoor skating rink including: rink floor system, refrigeration system, and dasher board system;
- New Rink building with restrooms, skate rentals, lockers, mechanical room, utility, and resurfacer (Zamboni) storage;
- New (approx.) 75' x 120' open air pre-engineered metal shade structure with standing seam roof, underside soffit, lighting, AV, and gutters.
- New site area improvements including utility work, drainage, concrete flatwork, fences and screens, asphalt parking lot, unit pavers, signage, lighting, site amenities, and landscaping;
- All related civil/site, architectural, landscape, structural, heating and ventilation, plumbing, and electrical;
- All other incidentals items included in the contract documents.

Responses to Contractors' Inquiries

1. Is the 10% MBE a mandatory requirement?

   Response: The 10% has been revised to 15% per the latest RI General Laws Chapter 37-14.1. The Bidder, as part of the Bid, must submit a MBE PLAN outlining the manner in which they shall make a substantial and concerted effort to meet the fifteen percent (15%) MBE requirement and submit said plan to the Director of the Rhode Island Department of Administration for approval. A waiver must be requested from the State if it cannot be met.

2. Are there any filed sub-bids?

   Response: There are no filed sub-bids for the project.

3. What is the anticipated start date and are there any long lead time items?

   Response: Construction is anticipated to start at the end of April once a contractor is selected and given the Notice to Proceed. No lead time issues are anticipated.

4. Does the order of the alternatives matter?

   Response: The alternatives will be selected in order as listed in the bid.

5. Is there any contaminated soil anticipated?

   Response: Pre-characterization of the soil has not been performed; however, no contaminated soil is anticipated. Management of excess soil generated at the site that cannot be reused as backfill shall be handled, stockpiled, and tested in accordance with Section 02080.

6. When do liquidated damages kick in with respect to schedule?

   Response: The time of completion for the project shall begin from the Contractor's receipt of the Notice to Proceed.

7. Is there a phasing schedule?

   Response: A recommended phasing plan and sequence of work has been provided in the Plans, refer to Sheet 2.1. The Contractor's attention is called to the requirements to maintain access to the lower baseball fields and Warwick City Hall as detailed on the plan.

8. Can building permit fees be waived?

   Response: City building permit fees can be waived, but not state required ADA fees. State ADA portion of permits is a fee of $1 per thousand of the total cost of the project.

9. Does the City have a cost estimate?

   Response: The City will not be providing the value of the cost estimate.

10. The specs have Bell and Gossett as an approved manufacturer for Variable frequency drives, however the spec does NOT have the note of approved equals. Since the Bell and Gossett drives are rebranded Danfoss, would Danfoss be an acceptable manufacturer for VFDs?

    Response: See specification section 13812.2.03.F – Variable Frequency Drive (VFD) for approved manufacturers. Danfoss is acceptable.

11. Please confirm if this project has prevailing wage requirements.

    Response: Per the City's direction, the project is not subject to prevailing wage requirements.

12. Please provide a light fixture schedule.

    Response: Refer to Lighting Fixture Schedule on drawing E2.2 issued in Addendum #1.

13. Please provide electrical requirements for any refrigeration equipment.

    Response: See sheet R503 Equipment Schedule under remarks.

14. Is a bid security/bond required for this bid? If so, how much is required? Is a bid security form included?

    Response: A bid security/bond is not required for the project.

Specifications

1. **TOC – Technical Specification Table of Contents**

    - Replace the Technical Specifications Table of Contents in its entirety with the applicable pages from **Attachment 2** to this Addendum.

2. **00200 – Information for Bidders**

    - Replace pages 00200-12 thru 00200-15 with the applicable pages from **Attachment 2** to this Addendum.

3. **00300 – Bid**

    - Replace Section 00300 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

4. **00500 – Contract Agreement**

    - Replace page 00500-17 with the applicable page from **Attachment 2** to this Addendum.

5. **01020 – Allowances**

    - Replace pages 01020-1 and 01020-2 with the applicable pages from **Attachment 2** to this Addendum.

6. **01025 – Measurement and Payment**

    - Replace Section 01025 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

7. **01060 – Regulatory Requirements**

    - Replace Section 01060 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

8. **01067 – State of Rhode Island and Federal Requirements**

    - Replace page 01067-3 with the applicable page from **Attachment 2** to this Addendum.

9. **01380 – Construction Photographs**

    - Insert Section 01380 in its entirety with the applicable page from **Attachment 2** to this Addendum.

10. 01381 – Audio/Video Recording

- Insert Section 01381 in its entirety with the applicable page from **Attachment 2** to this Addendum.

11. 02080 – Management of Excess Soil

- Replace Section 02080 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

12. 02115 – Tree Protection

- Replace page 02115-1 with the applicable page from **Attachment 2** to this Addendum.

13. 02215 – Aggregate Materials

- Replace Section 02215 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

14. 02500 – Paving

- Replace Section 02500 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

15. 02550 – Pavement Markings

- Replace Section 02550 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

16. 02610 – Manhole Rehabilitation

- Insert Section 02610 in its entirety with the applicable page from **Attachment 2** to this Addendum.

17. 02618 – Ductile Iron Pipe and Fittings for Buried Service

- Replace Section 02618 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

18. 02642 – Water Service Connections

- Insert Section 02642 in its entirety with the applicable page from **Attachment 2** to this Addendum.

19. 02650 – Relocation of Existing Utilities

- Insert Section 02650 in its entirety with the applicable page from **Attachment 2** to this Addendum.

20. 02975 – Rubber Mats

- Insert Section 02975 in its entirety with the applicable page from **Attachment 2** to this Addendum.

21. 05500 – Metal Fabrications

- Delete Section 05500 in its entirety.

22. 08330 – Rolling Aluminum Service Doors

- Replace Section 08330 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

23. 08360 – Glazed Aluminum Sectional Overhead Doors

- Replace Section 08360 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

24. 08550 – Aluminum Clad Wood Windows

- Replace Section 08550 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

25. 08712 – Door Hardware

- Replace Section 08712 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

26. 13816 – Ice Rink Dasher Board System and Accessories

- Replace Section 13816 in its entirety with the applicable pages from **Attachment 2** to this Addendum.

Plan Set

1. **Sheet No. 1.1 – Cover**
    - Replace Sheet No. 1.1 with the applicable sheet from **Attachment 3** to this Addendum.
2. **Sheet No. 2.1 – Phasing Plan**
    - Replace Sheet No. 2.1 with the applicable sheet from **Attachment 3** to this Addendum.
3. **Sheet No. 3.2 – Site Plan**
    - Replace Sheet No. 3.2 with the applicable sheet from **Attachment 3** to this Addendum.
4. **Sheet No. 3.3 – Add Alternates Plan**
    - Replace Sheet No. 3.3 with the applicable sheet from **Attachment 3** to this Addendum.
5. **Sheet No. 5.6 – Site Details**
    - Replace Sheet No. 5.6 with the applicable sheet from **Attachment 3** to this Addendum.
6. **Sheet No. A-7 – East Elevation**
    - Replace Sheet No. A-7 with the applicable sheet from **Attachment 3** to this Addendum.
7. **Sheet No. A-7a – East Elevation – Add Alternate No. 4**
    - Replace Sheet No. A-7 with the applicable sheet from **Attachment 3** to this Addendum.
8. **Sheet No. A-9 – Section A**
    - Replace Sheet No. A-9 with the applicable sheet from **Attachment 3** to this Addendum.
9. **Sheet No. A-16 – Doors and Windows**
    - Replace Sheet No. A-16 with the applicable sheet from **Attachment 3** to this Addendum.
10. **Sheet No. E1.0 – Concession Building Electrical Plan**
    - Replace Sheet No. E1.0 with the applicable sheet from **Attachment 3** to this Addendum.
11. **Sheet No. E2.2 – Electrical Schedules**
    - Replace Sheet No. E2.2 with the applicable sheet from **Attachment 3** to this Addendum.

12. Sheet No. M1.0 – Concession Building Mechanical Plan

- Replace Sheet No. M1.0 with the applicable sheet from **Attachment 3** to this Addendum.

13. Sheet No. M2.0 – Mechanical Schedules

- Replace Sheet No. M2.0 with the applicable sheet from **Attachment 3** to this Addendum.

14. Sheet No. S0.1 – Notes & Foundation Details

- Replace Sheet No. S0.1 with the applicable sheet from **Attachment 3** to this Addendum.

15. Sheet No. S0.2 – Foundation Details

- Replace Sheet No. S0.2 with the applicable sheet from **Attachment 3** to this Addendum.

16. Sheet No. S1.1 – Notes & Foundation Details

- Replace Sheet No. S1.1 with the applicable sheet from **Attachment 3** to this Addendum.

17. Sheet No. S1.2 – Foundation Details

- Replace Sheet No. S1.2 with the applicable sheet from **Attachment 3** to this Addendum.

Verification of Receipt

Please Sign, Date, and Fax or Email this form to BETA Group, Inc. @ (401) 333-9225
ATTN: Randy Collins
RCollins@BETA-Inc.com
Upon Receipt

Receipt of Addendum No. 1 is hereby acknowledged:

By: _____

Date: _____ Title: _____

Company: _____

Attachment 1 – Pre-Bid Sign-In Sheet

Date: February 20, 2024

Bid2024-322 City Hall Plaza Site Improvements

Name (please print *neatly*)		**Company/Email Address**
J. Milburew		East Coast Construction
Bill Stamp	NEBB	New England Building Brok
		BSTAMP@NEBB.CO.COM
Daniel Zumno		RICON DZUMNO@RICONUSA.COM
Angel Gould	Bentley Builders	AGould@Bentleycompanies.com
Carl Eidam	Ferreira Const.	ceidam@ferreiraconstruction.com
Glen Fontecchio		Glen@Gfontecchio.com (Architect)
Brett Martins	LPC	BRETT@RSICENTERPRISESINC.COM
RANDY COLLINS	BETA Group	rcollins@BETA-INC.COM
Bob Dandeneau	EW BURMAN INC	estimating@ewburman.com
CHRIS SEGER	MILL CITY CONSTRUCTION	CSEGER@MILL-CITY.com
JARED LINTHARES	BETA GROUP INC.	JLINTHARES@BETA-INC.COM
Carl Nordstrom	Tower Construction	estimating@towerconstructioncorp.com

Attachment 2 – Specifications

TECHNICAL SPECIFICATIONS

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END OF T.O.C.

1.28 NONDISCRIMINATION IN EMPLOYMENT

A. Contracts for work under this bid (proposal) will obligate the Contractors and subcontractors not to discriminate in employment practices.

B. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading; demotions, or transfers; recruitment or recruitment advertising, layoffs, or terminations; rates of pay or other forms of compensation; selection for training including apprenticeship; and participation in recreational and education activities. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notice to be provided setting forth the provisions of this non-discrimination clause. The Contractor will in all solicitations or advertisements for employees placed by or on behalf on the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap or national origin. The Contractor will cause the foregoing provisions to be inserted in all sub-contracts for any work covered by this Contract so that such provisions will be binding upon each sub-contractor and upon sub-contracts for standard commercial supplies or raw materials.

C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law. The Contractor agrees to comply with such rules, regulations, or guidelines as the State of **Rhode Island** may implement these requirements. The Contractor further warrants, that he will comply with the President's Executive Order No. 11246 or any preceding similar Executive Order relating thereto.

D. Bidders and Contractors must, if required, submit a compliance report (EPA Form 5720-4) concerning their employment practices and policies in order to maintain their eligibility to receive award of the Contract.

E. Successful bidders and Contractors must, if required, submit a list of all Subcontractors who will perform work on the project, and written signed statements from authorized agents of labor pools with which they will or may deal with for employees on the work, together with any information to the effect that such labor pools' practices or policies are in conformity with said Executive Order that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under this Contract; or a certification as to when such agents or labor pools have failed or refused to furnish them, prior to award of the Contract.

F. The successful bidder will be required to comply with Equal Opportunity Requirements for Public Work Projects for all employees on the job. Information is available at the Department of Labor.

G. The successful bidder must be prepared to comply with the provisions of the General Laws of Rhode Island. Non-resident Contractors are subject to Section 44-1-6 of the RI General Laws, as amended, regarding OUT-OF-STATE CONTRACTORS.

1.29 SECTION 3 CLAUSE

A. **Compliance:** Compliance with the provisions of Section 3, the regulations set forth in 24 CFR 75, and all applicable rules and orders of the Department issued thereunder prior to the execution of the Agreement, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or Agreement through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR 75. The SUBRECIPIENT certifies and agrees that no contractual or other disability exists which would prevent compliance with these requirements.

The SUBRECIPIENT further agrees to comply with these "Section 3" requirements and to include the following language in all subcontracts executed under this Agreement:

"The work to be performed under this Agreement is on a project assisted under a program providing direct Federal financial assistance from the U.S. Department of Housing and Urban Development (HUD) and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area [City of Warwick] and Agreements for work in connection with the project be awarded to business concerns that provide economic opportunities for low and very low income persons residing in the metropolitan area [City of Warwick] in which the project is located."

The SUBRECIPIENT further agrees to ensure that opportunities for training and employment arising in connection with a housing rehabilitation (including reduction and abatement of lead based paint hazards), housing construction, or other public construction project are given to low and very low income persons residing within the metropolitan area [City of Warwick] in which the project is located, and to low and very low income participants in other U.S. Department of Housing & Urban Development (HUD) programs; and award Agreements for work undertaken in connection with a housing rehabilitation (including reduction and abatement of lead-based paint hazards), housing construction, or other public construction project are given to business concerns that provide economic opportunities for low and very low income persons residing within the metropolitan area [City of Warwick] in which the Community Development Block Grant (CDBG) funded project is located; where feasible, priority should be given to business concerns which provide economic opportunities to low and very low income residents within the service area or the neighborhood in which the project is located, and to low and very low income participants in other U.S. Department of Housing & Urban Development (HUD) programs.

B. **Notifications:** The SUBRECIPIENT agrees to send to each labor organization or representative of workers with which it has a collective bargaining agreement or other Agreement or understanding, if any, a notice advising said labor organization or worker's representative of its commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

C. **Subagreements:** The SUBRECIPIENT will include this Section 3 clause in every subcontract and will take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the CITY. The SUBRECIPIENT will not subcontract with any entity where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR 75 and will not let any subcontract unless the entity has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

1.30 SEQUENCE OF OPERATIONS

A. The Contractor must submit to the Engineer within fourteen (14) calendar days after execution of the Contractor Documents, a sequence of operations, giving detailed plans and schedules of his operation including any elements for by-pass pumping and/or flow diversion during the Work. Said sequence of operations shall be reviewed and must be approved by the Owner and Engineer prior to the start of the Work. The Owner reserves the right to limit or, if found necessary and/or required, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest to do so.

B. The Contractor shall have no claim for additional compensation or damage on account of any such delays and/or required sequence of operations.

C. The Contractor shall maintain uninterrupted utility services at all times, and plan his work accordingly.

D. The Contractor shall coordinate his activities with any other contract and/or contractor to complete the Work as detailed on the Plans and Specifications.

1.31 BORINGS - SUBSURFACE DATA

A. Subsurface soil and rock information and investigations have been obtained, for use by the Owner, for the Project. The subsurface soil and rock data shown, including the results of borings indicated in the Boring Logs included in the Appendices, are for general information of bidders and the Contractor. The attention of Bidders and Contractors is directed to the fact that, by reason of methods commonly used for obtaining and expressing such boring data, this information and data may be limited and subject to error or misunderstanding. The terms used to describe soils, rock, groundwater, and such other conditions, are subject to local usage, and to the interpretation of the person obtaining and making the records. The borings have been made with reasonable care, substantially at the locations indicated and to the depths shown. Groundwater levels shown in the Specifications under Boring Logs are those reported by the driller to the existing grade at the particular boring location at the time subsurface investigations were made, and do not necessarily represent permanent groundwater levels which may affect his work. Each Bidder is expected to examine the site and the compiled record of investigations and information and then, based upon his own inspections and interpretations, and such other investigations as he may desire, decide for himself the character of material to be encountered and excavated, the suitability of the materials to be used for backfilling and such other purposes, groundwater conditions, difficulties, or obstacles likely to be encountered, and other conditions, affecting the Work. No warranty, either expressed or implied by the Owner, the Engineer, or their agents, is made to the accuracy of the subsurface information and the data shown on the Drawings; nor for any consequences, delays, expense or losses which may occur or have occurred in the event

that such indications shall be found to be incomplete, incorrect or misleading; nor shall such variations or inaccuracies in the indications of subsurface information and data constitute grounds for revisions in Contract price or the time for completion.

1.32 BUILD AMERICA, BUY AMERICA (BABA)

A. Build America, Buy America Act (the Act), enacted as part of the Infrastructure Investment and Jobs Act on November 15, 2021, established a domestic content procurement preference for all Federal financial assistance obligated for infrastructure projects after May 14, 2022. The domestic content procurement preference requires that all iron, steel, manufactured products, and construction materials used in covered infrastructure projects are produced in the United States.

END OF SECTION

SECTION 00300

BID

To the City of Warwick, Rhode Island, herein called the "Owner", for
City Hall Plaza Site Improvements, Bid No. 2024-322

The Undersigned, as a bidder herein referred to as singular and masculine, declares as follows:

_____
(Name of Bidder)

(1) The only parties interested in this BID as Principals are named herein;

(2) this BID is made without collusion with any other person, firm, or corporation;

(3) no officer, agent, or employee of the Owner is directly or indirectly interested in this BID;

(4) he has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and he has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;

(5) he understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;

(6) and he understands that the quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer; and he agrees that, if this BID is accepted he will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that he will perform all the work and furnish all the materials and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and according to the requirements of the Engineer as therein set forth, and that he will take in full compensation therefore the total dollar amount tabulated from the actual measured quantities of said work and each unit or lump sum price stated in this BID as hereinafter set forth.

(Note: All entries in the entire BID must be made clearly and in ink; price bid must be written in both words and figures.)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
1	10 EACH	CUTTING, REMOVING, AND DISPOSING ISOLATED TREES AND STUMPS per each,		
		_____ dollars		
		and _____cents	($_____)	($_____)
2	270 SY	REMOVE AND DISPOSE SIDEWALKS AND DRIVEWAYS per square yard,		
		_____ dollars		
		and _____cents	($_____)	($_____)
3	1,100 LF	REMOVE AND DISPOSE PIPE - ALL SIZES per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)
4	3,000 SY	REMOVAL AND DISPOSAL OF PAVEMENT per square yard,		
		_____ dollars		
		and _____cents	($_____)	($_____)
5	1,650 LF	REMOVAL AND DISPOSAL OF CURBING per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
6	4 EACH	REMOVAL AND DISPOSAL OF DRAINAGE AND UTILITY STRUCTURES per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
7	200 LF	REMOVAL AND DISPOSAL OF FENCES AND RAILINGS per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
8	13 EACH	REMOVE AND DISPOSE DIRECTIONAL, WARNING, REGULATORY, SERVICE, AND STREET SIGNS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
9	1 LS	SITE PREPARATION per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
10	1000* CY	MANAGEMENT OF EXCESS SOILS per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
11	1 LS	GROUND IMPROVEMENTS per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
12	160 LF	ABANDON IN PLACE EXISTING UTILITY PIPES per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
13	4 EACH	ABANDON IN PLACE EXISTING UTILITY STRUCTURES per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
14	25* CY	ROCK EXCAVATION MECHANICAL per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
15	500* CY	UNCLASSIFIED EXCAVATION per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
16	500* CY	COMMON BORROW per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
17	500* CY	GRAVEL BORROW per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
18	110 SY	CRUSHED STONE per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
19	640 TON	CLASS 12.5 HMA per ton,		
		_____	dollars	
		and _____cents	($_____)	($_____)
20	390 TON	CLASS 9.5 HMA per ton,		
		_____	dollars	
		and _____cents	($_____)	($_____)
21	300 TON	TEMPORARY TRENCH PAVEMENT per ton,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
22	40 TON	PERMANENT TRENCH PAVEMENT per ton,		
		_____	dollars	
		and _____cents	($_____)	($_____)
23	4,500 SY	FULL DEPTH RECLAMATION WITH CALCIUM CHLORIDE per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
24	50* CY	ADDITIONAL CONCRETE, ALL CLASSES, AS DIRECTED per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
25	50* CY	ADDITIONAL CONTROLLED DENSITY FILL, AS DIRECTED per cubic yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
26	190 LF	REINFORCED CONCRETE PIPE - 12 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
27	150 LF	REINFORCED CONCRETE PIPE - 15 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
28	480 LF	REINFORCED CONCRETE PIPE - 18 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
29	110 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 6 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
30	50 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 8 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
31	280 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 10 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
32	70 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 12 INCH per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)
33	110 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 18 INCH per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)
34	5 LF	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE - 30 INCH per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)
35	170 LF	DUCTILE IRON DRAIN PIPE - 12 INCH per linear foot,		
		_____ dollars		
		and _____cents	($_____)	($_____)
36	1 LS	WATER SERVICE CONNECTION AND HOT BOX ASSEMBLY per lump sum,		
		_____ dollars		
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
37	1 LS	GAS SERVICE CONNECTION per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
38	350 LF	SDR-35 PVC IRRIGATION SLEEVE - 3 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
39	300 LF	SDR-35 PVC SEWER - 4 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
40	210 LF	SDR-35 PVC SEWER - 6 INCH per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
41	1 EACH	SANITARY SEWER MANHOLE per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
42	1 EACH	PRECAST CONCRETE DROP INLET STANDARD 4.5.1 per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
43	9 EACH	PRECAST CATCH BASIN 4' DIAMETER STANDARD 4.4.0 per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
44	5 EACH	PRECAST MANHOLE 4' DIAMETER STANDARD 4.2.0 per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
45	1 EACH	PRECAST MANHOLE 5' DIAMETER STANDARD 4.2.1 per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
46	1 EACH	PRECAST DIVERSION MANHOLE 4' DIAMETER per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
47	3 EACH	PRECAST DIVERSION MANHOLE 5' DIAMETER per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
48	2 EACH	NDS - CATCH BASIN (OR EQUAL) per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
49	7 EACH	NDS - DRAIN MANHOLE (OR EQUAL) per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
50	1 LS	BMP 1 - INFILTRATION CHAMBER SYSTEM per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
51	1 LS	BMP 2 - INFILTRATION CHAMBER SYSTEM per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
52	11 EACH	DRAIN CLEANOUT per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
53	3 EACH	SEWER CLEANOUT per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
54	1 EACH	1,000 GALLON GREASE TRAP per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
55	2 EACH	PRE AND POST CONSTRUCTION CONDITION SURVEYS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
56	1,500 LF	FENCE - TEMPORARY ALL TYPES AND SIZES per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
57	150 LF	6' HIGH BLACK VINYL CHAIN LINK FENCE AND DOUBLE GATE per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
58	2 EACH	COLLAPSIBLE BOLLARD per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
59	170 LF	SCREEN FENCE per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
60	2,500 SY	PORTLAND CEMENT CONCRETE SIDEWALKS AND DRIVEWAYS per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
61	80 SY	CONCRETE WHEELCHAIR RAMP per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
62	1,750 SF	PERMEABLE PAVER per square foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
63	60 SF	UNIT PAVERS per square foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
64	1,480 LF	GRANITE CURB per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
65	430 LF	PRECAST CONCRETE CURB per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
66	110 LF	REMOVE, HANDLE, HAUL TRIM RESET CURB EDGING, STRAIGHT, CIRCULAR ALL TYPES per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
67	1 LS	LARGE BRICK VENEER ENTRY WALL per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
68	1 LS	SMALL BRICK VENEER ENTRY WALL per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
69	1 LS	10' HIGH LOUVERED SCREEN WALL AND GATE per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
70	2 EACH	TEST PITS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
71	15 PMO	FIELD OFFICE per month,		
		_____	dollars	
		and _____cents	($_____)	($_____)
72	1 LS	MOBILIZATION per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
73	1 LS	MAINTENANCE AND PROTECTION OF TRAFFIC per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
74	2,100 SY	LOAM BORROW 4 INCHES DEEP per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
75	2,100 SY	SEEDING per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
76	260 SY	MULCH BED FURNISH AND SPREAD 4" DEPTH per square yard,		
		_____	dollars	
		and _____cents	($_____)	($_____)
77	42 EACH	TREES per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
78	85 EACH	SHRUBS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
79	917 EACH	GROUNDCOVER per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
80	1 LS	ELECTRICAL SITE LIGHTING per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
81	1 LS	ELECTRICAL SERVICE CONNECTION per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
82	1 LS	TELECOMMUNICATION SERVICE CONNECTION per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
83	30 SF	PARKING SIGNS per square foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)
84	1 EACH	REMOVE AND RESET DIRECTIONAL, WARNING, REGULATORY, SERVICE, AND STREET SIGNS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
85	2,600 LF	PAVEMENT MARKINGS per linear foot,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
86	1 LS	TEMPORARY PAVEMENT MARKINGS per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
87	7 EACH	ARROWS, WORDS, OR SYMBOLS PAVEMENT MARKINGS per each,		
		_____	dollars	
		and _____cents	($_____)	($_____)
88	1 LS	ICE RINK SYSTEM per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
89	1 LS	CONCESSION AND UTILITY BUILDING per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)
90	1 LS	SHADE STRUCTURE per lump sum,		
		_____	dollars	
		and _____cents	($_____)	($_____)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
91	1 ALL	TRAFFIC CONTROL - POLICE DETAIL per allowance, Twenty Thousand dollars and Zero cents	($20,000.00)	($20,000.00)
92	1 ALL	TRAFFIC CONTROL - FLAGPERSONS per allowance, Fifty Thousand dollars and Zero cents	($50,000.00)	($50,000.00)
93	1 ALL	TRAFFIC CONTROL - FLAGPERSONS OVERTIME per allowance, Ten Thousand dollars and Zero cents	($10,000.00)	($10,000.00)
94	1 ALL	TESTING OF MATERIALS AND METHODS per allowance, Twenty Thousand dollars and Zero cents	($20,000.00)	($20,000.00)
95	1 ALL	MISCELLANEOUS UTILITY RELOCATION ALLOWANCE per allowance, Twenty Thousand dollars and Zero cents	($20,000.00)	($20,000.00)

Item No.	Qty./Unit	Item with Unit Price Written in Words (and Figures)		Total in Figures
96	1 ALL	DISPOSAL OF CONTAMINATED SOIL per allowance, Twenty-Five Thousand dollars and Zero cents	($25,000.00)	($25,000.00)
97	1 ALL	OWNERS ALLOWANCE per allowance, Fifty Thousand dollars and Zero cents	($50,000.00)	($50,000.00)

* Indeterminate quantity for comparison of bids.
** This lump sum price for this item shall not exceed five percent (5%) of the total amount of the bid, excluding this item.

TOTAL OF BID:

_____

_____Dollars and _____ cents

$_____
Total Bid in Figures

ADD ALTERNATES

The Owner may elect to increase the scope of work by selecting, in order, any of the add alternates listed in the Bid Form, such that no single alternate will be considered unless every alternate preceding it on the list has been added to the Base Bid.

Bidders to be considered responsive shall submit bids on all add alternates listed in the Bid Form. The low bidder will be determined by comparison of the Base Bid and any alternates selected by the Owner. For comparison, the lump sum prices for add alternates shall include any and all deductions from the base bid scope of work as a result of the add alternate.

ADD ALTERNATE NO. 1 – ROADWAY RECLAMATION:

ALT1 1 LS ROADWAY RECLAMATION per lump sum,

_____ dollars

and _____cents ($_____) ($_____)

ADD ALTERNATE NO. 2 – CEMENT CONCRETE SIDEWALK:

ALT2 1 LS CEMENT CONCRETE SIDEWALK per lump sum,

_____ dollars

and _____cents ($_____) ($_____)

ADD ALTERNATE NO. 3 – FULL DEPTH RECONSTRUCTION:

ALT3 1 LS FULL DEPTH RECONSTRUCTION per lump sum,

_____ dollars

and _____cents ($_____) ($_____)

ADD ALTERNATE NO. 4 – ARCHITECTURAL IMPROVEMENTS:

ALT4 1 LS ARCHITECTURAL IMPROVEMENTS per lump sum,

_____ dollars

and _____cents ($_____) ($_____)

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, he will accept compensation as stipulated therein as full payment for such extra work.

If the Bid is accepted by the OWNER, the undersigned agrees to commence work under this Contract on a date to be specified in a written "Notice to Proceed" by the Owner and complete the entire work provided to be done under this Contract within the time stipulated in Table "A" of the AGREEMENT. If this bid is accepted by the Owner, the undersigned, also agrees to comply with the provisions of Section 1.14 “Liquidated Damages” and Table A of the Agreement.

As provided in the INFORMATION FOR BIDDERS, the bidder hereby agrees that he will not withdraw this BID, within 90 consecutive calendar days after the actual date of the opening of Bids, and that, if the Owner shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within fourteen (14) consecutive calendar days after notification that the AGREEMENT and other Contract Documents are ready for signature.

The bidder hereby acknowledges the receipt of, and has included in this BID, the following Addenda:

(To be filled in by Bidder, if Addendums are issues.)

Addendum No. _____, dated _____

Addendum No. _____, dated _____

Addendum No. _____, dated _____

The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

(SEAL) _____L.S.
(Name of Bidder)

By _____
(Signature and title of authorized representative)

_____
(Business address)

_____
(City and State)

Date _____

The bidder is a corporation incorporated in the State (or Commonwealth) of _____ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

(Note: If the bidder is a corporation, affix corporate seal and give below the names of its president treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address, if different from business address.)

The required names and addresses of all persons interested in the foregoing Bid, as Principals, are as follows:

_____

_____

_____

_____

(Add supplementary page if necessary)

CERTIFICATE OF AUTHORIZATION
FOR
BIDDING REPRESENTATIVE

(Note: Bidder must complete for certification of authorized representative signing Bid.)

At a duly authorized meeting of the Board of Directors of the

_____ held on _____, (Name of Corporation) (Date)

at which all the Directors were present or waived notice, it was voted that

_____ _____
(Name of Authorized Representative) (Title)

of this company shall be, and hereby is, authorized to execute bidding documents, contracts and bonds in the name and on behalf of said company, and to affix the corporate seal thereto, and such execution of any contract obligation in this company's name on its behalf of such

_____ under seal of the company shall be valid and binding upon this company. (Title)

A true copy

ATTEST_____

(Clerk)

Place of Business_____

_____

I hereby certify that I am the clerk of the _____
(Name of Corporation)

_____, that _____
(Name of Authorized Representative)

is the duly elected _____ of said company, and that the
(Title)

above vote has not been amended or rescinded and remains in full force and effect as of the date of this contract.

Corporate

_____Seal
(Clerk)

STATEMENT OF BIDDERS' QUALIFICATIONS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work, as bid upon, in accordance with the contract drawings and specifications. This statement must be notarized. All questions must be answered. Additional data may be submitted on separate attached sheets.

1. Name of Bidder_____

2. Permanent Main Office Address_____

3. Official Mailing Address for This Contract_____

4. When Organized?_____

5. Where Incorporated, If a Corporation _____ Year Incorporated _____

6. Is the Bidder licensed to do business in the State of Rhode Island Yes _____ No _____

7. In accordance with Paragraph 1.13.C (3) of Section 00200, provide a list of completed contracts demonstrating a minimum of ten (10) years related construction experience (Attach supplemental sheets as required):

   a) Contract Name/Location: _____
   Owner: _____
   Engineer: _____
   Contract Amount: _____ Completion Date: _____
   Description of Contract: _____

   b) Contract Name/Location: _____
   Owner: _____
   Engineer: _____
   Contract Amount: _____ Completion Date: _____
   Description of Contract: _____

   c) Contract Name/Location: _____
   Owner: _____
   Engineer: _____
   Contract Amount: _____ Completion Date: _____
   Description of Contract: _____

d) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

e) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

f) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

g) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

h) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

i) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

j) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

k) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ Completion Date: _____

Description of Contract: _____

8. In addition to the above listed projects, and in accordance with Paragraph 1.13.C (4) of Section 00200, list a minimum of five (5) construction projects the bidder has successfully completed (Attach supplemental sheets as required):

a) Contract Name: _____

Location: _____

Owner: _____

Owner Contact Name:_____

Tel. Number: _____ Email: _____

Engineer: _____

Engineer Contact Name: _____

Tel. Number: _____ Email: _____

Description of Contract: _____

_____

b) Contract Name: _____

Location: _____

Owner: _____

Owner Contact Name:_____

Tel. Number: _____ Email: _____

Engineer: _____

Engineer Contact Name: _____

Tel. Number: _____ Email: _____

Description of Contract: _____

_____

c) Contract Name: _____

Location: _____

Owner: _____

Owner Contact Name:_____

Tel. Number: _____ Email: _____

Engineer: _____

Engineer Contact Name: _____

Tel. Number: _____ Email: _____

Description of Contract: _____

_____

d) Contract Name: _____

Location: _____

Owner: _____

Owner Contact Name:_____

Tel. Number: _____ Email: _____

Engineer: _____

Engineer Contact Name: _____

Tel. Number: _____ Email: _____

Description of Contract: _____

_____

e) Contract Name: _____

Location: _____

Owner: _____

Owner Contact Name:_____

Tel. Number: _____ Email: _____

Engineer: _____

Engineer Contact Name: _____

Tel. Number: _____ Email: _____

Description of Contract: _____

_____

8. List contracts currently on hand (Attached supplemental sheets as required):

a) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ % Complete: _____ Completion Date: _____

Description of Contract: _____

b) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ % Complete: _____ Completion Date: _____

Description of Contract: _____

c) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ % Complete: _____ Completion Date: _____

Description of Contract: _____

d) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ % Complete: _____Completion Date: _____

Description of Contract: _____

e) Contract Name/Location: _____

Owner: _____

Engineer: _____

Contract Amount: _____ % Complete: _____Completion Date: _____

Description of Contract: _____

9. List any work the firm has failed to complete, state where and why.

_____

10. If you have ever defaulted on any contract, state where and why.

_____

11. List full names and residences of all principals (i.e.: Officers, Directors, Partners, Owners, etc.) interested in this bid.

Name _____ Title _____

Residence _____

Firm _____

Name _____ Title _____

Residence _____

Firm _____

Name _____ Title _____

Residence _____

Firm _____

Name _____ Title _____

Residence _____

Firm _____

12. State name(s), qualifications, and relevant experience of project staff and onsite resident supervisor(s) for this contract (Attach resumes as required).

_____

_____

_____

_____

_____

13. List major equipment available for this contract and identify ownership or rental.

_____

_____

_____

_____

_____

_____

_____

_____

_____

14. Will you furnish a detailed financial statement and other information, requested by the Owner? Yes _____, No _____.

15. List bank references for verifying financial ability of your company.

Name_____ Address_____

_____

_____

_____

16. The undersigned hereby authorized and requests any person, firm or corporation, to furnish all information requested by the Owner and/or its designated agents relative to the recitals comprising this Statement of the Bidder's Qualifications.

Dated at _____ this _____ day of _____20_____.

_____
(Name of Bidder)

By: _____

_____
(Title)

State of _____

County of _____

_____ being duly sworn in person, deposes and says

that he is _____ of _____,
(Title) (Name of Bidder)

that he is the firm's duly authorized agent to execute these contract documents, and that the

answers to the foregoing questions and all statements therein contained are correct and true.

Subscribed and sworn to before me this _____ day of _____ 20_____.

(SEAL)

_____
(Notary Public)

_____
(My Commission Expires)

STATEMENT OF PROPOSED SUBCONTRACTORS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work as bid upon, in accordance with the contract drawings and specifications. The Bidder must state the names and appurtenant information of all major subcontractors he proposed to use to complete the work as bid upon. Additional data may be submitted on separate attached sheets.

If subcontractors are not to be used to complete the Work and/or any portion thereof, as herein bid upon, the Bidder must acknowledge by writing "NONE" _____.

Description of Work_____

Approximate percentage of Total Bid_____

Proposed Subcontractor, Name_____

Address_____

Description of Work_____

Approximate percentage of Total Bid_____

Proposed Subcontractor, Name _____

Address _____

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Bidder to insert description of work, percentage of Total BID, and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest as respects this contract.

Date _____

Bidder

_____
(Name of Bidder)

By

_____
(Signature)

_____
(Title)

_____
(Business Address)

_____
(City and State)

STATE OF RHODE ISLAND

UTILIZATION OF MINORITY BUSINESS ENTERPRISES

This project is subject to Chapter 37-14.1 of the Rhode island General Laws, and regulations promulgated thereunder, which require that ten percent (15%) of the dollar value of work performed on the project be performed by minority business enterprises.

The Bidder, as part of the Bid, must submit a MBE PLAN outlining the manner in which he shall make a substantial and concerted effort to meet the ten percent (15%) MBE requirement and submit said plan to the Director of the Rhode Island Department of Administration for approval.

The plan shall include a projection of the number and types of subcontracts to be awarded and a projection of the number and types of MBE's likely to be available to compete for subcontracts from the prime contractor over the period of the project.

PROPOSED MBE PLAN

(All bidders must complete and submit this State Plan with Bid, attach additional sheets as needed)

Proposed MBE Subcontractor	Description of Work	Dollar Value ($)	% of Total Contract
Total MBE Participation		$	

Bidder to insert description of work, percentage of Total BID, and MBE subcontractors' names as may be required.

This is to certify that all names of the above-mentioned MBE subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed MBE subcontractors have any conflict of interest as respects this contract.

Date _____ Bidder

_____
(Name of Bidder)

By
_____
(Signature)

_____
(Title)

_____
(Business Address)

_____
(City and State)

other reason the appointment cannot be made from the original submitted lists. If for any reason an appointment cannot be made from the second set of lists, the AAA shall have the power to make the appointment from other members of the Panel without the submission of any additional lists.

1.49 DIRECT LABOR COST

A. Direct labor cost percentage for change orders shall be ____ percent. (Direct labor cost percent shall be established following award and prior to execution of the Contract).

1.50 MINORITY BUSINESS

A. The goal for minority business enterprise (MBE/WBE) participation for this contract is a minimum of **fifteen percent 15%)** MBE, on the basis of the total dollars paid. The Contractor shall take all affirmative steps necessary to achieve this goal, and shall provide reports documenting the portion of contract and subcontract dollars paid to minority businesses, and its efforts to achieve the goals, with each invoice submitted or at such greater intervals as specified by the **City of Warwick**. The Contractor shall require similar reports from its subcontractors.

1.51 TERMINATION FOR CONVENIENCE

A. This Agreement may be terminated by the Owner upon not less than seven days' written notice for the Owner's convenience. In the case of termination for convenience, the Owner shall be responsible for amounts due the Contractor for work performed through the date of termination, provided that the Contractor shall submit a request for payment in accordance with the provisions hereof. The Contractor shall have no other claim for payments due with respect to such termination including any claim for lost profits with respect to the balance of the project.

1.52 EQUAL EMPLOYMENT OPPORTUNITY, ANTIDISCRIMINATION AND AFFIRMATIVE ACTION

A. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

1.53 PRICE ADJUSTMENT – LIQUID ASPHALT AND DIESEL FUEL

A. The intent of this provision is to insure adequate and fair compensation for unpredictable and fluctuating costs which, from time to time, occur in the prices of Liquid Asphalt and Diesel Fuel. The price adjustment provisions are made part of the Contract to assure more realistic bidding and encourage competition.

B. The base price is the unit price of the material (FOB Terminal), as determined by the RIDOT, just prior to the project bid date.

C. The period price is the unit price of the material (FOB Terminal), as determined by the RIDOT, for any one month period following the bid date during which the price varies from the base price.

D. Price adjustment will be determined by the difference between the Period Price and the Base Price. Price adjustments will only be made at the end of each month during which; a) work was accomplished on the project; and b) prices increase or decrease by 15% or more. Price adjustments will not be allowed beyond the completion date of the Contract or an approved extension thereof.

E. Liquid Asphalt Cement. The asphalt content will be the optimum amount used in every ton of bituminous concrete mixture, as determined by the RIDOT Standard Specifications. The Price Adjustment will be determined by multiplying the total weight of liquid asphalt, in tons, by the difference between the base price and period price.

F. Diesel Fuel. The fuel for operating the plant, and the fuel for hauling and placing bituminous concrete, will equal the total number of tons of bituminous concrete placed during the month in question times a fuel adjustment factor of 2.5 gallons of fuel per ton of bituminous concrete. Tonnage of bituminous concrete placed during the month in question will equal the sum of the weights indicated on the Daily Automated Recordation printout slips provided at the plant. The Price Adjustment will be determined by multiplying the total volume of fuel, in gallons, by the difference between the base price and the period price.

G. No price adjustment will be made for Liquid Asphalt Cement or Diesel Fuel unless the amount of the adjustment exceeds $500.00 and more than 15% for the month.

SECTION 01020

ALLOWANCES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Contingencies and their respective value which have been established in the BID as an estimated lump sum to facilitate comparison of bids only.

B. Related Sections

1. Section 00300 - Bid Forms
2. Section 01025 - Measurement and Payment

1.02 ALLOWANCES

A. Bid Item No. 91 – Traffic Control - Police Detail

1. Coordinate and schedule uniformed traffic Police detail prior to commencement of work on public ways.

B. Bid Item No. 92 – Traffic Control – Flagpersons

1. Coordinate and schedule flagger persons prior to commencement of work on public ways.

C. Bid Item No. 93 – Traffic Control – Flagpersons Overtime

1. Coordinate and schedule flagger persons prior to commencement of work on public ways.

D. Bid Item No. 94 – Materials Testing

1. Provide services of an independent testing laboratory in accordance with Section 01410.

E. Bid Item No. 95 – Miscellaneous Utility Allowance

1. Provide the support, relocation, replacement or repair as shown on the Contract Documents and/or as directed by the Engineer.
2. Coordinate all work in advance with the respective utility company or department, and provide access to the site at the appropriate time the respective utility company and/or their contractors to prevent any delay in the work specified to be done under these Contract Documents.
3. In the event the respective utility company or department does not customarily perform relocation work on utilities under their jurisdiction, the Contractor shall perform all necessary work with his own forces experienced in the relocation work required.

F. Bid Item No. 96 – Disposal of Contaminated Soils

1. Legal disposal of soil in accordance with Section 02080.

G. Bid Item No. 97 – Owners Allowance

1. To be used at the Owner’s discretion.

H. Non-Allowance Utility Modifications/Relocations

1. In the event that a utility company, department or entity responsible for a utility called for to be modified or relocated does not customarily perform said work on utilities under their jurisdiction, the Contractor shall perform all necessary modification or relocation work with his own forces and/or subcontractors suitably experienced in the work required, and shall be compensated for same through other items in the contract, as specified. There shall be no allowances set aside for such work.
2. The performance of modification/relocation utility work by the Contractor, and not a utility company, department or entity responsible for said utility, shall not relieve the Contractor of the responsibility to adhere at all times to the applicable requirements of the utility company, department or entity with jurisdiction over the utility in question.

1.03 PAYMENT PROCEDURES

A. Under these items, the Contractor shall be reimbursed for charges for the allowances required and authorized by the Owner and Engineer, as detailed in Section 01025 - Measurement and Payment.

B. The price for allowances is established in Section 00300 as an estimated figure to facilitate comparison of bids only. The actual amount to be paid under this item shall be based on the actual invoices from the service provider(s) for services rendered by same, and shall constitute full compensation for all services rendered by said provider.

C. The lump-sum price for this item shall NOT include any costs associated with services rendered for routine utility markings, repair damages incurred as a result of the Contractor's operations, relocations of utilities done at the Contractor's request and/or convenience, or any other unauthorized services rendered by utility companies. The purpose of this item is strictly for the Contractor's reimbursement for those services authorized by the Owner or Engineer prior to the work being performed.

D. The Contractor will be paid based on the actual PAID invoiced amount from the authority in question as approved by the Engineer. If the total cost for such charges is greater or less than the allowance amount stated under this item of the BID, a debit or credit of the difference in cost shall be to the Owner.

E. The Contractor shall not be entitled to apply any mark-up (e.g. for handling, profit, or processing) to invoices submitted by service providers for payment under an allowance.

PART 2 PRODUCTS

2.01 MATERIALS

A. Materials as required and ordered by the Engineer shall conform to the Contract Documents and/or the standards and requirements of the service provider in question.

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. Measurement and payment criteria applicable to the Work performed under a unit price and lump sum payment method of Items listed in the BID.

B. RELATED SECTIONS

1. Section 00300 – Bid
2. Section 00500 – Agreement
3. Section 01020 – Allowances
4. Section 01026 – Schedule of Values

1.02 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements indicated in SECTION 00300 are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment.

B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit price contracted.

1.03 MEASUREMENTS OF QUANTITIES

A. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

B. Measurement by Area: Measured by square dimension using mean length and width or radius.

C. Linear Measurement: Measured by linear dimension, along the horizontal projection of the centerline or mean chord.

D. At appropriate points in this text, specifications are given with respect to measuring or estimating certain quantities and the sums due for the same. Except as otherwise provided, the Engineer shall determine the appropriate method for measuring and computing each quantity, and for estimating the sums due for the various kinds of work and material, using such methods, tools and degrees of precision as are suitable for the particular measurement, Item or computation. When so requested by the Engineer, assistance in measuring or determining quantities, shall be provided by furnishing the help of unskilled laborers on the site, by furnishing copies of invoices, or by other means.

E. For estimating quantities in which the computations of areas by analytic and geometric methods would be laborious, as determined by the Engineer, it is stipulated and agreed that

the planimeter shall be considered an instrument of precision adapted to the measurement of such areas and may be used for this purpose.

1.04 UNIT PRICES

A. Payment will be computed on the basis of the unit price bid in SECTION 00300 for each Item and the quantity of units completed. Unit prices are to include cost of all necessary materials, labor, equipment, overhead, profit and other applicable costs. (See Par. 1.06, this Section.)

1.05 LUMP SUM PRICES

A. Payment will be computed on the basis of the percentage of work completed on each Item in the contract BID as determined by the Engineer. Lump sum prices are to include the cost of all necessary materials, labor, equipment, overhead, profit and other applicable costs. (See Par. 1.06, this Section.)

B. The Contractor's breakdown (submit under SECTION 01026) of the lump sum bid will be used only as a guide to determine the percentage of completion.

1.06 PRICES INCLUDE

A. The prices stated in the Proposal include full compensation not only for furnishing all the labor, equipment and materials needed for, and for performing the work and constructing the structures (including any incidental items necessary to complete to work) required by the Contract, but also for assuming all risks of any kind for expenses arising by reason of the nature of the soil, groundwater, or the action of the elements; for all excavation and backfilling; for the removal of and delay or damage occasioned by trees, stumps, tracks, pipes, ducts, timber, masonry or other obstacles; for removing, protecting, repairing, or restoring, without cost to the Owner, all pipes, ducts, drains, sewers, culverts, conduits, curbs, gutters, walks, fences, tracks, or other obstacles, road pavements and other ground surfacing whether shown on plans or not for draining, damming, pumping or otherwise handling and removing, without damage to the work or to other parties, and without needless nuisance, all water or sewage from whatever source which might affect the work or its progress, or be encountered in excavations made for the work; for furnishing, inserting and removing all sheeting, shoring staging, cofferdams, etc.; for all signs (up to 100 square feet), fencing, lighting, watching, guarding, temporary surfacing, bridging, snow removal, etc., necessary to maintain and protect travel on streets, walks and private ways; for making all provisions necessary to maintain and protect buildings, fences, poles, trees, structures, pipes, ducts and other public or private property affected or endangered by the work; for the repair or replacement of such things if injured by neglect of such provisions; for removing all surplus or rejected materials as may be directed; for replacing, repairing and maintaining the surfaces of streets, highways, public and private lands if and where disturbed by work performed under the Contract or by negligence in the performance of work under the Contract; for furnishing the requisite filling materials in case of any deficiency or lack of suitable materials; for obtaining all permits and licenses and complying with the requirements thereof, including the cost of furnishing any security needed in connection therewith; for any and all expenses on account of the use of any patented device or process; for protection against inclement or cold weather; for all expenses incurred by or on account of the suspension; interruption or discontinuance of work; for the cost of the surety bonds and adequate insurance; for all taxes, fees, union dues, etc., for which the Contractor may be or become liable, arising out of his operations incidental to the Contract; equipment on the site and away therefrom; for providing a field office and its appurtenances and for all general and incidental

expenses; for tools, implements and equipment required to build and put into good working order all work contemplated by the Contract; for maintaining and guaranteeing the same as provided; and for fulfilling all obligations assumed by the Contractor under the Contract and its related documents.

B. The Owner shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything performed and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

1.07 PAYMENT

A. In general, payment will be made for all Contract work satisfactorily completed and accepted through the end of the previous month. The payment will include any additional work which has been completed and approved and change order work agreed upon by the Owner and Contractor which has been completed and approved (See SECTION 00500).

B. Each application for payment, up to the date of substantial completion as determined by the Engineer, will indicate the total value of a minimum five percent (5%) retainage to be held by the Owner, based on the total value of all work completed under the contract and approved for payment to-date. The rate of retainage subsequent to the established date of substantial completion may, at the Owner's approval, be reduced from five percent (5%) to two percent (2%), and a portion of the monies held as retainage at the five percent (5%) rate may be requested by and released to the Contractor as part of his application for payment in an amount which results in a balance of two percent (2%) retainage being held by the Owner.

B. Retainage in the amount of two percent (2%) of the value of all work completed under the contract shall be retained by the Owner for a warranty period of not less than one (1) year from the date of project completion as determined by the Engineer (not to be construed as substantial completion), at or after which time the Contractor may request the release of final retainage in full, provided that all work has been satisfactorily completed and adequately performed during the warranty period. The Owner shall be the sole judge of whether work has been satisfactorily completed and has adequately performed.

D. Monthly applications for payment shall also indicate the reduction or increase to the total Contract price when an approved change order results in a net reduction or net increase in the cost and quantity of work to be performed under the Contract.

E. Special billings and charges against the Contract as credit or payment to the Owner, that are not for change order work, may be subtracted from monies due on any monthly application for payment, but shall not serve to reduce the total Contract price.

F. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit price for work which is incorporated in or made necessary by the Work.

1.08 BID ITEM METHOD OF MEASUREMENT AND BASIS OF PAYMENT

BID ITEM NO. 1 CUTTING, REMOVING, AND DISPOSING ISOLATED TREES AND STUMPS

A. METHOD OF MEASUREMENT

1. The quantity of this item to be paid for shall be measured per each, based on the actual number of trees removed and disposed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.
2. This work includes cutting, removing, and disposing designated isolated trees and stumps in excess of 4 inches in diameter (measured at 4" above existing ground) that are located within the general area of construction.

B. BASIS OF PAYMENT

1. The unit price for these items shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. This work includes cutting, removing, and disposing designated isolated trees and stumps in excess of 4 inches in diameter (measured at 4" above existing ground) that are located within the general area of construction.
    b. Work associated with clearing and grubbing is paid for under **Bid Item No. 9.**
    c. Furnishing and installing backfill material including compacting the material as specified;
    d. Any and all other work, whether direct or incidental, associated with the removal and disposal of trees not specifically identified herein.

BID ITEM NO. 2 REMOVE AND DISPOSE SIDEWALKS AND DRIVEWAYS

A. METHOD OF MEASUREMENT

1. The quantity of remove and dispose sidewalks and driveways to be paid for under this item shall be measured by the number of square yards of sidewalks and driveways, based on the actual square yards of sidewalk and driveway removed in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Sawcutting and excavation required for removing and legally disposing of sidewalks and driveways;
    b. Furnishing and installing backfill gravel borrow material including compaction as specified and any fine grading required;
    c. Cutting all edges in front of edgestone;
    d. No separate payment will be made for saw cutting.
    e. Other work, whether direct or incidental, associated with the removal and disposal of sidewalks, not specifically identified herein.

BID ITEM NO. 3 REMOVE AND DISPOSE PIPE - ALL SIZES

A. METHOD OF MEASUREMENT

1. The quantity of remove and dispose pipe to be paid for under this item shall be measured by the linear foot taken along the centerline of the removed and disposed drain and/or sewer pipe.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Excavation, removal, and legally disposing of the existing drain and sewer pipe; including any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete, concrete base or reinforced concrete base (if encountered), masonry or concrete walls;
    b. The work shall include any temporary excavation support, dewatering, furnishing and installing gravel backfill material including compacting the material as specified;
    c. Removing and legally disposing of any accumulated debris within the pipe;
    d. Any and all other work, whether direct or incidental, associated with the removal and disposal of the existing pipe not specifically identified herein.

BID ITEM NO. 4 REMOVAL AND DISPOSAL OF PAVEMENT

A. METHOD OF MEASUREMENT

1. The quantity for removal and disposal pavement to be paid for under this item shall be measured by the square yard, based on the actual square yards of pavement removal, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Removal of all types of existing pavement, including berm, in its entirety to the limits as indicated on the plan, or as directed by the engineer;
    b. Any excess material removal required to keep the existing roadway grade and allow for the installation of new base and surface bituminous concrete shall be paid for under this item;
    c. Legally disposing of pavement material at an off-site location;
    d. Calcium chloride and water for roadway dust control;
    e. No separate payment will be made for saw cutting;
    f. Other work, whether direct or incidental, associated with existing pavement removal and disposal, not specifically identified herein.

BID ITEM NO. 5 REMOVAL AND DISPOSAL OF CURBING

A. METHOD OF MEASUREMENT

1. The quantity for removal and disposal of curbing to be paid for under this item shall be measured by the linear foot as measured along the centerline of all curb removed, indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAVEMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Sawcutting, excavation, backfilling, and any temporary patching required for removing and legally disposing of the curb, in its entirety to the limits as indicated on the plan, or as directed by the engineer;
    b. Any and all other work, whether direct or incidental, associated with the removal and disposal of concrete curbing not specifically identified herein.

BID ITEM NO. 6 REMOVAL AND DISPOSAL OF DRAINAGE AND UTILITY STRUCTURES

A. METHOD OF MEASUREMENT

1. The quantity of remove and dispose drainage and utility structures to be paid for under this item shall be measured per each, based on the actual number of existing structures removed and disposed, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Excavation, removal and legally disposing of the existing structures; including any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete and concrete base or reinforced concrete base, and masonry or concrete walls;
    b. The work shall include any temporary excavation support, dewatering, furnishing and installing backfill material including compacting the material as specified;
    c. Removing and legally disposing of any accumulated debris within the structure;
    d. Removing and legally disposing of existing castings;
    e. Protection and support of existing utilities, maintaining flows of all utilities, and repairing and/or replacing damaged or impacted existing utilities not specifically included for payment under other items;
    f. Any and all other work, whether direct or incidental, associated with removing and disposing drain structures not specifically identified herein.

BID ITEM NO. 7 REMOVAL AND DISPOSAL OF FENCES AND RAILLINGS

A. METHOD OF MEASUREMENT

1. The quantity of removal and disposal of fences and railings to be paid for under this item shall be measured per linear feet of fence and railing removed and disposed, including all gates and appurtenances, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. Payment for work to be done under this item will be by the unit price bid per linear foot, which will be full compensation for the satisfactory removal and disposal of existing fences and railings of all types and sizes, including all posts, gates, and concrete bases, and for furnishing all labor, tools, equipment and any other incidentals to complete the work. The contract unit price shall also include excavation and disposal of existing foundations and the supplying and placing of compacted gravel backfill where foundations and posts are removed and restoration of surface for which no additional payment will be made.
2. Any and all other work, whether direct or incidental, associated with removing and disposing signs not specifically identified herein.

BID ITEM NO. 8 REMOVE AND DISPOSE DIRECTIONAL, WARNING, REGULATORY , SERVICE AND STREET SIGNS

A. METHOD OF MEASUREMENT

1. The quantity of remove and dispose signs to be paid for under this item shall be measured per each, based on the number of signs removed and disposed, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. Payment for work to be done under this item will be by the unit price bid per each, which will be full compensation for the satisfactory removal and disposal of existing signs, posts, and concrete base, and for furnishing all labor, tools, equipment and any other incidentals to complete the work. The contract unit price shall also include excavation and disposal of existing foundations and the supplying and placing of compacted gravel backfill where foundations and posts are removed and restoration of surface for which no additional payment will be made.
2. Any and all other work, whether direct or incidental, associated with removing and disposing signs not specifically identified herein.

BID ITEM NO. 9 SITE PREPARATION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
   a. Furnishing, placing, relocating, maintaining, removing and disposing of erosion control measures, including but not limited to catch basin inserts, compost filter socks, sediment control traps, construction entrances, and dewatering basins throughout the duration of the Work, as indicated on the Drawings or as otherwise directed by the Engineer;
   b. Furnishing, placing, relocating, maintaining, removing and disposing of any temporary gravel or crushed stone access roads or ways created within the project limits;
   c. Furnishing, placing, relocating, maintaining, removing and disposing of any temporary stockpile and concrete washout areas;
   d. Removing and stacking of the existing wheel stops.

e. This work includes clearing and grubbing, cutting, removing from the ground, and disposing trees less than 4 inches in diameter as measured 4 inches above the ground, stumps, brush, shrubs, hedges, roots, and other vegetation that occurs within the project limits.
f. All labor, materials and equipment needed to protect trees and shrubs during construction as indicated on the Drawings or as otherwise directed by the Engineer. The unit price shall also include costs to remove and dispose of tree and shrub protection once construction is complete;
g. Any and all other work, whether direct or incidental, associated with site preparation not specifically identified herein.

BID ITEM NO. 10 MANAGEMENT OF EXCESS SOIL

A. METHOD OF MEASUREMENT

1. The quantity of soil to be paid for under this item shall be measured per cubic yard, and shall be the actual amount of excess soil segregated and stockpiled, in accordance with the specifications and details, at the direction of the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing, placing, relocating, maintaining, removing and disposing of the temporary stockpile area, including all required erosion control measures and polyethylene sheeting;
b. Stockpiled excess soil shall be sampled by the Contractor at a minimum frequency of one sample per 500 cubic yards and analyzed by a laboratory certified by the State of Rhode Island in conformance with Section 02080.
c. Any and all other work, whether direct or incidental, associated with management of excess soil not specifically identified herein and as specified in Section 02080.

BID ITEM NO. 11 GROUND IMPROVEMENTS

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. The Lump Sum price for ground improvements will constitute full payment for designing and installing the approved ground improvements by a specialty contractor, as well as related performance testing and quality control during construction, as specified in Section 02999 of the specifications, in accordance with the Plans and/or directed by the Engineer.
b. Removal and legal disposal of all remnant structures, foundations, and debris encountered beneath the proposed building footprint in accordance with the Geotechnical Report and Section 02999.

BID ITEM NO. 12 ABANDON-IN-PLACE EXISTING UTILITY PIPES

A. METHOD OF MEASUREMENT

1. The quantity of abandon-in-place utility pipes to be paid for under this item shall be measured by the linear foot taken along the centerline of the abandoned pipe.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation, excavation support, backfill material and compaction;
   b. Cutting and plugging pipe ends;
   c. Plugging existing pipe or pipe opening at drain structure;
   d. Filling the existing pipeline with controlled density fill, complete-in-place, as indicated on the Drawings or as needed and specified by the Engineer;
   e. Any and all other work, whether direct or incidental, associated with the abandonment-in-place of the existing culvert not specifically identified herein.

BID ITEM NO. 13 ABANDON-IN-PLACE EXISTING UTILITY STRUCTURES

A. METHOD OF MEASUREMENT

1. The quantity of abandon utility structures to be paid for under this item shall be measured per each, based on the actual number of existing structures abandoned, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Filling structure with appropriate material;
   b. Covering and plugging all inlets/outlets;
   c. Demolishing, removing and disposing structure below existing grade including frame and cover and/or grate;
   d. Backfilling with gravel borrow, compacting, finishing surface with material (asphalt, concrete, loam and seed, as appropriate) that matches the surrounding surface material;
   e. Resetting curb;
   f. Restoration of any disturbed landscaping areas to existing conditions;
   g. All other requirements for abandoning existing utility structures as specified in Section 02750.
   h. Any and all other work, whether direct or incidental, associated with removing and disposing drain structures not specifically identified herein.

BID ITEM NO. 14 ROCK EXCAVATION MECHANICAL

A. METHOD OF MEASUREMENT

1. The quantity of rock excavation mechanical to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of rock removed, measured in place before excavation, within the payment limits indicated on the Drawings and as defined in the

Specifications, unless rock excavation beyond such limits has been authorized in writing by the Engineer, in which case, measurements shall be made to the authorized limits.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Removal and proper disposal of boulders in excess of 1 C.Y. in volume (measurement and volume determination to be made by Engineer);
   b. Breaking or fracturing of solid contiguous rock by mechanical means (rock hammer, jackhammer); blasting of rock shall not be allowed under any circumstances;
   c. Excavation of all broken rock to the authorized limits as determined by the Engineer;
   d. Replacement of excavated rock with sand, gravel or crushed stone as specified and detailed on the Drawings, at the direction of the Engineer;
   e. Proper disposal of excavated rock at an off-site location;
   f. Any and all other work, whether direct or incidental, associated with the excavation and disposal of rock not specifically identified herein.

2. Where rock is encountered, it shall be uncovered but not excavated until measurements have been made by the Engineer, unless in the opinion of the Engineer, satisfactory measurements can be made in some other manner.

3. Excavated rock which has not yet been disposed of shall not be included for payment.

4. For bid items which include incidental earth excavation, the bidder shall include in his unit prices the cost of performing the entire excavation as earth. The unit price for this item is intended to represent the difference between the cost of rock excavation & disposal and the cost of earth excavation which would have taken place as part of the other bid items. The unit price for this item shall be paid in addition to the incidental earth excavation costs included in the other items; no adjustment to the unit prices for other items which include earth excavation shall be made in the event that rock is encountered and excavated in lieu of earth.

BID ITEM NO. 15 UNCLASSIFIED EXCAVATION

A. METHOD OF MEASUREMENT

1. The quantity of unclassified excavation to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of materials excavated and either re-used in the Work or disposed of at an off-site location which are not incidental to the performance of other work items.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation of all materials (except rock), including but not limited to silt, sand, gravel or other soils, existing or temporary pavements, berms, curbs, and any other materials;
   b. Stockpiling and re-handling excavated materials for reuse on other portions of this project, or removing and legally disposing of excavated materials at an off-site location

(the Contractor shall locate and secure an acceptable disposal site for all excess materials);

c. Any and all other work, whether direct or incidental, associated with excavation of unclassified materials not specifically identified herein.

2. Excess soil shall be tested to determine whether the materials may/shall be re-used or disposed of off-site; there shall be no difference in the unit price for materials which are re-used on-site and materials which are disposed of off-site.

BID ITEM NO. 16 COMMON BORROW
BID ITEM NO. 17 GRAVEL BORROW

A. METHOD OF MEASUREMENT

1. The quantity of common borrow or gravel borrow to be paid for under these items shall be measured per cubic yard, based on the total number of cubic yards of common borrow or gravel borrow installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing, placing and compacting common borrow or gravel borrow to the relative density required for the specific location or application for which it is being used.
b. Any and all other work, whether direct or incidental, associated with furnishing and placing gravel borrow not specifically identified herein.

2. Common borrow or gravel borrow outside the limits of normal excavation shall be furnished, placed, and compacted at the Contractor's expense, and no payment under this item will be made for such common borrow or gravel.

3. Common borrow or gravel borrow used to backfill rock excavations will not be measured for payment under this Item, but shall be included in the unit price for "Rock Excavation Mechanical."

BID ITEM NO. 18 CRUSHED STONE

A. METHOD OF MEASUREMENT

1. The quantity of crushed to be paid for under this item shall be measured per square yard, based on the total number of square yards of crushed stone installed to the depth indicated on the plans, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing, placing and compacting crushed stone to the relative density required for the specific location or application for which it is being used.

b. Any and all other work, whether direct or incidental, associated with furnishing and placing gravel borrow not specifically identified herein.

BID ITEM NO. 19 CLASS 12.5 HMA BASE COURSE

A. METHOD OF MEASUREMENT

1. The quantity of HMA base course to be paid for under this item shall be measured by the ton, based on the tons of HMA base course installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing, placing and compacting HMA base course to the relative density required for the specific location or application for which it is being used;
b. Thoroughly sweeping of all surfaces to be paved; and constructing the pavement complete, as specified and as indicated and not specifically included for payment under other items;
c. Asphalt emulsion tack coat shall be paid for under this item;
d. Trimming and fine grading will be paid for under this item;
e. Any full-depth sawcutting of bituminous pavement required to complete the work shall be paid for under this item, no separate payment shall be made;
f. Furnish, prepare, and apply joint sealer;
g. Other work, whether direct or incidental, associated with furnishing and placing HMA base course not specifically identified herein.

BID ITEM NO. 20 CLASS 9.5 HMA SURFACE COURSE

A. METHOD OF MEASUREMENT

1. The quantity of HMA surface course to be paid for under this item shall be measured by the ton, based on the tons of HMA surface course installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing, placing and compacting HMA surface course to the relative density required for the specific location or application for which it is being used;
b. Thoroughly sweeping of all surfaces to be paved; and constructing the pavement complete, as specified and as indicated and not specifically included for payment under other items;
c. Trimming and fine grading, including but not limited to gravel, dirt, and/or crushed stone;
d. Asphalt emulsion tack coat shall be paid for under this item;
e. Any full-depth sawcutting of bituminous pavement required to complete the work shall be paid for under this item, no separate payment shall be made;
f. Furnish, prepare, and apply joint sealer;

g. Raising and lowering of castings and gate boxes;
h. Adjustment of structures and/or gate boxes to grade shall be paid for under this item, no payment will be made under a separate item for this work;
i. The Contractor shall be responsible to ensure that at the end of final paving operations, flow to drainage structures has been re-established and that no isolated depressions remain. There shall be no separate payment for this provision; it shall be considered incidental to paving operations;
j. Other work, whether direct or incidental, associated with furnishing and placing HMA surface course not specifically identified herein.

BID ITEM NO. 21 TEMPORARY TRENCH PAVEMENT

A. METHOD OF MEASUREMENT

1. The quantity of Temporary Trench Pavement to be paid for under this item shall be equal to the actual amount of bituminous concrete, furnished and installed to the depths indicated, and measured by the ton to the trench payment limits as indicated on the Drawings.

2. Temporary Pavement for driveways is to be paid for under this item as directed by Engineer.

3. Temporary pavement required and installed beyond the specified payment limits shall not be measured for payment.

B. BASIS OF PAYMENT

1. The quantity of temporary pavement to be paid for under this item shall be equal to the actual amount of bituminous concrete, furnished and installed to the depths indicated, and measured by the ton to the payment limits as indicated on the Drawings.
2. The unit price shall include the 18 inches of Gravel Borrow as shown in the Drawing Detail;
3. The unit price shall constitute full compensation for furnishing and installing the temporary pavement, complete as specified and/or detailed on the Drawings.
4. There will be no separate payment for the work of removing the temporary bituminous concrete.

BID ITEM NO. 22 PERMANENT TRENCH PAVEMENT

A. METHOD OF MEASUREMENT

1. The quantity of Permanent Trench Pavement to be paid for under this item shall be equal to the actual amount of bituminous concrete, furnished and installed to the depths indicated, and measured by the ton to the trench payment limits as indicated on the Drawings.

B. BASIS OF PAYMENT

1. The quantity of permanent pavement to be paid for under this item shall be equal to the actual amount of pavement, furnished and installed to the depths indicated, measured by the square yard of trench pavement actually installed, as indicated on the Drawings or as directed by the Engineer.

2. The unit price for permanent trench pavement shall constitute full compensation for furnishing and installing the bituminous base course and bituminous surface course.

3. The unit price shall include sawcutting, removal and disposal of any existing pavement, excavation to the required depth, grading and compaction of the gravel base course; special compaction requirements; matching existing pavement; casting and valve box adjustments; applying required prime coats and tack coats; hand work necessary for driveways; and constructing the pavement complete, as specified and as indicated on the Drawings and not specifically included for payment under other items.

BID ITEM NO. 23 FULL DEPTH RECLAMATION WITH CALIUM CHLORIDE

A. METHOD OF MEASUREMENT

1. The quantity of full depth reclamation to be paid for under this item shall be measured per square yard, based on the actual number of square yards of reclaimed base course installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Crushing, pulverizing, blending, spreading, grading, compacting, mixing of any additional aggregate material required to meet the gradation requirements specified under this item, gradation and compaction testing, moving the processed material to allow for modification to the remaining sub-base and/or sub-grade, moving of reclaimed material from one location to another within the project, grading and compacting the sub-base and/or subgrade and that resulting from the removal of unsuitable material, calcium chloride and water for roadway dust control and any incurred costs resulting if the Contractor's decides to process off site;
    b. Referencing of structures and gate boxes, removing castings and gate boxes and lowering and plating of structures and gate boxes. The raising of gate boxes and castings to base course grade and surface course grade shall also be included for payment under this Item. It shall also include full compensation for all labor, tools, equipment, materials, and all incidental work necessary to complete the work as specified;
    c. Removal and disposal of unsuitable material shall be paid for under Unclassified Excavation;
    d. No separate payment will be made for saw cutting;
    e. No separate payment will be made for the removal of surplus reclaimed material or any sub-base/sub-grade material necessary for meeting existing grade or grade changes;
    f. Other work, whether direct or incidental, associated with furnishing and placing reclaimed base course not specifically identified herein.

BID ITEM NO. 24 ADDITIONAL CONCRETE, ALL CLASSES, AS DIRECTED

A. METHOD OF MEASUREMENT

1. The quantity of additional concrete to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of additional concrete installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing concrete forming;
    b. Furnishing and installing reinforcing steel, as directed by the Engineer and as specified;
    c. Furnishing and placing additional concrete, regardless of class or strength, as directed by the Engineer and as specified;
    d. Watering, covering, or otherwise protecting concrete during curing;
    e. Stripping and stockpiling or disposing of forming upon adequate curing of concrete;
    f. Any and all other work, whether direct or incidental, associated with furnishing and placing additional concrete not specifically identified herein.

2. No payment shall be made under this item for concrete used as indicated on the Drawings in work for which designated payment items have been provided elsewhere, nor for concrete used to backfill unauthorized excavations made by the Contractor.

BID ITEM NO. 25 ADDITIONAL CONTROLLED DENSITY FILL, AS DIRECTED

A. METHOD OF MEASUREMENT

1. The quantity of additional controlled density fill to be paid for under this item shall be measured per cubic yard, based on the total number of cubic yards of additional controlled density fill installed, complete-in-place, as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and placing additional controlled density fill, as directed by the Engineer and as specified;
    b. Procedures, materials and equipment to protect the control density fill until set-up;
    c. Any and all other work, whether direct or incidental, associated with furnishing and placing additional controlled density fill not specifically identified herein.

BID ITEM NO. 26 REINFORCED CONCRETE PIPE – 12 INCH
BID ITEM NO. 27 REINFORCED CONCRETE PIPE – 15 INCH
BID ITEM NO. 28 REINFORCED CONCRETE PIPE – 18 INCH
BID ITEM NO. 29 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 6 INCH
BID ITEM NO. 30 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 8 INCH
BID ITEM NO. 31 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 10 INCH
BID ITEM NO. 32 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 12 INCH
BID ITEM NO. 33 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 18 INCH
BID ITEM NO. 34 SMOOTH INTERIOR CORRUGATED POLYETHLENE PIPE – 30 INCH
BID ITEM NO. 35 DUCTILE IRON PIPE – 12 INCH

A. METHOD OF MEASUREMENT

1. The quantities of drain pipe to be paid for under these items shall be measured by the linear foot along the horizontal projection of the centerline of the completed drain, excluding the length of manholes and catch basins, measured to the limits of the manhole inside diameter or the catch basin inside face of wall.

B. BASIS OF PAYMENT

1. The unit prices for these items shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing the gravity drains, complete-in-place, including all excavation, excavation support, disposal of material, furnishing and installing gravel borrow backfill, crushed stone for pipe bedding/backfill material, compacting materials as specified, and all incidental work not specifically included for payment under other items;
    b. Excavation shall also include any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete, masonry or concrete walls or reinforced concrete base (if encountered);
    c. Protection and support of existing utilities, maintaining flows of all utilities, and repairing and/or replacing damaged or impacted existing utilities not specifically included for payment under other items;
    d. Implementing safety precautions, including designing and implementing excavation support;
    e. Designing, furnishing, installing, operating, maintaining and removing temporary dewatering systems required to lower and control water levels and hydrostatic pressures during construction, as well as the appropriate disposal of pumped water;
    f. Furnishing and installing tees, cleanouts and other adapters or couplings required to install the system complete-in-place, as specified and indicated on the Drawings;
    g. Connecting new gravity drains to the new/existing gravity drain structures or system, including all excavation, modifications to existing structures (including but not limited to form work, coring, cutting, concrete work, masonry and bricks), modifying and/or removing existing pipe (all materials and sizes), and furnishing and installing adapters and couplings;
    h. Any and all other work, whether direct or incidental, associated with the furnishing and installation of the gravity drains not specifically identified herein.

BID ITEM NO. 36 WATER SERVICE CONNECTION AND HOT BOX ASSEMBLY

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals need complete the following:

    a. Furnishing and installing the water service connection and hot box assembly, as depicted on the Drawings or as directed or required by the Engineer and/or utility provider, including but not limited to joint-restraint fittings and thrust blocks, bends, tees, gate valves, reducers, couplings and adapters, backflow preventer, concrete pad, utility supports, above grade heated enclosure, and all other work as shown on the Drawings or described in the Specifications;
    b. Pressure testing, disinfection and sampling performed by separate independent and qualified companies and laboratories;
    c. Sawcutting existing pavement in area of water service connection;
    d. Removing and disposing of excavated bituminous concrete;
    e. Excavation, trench support and dewatering;

f. Removal and disposal of excess material;
g. Coordination with Kent County Water Authority (KCWA) for all water utility work associated with the project.
h. This item includes the $5.00 per linear foot inspection fee to be paid in full to KCWA prior to construction commencement.
i. Excavation and disposal of material, furnishing and installing crushed stone and gravel borrow pipe bedding/backfill material, and backfilling and compacting as specified, including all incidental work not specifically included for payment under other items;
j. Any and all other work, whether direct or incidental, associated with the water service connection and hot box assembly not specifically identified herein.

BID ITEM NO. 37 GAS SERVICE CONNECTION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals need complete the following:

a. Installation (by others) of natural gas underground service as depicted on the Drawings, as required by field conditions, or as directed or required by the Engineer and/or utility provider;
b. Coordination with the utility provider for the installation of the gas service, connection to existing stub, and meter pad;
c. Gas meter pad and utility bollards;

1. The utility provider (RI Energy) shall use their own forces and or contractors to perform all gas service work. The work to be performed by the utility provider and/or its contractors shall not include surface restoration of any kind; temporary and permanent restoration of areas where gas relocations are performed, this shall be performed by the Contractor and included as part of the lump sum price.

2. Invoices for said work shall be provided by RI Energy to the Contractor, who will include same with his payment requisitions.

BID ITEM NO. 38 SDR-35 PVC IRRIGATION SLEEVE – 3 INCH

A. METHOD OF MEASUREMENT

1. The quantity of PVC sleeve to be paid for under this item shall be the actual amount of PVC sleeve furnished and installed, measured by the linear foot along the horizontal projection of the centerline of the sleeve, complete as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing the irrigation sleeve, complete-in-place, including all excavation and disposal of materials, furnishing and installing crushed stone, backfill material, and compacting as specified;
b. Furnishing and installing all necessary adapters, couplings and fittings;
c. Sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous, concrete or reinforced concrete base (if encountered);
d. Any and all other work, whether direct or incidental, associated with the furnishing and installation of the irrigation sleeve not specifically identified herein.

BID ITEM NO. 39 SDR-35 PVC SEWER – 4 INCH
BID ITEM NO. 40 SDR-35 PVC SEWER – 6 INCH

A. METHOD OF MEASUREMENT

1. The quantity of gravity sewer to be paid for under this item shall be measured by the linear foot along the horizontal projection of the centerline of the completed sewer excluding the length of manholes measured to the limits of the manhole inside diameter.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing the gravity sewer, complete-in-place, including all excavation and disposal of materials, furnishing and installing geotextile filter fabric, furnishing and installing crushed stone and gravel borrow pipe bedding, backfill material, and compacting as specified;
b. The work shall include all necessary adapters and fittings for re-connection of existing or new lateral services to the new sanitary line including fittings and couplings. Connecting new gravity sewers to new or existing gravity sewer structures or system, modifications to existing structures (including but not limited to form work, coring, cutting, concrete work, masonry and bricks), and furnishing and installing adapters and couplings;
c. Sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous, concrete or reinforced concrete base (if encountered);
d. Protection and support of existing utilities, maintaining flows of all utilities, providing sanitary by-pass pumping, and repairing and/or replacing damaged or impacted existing utilities not specifically included for payment under other items (Contractor to test existing sanitary sewer flow prior to providing sanitary sewer by-pass);
e. Implementing safety precautions, including designing and implementing excavation support;
f. Designing, furnishing, installing, operating, maintaining and removing temporary dewatering systems required to lower and control water levels and hydrostatic pressures during construction, as well as the appropriate disposal of pumped water;
g. Any and all other work, whether direct or incidental, associated with the furnishing and installation of the gravity sewers not specifically identified herein.

BID ITEM NO. 41 SANITARY SEWER MANHOLE

A. METHOD OF MEASUREMENT

1. The quantity of sewer manholes to be paid for under this item shall be measured per each, based on the actual number of sewer manholes furnished and installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing, complete-in-place, precast concrete sewer manholes, including sawcutting, temporary excavation support, dewatering, excavation & disposal of material, furnishing and installing bedding material, construction of inverts, base sections, risers, cones or flat slab tops (as required), watertight frames and covers, backfill with gravel borrow and all other work and materials required to complete the work as indicated on the Drawings and as specified.
   b. Any and all other work, whether direct or incidental, associated with the construction of the sewer manholes not specifically identified herein.

BID ITEM NO. 42 PRECAST CONCRETE DROP INLET STANDARD 4.5.1
BID ITEM NO. 43 PRECAST CATCH BASIN 4’ DIAMETER STANDARD 4.4.0
BID ITEM NO. 48 NDS – CATCH BASIN (OR EQUAL)

A. METHOD OF MEASUREMENT

1. The quantity of drop inlets and catch basins to be paid for under this item shall be measured per each, based on the actual number of drop inlets or catch basins installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing, complete-in-place, drop inlets and catch basins, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, furnishing and installing crushed stone bedding material, construction of inverts, base sections, risers, cones or flat slab tops (as required), frames and grates, frames and covers (as required), backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;
   b. Where applicable, the unit price for this item shall also include full compensation for furnishing all labor, equipment, materials and incidentals necessary for installing new curb inlets or aprons as indicated on the Drawings or as directed by the Engineer, including excavation, backfill, compaction, bedding material, concrete formwork and placement of concrete, matching line and grade of existing curb, and all other work incidental to installation of the new curb inlets and not specifically included for payment under other items;
   c. Any and all other work, whether direct or incidental, associated with the construction of the drop inlets and catch basins not specifically identified herein.

BID ITEM NO. 44 PRECAST MANHOLE 4’ DIAMETER STANDARD 4.2.0
BID ITEM NO. 45 PRECAST MANHOLE 5’ DIAMETER STANDARD 4.2.1
BID ITEM NO. 46 PRECAST DIVERSION MANHOLE 4’ DIAMETER
BID ITEM NO. 47 PRECAST DIVERSION MANHOLE 5’ DIAMETER
BID ITEM NO. 49 NDS – MANHOLE (OR EQUAL)

A. METHOD OF MEASUREMENT

1. The quantity of drain manholes and diversion manholes to be paid for under this item shall be measured per each, based on the actual number of drain manholes furnished and installed, all depths, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, precast concrete drain manholes and diversion manholes, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, furnishing and installing crushed stone bedding material, construction of inverts and weir wall, base sections, risers, cones or flat slab tops (as required), frames and covers, backfill with gravel borrow, and all other work and materials required to complete the work as indicated on the Drawings and as specified;
    b. Any and all other work, whether direct or incidental, associated with the construction of the drain manholes and diversion manholes not specifically identified herein.

BID ITEM NO. 50 BMP 1 – INFLITRATION CHAMBER SYSTEM
BID ITEM NO. 51 BMP 2 – INFLITRATION CHAMBER SYSTEM

A. METHOD OF MEASUREMENT

1. These items shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for these items shall include full and complete compensation for all the labor, equipment, materials, and incidentals associated with the installation of the infiltration chamber system including but not limited to:
    a. Furnishing and installing, complete in-place, infiltration chambers system, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, and backfill.
    b. Furnishing and installing of recharger chamber units, geotextile (woven and non-woven geotextile), washed crushed stone, ASTM C-33 concrete sand, construction of inspection ports, all interior drainage piping and manifolds and all other work and materials required to complete the work as indicated on the Drawings and as specified;
    c. Any and all other work, whether direct or incidental, associated with the construction of the Infiltration Chamber System not specifically identified herein.

BID ITEM NO. 52 DRAIN CLEANOUT

A. METHOD OF MEASUREMENT

1. The quantity of drain cleanouts to be paid for under this item shall be measured per each, based on the actual number of drain cleanouts installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, drain cleanout, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, furnishing and installing crushed stone bedding material, concrete block support, construction of inverts, riser pipe, end caps fittings, cast iron frames and lids, class "XX" concrete (as required) and all other work and materials required to complete the work as indicated on the Drawings and as specified;
    b. Any and all other work, whether direct or incidental, associated with the construction of the concrete block catch basins not specifically identified herein.

BID ITEM NO. 53 SEWER CLEANOUT

A. METHOD OF MEASUREMENT

1. The quantity of sewer cleanouts to be paid for under this item shall be measured per each, based on the actual number of sewer cleanouts installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, sewer cleanout, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, furnishing and installing crushed stone bedding material, construction of inverts, riser pipe, cast iron frames and covers, concrete collar and all other work and materials required to complete the work as indicated on the Drawings and as specified;
    b. The work shall include all necessary adapters and fittings for connection of riser pipe to the new sanitary line including fittings and couplings;
    c. Any and all other work, whether direct or incidental, associated with the construction of the concrete block catch basins not specifically identified herein.

BID ITEM NO. 54 1,000 GALLON GREASE TRAP

A. METHOD OF MEASUREMENT

1. The quantity to be paid for under this item shall be measured per each, based on the actual number of grease traps installed, complete-in-place, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and installing, complete-in-place, grease trap, including sawcutting, temporary excavation support, dewatering, excavation and disposal of material, furnishing and installing crushed stone bedding material, watertight frames and covers, backfill with gravel borrow and all other work and materials required to complete the work as indicated on the Drawings and as specified.
    b. Protection and support of existing utilities, maintaining flows of all utilities, and repairing and/or replacing damaged or impacted existing utilities not specifically included for payment under other items;
    c. Implementing safety precautions, including designing and implementing excavation support;
    d. Designing, furnishing, installing, operating, maintaining and removing temporary dewatering systems required to lower and control water levels and hydrostatic pressures during construction, as well as the appropriate disposal of pumped water;
    e. Furnishing and installing tees, cleanouts and other adapters or couplings required to install the system complete-in-place, as specified and indicated on the Drawings;
    f. Connecting new gravity sanitary pipes to the grease trap, including all excavation and furnishing and installing adapters and couplings;
    g. Any and all other work, whether direct or incidental, associated with the construction of the concrete block catch basins not specifically identified herein.

BID ITEM NO. 55 PRE- AND POST-CONSTRUCTION CONDITION SURVEYS

A. METHOD OF MEASUREMENT

1. Pre- and post-construction condition surveys will be measured for payment by the number of locations that surveys are performed.

B. BASIS OF PAYMENT

1. Pre- and post-construction condition surveys will be paid for at the contract unit price per each. Said price will constitute full payment for performance of both pre- and post-construction surveys and submission of reports for a given location as specified in Section 01399 of the specifications, in accordance with the Plans and/or directed by the Engineer.

BID ITEM NO. 56 FENCE – TEMPORARY ALL TYPES AND SIZES

A. METHOD OF MEASUREMENT

1. The length of temporary fence to be paid for under this Item shall be measured by the linear foot of actual fence furnished and installed only in the current limits of work under active construction by the Contractor, complete-in-place, in accordance with the Plans, and/or as directed by the Engineer. Limits of work shall be approved and/or directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing temporary fence and gates including posts and post foundations, framework, fabric, hardware and appurtenances;
b. Maintaining the temporary fence;
c. Removing and resetting the temporary fence from one portion of the project to another;
d. Replacement and/or restoration of fence damaged due to construction activities, accidents, vandalism, and/or damaged in any other manner;
e. Final removal of temporary fence;
f. Any and all other work, whether direct or incidental, associated with the installation of the temporary fence not specifically identified herein.

BID ITEM NO. 57 6' HIGH BLACK VINLY CHAIN LINK FENCE AND DOUBLE GATE

A. METHOD OF MEASUREMENT

1. The length of fence to be paid for under this Item shall be measured by the linear foot of actual fence furnished and installed, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing chain link fence including posts and post foundations, framework, fabric, hardware and appurtenances;
b. Furnishing and installing single or double gates;
c. Excavation material for, backfill for, concrete for, and installation of post bases;
d. Removal and legal disposal of excess material;
e. Furnishing and installing privacy slats (if required);
f. Any and all other work, whether direct or incidental, associated with the installation of the chain link fence not specifically identified herein.

BID ITEM NO. 58 COLLAPSIBLE BOLLARD

A. METHOD OF MEASUREMENT

1. The quantity of collapsible bollard to be paid for under this item shall be measured per each, based on the actual number of collapsible bollards installed, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Excavation, removal and legally disposing of the unsuitable material, including existing soil, or any existing bituminous concrete and concrete base or and reinforced concrete base;
b. Furnishing and installing new gravel base, bollards, concrete pad, top plate, and appurtenances;
c. Any and all other work, whether direct or incidental, associated with bollard and rope – all types not specifically identified herein.

BID ITEM NO. 59 SCREEN FENCE

A. METHOD OF MEASUREMENT

1. The length of screen fence to be paid for under this Item shall be measured by the linear foot of actual fence furnished and installed, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing screen fence and gates including posts and post foundations, framework, fabric, hardware and appurtenances;
   b. Excavation for, backfill for, concrete for, and installation of post bases;
   c. Removal and legal disposal of excess material;
   d. Furnishing and installing single or double gates (as required);
   e. Any and all other work, whether direct or incidental, associated with the installation of the picket fence not specifically identified herein.

BID ITEM NO. 60 PORTLAND CEMENT CONCRETE SIDEWALKS AND DRIVEWAYS

A. METHOD OF MEASUREMENT

1. The quantity for Portland cement concrete sidewalks and driveways shall be measured per square yard, based on the actual square yards of cement concrete installed in accordance with the Contract Documents or as direct by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation, trimming and fine grading, and formwork shall be paid for under this item;
   b. Furnishing and installing backfill gravel borrow material including compaction as specified and any fine grading required;
   c. Resetting or replacement of all signposts and resetting of existing curb boxes and castings in sidewalks and driveways;
   d. Installation of ADA detectable warning devices at required locations;
   e. Furnish and install stamped concrete band on Post Road, match existing in kind;
   f. Any and all other work, whether direct or incidental, associated with the removal and replacement of concrete wheelchair ramps not specifically identified herein.

2. Adjustment of structures and/or gate boxes to grade shall be paid for under this item, no payment will be made under a separate item for this work;

BID ITEM NO. 61 CONCRETE WHEELCHAIR RAMP

A. METHOD OF MEASUREMENT

1. The quantity of concrete wheelchair ramps to be paid for under this item shall be measured by the number of square yards of wheelchair ramp furnished and installed in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Excavation, trimming and fine grading, and formwork shall be paid for under this item;
   b. Furnishing and installing backfill gravel borrow material including compaction as specified and any fine grading required;
   c. Furnishing and installing ADA-compliant wheelchair ramps. Any concrete sidewalks required to meet existing sidewalks will also be paid for under this item;
   d. Installation of ADA detectable warning devices at required locations;
   e. Resetting or replacement of all signposts and resetting of existing curb boxes and castings in sidewalks and driveways;
   f. Granite wheelchair ramp transition curbs and concrete curb lock shall be paid for under this item;
   g. Any removal and resetting of granite curb required to meet existing curb will also be paid for under this item;
   h. Any and all other work, whether direct or incidental, associated with the removal and replacement of concrete wheelchair ramps not specifically identified herein.

BID ITEM NO. 62 PERMEABLE PAVERS

A. METHOD OF MEASUREMENT

1. The quantity of permeable pavers to be paid for under this item shall be measured by the number of square foot of permeable pavers installed, along with subgrade materials, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Trimming and fine grading the sub base;
   b. Implementing safety precautions, including designing and implementing excavation support;
   c. Furnishing and installing non-woven impermeable filter fabric, ASTM C-33 concrete sand, and crushed stone reservoir courses to the depths and grades shown on the plans;
   d. Furnishing and placing pea stone filter blanket material to the depths and grades shown on the plans;
   e. Furnishing and placing filter course material to the depths and grades shown on the plans;
   f. Furnishing and placing choker course crushed stone to the depths and grades shown on the plans;

g. Furnishing and placing open graded, crushed angular chipstone to the depths and grades shown on the plans;
h. Furnishing and installing interlocking pervious pavers;
i. Sawcutting, removal and disposal of any temporary pavement, grading of the subgrade, special compaction requirements, matching existing pavement, and casting and valve box adjustments;
j. Furnishing and installing the permeable pavers, complete-in-place, including all excavation, disposal of material, gravel borrow backfill, compacting materials as specified, and all incidental work not specifically included for payment under other items;
k. Any and all other work, whether direct or incidental, associated with the furnishing and installing of permeable pavers not specifically identified herein.

BID ITEM NO. 63 UNIT PAVERS

A. METHOD OF MEASUREMENT

1. The quantity of unit pavers to be paid for under this item shall be measured per square foot, including subgrade materials, based on the actual area of new pavers installed, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Excavation, removal and legally disposing of the unsuitable material, including existing soil, any sawcutting of the existing pavements and removal and disposal, pavements, including any existing bituminous concrete and concrete base or and reinforced concrete base;
b. Furnishing and installing gravel base, stone dust setting bed, and unit pavers;
c. Compacting subbase, new gravel base and setting bed;
d. Trimming and fine grading the gravel base and setting bed;
e. Any and all other work, whether direct or incidental, associated with installing new brick pavers not specifically identified herein.

BID ITEM NO. 64 GRANITE CURB
BID ITEM NO. 65 PRECAST CONCRETE CURB

A. METHOD OF MEASUREMENT

1. The quantity of granite or precast concrete curb to be paid for under this item shall be actual amount of curb, furnished and installed, measured by the linear foot of the curb, complete as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing curb as detailed on the Drawings and as directed by the Engineer;

b. The unit price for this item shall constitute full compensation for procuring granite curb, saw cutting, excavation, bedding, concrete, curb lock, removal and replacement of gravel backfill and mechanical compaction. Restoration of roadways, driveways, bushes, trees and plantings, fences and walls disturbed by the Contractor's operations, to a condition at least equal to a condition which existed prior to construction, as directed by the Engineer, at no additional cost to the Owner.
c. Transition curbs for driveways, sidewalks, and walkways shall be paid for under this item, no separate payment will be made.
d. Transition curb for wheelchair ramps shall be paid for under **Bid Item No. 59**.
e. All other work, whether direct or incidental, associated with furnishing and installing new curbing not specifically identified herein.

BID ITEM NO. 66 REMOVE, HANDLE, HAUL TRIM RESET CURB EDGING, STRAIGHT, CIRCULAR ALL TYPES

A. METHOD OF MEASUREMENT

1. The quantity of curbing to be paid for under this item shall be equal to the actual length of curbing removed and reset, measured by the linear foot along the centerline of the curb complete as indicated on the Drawings, or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall constitute full compensation for furnishing all labor, materials, tools and equipment necessary for saw cutting pavements, removing, salvaging, trimming and resetting existing curbing as directed by the Engineer.
2. The unit price for this item shall constitute full compensation for excavation, bedding, concrete, formwork, removal and replacement of gravel, backfill, compaction, restoration of areas disturbed by the Contractor's operations, to a condition at least equal to a condition which existed prior to construction, as directed by the Engineer, at no additional cost to the Owner, and all other work incidental to removing and resetting existing curbing and not specifically included for payment under other items.
3. Curbing damaged during removal or other construction operations shall be replaced in kind at no expense to the Owner.
4. All other work, whether direct or incidental, associated with furnishing and installing new curbing not specifically identified herein.

BID ITEM NO. 67 LARGE BRICK VENEER ENTRY WALL
BID ITEM NO. 68 SMALL BRICK VENEER ENTRY WALL

A. METHOD OF MEASUREMENT

1. These items shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Furnishing and installing brick veneer entry walls, complete-in-place, including excavation and disposal of material, furnishing and installing gravel borrow bedding, concrete foundations including all formwork and rebar, flashing, granite cap stone, name

plate lettering, backfill with gravel borrow and all other work and materials required to complete the work as indicated on the Drawings and as specified.

b. Any and all other work, whether direct or incidental, associated with the construction of the brick veneer entry walls not specifically identified herein.

BID ITEM NO. 69 10' HIGH LOUVERED SCREEN WALL AND GATE

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

   a. Furnishing and installing louvered wall and gates including posts and post foundations, framework, fabric, hardware and appurtenances;
   b. Excavation for, backfill for, concrete for, and installation of post bases;
   c. Removal and legal disposal of excess material;
   d. Furnishing and installing single or double gates (as required);
   e. Any and all other work, whether direct or incidental, associated with the installation of the picket fence not specifically identified herein.

BID ITEM NO. 70 TEST PITS

A. METHOD OF MEASUREMENT

1. The quantity of test pits to be paid for under this item shall be measured per each, based on the actual number of test pits performed, as indicated on the Drawings or as otherwise directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
   a. Excavation including any sawcutting of the existing pavements and removal and disposal of all existing pavements, including any existing bituminous concrete, concrete base or reinforced concrete base (if encountered);
   b. The work shall include any temporary excavation support, dewatering, furnishing and installing backfill material including compacting the material as specified,
   c. Installation of a minimum 3-inch temporary bituminous pavement patch over test pit area;
   d. Collection and recording of data and existing conditions discovered as a result of the test pit;
   e. Data to be collected shall be approved by the Engineer prior to the start of the work. The Contractor or its subcontractor shall submit all findings in a form acceptable by the Engineer;
   f. Test Pits which data has not yet been submitted shall not be included for payment;
   g. Any and all other work, whether direct or incidental, associated with excavation and backfill for test pits not specifically identified herein.

BID ITEM NO. 71 FIELD OFFICE

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per month.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and maintaining a field office and all associated temporary utility connections, sanitary facilities, equipment, furniture, and other items required by the Engineer for full-time occupation and use throughout the progress of the Work;
    b. Payment of all connection and usage fees for the temporary utilities to the field office for the duration of the Project;
    c. Disconnection and removal of the field office upon completion of the Project, or when directed by the Engineer.

BID ITEM NO. 72 MOBILIZATION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

2. The lump sum price for this item shall not exceed five percent (5%) of the total amount of the bid, excluding this item.

3. A maximum of fifty percent (50%) of the Mobilization lump sum shall be payable in the initial payment requisition. The balance of the lump sum shall be payable upon completion of the project, after all temporary items and measures have been removed and suitably disposed of and final restoration has been completed.

B. BASIS OF PAYMENT

1. The lump sum price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Initiating and administering the contract, including but not limited to furnishing performance and payment bonds and all other securities and insurances required, project meetings, securing of all necessary permits, etc., for providing all other materials, supplies, tools, equipment, labor, financing, supervision, temporary structures, and any and all other administrative expenses incurred in carrying out the work and furnishing the materials, keeping records and preparing required reports, and assuming risks, which have not been included in the prices in other items of the Proposal;
    b. Costs, exclusive of the cost of materials, for mobilizing all machinery, plant, tools, and other equipment necessary to carry on and complete the work;
    c. Establishing and maintaining survey controls for the construction layout of the overall project by a qualified professional, using appropriate means and methods to insure the accuracy of the layout, as specified and/or as directed by the Engineer;
    d. Re-establishing all benchmarks, concrete bounds, iron pins, and all permanent property boundary markers;

e. Coordinating and scheduling the use of uniformed traffic persons and/or flaggers including tracking or verifying hours worked by traffic persons;
f. Furnishing and installing temporary stabilizing erosion control measures in areas after construction activity has ceased.
g. Furnishing and spreading calcium chloride and/or water in order to control (minimize) dust at the Work areas;
h. Costs for demobilizing all machinery, plant, tools, and other equipment used to perform the work upon completion of the project;
i. Costs for performing final cleanup of the project area, exclusive of specific restoration to be paid for under other items.

BID ITEM NO. 73 MAINTENANCE AND PROTECTION OF TRAFFIC

A. METHOD OF MEASUREMENT

1. Maintenance and Protection of Traffic shall be paid for on a lump sum basis.

2. A maximum of fifty percent (50%) of the traffic control lump sum shall be payable in the initial payment requisition. The balance of the lump sum shall be payable upon completion of the project, after all temporary items and measures have been removed and suitably disposed of and final restoration has been completed.

B. BASIS OF PAYMENT

1. The lump sum for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

a. Fabricating, furnishing, erecting, maintaining, removing and relocating the traffic management devices for the overall project, complete-in-place, as specified and indicated in the Contract Drawings;
b. Providing additional traffic management devices to provide a clear and visible traffic control through the project area (if required);
c. The Contractor shall be required to reposition the traffic control devices as many times as necessary to ensure the safe passage of vehicular traffic and pedestrians. Supplemental signs and traffic control devices directing traffic around and/or through the work zones shall be supplied as operations require or as directed by the Engineer. Payment for these traffic control measures shall be included as part of this item and no additional payment will be made;
d. Any and all other work, whether direct or incidental, associated with the traffic control not specifically identified herein.

BID ITEM NO. 74 LOAM BORROW 4 INCHES DEEP

A. METHOD OF MEASUREMENT

1. The quantity of loam borrow shall be measured by the number of square yards of loam borrow installed with a minimum depth of 4 inches, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Trimming and fine grading the sub base;
    b. Placing loam borrow;
    c. Resetting or replacement of all signposts and resetting of curb boxes and castings in loamed and seeded areas;
    d. Any and all other work, whether direct or incidental, associated with the furnishing and installing loam borrow not specifically identified herein.

BID ITEM NO. 75 SEEDING

A. METHOD OF MEASUREMENT

1. The quantity of seeding shall be measured by the number of square yards, surface measurement, of the area in which seed has been installed, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing and placing seed, lime and fertilizer;
    b. Protecting and maintaining the loamed and seeded area until such time as an acceptable level of grass growth has been established;
    c. Resetting or replacement of all signposts and resetting of curb boxes and castings in loamed and seeded areas;
    d. Any and all other work, whether direct or incidental, associated with the restoration of vegetated areas not specifically identified herein.

BID ITEM NO. 76 MULCH BED – FURNISH AND SPREAD 4” DEPTH

A. METHOD OF MEASUREMENT

1. The quantity of mulch shall be measured by the number of square yards installed with a minimum depth of 4 inches, complete-in-place, in accordance with the Plans and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Trimming and fine grading the sub base;
    b. Placing and spreading mulch;
    c. Any and all other work, whether direct or incidental, associated with the furnishing and installing loam borrow not specifically identified herein.

BID ITEM NO. 77 TREES
BID ITEM NO. 78 SHRUBS
BID ITEM NO. 79 GROUNDCOVER

A. METHOD OF MEASUREMENT

1. The quantity of trees, shrubs, and groundcover to be paid for under these items shall be measured per each, based on the actual number trees, shrubs, and groundcover installed, including any incidentals, as shown on the Drawings and as specified herein, complete and accepted in place, to the full satisfaction of the Engineer.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:

    a. Furnishing all labor, materials, equipment, and incidentals required for installing all trees, shrubs, and groundcover, all sizes, inclusive of tagging, placing, field layout and coordination, hand and machine excavation required for plant installation, backfilling and compacting, soil amendments, herbicides, fertilizers, staking, watering, placing pine bark mulch, establishment and maintenance measures, as shown on the plans and as specified herein, and any and all incidentals and miscellaneous work not specifically included for payment but necessary to complete the Work.

BID ITEM NO. 80 ELECTRICAL SITE LIGHTING

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
    a. Furnishing and installation the electrical site lighting, inclusive of all work shown on the Drawings and detailed in the Specifications, including but not limited to excavation, backfill, conduit, wiring, handholes, concrete, reinforcement and installation of pole bases as detailed on the Drawings;
    b. Precast light pole base, rebar, tie rods, ground clamps, anchor bolts, lamp posts, luminaire fixtures, and all other work as detailed on the Drawings;
    c. Contractor to coordinate all work with RI Energy;
2. Any and all other work, whether direct or incidental, associated with the electrical site lighting not specifically identified herein.

BID ITEM NO. 81 ELECTRICAL SERVICE CONENCTION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
   a. Furnish and installing of electrical service, inclusive of all work shown on the Drawings and detailed in the Specifications, including but not limited to sawcutting, excavation and disposal of material, backfill, conduit and concrete encasement, handholes, utility bollards, primary and secondary services, transformer with pad and containment curb, utility pole and overhead wiring, connection to the building, hot box, and existing service, and all appurtenances required in accordance with the specifications.
   b. Removal and disposal of existing duct bank in coordination with RI Energy.
   c. Contractor to coordinate all work with RI Energy;
2. Any and all other work, whether direct or incidental, associated with the electrical service connection not specifically identified herein.

BID ITEM NO. 82 TELECOMMUNICATION SERVICE CONENCTION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed to complete the following:
   a. Furnish and installing of telecommunication conduit as detailed on the Drawings or directed by the Engineer and/or utility provider, included but not limited to sawcutting, excavation and disposal of material, backfill, conduit, handhole, connection to concession/utility building and existing handhole and all appurtenances required in accordance with the specification.

2. Any and all other work, whether direct or incidental, associated with telecommunication service connection not specifically identified herein.

BID ITEM NO. 83 PARKING SIGNS

A. METHOD OF MEASUREMENT

1. Parking Signs will be measured per square foot of signage actually installed, complete in place, including the foundation, excavation, backfilling and compaction for foundations and the structural supports.

B. BASIS OF PAYMENT

1. The unit price shall include full compensation for furnishing and erecting the supports, including construction of the concrete bases, steel reinforcement and anchor bolts, furnishing and installing post assembly, furnishing and installing the signage, and all excavation, gravel backfill, and all incidental costs required to complete the work.

BID ITEM NO. 84 REMOVE AND RESET DIRECTIONAL, WARNING, REGULATORY, SERVICE AND STREET SIGNS

A. METHOD OF MEASUREMENT

1. Removing and resetting signs will be measured per each sign actually removed and reset, complete in place, including the foundation, excavation, backfilling and compaction for foundations and the structural supports.

B. BASIS OF PAYMENT

1. Payment for work to be done under this item will be by the unit price bid per each, which will be full compensation for the satisfactory removal, stockpiling and resetting of existing posts, installation of new post and concrete base, and for all excavation and backfill, and for furnishing all labor, tools, equipment and any other incidentals to complete the work. The contract unit price shall also include excavation and disposal of existing foundations and the supplying and placing of compacted gravel backfill where foundations and posts are removed and restoration of surface for which no additional payment will be made. If posts are damaged during excavation and determined by the Engineer to be unfit for reuse, the Contractor shall replace the sign at no additional cost to the Owner.

BID ITEM NO. 85 PAVEMENT MARKINGS

A. METHOD OF MEASUREMENT

1. Pavement Markings are to be paid for on the actual length of lines measured by the linear foot applied under the various items of the Contract. The lengths of solid lines will be obtained by use of a measuring wheel.

B. BASIS OF PAYMENT

1. The unit price constitutes full compensation for all labor, tools, materials and equipment, including protection of newly applied markings from traffic, layout, cleaning and sweeping, furnishing and applying the pavement markings, and all incidentals required to finish the work, complete and accepted.

2. No payment will be made for the repair or replacement of defective pavement markings.

BID ITEM NO. 86 TEMPORARY PAVEMENT MARKINGS

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The price constitutes full compensation for all labor, tools, materials, and equipment, including protection of newly applied markings, cleaning and sweeping pavement, applying pavement markings and removal of pavement markings when no longer in use, and all incidentals required to finish the work, complete and accepted. Fifty percent of the Contract bid price will be paid at the time of installation and 50 percent upon removal of the markings.

2. No payment will be made for the repair or replacement of defective pavement markings.

BID ITEM NO. 87 ARROWS, WORDS, OR SYMBOLS PAVEMENT MARKINGS

A. METHOD OF MEASUREMENT

1. Arrows, Words, or Symbol Pavement Markings shall be measured per each pavement marking applied, complete-in-place, in accordance with the Drawings and/or as directed by the Engineer.

B. BASIS OF PAYMENT

1. The unit price constitutes full compensation for all labor, tools, materials and equipment, including protection of newly applied markings from traffic, layout, cleaning and sweeping, furnishing and applying the pavement markings, and all incidentals required to finish the work, complete and accepted.

2. No payment will be made for the repair or replacement of defective pavement markings.

BID ITEM NO. 88 ICE RINK SYSTEM

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Furnishing and installing of the ice rink system, inclusive of all work shown on the Drawings and detailed in the Specifications, or as directed or required by the Engineer including but not limited to the chiller, compressors, pumps, condenser system, piping valves, controls, motor control center and all related electrical components and connections necessary for a completely automatic refrigeration system with alarms, operating at the conditions described in Section 13812 of the Specifications;
    b. Furnishing and installing the ice rink floor system as depicted in the Drawings or as directed or required by the Engineer including but not limited to all excavation, excavation support, disposal of material, furnishing installing the of sand, insulation, jacketing vapor barriers, rebar reinforcement, pipe and fittings, compressions seals, expansion joint materials, concrete, temperature sensors and monitors and headers vents as described in Section 13813 of Specifications
    c. Furnishing and installing the ice rink dasher board system as depicted in the Drawings or as directed or required by the Engineer including but not limited to frame, polyethylene and fiberglass material, fasteners, access gates, equipment gates, floor anchors and inserts and all accessories, as described in Section 13816 of Specifications
    d. Any and all other work, whether direct or incidental, associated with the ice rink system not specifically identified herein.

BID ITEM NO. 89 CONCESSION AND UTILTY BUILDING

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Furnishing and installing the concession and utility building, inclusive of all work shown on the Drawings and detailed in the Specifications, including but not limited to concrete, masonry, rough carpentry, finish carpentry and millwork, insulation, roofing, caulking, doors, frames, hardware, window, glazing, plaster, gypsum board, ceiling and automatic temperature control, flooring, painting, specialties, fire protection, plumbing, HVAC and electrical, as depicted in the Drawings or as directed or required by the Engineer, in accordance with the specifications;
    b. Connection from roof leaders to drainage system, including all pipe, fittings, and other appurtenances.
    c. All applications, permits and fees required by the City's building department;
    d. Any and all other work, whether direct or incidental, associated with the concession and utility building not specifically identified herein.

BID ITEM NO. 90 SHADE STRUCTURE

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Furnishing and installing of the shade structure, inclusive of all work shown on the Drawings and detailed in the Specifications, including but not limited to concrete, metal building frame, gutters, painting, foundations, and audio-visual equipment and electrical as depicted in the Drawings or as directed or required by the Engineer, in accordance with the specifications;
    b. Connection from roof leaders to drainage system, including all pipe, fittings, and other appurtenances.
    c. All applications, permits and fees required by the City's building department;
    d. Any and all other work, whether direct or incidental, associated with the shade structure not specifically identified herein.

BID ITEM NO. 91 TRAFFIC CONTROL – POLICE DETAIL

A. METHOD OF MEASUREMENT

1. Traffic Control – Police Detail shall be paid for on an allowance basis.

B. BASIS OF PAYMENT

1. The allowance for this item shall include full compensation for all Police details required to complete the work. Signed Police detail slips must be submitted to the Engineer in order to receive compensation for said work.

BID ITEM NO. 92 TRAFFIC CONTROL – FLAGPERSONS
BID ITEM NO. 93 TRAFFIC CONTROL – FLAGPERSONS OVERTIME

A. METHOD OF MEASUREMENT

1. Flagpersons and flagpersons overtime shall be paid for on an allowance basis.

B. BASIS OF PAYMENT

1. The allowance for this item shall include full compensation for all flagpersons required to complete the work. Signed detail slips must be submitted to the Engineer in order to receive compensation for said work.

BID ITEM NO. 94 TESTING OF MATERIALS AND METHODS

A. METHOD OF MEASUREMENT

1. Under this item, the Contractor shall be reimbursed for certain charges, authorized by the Engineer associated with testing of in-situ soils, materials including but not limited to gravel borrow, concrete, and bituminous concrete.

2. The allowance price for this item established in the BID is an estimated figure to facilitate comparison of bids only. The actual amount to be paid under this item shall constitute full compensation for costs associated with the testing of in-situ soils, materials including but not limited to gravel borrow, concrete, and bituminous concrete, as approved by the Owner/Engineer.

3. The purpose of this item is strictly for the Contractor’s reimbursement for those services authorized by the Engineer.

4. The allowance price for this item shall NOT include any costs associated with services rendered for testing done at Contractor’s request and/or convenience

B. BASIS OF PAYMENT

1. The Contractor will be paid based on the actual PAID invoiced amount from the testing company in question, plus five percent (5%), as approved by the Engineer. If the total cost for such charges is greater or less than the allowance amount stated under this item of the BID, a debit or credit of the difference in cost shall be to the Owner.

2. The allowance for this item shall include full compensation to complete the following:

   a. Cost for testing of in-situ soils, materials including but not limited to gravel borrow, crushed stone, concrete, and bituminous concrete;
   b. Any and all other work, whether direct or incidental, associated with the testing of soil, concrete, and asphalt not specifically identified herein.

3. Invoices for work to provide testing shall be provided to the Contractor, who will include copy of the PAID invoice with his payment requisition.

BID ITEM NO. 95 MISCELLANEOUS UTILITY RELOCATION ALLOWANCE

A. METHOD OF MEASUREMENT

1. Relocation of existing electric, communication, and sewer force mains shall be paid for as an allowance. Support of existing utility poles shall be included in this item.

B. BASIS OF PAYMENT

1. Under these Items, the Contractor shall be reimbursed for certain charges, authorized by the Engineer for required utility relocations due to unavoidable conflicts with the new drain, as authorized by the Engineer.
2. The allowance price for this Item established in the BID is an estimated figure to facilitate comparison of bids only. The actual amount to be paid under this item shall constitute full compensation for wages paid, premiums on Workman's Compensation Insurance, payment on account for Social Security and other direct assessments on payroll, as may be required, and all other costs incidental to the services rendered.

3. The allowance price for these Items shall NOT include any costs associated with services rendered for routine utility markings, repair damages incurred as a result of the Contractor's operations, relocations or dismantling and reassembling of utilities done at the Contractor's request and/or convenience or other utility relocation specifically covered under any other bid item, or any other unauthorized services rendered by utility companies. The purpose of this item is strictly for the Contractor's reimbursement for those unforeseen services authorized by the Engineer prior to the work being performed.

4. The Contractor will be paid based on the actual PAID invoiced amount from the Utility Company in question, plus direct labor and materials costs incurred by the Contractor, as approved by the Engineer. If the total cost for such charges is greater or less than the allowance amount stated under this item of the BID, a debit or credit of the difference in cost shall be to the Owner.

BID ITEM NO. 96 DISPOSAL OF CONTAMINATED SOIL

A. METHOD OF MEASUREMENT

1. The quantity of contaminated material transported and disposed to be paid for under this Item shall be the number of tons, measured by the scale weights at the disposal facility and documented by the Contractor.

B. BASIS OF PAYMENT

1. The unit price shall constitute full payment for transporting and disposing of designated contaminated soil at an appropriately licensed facility. Contaminated soil shall be defined as soil containing concentrations of contaminants above RIDEM's Method 1 Residential Direct Exposure Criteria (RDEC) based on the laboratory analytical results approved by the Engineer.

2. Compensation for providing and obtaining approval for the submittals required in Specification Section 02080 Article 1.06, including soil disposal applications, shall be included in the unit price.

3. The unit price for this Item shall be paid in addition to any payment made for testing of excess soil. No separate payment will be made for transporting and legally disposing soil that is compliant with the State's Method 1 Residential Direct Exposure Criteria.

4. The unit price for this item shall include all work covered under Specification Section 02080 including, but not limited to mobilization/demobilization, preparation, handling, transportation, disposal at a licensed facility (including any fees), decontamination and site cleanup.

5. Environmental testing performed by the Contractor or his representative shall be paid for under **Bid Item No. 10**.

BID ITEM NO. 97 OWNERS ALLOWANCE

A. METHOD OF MEASUREMENT

1. This item shall be paid for on an allowance basis.

B. BASIS OF PAYMENT

1. The allowance for this item is for the sole use of the Owner at the Owner's discretion for changes to the project.

2. The Owner shall direct Contractor in writing when this line item is to be used along with all the pertinent specifying information for purchase by contractor.

3. Contractor shall submit purchase receipts documenting the cost of owner requested materials with pay application for reimbursement.

ADD ALTERNATES

The Owner may elect to increase the scope of work by selecting, in order, any of the add alternates listed in the Bid Form, such that no single alternate will be considered unless every alternate preceding it on the list has been added to the Base Bid.

Bidders to be considered responsive shall submit bids on all add alternates listed in the Bid Form. The low bidder will be determined by comparison of the Base Bid and any alternates selected by the Owner. For comparison, the lump sum prices for add alternates shall include any and all deductions from the base bid scope of work as a result of the add alternate.

ADD ALTERNATE NO. 1 ROADWAY RECLAMATION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Full depth reclamation and installation of pavement markings on the existing parking lot area adjacent to City Hall, inclusive of all work shown on the Drawings and detailed in the Specifications, or as directed or required by the Engineer;
    b. Any and all other work, whether direct or incidental, associated with the add alternate not specifically identified herein.
    c. The price so stated shall also include any and all deductions from the base bid scope of work as a result of the add alternate.

ADD ALTERNATE NO. 2 CEMENT CONCRETE SIDEWALK

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Furnishing and installing cement concrete sidewalk, wheelchair ramp, and two rail fence, inclusive of all work shown on the Drawings and detailed in the Specifications, or as directed or required by the Engineer;
    b. Excavation, removal and disposal of materials, trimming and fine grading, formwork, furnishing and installing backfill gravel borrow material including compaction as specified;
    c. Any and all other work, whether direct or incidental, associated with the add alternate not specifically identified herein.
    d. The price so stated shall also include any and all deductions from the base bid scope of work as a result of the add alternate.

ADD ALTERNATE NO. 3 FULL DEPTH RECONSTRUCTION

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Full depth reconstruction of the proposed parking lot in lieu of reclamation, inclusive of all work shown on the Drawings and detailed in the Specifications, or as directed or required by the Engineer;
    b. Any and all other work, whether direct or incidental, associated with the add alternate not specifically identified herein.
    c. The price so stated shall also include any and all deductions from the base bid scope of work as a result of the add alternate.

ADD ALTERNATE NO. 4 ARCHITECTURAL IMPROVEMENTS

A. METHOD OF MEASUREMENT

1. This item shall be paid for at the contract unit price bid per lump sum.

B. BASIS OF PAYMENT

1. The unit price for this item shall include full compensation for all labor, equipment, materials and incidentals needed complete the following:

    a. Furnishing and installing architectural improvements to the concession/utility building, inclusive of all work shown on the Drawings and detailed in the Specifications, or as directed or required by the Engineer;
    b. Any and all other work, whether direct or incidental, associated with the add alternate not specifically identified herein.
    c. The price so stated shall also include any and all deductions from the base bid scope of work as a result of the add alternate.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS
(RHODE ISLAND)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building codes, Mechanical codes, and Electrical codes, Regulations, Permits and Fees applicable to the project.

1.02 PERMITS BY CONTRACTOR

A. The Contractor shall secure all necessary permits from the state, city or town authorities having jurisdiction, for digging of trenches in the streets or highways and all other building and construction operations requiring permits.

B. As a minimum the following permits are required:

1. Application For Physical Alteration - City of Warwick, Dept. of Public Works
2. Building Permit – City of Warwick
3. Fire Permit – City of Warwick
4. Electrical Permit – City of Warwick
5. Mechanical Permit – City of Warwick

1.03 PERMITS BY OWNER

A. The Owner has obtained or will obtain and pay all fees for the permits listed here:

1. WQC/STM File No. 23-140; UIC File No. 002207; RIPDES File No. RIR102569 – RIDEM Office of Water Resources
2. Physical Alteration Permit – RIDOT

1.04 CODES

A. The Contractor shall conform to the requirements of and pay all fees imposed by local and State Building Authorities having jurisdiction over the Work. The Contractor is responsible to conform to all building, mechanical, electrical and plumbing code requirements.

B. The Contractor shall conform to the latest requirements of the following codes:

1. Federal, State and Municipal Laws
2. Rhode Island State Building Codes, National Building Code Regulation SBC-1
3. Rhode Island State Building Codes, Plumbing Code Regulation SBC-3
4. Rhode Island State Building Codes, Mechanical Code Regulation SBC-4
5. Rhode Island State Building Codes, Electrical Code Regulation SBC-5
6. Any prevailing rules and regulations pertaining to adequate protection and/or guarding of any moving parts or otherwise hazardous locations.

1.04 FEES

A. The cost of all permits secured by the Contractor shall be borne by him and shall be considered as having been included in the price or prices stated in the Bid. Copies of all required permits shall be filed with the Engineer prior to starting work for which a permit is required.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

for any work covered by this Contract so that such provisions will be binding upon each subcontractor and upon subcontractors for standard commercial supplies or raw materials.

C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law.

D. The Contractor agrees to comply with such rules, regulations, or guidelines as the State of Rhode Island may issue to implement these requirements. The Contractor further warrants, that it will comply with, Title VI of the Civil rights Act of 1964, 42 U.S.C. 200d to d4.

E. Contractors shall comply with the provisions of the General Laws of Rhode Island. Non-resident Contractors are subject to Section 44-1-6 of the RI General Laws, as amended, regarding OUT-OF-STATE CONTRACTORS.

F. The Contractor will be required to comply with Equal Opportunity Requirements for Public Works Projects for all employees on the job. Information is available at the Department of Labor.

G. The attention of the Contractor is directed to the fact that this Contract is subject to both Federal and State requirements regarding Minority Business Enterprises (MBE) and Woman's Business Enterprises (WBE) participation. The Contractor hereby agrees to ensure compliance with all Federal and State MBE/WBE requirements to provide maximum opportunity for such participation.

H. The Contractor further agrees to ensure that minority business enterprises as defined in RIGL Section 37-14.1-3, shall have the maximum opportunity to participate in the performance of subcontracts performed under this Contract. The Contractor will take reasonable steps in accordance with regulations promulgated under Chapter 37-14.1 of the RIGL to ensure that minority business enterprises have the maximum opportunity to compete for and perform subcontracts under this Contract. DEPARTMENT OF ADMINISTRATION RI STATE EQUAL OPPORTUNITY OFFICE GENERAL CONTRACT COMPLIANCE CERTIFICATE AND AGREEMENT, Pages 1 through 6, are provided at the end of this Specification.

1.06 ATTACHMENTS

A. Attachments referenced by this Specification follow this Section.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01380

CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for providing photographs for existing conditions and the Work proposed under this Contract.

1.02 REQUIREMENTS

A. The Contractor shall employ at his own expense a fully competent and qualified commercial photographer demonstrating at least three (3) years professional experience in the field of commercial photography. The purpose of this employment shall be to take pre-construction and post-construction photographs at locations and times designated by the Engineer.

1.03 SUBMITTALS

A. Submit to the Engineer all requested qualifications, experience records, and examples of the photographer's work for review. Only after the review of the photographer's qualifications and approval thereof by the Engineer shall the Contractor finalize such employment.

1.04 SCHEDULING

A. Prior to commencement of any work, or at any time during the construction as directed by the Engineer, the Contractor and photographer shall consult with the Engineer for instructions concerning views required at each specific work site. The photographs shall show the existing conditions prior to and during construction, as required by the Engineer, and shall be taken from locations or views designated by the Engineer to adequately illustrate the state of the project and/or conditions of construction.

PART 2 PRODUCTS

2.01 PHOTOGRAPHS

A. The Owner shall be allowed a minimum of 100 photographed views, and shall furnish to the Engineer two (2) prints of each view designated and one (1) digital file on a compact disc (CD). All photographs shall be a factual presentation of the views designated and shall be taken using correct exposure and focusing techniques insuring high resolution and sharpness, maximum depth-of-field, and minimum distortion. All photographs shall be taken with a digital camera. The photographer shall provide a full copyright release on the CD. All prints shall be color, eight (8) inch by 10 inch size, smooth surface with glossy finish, and paper weight being single. Identification of each print is required giving the following information:

1. Name of Project.
2. Description of view.
3. Time and date of exposure.
4. Climatic conditions (temperature and weather conditions).
5. Name and address of photographer.
6. Photographer's numbered identification of exposure.

B. The Contractor shall insure delivery of all prints on a monthly basis, or as otherwise requested, to the Owner through the Engineer. These deliveries must be made prior to the payment of monthly progress estimates. The Contractor shall pay all costs associated with employing said photographer and furnishing all construction photographs, tapes, and prints, complete as specified, including all incidentals necessary at no additional expense to the Owner.

C. The photographer hereby agrees to properly file and maintain all photograph digital files associated with this Contract for a period of two (2) years from the date of final completion of the project as shown on the final estimate. The photographer must also agree to furnish, promptly upon request, additional prints during this specified time period to the Owner and his Engineer at the commercial rates applicable at the time of the request.

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01381

AUDIO VIDEO RECORDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for color audio video recording of all existing and post-construction conditions.

1.02 REQUIREMENTS

A. Pre Construction recording

1. Furnish to the Engineer an original and one copy of a continuous color audio video recording. Take recording prior to any construction activity.
2. Recordings to be of sufficient detail to accurately and clearly show the existing, preconstruction conditions of this entire area of the Work. Each recording to include an audio description of the area being video recorded.
3. Coverage shall include, but not limited to, all existing roadways, sidewalks, curbings, driveways, buildings, structures, above ground utilities, landscaping, trees, signage and other physical features located within the zone of influence of the Work. The coverage may be expanded if directed by Engineer.
4. All recordings will be done during daylight hours. No recording shall be performed if weather is not acceptable, such as rain, fog, etc.

B. Post Construction recording

1. Furnish to the Engineer an original and one copy of a continuous color audio video recording. Take recording after all construction activity is completed.
2. Recordings to be of sufficient detail to accurately and clearly show the existing, preconstruction conditions of this entire area of the Work. Each recording to include an audio description of the area being video recorded.
3. Coverage shall include, but not limited to, all existing roadways, sidewalks, curbing, driveways, buildings, structures, above ground utilities, landscaping, trees, signage and other physical features located within the zone of influence of the Work. The coverage may be expanded if directed by Engineer.
4. All recordings will be done during daylight hours. No recording shall be performed if weather is not acceptable, such as rain, fog, etc.

C. The Engineer reserves the right to reject any recordings because of poor quality.

D. Any recordings rejected by the Engineer shall be rerecorded at no additional cost.

1.03 SUBMITTALS

A. Provide references of similar projects for review by the Engineer, include owner contacts and telephone numbers.

1.04 QUALITY CONTROL

A. The recording shall be performed by a qualified, established audio video recording firm knowledgeable in construction practices and inspection procedures.

PART 2 PRODUCTS

2.01 AUDIO VIDEO MEDIA

A. Recording media shall be Digital Video Disk (DVD), single layer (4.7 GB capacity), DVD+R or DVD-R format. Contractor to ensure that recording is capable of playback on both commercial DVD players and computer DVD-ROM drives.

PART 3 EXECUTION

3.01 AUDIO AND VIDEO RECORDING

A. Each recording shall begin with the Owner's name, Contract name and number, Contractor's name, date and location information such as street name, direction of travel, viewing side, etc.

B. Information appearing on the recording must be continuous and run simultaneously by computer generated transparent digital information. No editing or overlaying of information at a later date will be acceptable.

C. Digital information will be as follows:

1. Upper left corner

    a. Name of Contractor
    b. Day, date and time
    c. Name of Project

2. Lower left corner

    a. Street or route of travel
    b. Viewing side
    c. Direction of travel
    d. Stationing

D. Time must be accurate to within 1/10 of a second and continuously generated.

E. Written documentation must coincide with the information on the recording so as to make easy retrieval of locations sought for a later date.

F. The video system shall have the capability to transfer individual frames of video electronically into hard copy prints or photographic negatives or digital image files in commonly accepted image file formats (e.g. .jpg, .tif, .etc.).

G. Audio shall be recorded at the same time as the video recording and shall have the same information as on the viewing screen. Special commentary will be given for unusual conditions of buildings, sidewalks and curbing, foundations, trees and shrubbery, etc.

H. All DVD's shall bare labels with the following information:

1. DVD Number
2. Owner's Name
3. Date of Recording
4. Project Name and Number
5. Location and Standing Limit of recording

END OF SECTION

SECTION 02080

MANAGEMENT OF EXCESS SOIL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for identifying, handling, stockpiling, and disposing of excess soil.

B. Related Sections

1. Section 01025 – Measurement and Payment
2. Section 01069 - Health &Safety Requirements
3. Section 01300 – Submittals
4. Section 02140 – Dewatering
5. Section 02200 – Earth Excavation, Backfill, Fill and Grading

1.02 WORK INCLUDED AND DEFINITIONS

A. In general, Work under this Section shall include all labor, materials, equipment, supervision and supplies necessary for the loading, handling, transportation, and off-site disposal of excess soil.

1. "Contaminated" soil is defined as non-hazardous and further defined as those containing concentrations of substances above Rhode Island's Method 1 Residential Direct Exposure Criteria (RDEC) identified in Table 1 of RIDEM's Regulations.

2. "Suspect Soil" is defined as soil exhibiting visual or olfactory indications that the soil may be contaminated. These materials shall be stockpiled separately from other excavated materials as directed by the Engineer.

3. "Excess" soil is defined as the material that will be excavated and will not be reused as backfill.

4. Upon determination that the Excess Soil is characterized as contaminated, the Contractor is responsible for coordinating all off-site disposal of these materials at an appropriately licensed disposal facility. The Contractor is also responsible for the disposal of Excess Soil where contaminants are at concentrations less than Rhode Island's Method 1 Residential Direct Exposure Criteria identified in Table 1 of RIDEM's Regulations at no additional cost to the Owner.

1.03 SAMPLING

A. To determine if excess soil meets the definition of "contaminated", stockpiled material shall be sampled by the Contractor at a minimum frequency of one sample per 500 cubic yards. Samples shall be analyzed for the following parameters by a laboratory certified by the State Rhode Island:

- Volatile Organic Compounds (EPA Method 8260);
- Semi-Volatile Organic Compounds (EPA Method 8270);
- Total Petroleum Hydrocarbons (EPA Method 8100 Modified)
- 16 Priority Pollutant Metals (Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, Tl, V, and Zn)
- TCLP for any metal at a concentration greater than 20 times its TCLP threshold;
- Polychlorinated Biphenyls (EPA Method 8082);
- pH;
- Reactivity;
- Flashpoint (EPA Method 1010A); and
- Conductivity (EPA Method SM21-22-2510).

B. The Contractor will be responsible for additional sampling and analyses as may be required by the receiving disposal facility(ies) selected by the Contractor for off-site disposal of Contaminated soil. Contractor shall schedule his/her activities to allow for sampling to be performed, analytical results to be compiled and management decisions to be made. No claim shall be made for reasonable delays associated with such supplemental sampling, analytical services and decision making.

1.04 QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SERVICES

A. All Qualified Environmental Professional (QEP) services for the work shall be provided by the Engineer. The QEP will be responsible for preparing all RIDEM related filings that may result from this project.

1.05 APPLICABLE LAWS AND REGULATIONS

A. Work under this Section shall be performed in strict compliance with applicable Federal, State and local laws, rules, and regulations, including Rhode Island's Remediation Regulations, related to the handling and off-site management of contaminated soil.

B. Pertinent Federal and State Authorities having jurisdiction over this project include:

1. Occupational Safety and Health Administration (OSHA)

2. Rhode Island Department of Environmental Management (RIDEM)

C. The following OSHA regulations will apply:

1. Occupational Safety and Health Standards, Hazardous Waste Operations and Emergency Response - 29 CFR 1910.120.

2. Safety and Health Regulations for Construction - 29 CFR 1926.

1.06 SUBMITTALS

A. Submittals shall be made in compliance with the requirements of Section 01300 except as provided for herein.

B. No Work will be permitted to proceed until the required submittals have been received and approved by the Engineer. In the event the Engineer requests additional information, it shall be

the Contractor's responsibility to provide such additional information in a complete and timely manner, so that construction can proceed by the date stipulated in the Notice to Proceed.

C. Prior to the commencement of work, the Contractor shall submit the following to the Engineer for approval:

1. Submittal of all required certifications demonstrating that personnel are properly trained and qualified to perform the Work in accordance with applicable OSHA regulations and all laws governing the Work.

2. Names and qualifications of all proposed subcontractors, if any, identifying the tasks to be performed by each proposed Subcontractor.

3. A Proposed Soil Management Plan, including a description of the proposed equipment and decontamination procedures, identification of any staging areas for the loading of the Contaminated soil, proposed disposal facility(ies), and project schedule.

4. The Contractor's Site-Specific Health & Safety Plan pursuant to OSHA 1910.120 requirements.

D. Approval of submittals by the Engineer shall not impose any liability upon the Engineer, nor shall any such approval relieve the Contractor of his/her responsibilities to meet all of the requirements and comply with all applicable laws, regulations and other applicable requirements under this Contract.

1.07 EXISTING ENVIRONMENTAL CONDITIONS

A. The Contractor shall satisfy himself/herself as to the conditions existing at the Site, the type of equipment required to perform this Work, and the quality and quantity of the materials to be removed.

B. Failure of the Contractor to become fully acquainted with the available information will not relieve him/her of the responsibility to completely and properly perform the work in full compliance with the Contract Documents. The Engineer assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of information made available by the Owner or Engineer.

PART 2 PRODUCTS [NOT USED]

PART 3 EXECUTION

3.01 GENERAL

A. The Contractor will provide adequate barriers and demarcation of excavations and exclusion zones to warn site visitors and the public of potential hazards.

B. The Contractor will take appropriate means to prevent a release or the spread of contaminated soil as a result of the Contractor's operations.

C. The Contractor will be responsible for collection and analysis of all samples.

3.02 SITE HEALTH & SAFETY

A. The Contractor is solely responsible for controlling Site health and safety, including the provision of a Site Health and Safety Officer. In the performance of its Work, the Contractor shall provide for the safety of all Contractor personnel, other Contractor's personnel, regulatory agency personnel, and the public for the duration of the Contract.

B. The Contractor is solely responsible for his/her construction means and methods.

C. The Engineer will be responsible for the health and safety of its personnel only.

D. The Contractor shall provide a Health and Safety Plan (HASP) which addresses identified contaminants of concern for the Work under this Contract. Such plan shall conform to the requirements of OSHA 1910.120 and all other applicable federal, state, and local laws, regulations, ordinances, and procedures. The HASP shall be developed and implemented by the Contractor's Safety Officer experienced with the health and safety requirements of OSHA 1910.120. The HASP shall be revised, as needed, whenever new information about site hazards is obtained.

E. All personnel performing Work in contaminated areas shall be fully trained in accordance with the OSHA 1910.120 and the HASP and shall be thoroughly briefed on anticipated hazards, safety equipment to be employed, safety practices to be followed, and emergency procedures and communications. The Contractor shall have a medical monitoring surveillance program in place for all personnel in accordance with all applicable laws and regulations.

3.03 MISCELLANEOUS PROVISIONS

A. Contractor must have a valid EPA identification number and any other permits or licenses required by federal, state, and local laws, regulations, ordinances, and procedures for the transportation of hazardous wastes.

B. The Contractor shall be responsible for securing all necessary and applicable permits, certificates, licenses, and approvals required for the performance of this Work and shall be responsible for the payment of all associated fees.

C. The Contractor shall comply with all required reporting and record keeping requirements in accordance with the provisions of this Contract and all applicable federal, state, and local laws, regulations, ordinances, and procedures.

D. The Contractor shall be responsible for notifications required by federal, state, and local laws, regulations, ordinances, and procedures. All notifications shall be coordinated with the Engineer.

E. The Owner will be responsible for signing all waste manifests and bills of lading. In order for Contractor's operations to proceed without interruption, complete and accurate information shall be provided by the Contractor during the Submittals process. Contractor shall be responsible for preparing applications to disposal facilities.

3.04 DUST MONITORING & CONTROL MEASURES

A. The Contractor is responsible for monitoring the Work for evidence of airborne particulates (dusts) emanating from the Work area. It shall be the Contractor's responsibility to continuously monitor the work area for dust levels.

B. The Contractor shall take appropriate measures to substantially eliminate the generation of dusts within the Work Area, including use of water provided by the Contractor and covering all stockpiled wastes and/or soil, except in the immediate vicinity of the excavation, where water may be required to control dust emissions.

C. The Engineer will also be monitoring the site for elevated levels of dusts. In the event that visible emissions are observed, the Engineer may direct the contractor to take appropriate measures to mitigate the condition. Failure of the Contractor to implement measures that reduce dust levels may be cause for suspension of the Work, until otherwise directed by the Engineer.

3.05 EXCAVATON OF SOIL

A. Excavation activities performed by the Contractor or Subcontractors within the Project Limits shall be performed in a manner which considers the health and safety of all Contractor and Subcontractor personnel, support personnel, the Engineer and his representatives, and the surrounding environment.

B. The Contractor shall minimize the spread and loss of Contaminated Soil during excavation activities.

C. No excavation shall be performed beyond the depth or horizontal extents established by the Contract Drawings without the authorization of the Engineer.

D. In the event that visual or olfactory evidence of soil contamination other than that typically associated with urban fill is encountered, the Contractor shall immediately stop work and notify the Engineer. The Engineer will assess soil conditions and provide direction to the Contractor. If necessary, the Engineer will notify the Rhode Island Department of Environmental Management or other regulatory authorities with jurisdiction over the project.

3.06 TEMPORARY SOIL AND SEDIMENT STOCKPILING

A. Excess soil shall be stockpiled on the project site in a location agreed to by the Contractor and the Engineer. The following provisions shall apply to the stockpiling:

1. As directed by the Engineer, excess soil shall be stockpiled out of the immediate work area in the designated area on 6-mil polyethylene sheeting. All stockpiled excess soil shall be covered with 6-mil polyethylene sheeting at the end of every working day. Sheeting shall be properly secured such that it remains fully intact during inclement weather conditions.

2. No individual stockpile may exceed 500 cubic yards.

3. In no case shall excess soil remain stockpiled for more than 45 days from its excavation.

4. Sampling and characterization of excess soil shall be performed in accordance with the provisions of this specification.

3.07 OFF-SITE DISPOSAL OF EXCESS SOIL

A. Upon determination by the Engineer (based on laboratory sample results) that the excess soil qualifies as Contaminated soil, off-site disposal will meet Section 3.08 of this specification.

B. Upon determination by the Engineer (based on laboratory sample results) that the excess soil is non-jurisdictional with contaminant concentrations less than RIDEM's Residential Direct Exposure Criteria, the soil shall be hauled away and disposed by the Contractor, at his expense, at appropriate locations.

3.08 OFF-SITE MANAGEMENT OF CONTAMINATED SOIL

A. The Contractor shall be responsible for the off-site transportation and disposal of Contaminated Soil at an appropriately licensed disposal facility selected by the Contractor.

B. The Contractor will be responsible for additional sampling and analyses as may be required by the receiving disposal facility(ies) for off-site disposal of Contaminated Soil.

C. The Contractor shall contain all Contaminated Soil in DOT-approved containers and/or transport in DOT-approved vehicles. Containers or transport vehicles shall be provided with appropriately sized polyethylene bladder bags and/or polyethylene liners that can be secured by duct tape or other appropriate means, to the satisfaction of the Engineer, prior to leaving the site. In addition, loose soil, dusts and other deleterious materials shall be removed from containers and transport vehicles at the decontamination area, after loading and prior to leaving the site.

D. Vehicles used for transportation of Contaminated Soil shall be properly labeled and placarded, as required for off-site transportation for conformance with federal, state, and local laws, regulations, ordinances, and procedures.

E. The Contractor shall be responsible for coordination of all transporter and receiving facility activities. Transporter vehicles used for the transportation of Contaminated soil shall be covered, substance compatible, licensed, insured, and permitted pursuant to federal, state, and local laws, regulations, ordinances, and procedures.

F. Vehicles departing the site shall be properly logged to show the vehicle identification, driver's name, time of departure, destination, and approximate volume and content of material carried.

G. No Contaminated soil shall leave the site until the designated receiving facility has agreed in writing to accept the type and quantity of waste/soil to be shipped.

H. The Contractor shall complete required facility applications and other pertinent forms for proper transportation and disposal. The Engineer shall review and the Town will sign the applications. Signatures from the receiving location of materials transported off-site are required. The Contractor shall be held accountable for ensuring that requirements of the transporter and receiving disposal facility(ies) and federal, state, and local laws, regulations, ordinances, and procedures are complied with and properly documented.

I. Documentation shall be maintained indicating that applicable laws have been satisfied and that Contaminated soil has been successfully transported and received at the disposal facility(ies).

J. Actual quantities will be measured by the documented scale weights at the disposal facility. The Contractor will not be reimbursed for work performed without the prior approval by the Engineer.

3.09 SITE CLEANUP

A. During the course of the Work, the Contractor shall keep the Site and his operations clean and neat at all times. The Contractor shall dispose of all residue resulting from the site operations; and at the conclusion for the day's Work, he shall remove and haul away surplus materials, lumber, equipment, temporary structures, and any other refuse remaining from the site operations and shall leave the site in a neat and orderly condition.

3.10 DOCUMENTATION

A. Within 21 days after substantial completion of the Work, the Contractor shall submit to the Engineer one (1) original copy of all manifests, certified weigh slips (tons), bills-of-lading, and records of final waste disposition from the accepting disposal facility(ies), and all other pertinent documentation, including a summary of dates and quantities relating to the off-site management of Contaminated soil.

END OF SECTION

SECTION 02115

TREE PROTECTION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for furnishing and placing standardized drip line snow fencing or wooden boards on tree trunks for tree protection, at locations shown as indicated on the Plans or as directed by the Owner or Owner's Representative, all in accordance with these Specifications.

1.02 REFERENCES

A. State of Rhode Island Department of Transportation (RIDOT) Standard Specifications, latest edition including all addenda.

1.03 SUBMITTALS

A. Shop Drawings

1. Provide Material Specifications and Manufacturer's Data Sheets.

1.04 QUALITY ASSURANCE

A. Field Samples

1. The attention of the Contractor is directed to the fact that all materials furnished by the Contractor to be incorporated into the Work shall be subject to the inspection of the Owner or Owner's Representative. The Owner or Owner's Representative shall be the sole judge as to the acceptability of proposed materials and said judgement shall be final, conclusive, and binding.

PART 2 PRODUCTS

2.01 MATERIALS

A. DRIP-LINE TREE PROTECTION

1. Shall be in accordance with the State of Rhode Island Department of Transportation (RIDOT) Standard Specifications, latest edition.
2. Shall be standardized snow fencing or construction fencing and standard steel posts a minimum of 8 feet in length.
3. Owner's Representative may elect to sample material supplied at the source.

TREE TRUNK PROTECTION

1. Shall be in accordance with the State of Rhode Island Department of Transportation (RIDOT) Standard Specifications, latest edition.

SECTION 02215

AGGREGATE MATERIALS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for furnishing and placing materials, which include Crushed Stone, Gravel Borrow, Sand and Common (select) Borrow.
2. Location of specified materials as detailed on the Drawings or as directed by the Engineer for excavation below normal depth, utility support, replacement of unsuitable material or elsewhere, as ordered.

B. Related Sections

1. Section 02200 - Earth Excavation, Backfill, Fill and Grading.
2. Section 02500 - Paving

1.02 REFERENCES

A. This specification makes reference to the requirements of additional specifications as listed. The Contractor shall obtain and familiarize himself with all requirements referenced by this specification.

1. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, together with all errata addenda additional revisions, and supplemental specifications, (referred to as Standard Specification)

B. American Association of State Highway and Transportation Officials (AASHTO).

1. T11, Amount of Material Finer than 0.075 mm Sieve in Aggregate
2. T27, Sieve Analysis of Fine and Coarse Aggregates.

C. American Society for Testing and Materials (ASTM).

1. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).

1.03 DEFINITIONS

A. The term Screened Gravel as used in the Contract Documents shall mean Crushed Stone.

1.04 SUBMITTALS

A. Shop Drawings

1. Provide sieve analysis when gradation requirements are given in the Specification.

B. Samples

1. Furnish representative sample including location of source with Shop Drawing transmittal sheet.

1.05 QUALITY ASSURANCE

A. Field Samples

1. The attention of the Contractor is directed to the fact that under Specification SECTION 00700, 1.03 Materials and Equipment, all materials furnished by the Contractor to be incorporated into the Work shall be subject to the inspection of the Engineer. The Engineer shall be the sole judge as to the acceptability of proposed materials and said judgement shall be final, conclusive, and binding.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Storage and Protection

1. In accordance with Specification SECTION 00700, 1.03 Materials and Equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. Crushed Stone

1. For bedding and pipe zone material for pipe larger than 3 inches diameter. Well graded in size from 3/8 inches to 3/4 inches or such other sizes as may be approved.
2. For bedding and pipe zone material for plastic pipe 3 inches diameter and less, maximum particle size shall be 3/8 inches.
3. Clean, hard, and durable particles or fragments, free from dirt, vegetation, or other objectionable matter, and free from an excess of soft, thin elongated, laminated or disintegrated pieces.
4. Screened Stone of similar size and grading to this specification may be used instead of Crushed Stone.
5. Crushed Stone for stormwater chamber system shall conform to M01.09, Table I, Column II of the RIDOT Standard Specifications.
6. Crushed Stone beneath footing foundations shall be clean, washed crushed stone meeting the requirements of ASTM D-448, No. 57 stone.

B. Gravel Borrow

1. Gravel Borrow shall conform to M01.09, Table I, Column Ia of the RIDOT Standard Specifications.
2. Granular material well graded from fine to coarse with a maximum size of 3 inches, obtained from approved natural deposits and unprocessed except for the removal of unacceptable material and stones larger than the maximum size permitted.
3. Gravel shall not contain vegetation, masses of roots, or individual roots more than 18 inches long or more than 1/2 inches in diameter.
4. Gravel shall be substantially free from loam and other organic matter, clay and other fine or harmful substances.

C. Common Borrow

1. Common Borrow shall conform to Section M01.01 of the RIDOT Standard Specifications.

2. Use inorganic natural soils and/or rock, having not more than 17 percent by weight passing the No. 200 sieve. Include boulders (retained on a 3-in. sieve) up to 9 in. in diameter and not exceeding three-fourths of the thickness of horizontal layers placed after compaction.
3. Use only material well-graded throughout entire size range, free of roots, leaves and other organic material, ice or frost and aggregations of frozen soil particles.
4. Moisture content to be within plus minus 3 percent optimum at the borrow source.
5. Material must meet compaction requirements indicated or as specified.

D. Gravel Base Course

1. In accordance with SECTION 02500.

E. Filter Media Sand

1. ASTM C-33 Concrete Sand.

F. Structural Fill

1. Foundation backfill and material below entrance slabs, and fill to raise grade in building and ice rink areas should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below. RIDOT M.01.09 Gravel Borrow, Column Ia, modified to 3-inch minus, meets the intent of Structural Fill, as recommended herein.

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4-inch	100
3-inch	90 to 100
¼-inch	25 to 90
#40	0 to 30
#200	0 to 6

G. Re-Use of On-Site Soils

1. Excavated soils are expected to consist of granular fills and silty gravelly sand. These materials are unsuitable for re-use as Structural Fill, but may be suitable for re-use as Common Borrow, provided they are free of deleterious materials and at a compactable moisture content at the time of construction.

2.02 SOURCE QUALITY CONTROL

A. Test, Inspection

1. Engineer may elect to sample material supplied at the source.
2. Assist the Engineer and/or personnel from the designated testing laboratory in obtaining samples.

PART 3 EXECUTION

3.01 INSTALLATION

A. Crushed Stone

1. Spread in layers of uniform thickness not greater than 6 inches.
2. Compact thoroughly by means of a suitable vibrator or mechanical tamper.

B. Gravel Borrow

1. Spread in layers of uniform thickness not exceeding 12 inches before compaction and moistened or allowed to dry as directed.
2. Compact thoroughly by means of suitable power-driven tampers or other power-driven equipment.
3. Compaction shall conform to 95% of minimum dry density per ASTM D1557.
4. The percolation rate for the compacted bank-run gravel shall not exceed 5 minutes per inch.

C. Common Borrow

1. Spread in layers of uniform thickness not exceeding 12 in. (loose lift) before compaction and moistened or allowed to dry.
2. Compact thoroughly by means of suitable power-driven tampers or other power-driven equipment unless otherwise directed by the Engineer.

D. Structural Fill

1. Foundation backfill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches.
2. Foundation backfill be compacted to at least 92 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

3.02 FIELD QUALITY CONTROL

A. Material and compaction testing

1. In accordance with SECTION 01410.

END OF SECTION

SECTION 02500

PAVING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for construction of all temporary and permanent pavement on paved areas affected or damaged by the Contractors operations, whether inside or outside the normal trench limits, as indicated on the Drawings and as herein specified.

B. Related Sections

1. Section 02200 - Earth Excavation, Backfill, Fill and Grading

1.02 REFERENCES

A. This specification makes reference to the requirements of additional specifications as listed. The Contractor shall obtain and familiarize himself with all requirements referenced by this specification prior to preparation and installation of any pavements.

1. Rhode Island Department of Transportation, Standard Specifications for Road and Bridge Construction, latest Edition, including all addenda, issued by the State of Rhode Island Department of Public Works, (referred to as the Standard Specification).

1.03. PAVEMENT SCHEDULE

A. The Contractors attention is directed to the various pavements required under this contract, and their locations as detailed below.

B. All pavement thickness specified in this specification shall be of the thickness required after compaction.

Description:	**Temporary Trench Patch**
Requirements:	18” Gravel Base Course (Minimum) 3" Temporary Patching Materials/Trenches
Description:	**Permanent Trench Patch**
Requirements:	12" Gravel Base Course (Minimum) 4” Class 12.5 HMA Base Course **(Trench width)**
Description:	**Permanent Pavement – Full Depth Reclamation**
Requirements:	8” Reclaimed Sub-base Material 2.5” Class 12.5 HMA Base Course 1.5” Class 9.5 HMA Surface Course
Description:	**Permanent Pavement – Full Depth Pavement (Add Alternate 3)**
Requirements:	12” Gravel Borrow Sub-base Course 2.5” Class 12.5 HMA Base Course 1.5” Class 9.5 HMA Surface Course

Description: **HMA Driveway Aprons**
Requirements: 8” Gravel Borrow Sub-base Course
3” Class 9.5 HMA Surface Course

PART 2 PRODUCTS

2.01 MATERIALS

A. Asphalt Tack

1. Tack coat shall consist of emulsified asphalt, grade RS-1 conforming to the requirements of the Rhode Island Standard Specification Sections 403 and M03.

B. Bituminous Base

1. Bituminous Base shall conform to the requirements of the Rhode Island Standard Specification Sections 401 and Class 12.5 HMA for Base Course.

C. Bituminous Surface

1. Bituminous Surface Course shall conform to the requirements of the Rhode Island Standard Specification Sections 401 and Class 9.5 HMA for Surface Course.

D. Temporary Pavement

1. Temporary Pavement shall be Temporary Patching Material/Trenches conforming to the requirements of the State of Rhode Island Standard Specification, Subsection 410 and M03.04 for High Performance Cold Patching Material.

E. Gravel Borrow Base Course

1. Gravel base course in accordance with State of Rhode Island Standard Specification, Subsection M01.09, Meeting the gradation requirements of Table 1, Column 1a, modified to 3-inch minus.

F. Gravel Borrow Subbase Course

1. Gravel base course in accordance with State of Rhode Island Standard Specification, Subsection M01.09, Meeting the gradation requirements of Table 1, Column 1a, modified to 3-inch minus.

2.02 SOURCE QUALITY CONTROL

A. The paving plants used by the Contractor for preparation of bituminous paving materials shall be acceptable to the Engineer. The Engineer shall have the right to inspect the plant and the making of the material.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to placing pavement, all backfill shall have been properly compacted as specified under Section 02200 to eliminate settling of backfill. No pavement shall be placed over poorly

compacted backfill. Backfill and gravel base course shall be compacted, brought to the proper elevation, and dressed so that new pavement construction shall be at the required grade. The Contractor shall maintain the surfaces of all excavated and disturbed areas until the pavement is placed. If there is a time lapse of more than 24 hours between completion of preparation of subgrade or placing of gravel base course and placing of paving, or if subgrade or gravel base course has been eroded or disturbed by traffic, the subgrade or gravel base course shall be restored before placing pavement.

B. When installing permanent pavement on bituminous concrete roadway the edges of existing pavement shall be cut back 12 inches, or more as required, from the trench excavation wall or damaged area to sound undamaged material, straightened, cleaned, and painted with an accepted asphalt emulsion to ensure a satisfactory bond between it and the newly placed surface courses. Existing surface courses shall be stripped from the bituminous concrete base course for at least a six (6) inch width and trimmed square and straight so that new permanent surfacing shall be placed on undisturbed bituminous concrete base course.

C. Before permanent pavement is installed, the base shall be brought to the proper grade, and temporary pavement and excess gravel base shall be removed.

D. Existing pavement shall be swept clean prior to placing any asphalt emulsion over it. Existing pavement that will be under new pavement shall be painted with asphalt emulsion to ensure a satisfactory bond.

F. All manhole covers, catch basin grates, valve and meter boxes, curbs, walks, walls and fences shall be adequately protected and left in a clean condition. Where required, the grades of manhole covers, catch basin grates, valve boxes, and other similar items shall be adjusted to conform to the finished pavement grade.

G. The Contractor shall remove and acceptably dispose of all surplus and unsuitable material.

H. Temporary Tench patch shall be installed at the end of each working day, no open trenches will be allowed overnight unless otherwise approved by the Engineer.

3.02 INSTALLATION

A. General

1. All construction methods and materials shall be satisfactory to the Engineer.
2. Unless indicated otherwise, all permanent bituminous pavement shall be installed in two (2) courses or more. Bituminous base courses shall be carefully spread and raked to a uniform surface and thoroughly rolled before application of the top course.
3. All top courses of permanent paving shall be applied with acceptable mechanical spreaders in widths of at least nine (9) feet.
4. The rolling for all bituminous and gravel base courses shall conform to the standards listed in the appropriate Subsection of the Standard Specification.
5. Pavement shall be placed so that the entire roadway or paved area shall have a true and uniform surface, and the pavement shall conform to the proper grade and cross section with a smooth transition to existing pavement.

B. Gravel Base Course

1. The gravel base shall be placed to such depth that the furnished compacted gravel base course is the depth as indicated on the drawings and specified herein.
2. The top of the compacted gravel base shall be below the furnish grade a distance required to accommodate the compacted pavement material as indicated on the drawings and specified herein.

C. Gravel Borrow Subbase Course

1. The gravel borrow subbase course shall be placed to such depth that the furnished compacted gravel borrow subbase course is the depth as indicated on the drawings and specified herein.
2. The top of the compacted gravel base shall be below the furnish grade a distance required to accommodate the compacted pavement material as indicated on the drawings and specified herein.

D. Temporary Pavement

1. Temporary pavement shall be placed over all trenches in paved areas where directed by the Engineer.
2. The Contractor, upon completing the backfilling and compaction of the trenches in the streets and the placing of the gravel base course, shall be required to construct temporary pavement at the end of each day.
3. Temporary Pavement shall be placed in one course and shall consist of 3-inch compacted thickness of hot bituminous mix on an 18-inch compacted thickness gravel base as directed by the Engineer.
4. The Contractor shall maintain temporary pavement in good repair and flush with the existing pavement at all times until the permanent pavement is placed.
5. Temporary patch shall be placed on a **daily basis** and shall cover the full extent of disturbance.

E. Bituminous Base

1. Bituminous Base shall be placed to the thickness as indicated in Part 1.03 of this specification and installed in accordance with the requirements of the Standard Specification and as detailed in the Contract Drawings.

F. Bituminous Surface

1. Bituminous Surface shall be placed to the thickness as indicated in Part 1.03 of this Specification and installed in accordance with the requirements of the Standard Specification and as detailed in the Contract Drawings.

G. Sidewalks, Driveways, Parking Lots and Curbing

1. Sidewalks, driveways, parking lots and curbing that are removed or damaged by the Contractor's operations shall be restored to a condition at least equal to that in which they are found immediately prior to the start of operations. Materials and methods used for such restoration shall be in conformance with the requirements of the State of Rhode Island Standard Specification.
2. Where the trench locations are in a sidewalk, the entire width of the sidewalk shall be replaced with new material. Side forms shall be set so as to obtain and preserve a straight edge along both sides of the walk.

3. Where trench is in a driveway, the driveway shall be repaved across its entire width with even edges.
4. Gravel base course under sidewalks and driveways shall not be less than 12 inches thick.

J. Surface Maintenance

1. During the guarantee period, the Contractor shall maintain the bituminous surface and shall promptly make good all defects such as cracks, depressions, and holes that may occur. At all times, the surfacing shall be kept in a safe and satisfactory condition for traffic. If defects occur in surfacing constructed by the Contractor, the Contractor shall remove all bituminous concrete and base as is necessary to properly correct the defect. After removing bituminous concrete and base course, the Contractor shall correct the cause of the defect and replace the base course and bituminous concrete in accordance with these specifications.

END OF SECTION

SECTION 02550

PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. Epoxy Resin Pavement Markings – All Sizes and Colors.
2. Temporary Reflectorized Preformed Pavement Markings (Tape) – All Sizes and Colors.

B. Related Sections

1. Section 01025 - Measurement and Payment
2. Section 02500 – Paving

1.03 REFERENCES

A. Materials and construction methods shall conform, insofar as applicable, to the requirements of the Rhode Island Department of Transportation, Standard Specifications for Road and Bridge Construction, including all addenda, issued by the State of Rhode Island Department of Public Works, (referred to as the Standard Specification).

PART 2 - PRODUCTS

2.01 PERMANENT PAVEMENT MARKINGS

A. Permanent pavement markings shall be epoxy resin pavement markings and shall be in accordance with the requirements of the "Manual on Uniform Traffic Control Devices", 2009, including all revisions and Section T20 of the RIDOT Standard Specifications.

2.02 TEMPORARY PAVEMENT MARKINGS

A. Temporary pavement markings shall be retroreflective, preformed pavement marking tape in accordance with Section M17 of the RIDOT Standard Specifications.

PART 3 - EXECUTION

3.01 PREPARATION

A. Before placing the permanent pavement markings, the Contractor shall ensure that all existing and temporary pavement markings have been properly removed from the existing surfaces. For all permanent pavement markings, it is the Contractor's responsibility to reflect the exact location of all existing pavement markings onto the final surface course, unless otherwise shown on the Plans. The Contractor shall make the necessary arrangements to enable him to reestablish these locations before any construction commences.

3.02 INSTALLATION

A. Epoxy resin pavement markings shall be placed on the final surface course no sooner than 2 weeks but not later than 4 weeks from the completion of paving operation.

3.03 TOLERANCES

A. See Rhode Island Standard Specifications.

END OF SECTION

SECTION 02610

MANHOLE REHABILITATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements for the following work.

a. Replacing missing, loose, or broken brick masonry and mortar joints, and patching all holes, voids, and spalled areas.
b. Replacing all unsound, damaged, or missing manhole steps, as directed.
c. Sealing of the manhole to eliminate infiltration.
d. Replacing manhole frame and cover, as directed.
e. Applying coating materials.

B. Related Sections

1. Section 02149 Maintaining Existing Flows

1.02 REFERENCES

A. American Association of State Highway and Transportation Officials (ASSHTO)

1. AASHTO M91 - Red Sewer Brick Only Grade SS.

B. American Society for Testing and Materials (ASTM)

1. ASTM C32 - Specification for Sewer and Manhole Brick (Made from clay or shale). Grade SS
2. ASTM C94 - Specification for Ready-Mixed Concrete.
3. ASTM C109 - Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50-mm Cube Specimens).
4. ASTM C144 - Specification for Aggregate for Masonry Mortar.
5. ASTM C150 - Specification for Portland Cement.
6. ASTM C207 - Specification for Hydrated Lime for Masonry Purposes.
7. ASTM C267 - Test Method for Chemical Resistance of Mortars, Grouts, and Monolithic Surfacings and Polymer Concretes.
8. ASTM C293 - Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)
9. ASTM C321 - Test Method for Bond Strength of Chemical-Resistant Mortars.
10. ASTM C496 - Test Method for Splitting Tensile strength of Cylindrical Concrete Specimens.
11. ASTM C596 - Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement.

12. ASTM C666 - Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
13. ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
14. ASTM C882 - Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.

C. National Association of Sewer Service Companies (NASSCO)

1. NASSCO Recommended Specifications for Sewer Collection System Rehabilitation.

1.03 SUBMITTALS

A. Submit in shop drawings accordance with Specification Section 01300.

1. Product Data: Provide data on grouting, plugging, patching, coating and lining materials; manhole steps; mortar components; manhole frames and covers, as applicable; and sewer brick.
2. Mortar design mix.
3. Manufacturer's preparation/mixing/installation/application instructions for grouting, plugging, patching, coating and lining materials.
4. Outline of the procedures proposed for the accomplishment of work. Include a detailed description of the means and methods, and equipment to be used for each operation.

1.04 QUALITY ASSURANCE

A. The materials used to plug, patch, coat and line manholes shall comprise of a system specifically recommended by the manufacturer for sanitary sewer manhole rehabilitation.

B. Perform general work in accordance with NASSCO Recommended Specifications for Sewer Collection System Rehabilitation.

1.05 QUALIFICATIONS

A. Installer: Company specializing in performing the work described in this Section shall demonstrate by documentation to the Engineer a minimum of three (3) years documented experience. The installer shall be a fully licensed applicator by the applicable manufacturer. The installer shall also be required to furnish a minimum of five (5) references where selected products have been successfully utilized under similar conditions.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01600 and in strict accordance with the manufacturer’s recommendations/instructions.

B. Maintain packaged materials clean, dry and protected against dampness, freezing, foreign matter and/or any other compromising conditions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Brick

1. Sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the Engineer. Brick shall comply with ASTM C32 and AASHTO M91 for sewer brick type S.S.

2. Rejected brick shall be immediately removed from the work.

B. Mortar for Brickwork

1. Composed of portland cement, hydrated lime, and sand in which the volume of sand shall not exceed three times the sum of the volume of cement and lime. The proportions of cement and lime shall be 4:1.

2. Cement shall be Type II Portland cement conforming to ASTM C150.

3. Hydrated lime shall be Type S conforming to ASTM C207. Hydrated lime shall be "Mortaseal" manufactured by US Gypsum, "4X Hydrate" manufactured by the New England Lime Company or an acceptable equivalent product.

4. Sand shall conform to ASTM C144.

C. Manhole Steps

1. Steel reinforced copolymer, polypropylene plastic with flexible "fins" designed to flex on insertion into manhole wall but to catch and hold upon any attempt to pull them out. Manhole steps shall be as manufactured by M.A. Industries Inc., Peachtree City, GA or an acceptable equivalent product.

D. Manhole Frames and Covers

1. Owners standard or as detailed on the Drawings.

E. Patching Material

1. Patching material shall be a rapid-setting, fiber reinforced, high-early-strength, corrosion/sulfate resistant calcium aluminate based cementitious material shall be used as a patching material for making repairs in concrete, brick, or other masonry constructed structures. Material shall be mixed and applied in strict accordance with the manufacturer's recommendations and shall have the following minimum requirements:

a.	Compressive Strength, ASTM C109:	1400 psi @ 6 hours
b.	Bond, ASTM C321:	140 psi @ 28 days
c.	Cement:	Calcium Aluminate Cement Sulfate Resistant
d.	Applied Density:	105 ± 5 lbs per cubic foot
e.	Shrinkage, ASTM C596:	0% @ 90% relative humidity

2. Patching material shall be Strong-Seal® QSR as manufactured by Strong Seal Systems Corporation, Pine Bluff, AK or an acceptable equivalent.

F. Infiltration Control Material

1. Infiltration control material shall be a rapid-setting, high-early-strength, cementitious material specifically formulated for leak control applications, stopping infiltrating groundwater and making repairs in concrete, brick, or other masonry constructed structures. Material shall be mixed and applied in strict accordance with the manufacturer's recommendations and shall have the following minimum requirements:

a. Compressive Strength, ASTM C109:	400 to 600 psi @1-hour 1,800 to 2400 psi @ 24-hours
b. Expansion, ASTM C827:	0.10-percent
c. Sulfate Resistance, ASTM C267:	No weight loss after 15-cycles; 2,000 ppm
d. Freeze/Thaw Resistance, ASTM C666, Method A:	100 cycles
e. Placement time:	Less than 1 minute

2. Infiltration control material shall be Strong-Plug® as manufactured by Strong Seal Systems Corporation, Pine Bluff, AK or an acceptable equivalent.

G. Grouting Material

1. Chemical Sealing Materials shall be made of Acrylamide base gel and shall meet or exceed the following requirements:

   a. A minimum of ten (10%) percent acrylamide base material by weight in the total sealant mix, higher concentration of acrylamide base material may be used to increase strength or offset dilution during injection.
   b. The ability to tolerate some dilution and react in moving water during injection.
   c. A viscosity of approximately two (2) centipoise, which can be increased with additives.
   d. A constant viscosity during reaction period.
   e. A controllable reaction time from 10 seconds to 1 hour.
   f. A reaction (curing), which produces a homogeneous, chemically non biodegradable gel.
   g. The ability to increase mix viscosity, density and gel strength by the use of additives.

2. The Chemical sealing materials shall be AV100 Grout by Avanti International, Webster, TX, or an acceptable equivalent product.

H. Liner Material

1. Liner material shall be a spray-applied, acid resistant, calcium aluminate cementitious liner material blended of 100% pure fused calcium aluminate clinker and calcium aluminate cement, and reinforced with alkaline resistant fiberglass rods. Liner material shall be specifically formulated for use to form a structurally enhanced monolithic liner covering all interior substrate surfaces exposed to harsh hydrogen sulfide conditions as typically found in municipal sanitary sewer systems regardless of surface pH. Material shall be factory blended requiring only the addition of clean and potable water (per ASTM C94 laboratory procedures). Material shall be mixed and applied in strict accordance with the manufacturer's recommendations and shall have the following minimum requirements at 28-days:

a.	Compressive Strength, ASTM C109:	Greater than 9,000 psi
b.	Tensile Strength, ASTM C496:	Greater than 800 psi
c.	Flexural Strength, ASTM C293:	Greater than 1,200 psi
d.	Shrinkage, ASTM C596:	0% @ 90% Relative Humidity
e.	Bond, ASTM C882:	Greater then 2,000 psi
f.	Applied Density:	145 ± 5 lbs per cubic foot
g.	Freeze/Thaw Resistance, ASTM C666:	100 cycles, no damage

2. Liner material shall be Strong-Seal® High Performance Mix as manufactured by Strong Seal Systems Corporation, Pine Bluff, AK or an acceptable equivalent.

PART 3 EXECUTION

3.01 REHABILITATION WORK

A. Rehabilitate manholes as indicated and as specified herein.

B. Rehabilitation includes sealing manholes to eliminate infiltration.

C. Manhole sealing includes the following:

1. Cleaning; surface preparation; stopping active leaks, applying patching/grouting materials as applicable to all holes or voids around steps, joints, or pipes and all spalled areas; and replacing missing bricks and re-pointing all missing and loose mortar joints.
2. Applying coating/liner compounds and cementitious coating system to invert, bench, walls cone, corbel and chimney.

3.02 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning of installation means acceptance of existing surfaces.

3.03 PREPARATION

A. Bypass sewage flow to allow performance of the work. Provide the necessary pumps, conduits, and other equipment to divert the flow of sewage around the manhole in which work is to be performed. Handling existing sewage flows and bypass pumping shall be in accordance with Specification Section 02149.

B. Prepare surfaces in accordance with mortar and coating manufacturer's instructions.

C. Clean all concrete and masonry surfaces to be rehabilitated. Completely remove all sewage residue, grease, oil, laitance, coatings, loose bricks, mortar, unsound concrete and other foreign materials. Remove all cracked or disintegrated material to expose a sound subbase.

D. All cracks not subject to movement and greater than one sixteenth (1/16) inch wide shall be routed out to a minimum width and depth of one half (1/2) inch.

E. Remove and dispose of all solids and semi-solids resulting from the preparation operations in accordance with Specification Section 00700, 1.24, B.

F. The primary means of cleaning the manhole shall be water blasting using high-pressure water only. Other methods such as dry sandblasting, acid-wash, concrete cleaners, degreasers or mechanical means may be required to properly clean the surface. All surfaces on which these other methods are used shall be thoroughly rinsed, scrubbed, and neutralized to remove cleaning agents and their reactant products.

G. Water blast equipment shall utilize a minimum pressure of 5,000 psi and be capable of providing up to 10,000 psi of pressure when required. Muriatic acid (hydrochloric acid) solution, if used, shall be one part acid to ten parts water and shall be applied by spraying from above the manhole.

H. After surface preparation and prior to application of mortars and coatings, infiltration shall be stopped by either plugging, chemical grout sealing, or channeled through "bleed" pipes installed at the bottom of the manhole.

3.04 CHEMICAL GROUT SEALING

A. At each point of leakage within the manhole structure a hole shall be drilled from within the manhole and shall extend through the entire wall. In cases where there are multiple leaks around the circumference of the manhole, fewer holes may be drilled, providing all leakage is stopped from these holes.

B. Install grout ports or sealant injection devices in these previously drilled holes in such a way as to provide a watertight seal between the holes and the injection device.

C. Inject chemical grout into the installed ports under pressure using equipment appropriate for the particular application. The injection equipment shall consist of chemical pumps, chemical containers, injection packers, hoses, valves, and all necessary equipment required to seal manholes. The chemical injection pumps shall be equipped with pressure meters that will provide for monitoring pressure during injection of the chemical grout.

D. Continue injection of grout until material refusal is recorded on the pressure gage of the pumping unit.

E. Care shall be taken during the pumping operation to avoid excessive pressures that may damage the manhole structure.

F. Upon completion of the injection remove the ports and fill the remaining holes with patching compound.

3.05 BLEED PIPES

A. Drill holes and install "bleed" pipes around the bottom of the manhole wall to act as relief ports for water to flow from other active leaks to allow performance of the work.

B. Remove bleed pipes and seal holes after all other manhole sealing work is complete.

3.06 PLUGGING COMPOUND

A. Apply plugging compound in accordance with manufacturer's instructions.

3.07 PATCHING COMPOUND

A. All material shall be mixed and applied in accordance with the manufacturers instructions.

B. Installation to be performed by mechanics skilled in the application of the particular type of system.

C. Prior to application, dampen area to be patched. Pack material into the area to be patched, troweling the minimum amount required to achieve a level finish. Allow adequate curing time.

3.08 BRICKWORK

A. Only clean bricks shall be used. Bricks shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

B. Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed.

3.09 MANHOLE STEPS

A. Remove all unsound and damaged steps as directed by the Engineer.

B. Drill holes to allow minimum of three (3) inch embedment into the manhole wall or until the fins designed to catch are fully embedded.

C. Clean holes by suitable means to remove all foreign matter such as dirt, oil, and grease.

D. Fill all holes and voids with non-shrink grout. Work grout into space to eliminate voids.

3.10 MANHOLE FRAMES AND COVERS

A. Remove and dispose of the cast-in-place concrete collar around the existing frame. Material in the exposed area shall be dug out to a depth sufficient to permit the required repairs.

B. Remove the existing manhole frame and cover, and if specified herein and/or directed by the Engineer for full replacement, dispose of the existing frame and cover as directed. It shall be the responsibility of the Contractor, at no additional cost to the Owner, to repair any damage to the manhole chimney or corbel caused by the removal of the existing manhole frame and the reinstallation/replacement of the same.

C. Frames shall be set concentric with the top of the masonry and fastened as indicated. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

D. Manhole covers shall be left in-place within the installed frames on completion of other work at the manholes.

3.11 INVERT REPAIR

A. After preparation has been completed, remove all loose material and wash wall again.

B. Any bench, invert or service line repairs shall be made at this time using the quick setting patching material (article 2.01) and shall be used per manufacturer's recommendations.

C. Invert repair shall be performed on all inverts with visible damage or infiltration. After blocking flow through the manhole and thoroughly cleaning the invert, the quick setting patch material (article 2.01) shall be applied to the invert in an expeditious manner. The mix shall be troweled uniformly onto the invert at a minimum thickness of one half (1/2) inch, extending out onto the bench sufficiently to tie into the monolithic liner to be spray applied. The finished invert shall be smooth and free of ridges. The flow may be re-established in the manhole within 30 minutes after placement of the material.

3.12 CEMENTITIOUS LINER

A. All material shall be mixed and applied in accordance with the manufacturers instructions.

B. Installation to be performed by mechanics skilled and licensed by the manufacturer in the application of the particular type of system.

C. Application of the cementitious liner shall be according to the manufacturers recommendations and as approved by the Engineer. Two coats of liner shall be applied with the minimum thickness of one half (1/2) inch per coat.

3.13 FINAL ACCEPTANCE

A. After the specified types of rehabilitation work have been completed, visually inspect each manhole in the presence of the Engineer for full compliance with the Specifications including watertightness against leakage. Repair all visible leaks and defects observed during inspection. Final acceptance of the completed work shall be determined solely on an acceptable concurrence by the Owner/Engineer.

B. The Owner/Engineer reserves the right to re-inspect the rehabilitated manholes at any time during the warranty period. During such inspections should there be any leakage and/or other defects found in the work the Contractor shall fully correct the elements of work in question as determined by the Owner/Engineer within thirty (30) days at no additional cost to the Owner.

END OF SECTION

SECTION 02618

DUCTILE-IRON PIPE AND FITTINGS
FOR BURIED SERVICE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Requirements to furnish, lay, joint, and test ductile-iron pressure pipe, ductile iron gravity drain pipe, fittings (including special castings), and appurtenant materials and equipment indicated on the Drawings and specified in this Section.

1.02 REFERENCES

A. American Water Works Association (AWWA)/American National Standards Institute (ANSI)

1. C104/A21.4, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. C105/A21.5, Polyethylene Encasement for Ductile Iron Pipe Systems
3. C110/A21.10, Ductile-Iron and Gray-Iron Fittings, 3-inch. through 48-inch., for Water and Other Liquids.
4. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron and Pressure Pipe and Fittings.
5. C150/A21.50, Thickness Design of Ductile-Iron Pipe.
6. C151/A21.51, Ductile-Iron Pipe, Centrifugally Cast for Water.
7. C153/A21.53, Ductile-Iron Compact Fittings, 3 inches through 64 inches for Water Service
8. C219, Bolted, Sleeve-Type Couplings for Plain-End Pipe
9. C600, Installation of Ductile-Iron Water Mains and Their Appurtenances
10. C65l, Disinfecting Water Mains

B. American Society of Testing and Materials (ASTM)

1. A536, Standard Specification for Ductile Iron Castings
2. A716, Standard Specification for Ductile Iron Culvert Pipe

C. This specification makes reference to the requirements of additional specifications as listed. The Contractor shall obtain and familiarize himself with all requirements referenced by this specification.

1. Rhode Island Department of Transportation, Standard Specifications for Road and Bridge Construction, including all addenda, issued by the State of Rhode Island Department of Public Works, (referred to as the Standard Specification).

1.03 SUBMITTALS

A. In accordance with SECTION 01300 submit the following:

B. Shop Drawings

1. Piping layouts in full detail.
2. Location and type of backup block or device to prevent separation.

3. Schedules of all pipe, fittings, special castings, couplings, expansion joints, restrained joints and other appurtenances.
4. Detailed disinfection plan consistent with AWWA C651.

C. Certificates

1. Sworn certificates of shop tests showing compliance with appropriate standard.

D. Manufacturer's Literature

1. Catalog cuts of joints, couplings, harnesses, expansion joints, restrained joints gaskets, fasteners and other accessories.
2. Brochures and technical data of coatings and lining's and proposed method of application.

1.04 QUALITY ASSURANCE

A. Pipe and fittings to be inspected and tested at the foundry as required according to ANSI Standards.

B. Owner reserves right to inspect and/or test by independent service at manufacturer's plant or elsewhere at his own expense.

C. Owner reserves right to perform visual and hammer test prior to installation.

1.05 REQUIREMENTS

A. Water work shall be coordinated with the Kent County Water Authority (KCWA).

B. Ductile iron pipe used for water mains shall be double cement mortar lined, size as indicated on the drawings. Pipe shall conform to ANSI/AWWA C151/A21.51, ANSI/AWWA C150/A21.50 Class 52.

C. Location of restrained joints shall be based on Thrust Restraint Design for Ductile Iron Pipe (Second Edition), published by Ductile Iron Pipe Research Association.

PART 2 PRODUCTS

2.01 PIPE

A. Ductile-Iron Pipe

1. Designed in accordance with AWWA/ANSI C150/ A21.50.
2. Manufactured in accordance with AWWA/ANSI C151/A21.51.
3. Ductile Iron Pipe to be used for drain shall be in accordance with Section 701 and Subsection M.04.02.1 of the Rhode Island Standard Specification.
4. Unless otherwise indicated or specified, ductile-iron pipe shall be at least thickness Class 52.

B. Pipe For Use With Couplings

1. As specified above except that the ends shall be plain (without bells or beads) cast or machined at right angles to the axis.

2.02 FITTINGS

A. General

1. Push-on or mechanical-joint fittings shall be all-bell fittings unless otherwise indicated or specified.
2. Compact fittings in accordance with AWWA/ANSI C153/A21.53 and shall have a working pressure rating of 350 psi

B. Nonstandard Fittings

1. Fittings having nonstandard dimensions and cast especially for this project shall be of acceptable design.
2. Manufactured to meet the requirements of these specifications and shall have the same diameter and thickness as standard fittings, but their laying lengths and types of ends shall be determined by their positions in the pipelines and by the particular piping to which they connect.

2.03 ADAPTERS

A. Where it is necessary to joint pipes of different type, furnish and install the necessary adapters unless solid sleeves are indicated on the drawings or permitted. Adapters shall have ends, conforming to the above specifications for the appropriate type of joint, to receive the adjoining pipe. Adapters joining two classes of pipe may be of the lighter class provided that the annular space in bell-and-spigot type joints will be sufficient for proper jointing.

2.04 JOINTS

A. Push-On and Mechanical

1. In accordance with AWWA/ANSI C111/A21.11.
2. The plain end of push-on pipe shall be factory machined to a true circle and chamfered to facilitate fitting the gasket.
3. Push-on and mechanical-joint pipe and fittings shall be provided with sufficient quantities of accessories conforming to AWWA/ANSI C111/A21.11.

B. Restrained

1. Restraining glands will be required on all fittings.
2. Pipe, fittings and appurtenances for restrained joints shall be in accordance with AWWA/ANSI C153/A21.53. Only restraining glands which impart multiple wedging action against the pipe increasing its pressure as the pipe pressure increases will be allowed. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A536. Twist off nuts shall be used to insure proper actuating of the restraining device.
3. Mechanical joint restraint shall have a working pressure rating of at least 350 psi.

C. Gaskets

1. Gaskets shall be of a composition suitable for exposure to the product which the pipe is intended.

2.05 COUPLINGS

A. Flexible Connections

1. Where flexible connections in the piping are specified or indicated on the drawings, they shall be obtained by the use of sleeve-type couplings, split couplings, or mechanical-joint pipe and/or fittings as herein specified.

B. Sleeve Type Couplings

1. Pressure rating at least equal to that of the pipeline in which they are to be installed.
2. For sizes 2 1/2 to 16-inch diameter, up to 350 psi working pressure:
   a. Manufactured by Ford, or an acceptable equivalent product.
3. Nuts and Bolts to be stainless steel, unless noted otherwise.
4. Provided with gaskets of a composition suitable for exposure to the liquid within the pipe.
5. Provide with fusion bonded epoxy finish.
6. Conform to requirements of AWWA C219.

C. Solid Sleeve Couplings

1. Solid sleeve couplings and accessories shall be of a pressure rating at least equal to that of the pipeline in which they are to be installed.
2. Couplings shall be ductile iron with gaskets of a composition suitable for exposure to the liquid within the pipe.

2.06 ACCESSORIES

A. Tapped Connections

1. Tapped connections in pipe and fittings shall be made in such manner as to provide a watertight joint and adequate strength against pullout. The maximum size of taps in pipe or fittings without bosses shall not exceed the listed size in the appropriate table of the Appendix to the above-mentioned ANS A21.51 based on 3 full threads for cast iron and 2 full threads for ductile iron.
2. Where the size of the connections exceeds that given above for the pipe in question, a boss shall be provided on the pipe barrel, the tap shall be made in the flat part of the intersection of the run and branch of a tee or cross, or the connection shall be made by means of a tapped tee, branch fitting and tapped plug or reducing flange, or tapping tee and tapping valve, all as indicated or permitted by the Engineer.
3. All drilling and tapping of cast-iron pipe shall be done normal to the longitudinal axis of the pipe; fitting shall be drilled and tapped similarly, as appropriate. Drilling and tapping shall be done only by skilled mechanics. Tools shall be adapted to the work and in good condition so as to produce good, clean-cut threads of the correct size, pitch, and taper.

2.07 FINISHES

A. Lining

1. Double cement mortar meeting ANSI/AWWA C151/A21.5.

B. Coating

1. Exterior: ANSI/AWWA C104/A21.4.
2. Interior: All requirements of EPA for potable water.

PART 3 EXECUTION

3.01 HANDLING

A. Pipe and Fittings

1. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe, scratching or marring machined surfaces, and abrasion of the pipe coatings.
2. Any fitting showing a crack and any pipe or fitting which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the Work.
3. In any pipe showing a distinct crack and in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portions, if so approved, may be cut off by and at the expense of the Contractor before the pipe is laid so that the pipe used is perfectly sound. The cut shall be made in the sound barrel at a point at least 12-inches from the visible limits of the crack.

3.02 CUTTING

A. Pipe

1. Except as otherwise approved, all cutting shall be done with a machine having rolling wheel cutters, knives, or saws adapted to the purpose. Hammer and chisel or so-called wheel span cutters shall not be used to cut pipe. All cut ends shall be examined for possible cracks caused by cutting.
2. Cut ends to be used with push-on joints shall be carefully chamfered to prevent cutting the gasket when the pipe is laid or installed.

3.03 INSTALLATION

A. Pipe and Fittings

1. No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.
2. Each pipe and fitting shall be cleared of all debris, dirt, etc., before being laid and shall be kept clean until accepted in the complete work.
3. Pipe and fittings shall be laid accurately to the lines and grades indicated on the drawings or required. Care shall be taken to ensure a good alignment both horizontally and vertically.
4. Pipe shall have a firm bearing along its entire length. No pipe or fitting shall be permanently supported on saddles, blocking, or stones.
5. The deflection of alignment at a joint shall not exceed the appropriate permissible deflection as specified in the tabulation titled PIPE DEFLECTION ALLOWANCES.

PIPE DEFLECTION ALLOWANCES

Maximum permissible deflection, in.*

Size of pipe, in.	push-on joint	Mechanical joint
4	14	23
6	14	20
8-12	14	15
14-16	8	10
18-20	8	8
24-30	8	7

*Allowable Deflection for 18-Foot Pipe Lengths

PIPE DEFLECTION ALLOWANCES

Maximum permissible deflection, in.*

Size of pipe, in.	push-on joint	Mechanical joint
4	16	26
6	16	23
8-12	16	17
14-16	9	11
18-20	9	9
24-30	9	8

*Allowable Deflection for 20-Foot Pipe Lengths

6. When mechanical joint, push-on joint or similar pipe is laid, the bell of the pipe shall be cleaned of excess tar or other obstructions and wiped out before the cleaned and prepared spigot of the next pipe is inserted into it. The new pipe shall be shoved firmly into place until properly seated and held securely until the joint has been completed.

B. Castings

1. Castings to be encased in masonry shall be accurately set with the bolt holes, if any, carefully aligned.
2. Immediately prior to being set, castings shall be thoroughly cleaned of all rust, scale and other foreign material.

C. Temporary Plugs

1. At all times when pipe laying is not actually in progress, the open ends of pipe shall be closed by temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed.

D. Appurtenances

1. Valves, fittings and appurtenances shall be set and jointed as indicated on the drawings.

3.04 ASSEMBLING

A. Push-On Joints

1. Make up by inserting the gasket into the groove of the bell and applying a thin film of special nontoxic gasket lubricant uniformly over the inner surface of the gasket which will be in contact with the spigot end of the pipe.
2. The chamfered end of the plain pipe shall be inserted into the gasket and then forced past it until it seats against the bottom of the socket.

B. Bolted Joints

1. Before the pieces are assembled, rust-preventive coatings shall be removed from machined surfaces.
2. Pipe ends, sockets, sleeves, housings, and gaskets shall be thoroughly cleaned and all burrs and other defects shall be carefully smoothed.

C. Mechanical Joints

1. Surfaces against which the gasket will come in contact shall be thoroughly brushed with a wire brush prior to assembly of the joint. The gasket shall be cleaned. The gasket, bell, and spigot shall be lubricated by being washed with soapy water.
2. The gland and gasket, in that order, shall be slipped over the spigot, and the spigot shall be inserted into the bell until it is correctly seated.
3. The gasket shall then be seated evenly in the bell at all points, centering the spigot, and the gland shall be pressed firmly against the gasket.
4. After all bolts have been inserted and the nuts have been made up finger tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint to the proper tension, preferably by means of a torque wrench.
5. The correct range of torque as indicated by a torque wrench and the length wrench (if not a torque wrench) used by an average man to produce such range of torque, shall not exceed the values specified in the tabulation titled TORQUE RANGE VALUES.

TORQUE RANGE VALUES

Nominal pipe size, in.in.	Bolt diameter, ft.-lb.	Range of torque, in.	Length of wrench,
3	5/8	40-60	8
4 thru 24	3/4	60-90	10
30, 36	1	70-100	12
42, 48	1-1/4	90-120	14

If the effective sealing of the joint is not attained at the maximum torque indicated above, the joint shall be disassembled and thoroughly cleaned, then reassembled. Bolts shall not be over stressed to tighten a leaking joint.

D. Restrained Joints

1. Install in accordance with manufacturers written instructions.
2. Do not exceed manufacturer’s permissible pipe deflection allowance.

E. Sleeve-Type Couplings

1. Prior to the installation of sleeve-type couplings, the pipe ends shall be cleaned thoroughly for a distance of 8-inches.

2. Soapy water may be used as a gasket lubricant.
3. A follower and gasket, in that order, shall be slipped over each pipe to a distance of about 6-inches from the end, and the middle ring shall be placed on the already laid pipe end until it is properly centered over the joint.
4. The other pipe end shall be inserted into the middle ring and brought to proper position in relation to the pipe already laid.
5. The gaskets and followers shall then be pressed evenly and firmly into the middle ring flares.
6. After the bolts have been inserted and all nuts have been made up finger tight, diametrically opposite nuts shall be progressively and uniformly tightened all around the joint, preferably by use of a torque wrench of the appropriate size and torque for the bolts. The correct torque as indicated by a torque wrench shall not exceed the manufacturers recommended values.
7. After assembly and inspection and before being backfield, all exterior surfaces of buried sleeve-type couplings, including the middle and follower rings, bolts, and nuts, shall be thoroughly coated with an approved heavy-bodied bituminous mastic. Care shall be taken and appropriate devices used to ensure that the undersides, as well as the more readily accessible parts, are well coated.

3.05 PIPING SUPPORT (THRUST BLOCK)

A. Where necessary, bends, tees, and other fittings in pipelines buried in the ground may be backed up with 3000 psi concrete placed against undisturbed earth where firm support can be obtained. If the soil does not provide firm support, then restraining devices shall be provided.

3.06 CLEANING

A. Prior to the pressure and leakage tests, thoroughly clean piping of all dirt, dust, oil, grease and other foreign material. This work shall be done with care to avoid damage to linings and coatings.

3.07 TESTING

A. Except as otherwise directed, pipelines shall be given combined pressure and leakage tests in sections of approved length.

1. Provide 24 hour notice to Engineer for all testing
2. The Contractor shall make arrangements for procuring water for testing and be responsible for all associated fees.

B. Furnish and install suitable temporary testing plugs or caps; all necessary pressure pumps, pipe connections, meters, gages, relief valves, other necessary equipment; and all labor required.

C. Subject to approval and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when he desires.

D. However, pipelines to be embedded in concrete shall be tested prior to placing of the concrete and exposed piping shall be tested prior to field painting.

E. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If hydrants or blow offs are not available at high points for releasing air the Contractor shall make the necessary excavations and do the necessary backfilling and make the necessary taps. After completion of the tests, if directed by the Engineer, remove corporations and plug said holes.

F. The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.

G. The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gage location) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe but not to exceed 200 psi. Do not apply this pressure to items of equipment known to be incapable of withstanding such pressure.

H. If the Contractor cannot achieve the specified pressure and maintain it for a period of two hour with no additional pumping, the section shall be considered as having failed to pass the test.

I. If the section fails to pass the pressure and leakage test, the Contractor shall do everything necessary to locate, uncover, and repair or replace the defective pipe, fitting, or joint, all at his own expense and without extension of time for completion of the work. Additional tests and repairs shall be made until the section passes the specified test and is considered acceptable by the Engineer.

J. If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedure exactly for any reason, modifications in the procedure may be made as required and approved by the Engineer, but in any event the Contractor shall be fully responsible for the ultimate tightness of the line within the above leakage and pressure requirement.

K. All testing to be witnessed by the Engineer.

3.08 DISINFECTING AND FLUSHING

A. The Contractor shall disinfect the lines carrying potable water.

B. Furnish all equipment and materials necessary to do the work of disinfecting, and shall perform the work in accordance with the procedure outlined in the AWWA Standard C651 except as otherwise specified herein.

C. During the disinfection period, care shall be exercised to prevent contamination of water in existing mains.

D. The dosage shall be such as to produce a chlorine concentration of not less than 10 PPM (mg/l) after a contact time of not less than 24 hours.

E. After treatment, the main shall be flushed with clean water until the residual chlorine content does not exceed 0.2 PPM (mg/l).

F. Before disposing of the water used in disinfecting and flushing water mains thoroughly neutralize it through the application of a reducing agent, as referenced in AWWA C651.

G. Dispose of the water used in disinfecting and flushing in an approved manner.

H. Bacteriological sampling and testing shall be done in accordance with AWWA C651 for each main and each branch. Sampling shall be accomplished with sterile bottles treated with sodium thiosulfate, as required by Standard Methods. No hose or fire hydrants shall be used in collection of samples. A corporation stop installed on the main, with a removable copper tube gooseneck assembly, is the recommended method.

I. Testing shall be done by a laboratory approved by the Engineer, in accordance with Standard Methods, and shall show the absence of coliform organisms. A standard plate count may be required at the option of the Engineer.

END OF SECTION

SECTION 02642

WATER SERVICE CONNECTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for furnishing and installing potable water service connections.

1.02 SUBMITTALS

A. Shop Drawings

1. In accordance with Section 01300, submit manufacturer's specifications, catalog data, descriptive literature, illustrations, diagrams, etc.

1.03 REFERENCES

A. American National Standards Institute

1. NSF/ANSI 61 – Drinking Water System Components - Health effects

B. American Society for Testing and Materials (ASTM)

1. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings
2. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
3. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications.
4. ASTM D2447 - Standard Specification for Polyethylene (PE) Plastic Pipe, Schedules 40 and 80, Based on Outside Diameter.

C. American Water Works Association (ANSI/AWWA)

1. ANSI/AWWA C800, Underground Service Line Valves and Fittings.

D. Rules and Regulations of the Kent County Water Authority (KCWA), latest edition, including all errata.

1.04 REQUIREMENTS

A. Kent County Water Authority (KCWA)

1. Contractor shall notify KCWA a minimum of five days prior to construction commencement so that a field representative may be made available to observe the work in progress. A $5.00 per linear foot inspection fee must be paid in full to KCWA prior to construction commencement.

2. A one-year warranty on all water lines and appurtenances is required upon completion acceptance by the Kent County Water Authority. All problems during the warranty period must be corrected at the Contractor's cost to the satisfaction of the Kent County Water Authority.

3. A copy of the bacteria sample test results and inspection confirmation letter from the plumbing inspector must be provided upon request for water service activation. It is the Contractor's responsibility to coordinate with the plumbing inspector to complete all inspection requirements of the Rhode Island Plumbing Code.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fittings and accessories shall conform to the requirements of ANSI/AWWA C800 unless noted otherwise.

1. Corporation Stops shall be CC thread by compression connection.
2. Curb Stops shall be compression connection.
3. Other connection styles as approved by the Engineer.

B. Fittings shall conform to the Rules and Regulations of the Kent County Water Authority (KCWA), latest edition, including all errata.

C. Stops shall be ball valve style and have ends as required to suit type of pipe or tubing to be connected, and a combined cap and tee handle.

C. Curb Boxes

1. Buffalo style, 2 ½-inch, cast iron, heavy duty top section, sliding type with flare top and recess cover marked "WATER" and sliding type arched bottom section.
2. Overall length to suit specified depth of cover requirements as approved by the Engineer.

D. Service Piping

1. 4-inch and larger to be Double Cement Lined Ductile Iron, Class 52.
2. Copper Whip to be Type "K" Copper in accordance with ASTM B88.
3. H.D.P.E. shall conform to ASTM D1248 Type III, Grade P34, Class A, Category 5, color blue with virgin clear natural center, AWWA C901, 200 psi.

E. Service Saddle

1. Service saddles and repair saddles shall be ductile iron or type 304 stainless steel, with stainless steel bolts, washers, nuts and bands. Ductile iron components shall be coated with fusion bonded epoxy minimum 8 mils thickness meeting or exceeding AWWA C550 or nylon coated.

PART 3 EXECUTION

A. Water service and fire service connections shall be installed or replaced as required from the new water main corporation stop to the new curb stop and connected to the existing service. Remove and replace existing curb stop, remove service pipe from old main, tap new main, install new corporation stop, install water service and fire service connection between new main and new installed curb stop.

B. Service shall be maintained as continuously as possible, coordinate shut down with property owner.

C. The tapping machine shall be rigidly fastened to the pipe as near the horizontal diameter as possible. The length of travel of the tap should be so established that when the stop is inserted and tightened with a 14-inch wrench, not more than one to three threads will be exposed on the outside. When a wet tapping machine is used, the corporation cock shall be inserted with the machine while it is still in place. Stops shall be tightened only sufficiently to be watertight. Care must be exercised not to overtighten.

D. Service tubing shall be installed with care to avoid kinks or sharp bends. Do not allow tubing to contact ledge, rock or sharp stones which could cause damage.

   1. Wrap tubing with #12 tracer wire connected to the corporation and curb stop.

E. Provide at least 6-inches of coarse grained sand or gravel with a maximum particle size of ½-inch adjacent to and above the service pipe. Backfill remainder of trench with approved backfill material.

F. Services shall be flushed before activating to avoid meter clogging.

G. The Engineer must observe all service connections under normal water main pressure prior to backfilling of the service trench to check for leakage.

H. Service connections shall be free from leaks and may be pressure tested through the water main as directed by the Engineer.

I. The curb service boxes shall be set in a true vertical position and if the boxes are within the limits of the roadway or within areas where the plowing of snow will take place, the tops of the boxes shall be set about ½-inch below the top of the finished grade. In locations where these boxes are not likely to be disturbed, the tops shall be set flush with the adjoining ground.

END OF SECTION

SECTION 02650

RELOCATION OF EXISTING UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for relocating existing utilities which conflict with the proposed Work.

1.02 SUBMITTALS

A. In accordance with Section 01300 submit utility relocation plans indicating limits and details of the relocation work.

1.03 PROJECT/SITE CONDITIONS

A. Existing conditions

1. The presents of utilities within the streets, roads and right of ways customarily indicate service lines connecting the buildings and structures along the route. Safeguard all utilities and there respective service connections from damage during the performance of the Work.
2. The presents of utility poles indicates overhead wires for electric, telephone and cable TV also exist. Protect all overhead wires, including service lines, from damage caused by equipment used to perform the Work under this Contract.
3. Existing utilities, as indicated on the Drawings are from the best available information. The accuracy of such is not guaranteed.

B. Relocation of Utilities

1. Relocation of existing utilities will be required when;
   a. The existing utility interferes with the location of a structure or open cut piping installations or;
   b. Realignment of the proposed Work will have detrimental effects on the proposed Work or existing utility.

C. Support of Utilities

1. Support of existing utilities will be allowed when;
   a. The location of the existing utility does not interfere with the excavation, excavation support, installation of piping, structures or appurtenances.
   b. Support in place will not be detrimental to the utility itself.
   c. Support of utility is in accordance with the requirements of the utility in question.

1.04 SCHEDULING

A. Coordination

1. Coordinate all existing utility relocation work with the appropriate utility company.
2. Notification of “Dig Safe” in accordance with State of Rhode Island requirements
3. Conduct test pits to identify utility locations needed to perform the Work only after coordination with the utility company and in time to prevent delay of the Work.
4. Coordinate with local water authority to operate water valves as required.

PART 2 PRODUCTS

2.01 MATERIALS

A. As required by the utility company, or as specified, or as approved by the Engineer.

B. To be new.

PART 3 EXECUTION

3.01 EXAMINATION

A. After test pit excavations are performed, submit as built information to utility company and the Engineer.

3.02 INSTALLATION

A. In strict accordance with the requirements of the Utility Company responsible for the Work.

3.03 TESTING

A. Perform pressure and leakage testing on water lines relocated and infiltration or exfiltration testing on storm drains and sewers relocated in accordance with local agencies responsible for the utility.

3.04 INSPECTION

A. Allow access to the relocation work for inspections and recording as-built information.

END OF SECTION

SECTION 02975

RUBBER MATS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. The work of this Section consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to purchase, deliver and install rubbers in locations as shown and detailed on the drawings and as specified herein.

1.02 SUBMITTALS

A. Submit manufacturer's product data, shop drawings and standard manufacturer warranty for the following:

1. Interior Rubber Mats (at restrooms and locker room)
2. Removable Exterior Rubber Mats (around rink and along concession building)

1.03 DELIVERY, STORAGE AND HANDLING

A. Rubber Mats shall be protected against theft and damage. Missing or damaged items shall be replaced at no additional cost to the Owner.

PART 2 PRODUCTS

A. Interior Rubber Mats (Preformed Athletic Flooring) shall meet the following:

1. Manufacturers: All products by the same manufacturer.
2. Rubber Tile Flooring (RBT-1): Recycled vulcanized rubber and colored granules.
3. Thickness: Minimum 3/8 inch (10.0 mm).
4. Tile Edge/Installation: Interlocking shape, loose-laid installation.
5. Size, Straight Edge Tile: Nominal 48 inches by 72 inches (1219 mm by 1829 mm).
6. Durometer Hardness, Type A: Minimum of 70, when tested in accordance with ASTM D2240.
7. Surface Texture: Smooth.
8. Color: As selected from manufacturer's standard range.

9. SportFloor STP-5100, 1 part adhesive required
10. Manufacturers:
    a. 10mm (3/8”) Stamina Tile by Sport Floor: Supplied by Becker Arena Products. 720 Innovation Dr. Shakopee, MN 55379. Main Office Phone 952.890.2690
11. Or approved equal.

B. Exterior removable Rubber Mats shall meet the following:

1. Construction: 100% recycled vulcanized rubber throughout
2. Size: 4 ft x 6 ft. (1.22 m x 1.83 m) (subject to temperature variance) [24 sq.ft.]
3. Interlock for non-adhesive installation: 22.2” x 22.2” x ⅜”
4. Thickness: [10mm (⅜ in)] Tolerance: ± 0.8mm (1/32 in).
5. Texture: Smooth top, textured bottom
6. Color: Black or black with EPDM rubber speckles added. [black] [black with red] [black with grey] [black with blue] [black with sand/brown {earth tone}]
7. Options: higher concentration of EPDM speckle
8. Manufacturers:
    a. 10mm (3/8”) Stamina Tile by Sport Floor: Supplied by Becker Arena Products. 720 Innovation Dr. Shakopee, MN 55379. Main Office Phone 952.890.2690
9. Or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to installation, confirm site furnishing locations and measure to verify clearances.

B. Installation of Stamina should not begin until the work of all other trades has been completed, especially overhead trades.

C. Examine floor areas to be covered and report any deficiencies to the contractor. Do not proceed with installation until substrates and conditions comply with manufacturer’s requirements for installation.

D. Ensure floor substrate is clean and dry by using test methods recommended by flooring manufacturer.

E. Ensure building area for flooring application is maintained at minimum 15°C (60°F), maximum 24°C (75°F) and at maximum 65% relative humidity for minimum 48 hours before installation, during installation and for minimum 72 hours after completion of work.

3.02 INSTALLATION

A. Prepare sub floor in accordance with Manufacturer's instructions in the printed Installation Manual

B. Perform moisture test recommended by flooring manufacturer on concrete floor.

1. Test shall be in accordance with ASTM F-1869* Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
2. One test should be conducted for every 92.9030m2 (1000 sq.ft.) of flooring and the results not exceed 5 lbs. per 1000 sq.ft. in 24 hours.

C. If test results exceed limitations or if hydrostatic pressure exists, the installation must not proceed until the problem has been corrected or an approved vapor barrier underlayment is installed.

D. If lightweight concrete has been used in construction do not use the F1869 test. Use ASTM F2170, the Relative-Humidity Test, as an alternate in these cases.

E. If poured-gypsum underlayment has been used, check with the underlayment manufacturer on how to test for dryness. Never use calcium chloride testing with gypsum underlayment. General

F. Install rubbers mats per manufacturer's recommendations at locations as shown on the drawings. Remove and replace any damaged components that cannot be successfully repaired.

END OF SECTION

SECTION 08330

ROLLING ALUMINUM SERVICE DOORS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Rolling service doors and operators.

1.2 RELATED SECTIONS

A. Section 05500 - Metal Fabrications: Support framing and framed opening.

B. Section 06200 - Finish Carpentry: Wood jamb and head trim.

C. Section 08333 - Security Grilles.

D. Section 08710 - Door Hardware: Product Requirements for cylinder core and keys.

E. Section 09900 - Painting: Field applied finish.

F. Section 16130 - Raceway and Boxes: Conduit from electric circuit to door operator and from door operator to control station.

G. Section 16150 - Wiring Connections: Power to disconnect.

1.3 REFERENCES

A. ANSI/DASMA 108 - American National Standards Institute Standard Method For Testing Sectional Garage Doors And Rolling Doors: Determination Of Structural Performance Under Uniform Static Air Pressure Difference.

B. NFRC 102 - Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.

C. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.

D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

E. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

F. ASTM A 666 - Standard Specification for Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.

G. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

H. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

I. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

J. NEMA MG 1 - Motors and Generators.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Details of construction and fabrication.

4. Installation instructions.

C. Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years' experience in the fabrication and installation of security closures.

B. Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.

2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

A. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.

B. Warranty: Manufacturer's limited door system warranty for 2 years for all parts and components.

C. PowderGuard Finish

1. PowderGuard Premium Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Premium Finish warranty for 2 years.

2. PowderGuard Zinc Base Coat applied to guides, bottom bar, headplates plus PowderGuard Premium applied to curtain and top coat for guides, bottom bar, headplates: Manufacturer's limited Zinc Finish warranty for 4 years.

3. PowderGuard Textured: Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Textured Finish warranty for 3 years.

4. PowderGuard Zinc Base Coat applied to guides, bottom bar, headplates plus PowderGuard Textured applied to curtain and top coat for guides, bottom bar, headplates: Manufacturer's limited Zinc Finish warranty for 4 years.

5. PowderGuard Max: Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Max Finish warranty for 5 years.

2 PART 2 PRODUCTS

1.11 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corporation, 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.

B. Substitutions.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

1.12 ROLLING SERVICE DOORS

A. Heavy Duty Industrial Doors: Overhead Door Corporation, Model 620 Stormtite Rolling Service Doors.

1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.

a. Flat profile type F-265 for doors up to 18 feet 4 inches (5.59 m) wide, fabricated of:

1) .040 inch (1 mm) aluminum.

2. Slats and Hood Finish:

    a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.

    b. Finish: 2B mill finish.

    c. Aluminum: Slats and hood shall be aluminum finished as follows.

    d. Powder Coat

        Powder Coat:

        (a) PowderGuard Premium powder coat color as selected by the Architect.

3. Weatherseals:

    a. Vinyl bottom seal, exterior guide and internal hood seals.

    b. Interior guide weatherseal.

    c. Lintel weatherseal.

4. Bottom Bar:

    a. Extruded aluminum for doors up to 15 feet 4 inches (4.67 m) wide.

    b. Two primed steel angles for doors over 15 feet 4 inches (4.67 m) wide.

    c. Two galvanized steel angles.

5. Guides: Three structural steel angles.

6. Brackets:

    a. Hot rolled prime painted steel to support counterbalance, curtain and hood.

    b. Galvanized steel to support counterbalance, curtain and hood.

7. Finish; Bottom Bar, Guides, Headplate and Brackets:

    a. PowderGuard Premium powder coat in black color.

8. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.

9. Hood: Provide with internal hood baffle weatherseal.

    a. Aluminum hood with intermediate supports as required.

10. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

    a. Sensing Edge Protection:

        1) Electric sensing edge.

    b. Operator Controls:

        1) Key operation with open, close, and stop controls.

        2) Controls for both interior and exterior location.

        3) Controls surface mounted.

    c. Motor Voltage: 115/230 single phase, 60 Hz.

11. Wind Load Design:

ADDENDUM 1

    a. Standard wind load shall be ~~20 PSF~~. 65 PSF.

    b. Miami-Dade County NOA ___.

    c. FBC certification FL# ___.

    d. TDI Approval # ___.

12. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.

13. Locking:

    a. Interior slide bolt lock for electric operation with interlock switch.

14. Wall Mounting Condition:

    a. Face-of-wall mounting.

    b. Between jambs mounting.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Coordinate installation of electrical service with Section 16150. Complete wiring from disconnect to unit components.

F. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.

G. Install perimeter trim and closures.

H. Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

A. Protect installed products until completion of project.

END OF SECTION

SECTION 08360

GLAZED ALUMINUM SECTIONAL OVERHEAD DOORS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Glazed Aluminum Sectional Overhead Doors

B. Electric Operators and Controls.

C. Operating Hardware, tracks, interior slide bolt locking system, and support.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-In-Place Concrete: Prepared opening in concrete. Execution requirements for placement of anchors in concrete wall construction.

B. Section 04810 - Unit Masonry Assemblies: Prepared opening in masonry. Execution requirements for placement of anchors in masonry wall construction.

C. Section 05500 - Metal Fabrications: Steel frame and supports.

D. Section 06114 - Wood Blocking and Curbing: Rough wood framing and blocking for door opening.

E. Section 07900 - Joint Sealers: Perimeter sealant and backup materials.

F. Section 08710 - Door Hardware: Cylinder locks.

G. Section 09900 - Paints and Coatings: Field painting.

H. Section 11150 – Parking Control Equipment: Remote door control.

I. Section 16130 - Raceway and Boxes: Empty conduit from control station to door operator.

J. Section 16150 - Wiring Connections: Electrical service to door operator.

1.3 REFERENCES

A. ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.

B. Wiring Connections: Requirements for electrical characteristics.

1. 115 volts, single phase, 60 Hz.

2. 230 volts, single phase, 60 Hz.

3. 230 volts, three phase, 60 Hz.

4. 460 volts, three phase, 60 Hz.

C. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened labeled packaging until ready for installation.

B. Protect materials from exposure to moisture until ready for installation.

C. Store materials in a dry, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Pre-Installation Conference: Convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

B. Wiring Connections: Requirements for electrical characteristics.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com.
E-mail: sales@overheaddoor.com.

B. Basis of Design, 521 Series Aluminum Sectional Overhead Door as manufactured by Overhead Door Corp.

C. Substitutions: Submit to architect for review.

D. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 GLAZED ALUMINUM SECTIONAL OVERHEAD DOORS

A. Glazed Sectional Overhead Doors: 521 Series Aluminum Doors by Overhead Door Corporation.

1. Door Assembly: Stile and rail assembly secured with 1/4-inch (6 mm) diameter through rods.

a. Panel Thickness: 1-3/4 inches (44 mm).

b. Center Stile Width: 2-11/16 inches (68mm)

c. End Stile Width: 3-5/16 inches (84 mm)

d. Intermediate Rail Pair Width: 3-11/16 inches (94mm).

e. Top Rail Width:

1. 2-3/8 inches (60mm)

2. 3-3/4 inches (95 mm)

f. Bottom Rail Width:

1. 3-3/4 inches (95mm)

2. 4-1/2 inches (114mm)

g. Aluminum Panels: 0.050 inch (1.3 mm) thick, aluminum.

h. Stiles and Rails: 6063 - T6 aluminum.

i. Springs: 50,000 cycles.

j. Glazing: 1/2 inch (12.5 mm) Tempered Insulating glass.

2. Finish and Color:

a. Powder Coating Finish: Color as selected by Architect from manufacturer's standard colors.

3. Windload Design: Provide to meet the Design/Performance requirements specified: 65 PSF.

ADDENDUM 1

4. Hardware: Galvanized steel hinges and fixtures. Ball bearing rollers with hardened steel races.

5. Lock: Interior galvanized single unit.

6. Weatherstripping:

a. Flexible bulb-type strip at bottom section.

b. Flexible Jamb seals.

c. Flexible header seal.

7. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.

8. Manual Operation: Chain hoist.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until openings have been properly prepared.

B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

C. Verify electric power is available and of correct characteristics.

D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install overhead doors and track in accordance with approved shop drawings and the manufacturer’s printed instructions.

B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

C. Anchor assembly to wall construction and building framing without distortion or stress.

D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

E. Fit and align door assembly including hardware.

3.4 CLEANING AND ADJUSTING

A. Adjust door assembly to smooth operation and in full contact with weatherstripping.

B. Clean doors, frames, and glass.

C. Remove temporary labels and visible markings.

3.5 PROTECTION

A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

B. Protect installed products until completion of project.

C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.

END OF SECTION

SECTION 08550

ALUMINUM CLAD WOOD WINDOWS

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Extruded aluminum clad, wood double, casement, and fixed windows, basis of design Kolbe Ultra Series, unit sizes as shown on the drawings and window schedule.

B. Glazing.

C. Accessories.

1.2 RELATED SECTIONS

A. Section 06100 - Rough Carpentry: Framed openings.

B. Section 06200 - Finish Carpentry: Interior wood casing.

C. Section 07213 - Batt Insulation: Batt insulation at window perimeter.

D. Section 07460 - Exterior Siding.

E. Section 07900 - Joint Sealers: Perimeter joint sealant and backer rod.

F. Section 09900 - Painting: Finishing interior wood, including grilles.

1.3 REFERENCES

A. American Architectural Manufacturers Association (AAMA):

1. AAMA 603.8 – Voluntary Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum.

B. American National Standards Institute (ANSI):

1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used In Buildings.

C. American Society for Testing and Materials (ASTM):

1. ASTM C 1036 – Specification for Flat Glass.

2. ASTM C 1048 – Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.

3. ASTM E 90 – Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions.

4. ASTM E 283 – Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

5. ASTM E 330 – Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

6. ASTM E 413 – Classification for Rating Sound Insulation.

7. ASTM E 547 – Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.

8. ASTM E 773 – Test Method for Seal Durability of Sealed Insulating Glass Units.

9. ASTM E 774 – Specification for Seal Durability of Sealed Insulating Glass Units.

10. ASTM F 588 – Test Methods for Resistance of Window Assemblies to Forced Entry Excluding-Glazing.

D. Consumer Product Safety Commission (CPSC):

1. CPSC 16CFR-1201, Safety Standard for Architectural Glazing Materials.

E. National Fenestration Rating Council (NFRC):

1. NFRC 100, Procedure for Determining Fenestration Product Thermal Properties.

2. NFRC 200, Procedure for Determining Solar Heat Gain Coefficient.

F. National Wood Window & Door Association (NWWDA):

1. NWWDA Industry Standard I.S. 2, Industry Standard for Wood Window Units.

2. NWWDA Industry Standard I.S. 4, Industry Standard for Water-Repellent Preservative Treatment for Millwork.

1.4 PERFORMANCE REQUIREMENTS

A. Aluminum clad wood windows to comply with the minimum performance requirements specified in NWWDA Industry Standard I.S. 2, DP 30, except where more stringent requirements are specified.

B. Air Infiltration: When tested in accordance with ASTM E 283 at a static pressure of 1.57 psf, total air infiltration to average less than or equal to 0.13 cfm per square foot of unit.

C. Water Penetration: No water penetration beyond the interior face of window unit when tested in accordance with ASTM E 547 at a static pressure of 4.50 psf.

D. Structural Performance: No glass breakage, damage to hardware, or permanent deformation (set) which would cause any malfunction or impair the operation of the unit, or residual deflection greater than 0.4% of span when tested in accordance with ASTM E 330 at a test pressure of 45 psf.

E. Design Criteria: Design and size window components to withstand loads imposed by wind to a pressure of 30 psf when measured in accordance with ASTM E 330. Limit deflection to L/175.

F. Thermal Performance:

1. Fenestration U-factor: Fenestration Products shall be rated, certified and labeled in accordance with NFRC 100. U-factors shall be as follows:

a. Residential size (60" x 36"): High Performance 0.33 Low E4.

2. Fenestration Solar Heat Gain Coefficient (SHGC): Fenestration Products shall be rated, certified and labeled in accordance with NFRC 200. SHGC shall be as follows:

a. Residential size (60" x 36"): High Performance 0.29

G. Sound Transmission Ratings: Windows to provide a sound transmission class (STC) of 28 when tested in accordance with ASTM E 90 and ASTM E 413.

H. Forced Entry Resistance: Window units to comply with requirements for Performance Level 20 when tested in accordance with ASTM F 588.

I. Sustained Operational Force: 5 pounds or less.

1.5 SUBMITTALS

A. Product Data, Installation Instructions, Shop Drawings and Samples: Submit the following under provisions of Section 01330:

1. Product Data: Submit manufacturer's product literature for all products and accessories furnished.

2. Installation Instructions: Submit manufacturer's installation instruction sheets for all products and accessories furnished.

3. Detail Drawings: Submit detail drawings indicating direction of operating sash, location and type of glazing material, and typical jamb, head and sill details.

4. Color Samples:

a. Submit samples of white interior and standard color exterior finishes

b. Hardware: Submit samples indicating typical finish on window hardware. (satin nickel estate series hardware)

B. Quality Control Submittals: Submit the following under provisions of Section 01400:

1. Reference List: Submit reference lists as specified under Quality Assurance article.

C. Contract Closeout Submittals: Submit the following under provisions of Section 01700:

1. Owner's Manual: Submit bound manual clearly identified with project name, location and completion date. Identify type and size of window units installed. Provide recommendations for periodic inspections, care and maintenance. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company having at least 25 years experience in the manufacture of wood window products. Provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of General Contractor's and Owner's contact person.

B. Installer Qualifications: Company experienced in the installation of wood window products. Installer to provide a reference list of at least 3 projects of similar scale and complexity successfully completed during the past three years. Provide project names, locations, completion dates, names and telephone numbers of General Contractor's and Owner's contact person.

C. Safety Glazing: Comply with safety glazing requirements of CPSC 16CFR 1201. (Where required by code.)

D. Insulating Glass Units: Provide insulating glass units permanently marked with certification label of Insulating Glass Certification Council (IGCC) indicating compliance with Class CBA.

1.7 WARRANTY

A. Manufacturer’s Warranty: Manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. Window: 10 years from date of shipment and issued to owner at Substantial Completion.

b. Glazing Units: 20 years from date of shipment and issued to owner at Substantial Completion.

c. Aluminum-Cladding Finish: 20 years from date of shipment and issued to owner at Substantial Completion.

1.8 DELIVERY, STORAGE AND HANDLING

A. In addition to general delivery, storage and handling requirements specified in Section 01600, comply with the following:

1. Deliver materials to job site in sealed, unopened cartons. Protect uncartoned set-up multiple units from rubbing.

2. Identify each carton with material name, date of manufacture and lot number.

3. Store windows and accessories off ground, under cover, protected from weather and construction activities.

1.9 PROJECT CONDITIONS

A. Install windows in strict accordance with safety and weather conditions required by manufacturer's product literature.

B. Extra caution must be exercised when temperature drops below 32 degrees F., and extreme care below 0 degrees F.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Kolbe Windows – 715-842-5666, www.kolbewindows.com

B. Pella Windows – 866-209-4260, pro.pella.com

C. Substitutions: Refer to Section 01600 - Product Requirements.

2.2 MATERIALS

A. Anderson 400 Woodwright series, sizes as shown on Drawings.

B. Permanently applied interior and exterior muntin bars with spacer. Munitn bars – High definition 7/8” muntin bars.

C. Interior color: white. Exterior color: As selected from standard finishes.

D. Aluminum Cladding: Fluoropolymer tru coat system – 70% PVDS resin by weight per AAMA 2605 color as selected by Architect.

2.3 GLAZING

A. General: Insulating glass units certified through the Insulating Glass Certification Council as conforming to the requirements of IGCC Class CBA when tested in accordance with ASTM E 773 and E 774. Provide dual sealed units consisting of polyisobutylene primary seal and silicone secondary seal. Metal spacers to have bent or soldered corners.

2.4 HARDWARE

A. Estate Series: satin nickel finish.

2.5 ACCESSORIES

A. Insect Screens: Removable, ½ screens at all double hung units.

B. Extension Jambs: Wood members machined from clear material approved in NWWDA/ANSI Industry Standard I.S. 2. Provide pre-drilled for application of extension jambs.

C. Nailing fins, preformed flashing, installation clips to meet sites required design pressure.

2.6 FABRICATION

A. Preservative Treatment: Treat wood sash and frame members after machining with a water repellent preservative in accordance with NWWDA I.S. 4.

B. Glazing: Factory glaze with high performance glazing sealant.

C. Factory apply weatherstripping.

D. Factory install locking system, except handle to be field installed.

3 PART 3 EXECUTION

3.1 INSPECTION

A. Inspect opening before installation is commenced.

1. Verify concrete surfaces are dry and free of excess mortar, rocks, sand and other construction debris.

2. Verify rough opening or masonry opening is square and dimensions are correct. Verify sill plate is level.

3. Verify wood frame walls are dry, clean, sound and well nailed, and/or glued, free of voids and without offsets at joints. Ensure that nail heads are driven flush with all surfaces in opening and within 3" of rough opening.

3.2 PREPARATION

A. Open carton and remove window and all parts. Inspect window. Verify that window is not damaged and all parts are included before disposing of carton. Do not remove protective packing until unit is installed.

B. Leave sash locked.

3.3 JOINING SYSTEMS

A. Assemble joining system where required for window combinations according to window manufacturer's instructions.

B. Apply head flashing with silicone sealant at each vertical mullion head joint.

3.4 INSTALLATION

A. Completely wrap rough opening with self adhered flashing. Follow Manufacturer requirements for sill drainage.

B. Install window units, hardware, operators, accessories and other window components according to window manufacturer's installation instruction sheets.

C. Set units plumb, level true to line, without warp or rack in frames or sash. Remove protective packing.

D. Install batt insulation in shim space around window perimeter to maintain continuity of building insulation. Do not use expanding foam insulation.

E. Extend vapor barrier to interior face of window frame and attach.

3.5 EXTERIOR FINISHING

A. Hold back exterior siding or other finish materials from edge of window to allow for expansion and contraction and the installation of a proper sealant joint with backing materials.

B. Seal perimeter of window after exterior finish is applied in accordance with the requirements of Section 07900.

C. Application of Mullion Covers:

1. Install according to window manufacturer's installation instruction sheets.

D. Application of Casing Trim:

1. Install according to window manufacturer's instructions.

3.6 INTERIOR FINISHING

A. Finish interior wood window components according to window manufacturer's instructions and requirements specified in Section 09900.

3.7 ACCESSORIES

A. Insect Screens: Install insect screens according to window manufacturer's instructions.

B. Extension Jambs: Install according to window manufacturer's instructions.

C. Interior Wood Casing: Install interior wood casing according to window manufacturer's instructions.

D. Exterior Trim and Mullion Joiners: Install according to manufacturer's installation instructions.

3.8 CLEANING

A. Clean vinyl surfaces to remove dirt. Use cleaning materials specifically recommended by window manufacturer.

B. Protect glass and hardware from masonry cleaning solutions. Contact with the solution could etch the glass and cause seal failure of the insulating glass unit.

C. Remove debris from work site.

D. Leave window units in closed and locked position.

E. Protect interior and exterior of window units until structure is sealed from the weather.

END OF SECTION

SECTION 08712

DOOR HARDWARE

1 PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hardware for hollow steel doors and wood doors.

B. Thresholds.

C. Gasketing and Weather-stripping.

D. Lock Cylinders.

1.2 PRODUCTS FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish templates to Section 08111 – Standard Steel Doors, and Section 08215 – Prefinished Wood Doors, for door and frame preparation.

B. Furnish Door Hardware for installation under Section 06100 – Rough Carpentry.

1.3 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

B. ANSI/NFPA 80 - Fire Doors and Windows.

C. AWI - Architectural Woodwork Institute.

D. BHMA - Builders' Hardware Manufacturers Association.

E. DHI - Door and Hardware Institute.

F. NAAMM - National Association of Architectural Metal Manufacturers.

G. NFPA 101 - Life Safety Code.

H. SDI - Steel Door Institute.

1.4 COORDINATION

A. Coordinate work of this Section with other directly affected Sections involving manufacturer of any internal reinforcement for door hardware.

1.5 QUALITY ASSURANCE

A. Manufacturers: Companies specializing in manufacturing door hardware with minimum five years documented experience.

B. Hardware Supplier: Company specializing in supplying commercial institutional door hardware with five years documented experience.

C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this Section.

1.6 REGULATORY REQUIREMENTS

A. Conform to Massachusetts State Building Code for requirements applicable to fire rated doors and frames.

B. Conform to the applicable sections of Chapter 5 of NFPA 101.

C. Conform to ANSI 117.1 for requirements of physically handicapped accessibility.

1.7 CERTIFICATIONS

A. Architectural Hardware Consultant shall inspect complete installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified herein.

B. Provide two copies of certifications to Contract Officer.

1.8 SUBMITTALS

A. Submit schedule, shop drawings, and product data under provisions of Section 01300.

B. Indicate locations and mounting heights of each type of hardware.

C. Provide product data on specified hardware.

D. Submit manufacturer's parts lists, templates, and installation instructions under provisions of Section 01300.

E. Submit manufacturer's certificate under provisions of Section 01400 that fire rated hardware meets or exceeds specified requirements.

1.9 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Section 01700.

B. Include data on operation hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section 01600.

B. Store and protect products under provisions of Section 01600.

C. Package hardware items individually; label and identify package with door opening code to match hardware schedule.

D. Deliver keys to Owner by security shipment direct from hardware supplier.

E. Protect hardware from theft by cataloging and storing in secure area.

1.11 WARRANTY

A. Provide five-year warranty under provisions of Section 01700.

1.12 MAINTENANCE MATERIALS

A. Provide special wrenches and tools applicable to each different or special hardware component.

B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

2 PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A.	Hinges:	Hager, Stanley
B.	Lock & Latch Sets:	Schlage, Sargent
C.	Closers:	LCN, Sargent
D.	Panic Device:	VonDuprin, Sargent
E.	Cylinder Locks:	Schlage, Sargent
F.	Protection Plates:	Rockwood, Ives
G.	Wall Bumpers:	Rockwood, Ives
H.	Coordinators:	Door Controls International, H.B. Ives, Glynn Johnson

I. Thresholds: Pemko

J. Weather-strip: Pemko

K. Drop Seals: Pemko

L. Astragals: Pemko

M. Substitutions: Under provisions of Section 01600.

2.2 HINGES, BUTTS AND PIVOT:

A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template produced units.

B. Screws: Phillips flat-head all-purpose or machine screws for installation of units, except furnish Phillips flat-head all-purpose or wood screws for installation of units into wood. Finish screws heads to match surface of hinges and pivots.

C. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.

D. Hinge Type: Exterior doors - non-ferrous, heavyweight hinges, with stainless steel, non-removable pins; Hager BB1199.

E. Hinge Type: Interior Doors - Steel, standard weight, with steel, non-rising pins; Hager BB1279. Unless noted otherwise.

F. Spring Hinge: Hager 1250.

G. Hinge Size: 1-3/4" thick doors up to 3'4" wide shall have 4.5 x 4.5 hinges; 1-3/4" thick doors over 3'4" wide, up to 4'0" wide shall have 5" x 4.5" hinges.

2.3 LOCKS, LATCHES AND BOLTS

A. Strikes: Manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

B. Provide dust-proof strikes for foot bolts, except where special threshold construction provides non-recessed strike for bolt.

C. Lock Throw: 1/2" minimum throw of latchbolt; comply with UL requirements for throw of bolts and latch bolts on rated fire openings.

D. Flush Bolt Heads: Minimum of 1/2" diameter rods of brass, bronze, or stainless steel, with minimum 12" long rod.

E. Exit Device Dogging: Except on fire-rated doors, wherever closers are provided on doors equipped with exit devices, equip the units with keyed dogging device to hold the push bar down and the latch bolt in the open position.

F. Locksets: Sargent "10" Line, Schlage “D” Series.

G. Exit Devices: Sargent 80 and 90 Series with lever handle; VonDuprin 98 and 88 Series U.N.O.

H. Door Closers: LCN 4110 Series and 1460 Series.

I. Silencers: Provide all frame with rubber silencers - Ives #20R except frames with door seals.

2.5 ACCESS-FREE CLOSERS

A. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

B. Provide grey resilient parts for exposed bumpers.

2.6 DOOR TRIM UNITS

A. Fasteners: Manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim and similar units); either machine screws of self-tapping screw.

B. Fabricate protection plates (armor, kick or mop) not more than 1-1/2" on stop side smaller than the door width, 8" high.

2.7 WEATHER-STRIPPING AND SEALS

A. Thresholds:

1. See Door Schedule.

B. Weather-strip - Pemko 193 CS.

C. Astragals - Pemko Model 293CP.

D. Door Drip - Pemko 420AV.

2.8 KEYING

A. Door Cylinders: Building master keyed.

B. Supply 2 change keys for each lock; 6 master keys for each set.

C. Detailed Keying to be determined in consultation with the Architect and Contract Officer. Coordinate with existing building system.

D. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, with capacity for 150% of the number of locks required for the project; provide hinged-panel type cabinet, for wall mounting.

2.9 FINISHES

A. Finishes: All hardware, brushed stainless.

3 PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

B. Verify that power supply is available to power operated devices.

C. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and requirements of SDI, ANSI/NFPA 80 and DHI, except as noted otherwise on Drawings or Schedule.

B. Use the templates provided by hardware item manufacturer.

C. Conform to ANSI A117.1 for positioning requirements for the handicapped.

3.3 ADJUSTING AND CLEANING

A. Clean exposed surfaces.

B. Adjust operating items of hardware for correct function and smooth operation.

3.4 DEMONSTRATION

A. Demonstrate operation, operating components, adjustment features, lubrication requirements, maintenance and cleaning procedures to Owner under provisions of Section 01600.

3.5 SCHEDULE NOTE: KEY ALL HARDWARE PER OWNER REQUIREMENT

Hardware Schedule

Heading #01

Item #1 — 1 Single door 7 — LHR

36" x 84" x 1 3/4" - HM DR x HM FR

3	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
1	Lockset	Schlage L9044 06A 626 LHR L283-712 L283-722	626
1	Dead Lock	Schlage B663 J 626 Less Core	626
1	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
1	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
1	Floor Door Stop	Ives FS18S	
1	Threshold	Pemko 272A36"	A
1	Weatherstripping	Pemko 315CN-36"	C
1	Weatherstripping	Pemko 316APK-36" x 84"	A

Heading #02

Item #2 — 1 Single door 6 — RHR

Item #3 — 1 Single door 8 — LHR

36" x 84" x 1 3/4" - HM DR x HM FR

6	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
2	Dead Lock	Schlage B663 J 626 Less Core	626
2	Door Pull	Rockwood 110 x 70B US32D	US32D
2	Push Plate	Rockwood 70C-RKW US26D	US26D
2	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
2	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
2	Floor Door Stop	Ives FS18S	
2	Threshold	Pemko 272A36"	A
2	Weatherstripping	Pemko 315CN-36"	C
2	Weatherstripping	Pemko 316APK-36" x 84"	A

Warwick Ice Rink

Heading #03

Item #4	1 Single door 1	RHR
Item #5	1 Single door 2	RHR
Item #6	1 Single door 3	LHR
Item #7	1 Single door 4	RHR
Item #8	1 Single door 5	LHR
Item #9	1 Single door 12	LHR

36" x 84" x 1 3/4" - HM DR x HM FR

18	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
3	Exit Device	Von Duprin 99-L-626-36" x 84" Door 1 3/4"-LHR-996L-R/626	626/626
3	Exit Device	Von Duprin 99-L-626-36" x 84" Door 1 3/4"-RHR-996L-R/626	626/626
6	Cylinder	Schlage 20-079 Open 626 Less Core	626
6	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
6	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
6	Floor Door Stop	Ives FS18S	
6	Threshold	Pemko 272A36"	A
6	Weatherstripping	Pemko 315CN-36"	C
6	Weatherstripping	Pemko 316APK-36" x 84"	A

Heading #04

Item #10 — 1 Pair of doors 10 — LHRA

36", 36" x 84" x 1 3/4" - HM DR x HM FR - BW

6	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
1	Exit Device	Von Duprin 9927-L-F-626-36" x 84" Door 1 3/4"-LHR-996L-V/626	626/626
1	Exit Device	Von Duprin 9927EO-F-626-36" x 84" Door 1 3/4"-RHR	626
1	Cylinder	Schlage 20-079 Open 626 Less Core	626
2	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
2	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
2	Floor Door Stop	Ives FS18S	
1	Threshold	Pemko 272A72"	A
2	Weatherstripping	Pemko 315CN-36"	C
1	Weatherstripping	Pemko 316APK-72" x 84"	A

ADDENDUM 1 MARCH 1, 2004
Item 10 revised as above.

Warwick Ice Rink

Heading #05

Item #11 — 1 Single door 9 — LHR

36" x 84" x 1 3/4" - HM DR x HM FR - BW

3	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
1	Lockset	Schlage L9080 J 06A 626 LHR	626
1	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
1	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
1	Floor Door Stop	Ives FS18S	
1	Threshold	Pemko 272A36"	A
1	Weatherstripping	Pemko 315CN-36"	C
1	Weatherstripping	Pemko 316APK-36" x 84"	A

Heading #05

Item #12 — 1 Single door 11 — LH

36" x 84" x 1 3/4" - HM DR x HM FR

3	Standard Hinge	Hager ECBB1101 4 1/2" x 4 1/2" NRP US32D	US32D
1	Lockset	Schlage L9080 J 06A 626 LH	626
1	Surface Closer	LCN 4040XP RWPA 689 1 3/4"	689
1	Kick Plate	Rockwood K1050 8" x 34" US32D BEV CSK	US32D
1	Floor Door Stop	Ives FS18S	
1	Threshold	Pemko 272A36"	A
1	Weatherstripping	Pemko 315CN-36"	C
1	Weatherstripping	Pemko 316APK-36" x 84"	A

Warwick Ice Rink

END OF SECTION

SECTION 13816

ICE RINK DASHER BOARD SYSTEM AND ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Quality assurance - prequalification criteria.

B. Approved manufacturers.

C. Dasher board system materials.

D. Floor anchors.

1.02 QUALITY ASSURANCE

A. Contractors wishing to bid/quote on this project must submit, with their bid, the following prequalification criteria.

1. Submit a list of five (5) ice rink construction projects the company has completed that are similar to this project and that were completed within the past five (5) years. Submittal shall be on company letterhead, signed by an authorized representative of the company and include project description, portion of project completed by the company, location, construction cost, completion date, owner's name, owner's representative, phone number and completion date of work.

2. Contractors/manufacturers listed as approved manufacturers in section 2.1 are not required to submit the prequalification material described in paragraph A.1 of this section.

3. Contractors/manufacturers seeking approval shall supply a sample panel section representative of all components to be used in the dasher board section if requested by the Owner.

B. Contractors wishing to bid on this project shall perform an on-site investigation prior to submitting a bid for the project. Contractor shall field verify all measurements that will affect the work of this project and report any concerns to the Engineer at least five (5) business day prior to the bid opening date. The contractor shall also perform a site visit to verify measurements prior to manufacturing the system.

1.03 RELATED SECTIONS

A. Section 007200 - General Conditions.

B. Section 007300 - Supplementary Conditions.

1.04 CODES AND STANDARDS

A. All parts of the project shall be performed in accordance with the most recent version of the following codes and standards and all amendments:

1. State Building Codes.

2. National Fire Protection Association Codes.

3. OSHA.

1.05 SUBMITTALS

A. Shop Drawings. All submittals shall conform to the requirements of the General Conditions. Shop Drawings shall include product information on all materials, color samples of all standard colors for top sill, facing, kick plate, backer panels, benches, and tables. Shop Drawings shall clearly highlight and note any materials, dimensions, etc. that do not match the contract documents. Samples shall be representative of thickness of material that will be supplied.

B. Structural Calculations: If requested, the manufacturer shall supply structural engineering calculations for the dasher board system.

C. Progress Schedule. Submit progress schedule before project begins.

D. Certifications. Submit four (4) copies of certifications to the Engineer when specified.

E. Project closeout documents:

1. Provide all documents required by the General Conditions and these specifications.

F. Payments for all submittals shall be incidental to the cost of the project.

1.06 WARRANTY/GUARANTY

A. In addition to the standard manufacturer's warranty on all equipment and materials, the contractor shall provide a standard two-year materials and labor warranty on all work performed for this project.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING REQUIREMENTS

A. Transport, handle, store and protect products in accordance with manufacturer's recommendations. Secure products at all times.

B. Store products with seals and labels intact and legible.

C. Store products in a secure environment at all times.

D. Provide adequate labor to handle products and prevent damage.

E. Protect top sill from becoming scratched or marked up during installation.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS OF DASHER BOARD SYSTEM

A. Becker Arena Products/Sports Systems/Athletica/Cascadia, Rink Systems, Riley Manufacturing, Welmar Recreational Products or others by prior approval.

2.02 FRAME

A. All dasher panels whether straight, curved or gated shall have the same design and similar construction. Panels shall be all welded construction.

B. Standard Sizes:

Panel Section	**Height**	**Length**	**Width**
Straight	41”	96”	6”
Curved	41”	88”	6”

C. Materials:

1. Aluminum: Shall be structural alloy 6005A-T6. Architectural alloy is not acceptable. Shall meet ASTM B221 and Federal Specifications QQA200-9.
2. Systems shall be constructed with either aluminum or steel materials, not a combination of the two.
3. Height of systems shall be modified if ice retainers is used.

D. Components: See drawings.

E. Connections: Panels shall be fastened together through end plates at a minimum of three (3) locations with 1/2" diameter (minimum) bolts.

F. Other Supports: Provide additional supports where required and to accommodate systems such as quick release backer panels, gap closures, material, taller panels, etc.

G. All holes used in the framing system shall be pre-punched with slotted holes to allow for expansion and contraction in the polyethylene materials.

H. Systems that require external support posts on the back side of the dasher panel section are not acceptable unless specified or noted on the drawings.

2.03 POLYETHYLENE

A. Material: High impact, high density, UV stabilized, stress relieved, virgin polyethylene. Reprocessed polyethylene is not acceptable.

B. Dimensions: See drawings.

C. Colors:

1. As stated in material schedules on drawings. “Owner” means color shall be selected by Owner from the standard colors of white, black, royal blue, red, gold, yellow. It does not include the premium colors of light blue, green, navy blue, and some shades of grey or custom colors.
2. All like colors shall match.
3. White: Shall be Bright white in color. Natural white is not acceptable.

D. Fasteners: See Article 2.05 in this section.

E. Top Sill:

1. Dimensions – see drawing.

F. Thresholds:

1. Thresholds for equipment gates shall be constructed of a metal frame and a polyethylene top piece. Frame height shall be as required to provide an overall height shown in the table on the drawings. See drawings also for thickness of polyethylene. Frame material shall meet the requirements of Article 2.02 and polyethylene shall meet the material requirements of this article.
2. All equipment gate thresholds shall be easily removable for dry floor event access and for easy replacement.

2.04 FIBERGLASS

A. Material: High impact, UV stabilized, exterior grade fiberglass.

B. Dimensions: See drawings.

C. Colors:

1. As stated in material schedules on drawings. “Owner” means color shall be selected by Owner from the standard colors of white, black, royal blue, red, gold, yellow. It does not include the premium colors of light blue, green, navy blue, and some shades of grey or custom colors.
2. All like colors shall match.
3. White: Shall be Bright white in color. Natural white is not acceptable.

D. Fasteners: See Article 2.05 in this section.

E. Kick Plate:

1. Shall be fastened to facing of dasher board system.

F. Facing Panels:

1. Shall be one piece, cut to match dimension of frame.

G. Backer Panels:

1. Shall be one piece, cut to match dimensions of frame.
2. Provide polyethylene trim pieces between each section of back panel.
3. Quick Release System.
   a. Install a quick release system on all backer panels.
   b. System shall allow panels to be removed without removing fixed fasteners by using three spring latches at the top of the framing per panel.
   c. Spring latches shall be accessed through a ¼” access hole in top sill.
   d. A zinc plated bracket shall secure backer panel at the base of the framing system.
   e. Provide an extra 1 ½” x 3” support welded to dasher frame at mid-point to support quick release backer panels.

2.05 FASTENERS FOR POLYETHYLENE OR FIBERGLASS MATERIAL

A. The fasteners specified in this article shall be used for securing the facing, backing, top sill and kick plate materials.

B. Material:

Framing Material	**Fastener Size and Type**
Aluminum	¼ “-20 Type F zinc – self tapping, color to match poly material
Steel	¼” Phillip flat head machine screw, flat washers, ¼” nylon insert lock nuts

C. Construction:

1. The heads of the screws shall be painted to match the facing color.
2. Fasteners for bottom row of kick plate shall be stainless steel. For outdoor rinks, all fasteners shall be stainless steel.
3. Spacing shall not exceed 10 inches on center.
4. Screw holes in poly material shall be large enough to allow for expansion and contraction.
5. Thresholds: All fasteners on thresholds shall be counter-sunk ½”.

2.06 ACCESS GATES

A. Provide access gates with openings as shown on the drawings.

B. Gates shall be integrated into the standard 8’ long panel sections and shall be Left or right swing as directed by the Owner.

C. Gate panel framing shall be similar construction as dasher framing.

D. Gate Latches: Shall be solid, steel welded construction, with a single 3/8” thick x 2” wide steel flat bar, easily opens with glove hand. Fastened to framing with 3/8” x 1 ¼” hex head bold and 3/8” nylon locking nut. Shall latch by gravity and latch on their own when gate is closed.

E. Gate Hinges: Shall be two lift off type hinges welded. All hinge assemblies shall have grease fittings for easy lubrication or use nylon bushings. Piano type hinges, 10 GA, non greasable, bolted to frame, are acceptable where shielding is not used. Hinges shall be adjustable.

F. Doorstop: All gates shall have a steel door stop welded to the frame with minimum dimensions of 3/8” x 3 ½” x 4 ½ long”.

G. Gate shall be constructed so top of threshold is located as follows:

Type of Gate	**Distance Above Finished Floor (in)**
Access	3
Equipment	2

H. Casters: For gates over 42” wide, provide 5” diameter, spring loaded, adjustable, zinc plated framing, polyurethane tires. Provide casters on each leaf.

2.07 EQUIPMENT GATES (STANDARD)

A. Shall be double leaf gates with opening sizes as shown on the drawings.

B. Materials: Framing materials to meet requirements of Article 2.02 of this specification and be of similar construction.

C. Latch: Shall be the sliding steel tube with minimum dimensions of 2 ¼” x 2 ¼” x 12 gauge or 2" diameter solid steel rod with large handle (push down). Zinc plated all components. Provide two (2) latches per gate.

D. Lock: Each leaf of gate shall lock into concrete perimeter slab with 3/4" diameter x 12” long solid steel, zinc plated cane bolts.

E. Hinges: Zinc plated, heavy duty, manufactured using 3/8” thick steel components and ¾” minimum diameter hinge pins, adjustable, lift off type welded to frame. Shall have grease fittings for easy lubrication. Two hinges per door.

F. Casters: 5” diameter, spring loaded, adjustable, zinc plated framing, polyurethane tires. Provide casters on each leaf.

G. Fasteners: Shall be zinc plated and color to match where necessary.

2.08 FLOOR ANCHORS AND INSERTS

A. Anchors components include bolts, inserts, washers, threaded rod, and hold down plate as shown on the drawings and as follows:

1. Where the dasher board system is located on the ice rink slab: Anchor assembly shall be as detailed on the drawings or equal and shall be cast in place into the concrete ice rink floor. If material type is not shown on the drawings, then insert material shall be:

a. For removable panels: Anchor inserts, and washers shall be 303 stainless steel, base plate may be 303 Stainless steel or carbon steel and bolts shall be zinc plated material.

B. Bolts shall be 5/8” diameter. Material shall be as stated herein.

C. Hold down plate shall be sized as shown on the drawings.

D. Plug Materials: Furnish and install threaded plugs for each insert. Brass for the dasher board inserts.

2.09 ACCESSORIES

A. Board Storage Cart.

1. Provide six (6) board storage cart(s), 60” wide x 60” high x 94” long.

2. Construction: 4,000 lb minimum, steel frame, heavy duty construction, end rails, plywood deck, two rigid and two swivel wheels. Shall have 5” diameter wheels rated for 2,000 lb load each. Carts shall be stackable. Assemble cart(s) for Owner.

3. Finish: One coat of primer and two coats of finish paint.

4. Accessories: Provide two (2) ratchet strap assemblies with each cart.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Prior to delivering materials to the site and beginning installation, verify that the rink floor has been released for lift access and that the expansion joint has been installed and inspected.

B. The manufacturer shall provide all materials and labor for a complete dasher board system and installation. The dasher board system shall be shop fabricated as much as possible prior to delivering to job site.

C. Installation shall be completed under the direct supervision of an experienced representative from the manufacturer.

D. Installation shall be performed per the manufacturers recommended requirements and instructions. System shall be securely anchored in place. Provide all trim, shims and other accessories required for a complete, level and plumb, installation.

E. Any material that is scratched, marked up, chipped, dented or damaged in any way shall be replaced.

F. All parts of the system shall be thoroughly tested and adjusted, as necessary. Walk through the system with the Owner and make all adjustments necessary for the Owner's satisfaction.

3.02 ANCHORS AND INSERTS

A. The dasher board manufacturer shall be on-site prior to and during the concrete rink floor pour to install, protect and adjust the anchors and inserts when the dasher board system is being installed on the rink floor.

3.03 CLEANING

A. Clean all surfaces thoroughly prior to leaving the job site. The systems shall not be cleaned until all punch list items have been addressed.

3.04 START-UP SERVICES

A. After all systems have been tested and thoroughly cleaned provide the Owner's operating staff with a minimum of 4 hours of hands-on instructions on the operation and maintenance of the system.

3.05 COORDINATION OF WORK

A. The contractor shall be responsible for coordinating all work specified herein and shall work closely with other subcontractors on the project.

3.06 PERMITS

A. The contractor shall apply for and obtain all permits required to construct the project at no additional cost to the Owner unless specified otherwise.

END OF SECTION

Attachment 3 – Plans

CITY OF WARWICK, RHODE ISLAND

CITY HALL PLAZA
SITE IMPROVEMENTS

BID # 2024-322

BID DOCUMENTS

JANUARY 2024

CITY OF WARWICK, RI

3275 POST ROAD, WARWICK, RI 02889

MAYOR

HONORABLE FRANK J. PICOZZI

CITY COUNCIL WARD 7

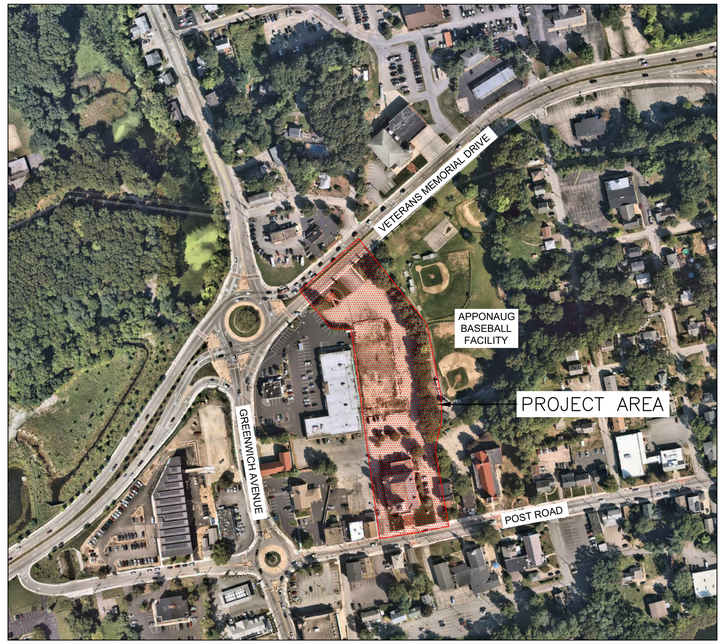
HONORABLE STEPHEN P. McALLISTER

SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AUGUST 2023, WITH ALL REVISIONS, AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.

STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 2022 EDITION, WITH ALL REVISIONS.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION, INCLUDING ALL REVISIONS.

ALL WORK SHALL COMPLY WITH THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) AND THE AMERICANS DISABILITIES ACT OF 1990 (ADA) AND SECTION 504 OF THE REHABILITATION ACT OF 1973, SPECIFICALLY THE ADA STANDARDS FOR ACCESSIBLE DESIGN, LATEST EDITION, WITH ALL REVISIONS.



N

PROJECT LOCATION

LOCATION MAP

1" = 200'-0"

PREPARED BY:

BETA

www.BETA-Inc.com

PLAN INDEX

SHEET NO.	DESCRIPTION
1.1	COVER
1.2	ABBREVIATIONS & LEGEND
1.3	GENERAL NOTES
1 - 2	EXISTING CONDITIONS SURVEY
2.1	PHASING PLAN
3.1	SITE PREPARATION PLAN
3.2	SITE PLAN
3.3	ADD ALTERNATES PLAN
3.4	GRADING PLAN
3.5	CURB TIE PLAN
3.6	DRAINAGE PLAN
3.7	BMP PLAN
3.8	UTILITIES PLAN
3.9	SIGNING AND STRIPING PLAN
4.1	PLANTING PLAN
4.2	SPECIALTY LIGHTING PLAN ENLARGEMENT
5.1 - 5.18	SITE DETAILS
A-1 - A-17	ARCHITECTURAL DRAWINGS
S0.0	FOUNDATION PLAN (BUILDING)
S0.1 - S0.2	NOTES & FOUNDATION DETAILS
S1.0	ROOF FRAMING
S1.1- S1.2	FRAMING & CMU DETAILS
S2.0 - S2.1	FIRST FLOOR SHEARWALLS / MOMENT FRAME ELEVATION DETAIL
E0.0	ELECTRICAL SYMBOL LEGEND AND NOTES
ES1.0-ES1.1	ELECTRICAL SITE UTILITY / ELECTRICAL SITE LIGHTING
E1.0 - E1.1	CONCESSION BUILDING ELECTRICAL / ICE RINK ELECTRICAL
E2.0 - E2.2	ELECTRICAL SCHEDULES / ELECTRICAL DETAILS
M0.1	MECHANICAL LEGEND, NOTES & ABBREVIATIONS
M1.0	CONCESSION BUILDING MECHANICAL
M2.0	MECHANICAL SCHEDULES
M3.0	MECHANICAL DETAILS
P0.1	CONCESSION BUILDING PLUMBING LEGEND, NOTES & SCHEDULES
P1.0	CONCESSION BUILDING PLUMBING SANITARY WASTE & VENT
P1.1	CONCESSION BUILDING PLUMBING DOMESTIC WATER & GAS
P2.0 - P2.1	PLUMBING DETAILS
R001	ICE RINK LEGEND AND SYMBOLS
R100	ICE RINK FLOOR PLAN
R200	REFRIGERATION ROOM PLAN
R500 - R502	ICE RINK DETAILS AND SECTIONS
R503	ICE RINK DETAILS AND SCHEDULES
R600	REFRIGERATION FLOW DIAGRAMS
DB100	ICE RINK DASHER BOARD PLAN
DB500	ICE RINK DASHER BOARD DETAILS AND SECTIONS
----------	SHELTER DRAWINGS
S1.0	FOUNDATION PLAN (SHELTER)
S1.1 - S1.2	NOTES & FOUNDATION DETAILS

GENERAL PHASING NOTES:

1. LIMIT OF DISTURBANCE DOWN TO ERODIBLE SURFACE SHALL BE CONTAINED WITHIN THE TEMPORARY CONSTRUCTION FENCING LIMITS UNTIL AREA HAS BEEN STABLIZED. FULL DEPTH PAVEMENT INSTALLATION OUTSIDE OF THE TEMPORARY FENCING LIMITS SHALL BE PERFORMED ONCE THE INTERIOR SITE HAS BEEN STABILIZED.
2. AN ADA ACCESSIBLE ROUTE MUST BE MAINTAINTED THROUGH THE SITE AT ALL TIMES DURING CONSTRUCTION. ACCESS TO THE EAST ENTRY TO CITY HALL MUST BE MAINTAINED AT ALL TIMES.
3. CONTRACTOR MUST ENSURE THAT VEHICULAR ACCESS TO 3287 POST ROAD IS MAINTAINED DURING CONSTRUCTION. CONTRACTOR MUST INFORM PROPERTY OWNER A MINIMUM OF 48 HOURS PRIOR TO ANY IMPROVEMENT WORK BEING DONE TO THE ACCESS DRIVEWAY RESULKTING IN NO VEHICULAR ACCESS.
4. PRIOR TO COMMENCING PHASE 1, THE CONTRACTOR SHALL ENSURE ALL SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN PROPERLY INSTALLED.
5. UPON COMPLETION AND ACCEPTANCE OF SITE PREPARATION AND INITIAL INSTALLATION OF EROSION, RUNOFF, AND SEDIMENT CONTROLS AND TEMPORARY POLLUTION PREVENTION MEASURES, THE OPERATOR SHALL INITIATE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION PRACTICES DURING ALL PHASES OF CONSTRUCTION ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARLY OR PERMANENTLY CEASED.
6. DISTURBED AREAS TO BE IMPERVIOUS (PAVED OR CONCRETE) WILL BE CUT OR FILLED, GRADED, COMPACTED, AND STABILIZED WITH AT LEAST ONE COURSE OF BITUMINOUS CONCRETE ASPHALT (IN THE CASE OF PARKING AREAS AND DRIVEWAYS) OR CONCRETE (IN THE CASE OF WALKWAYS/SIDEWALKS) WITHIN THREE (3) WEEKS OF THE INITIATION OF WORK IN THAT AREA.
7. DISTURBED AREAS TO BE PERVIOUS (GRASSED) WILL BE STABILIZED WITH TEMPORARY SEEDING OR EROSION BLANKET NO LATER THAN FOURTEEN (14) DAYS AFTER COMPLETION OF WORK IN THAT AREA.
8. ALL CONSTRUCTION ACCESS TO THE SITE MUST BE THROUGH THE VETERANS MEMORIAL DRIVEWAY DURING ALL PHASES OF CONSTRUCTION.

1

PHASE 1 NOTES:

1. CONTRACTOR SHALL PERFORM ALL UTILITY WORK (DRAIN, SEWER, WATER, GAS, ELECTRIC, TELECOM) AS REQUIRED FOR THE PROJECT.
2. CONTRACTOR SHALL PERFORM THE FULL DEPTH RECLAMATION, REGRADNG, AND CURBING INSTALLATION OF THE PARKING LOT AREA, INCLUDING ALL ADJUSTMENTS OF STRUCTURES, DEMOLITION AND SITE PREPARATION WORK, AND ALL OTHER WORK AS REQUIRED TO INSTALL BASE COURSE. BASE COURSE FOR THE PHASE 1 AREA SHALL BE INSTALLED BY NOVEMBER 15, 2024.
3. TEMPORARY PARKING SHALL BE STRIPED ALONG THE EASTERN SIDE OF THE PARKING LOT FOR ACCESS TO THE LOWER BASEBALL FIELDS. CONTRACTOR TO ADJUST TEMPORARY FENCING OF THE SITE TO ALLOW MINIMUM 20' DRIVEWAY ACCESS FOR TEMPORARY PARKING SPACES.
4. THE ADD ALTERNATE 1 PARKING AREA, IF APPLICABLE TO THE CONTRACT, SHOULD BE PERFORMED UNDER PHASE 1 AS DESCRIBED ABOVE.

PHASE 2 NOTES:

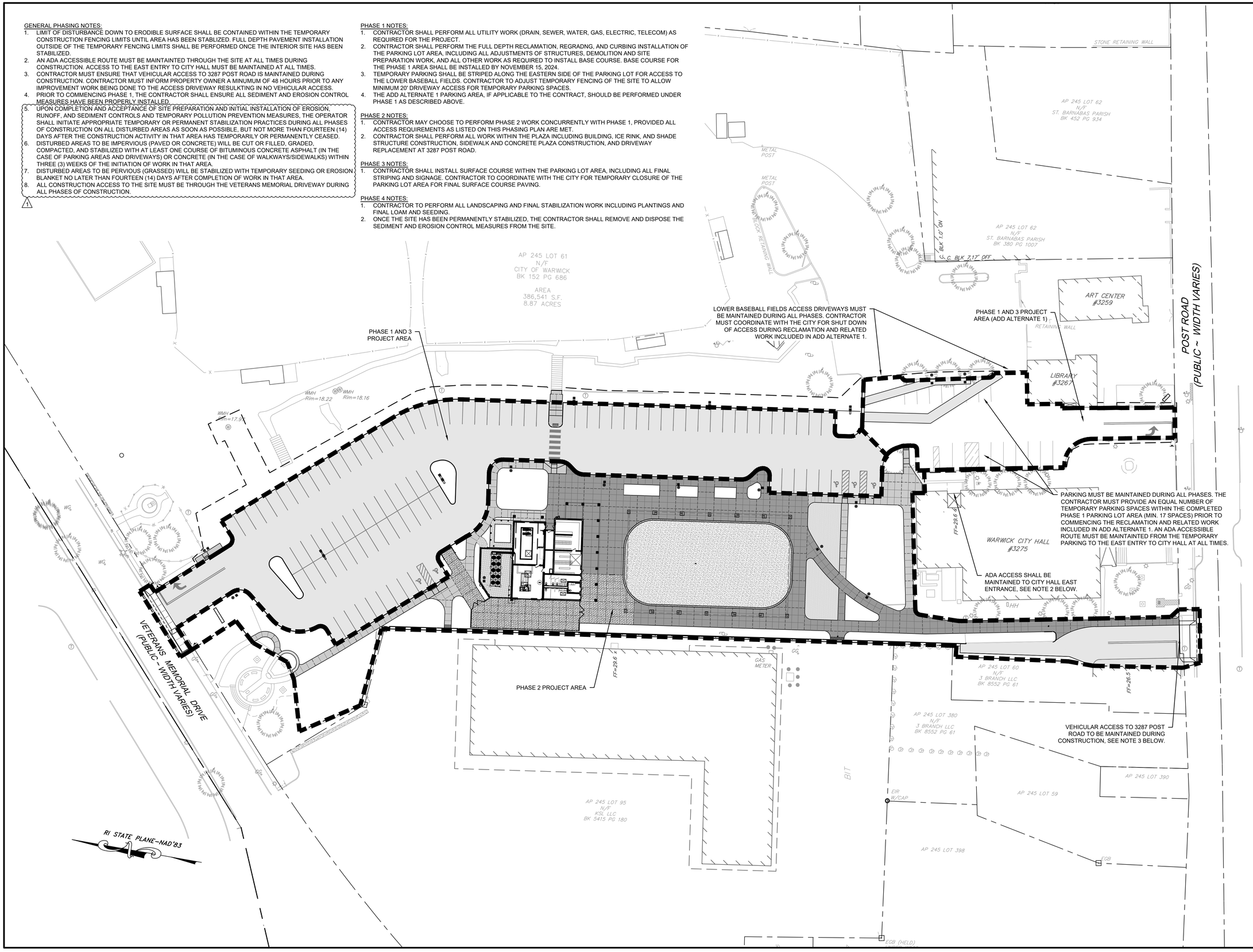
1. CONTRACTOR MAY CHOOSE TO PERFORM PHASE 2 WORK CONCURRENTLY WITH PHASE 1, PROVIDED ALL ACCESS REQUIREMENTS AS LISTED ON THIS PHASING PLAN ARE MET.
2. CONTRACTOR SHALL PERFORM ALL WORK WITHIN THE PLAZA INCLUDING BUILDING, ICE RINK, AND SHADE STRUCTURE CONSTRUCTION, SIDEWALK AND CONCRETE PLAZA CONSTRUCTION, AND DRIVEWAY REPLACEMENT AT 3287 POST ROAD.

PHASE 3 NOTES:

1. CONTRACTOR SHALL INSTALL SURFACE COURSE WITHIN THE PARKING LOT AREA, INCLUDING ALL FINAL STRIPING AND SIGNAGE. CONTRACTOR TO COORDINATE WITH THE CITY FOR TEMPORARY CLOSURE OF THE PARKING LOT AREA FOR FINAL SURFACE COURSE PAVING.

PHASE 4 NOTES:

1. CONTRACTOR TO PERFORM ALL LANDSCAPING AND FINAL STABILIZATION WORK INCLUDING PLANTINGS AND FINAL LOAM AND SEEDING.
2. ONCE THE SITE HAS BEEN PERMANENTLY STABILIZED, THE CONTRACTOR SHALL REMOVE AND DISPOSE THE SEDIMENT AND EROSION CONTROL MEASURES FROM THE SITE.



PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

JARED LINHARES
No. 13145
REGISTERED PROFESSIONAL ENGINEER
CIVIL
3-31-24

SUBCONSULTANT

PROJECT

City Hall Plaza

Warwick, RI

TITLE

PHASING PLAN

NO.	REVISIONS	DATE
1	ADDENDUM #1	03/14/24

DRAWN BY:	CC / NS
DESIGNED BY:	NS / RC
CHECKED BY:	RC
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

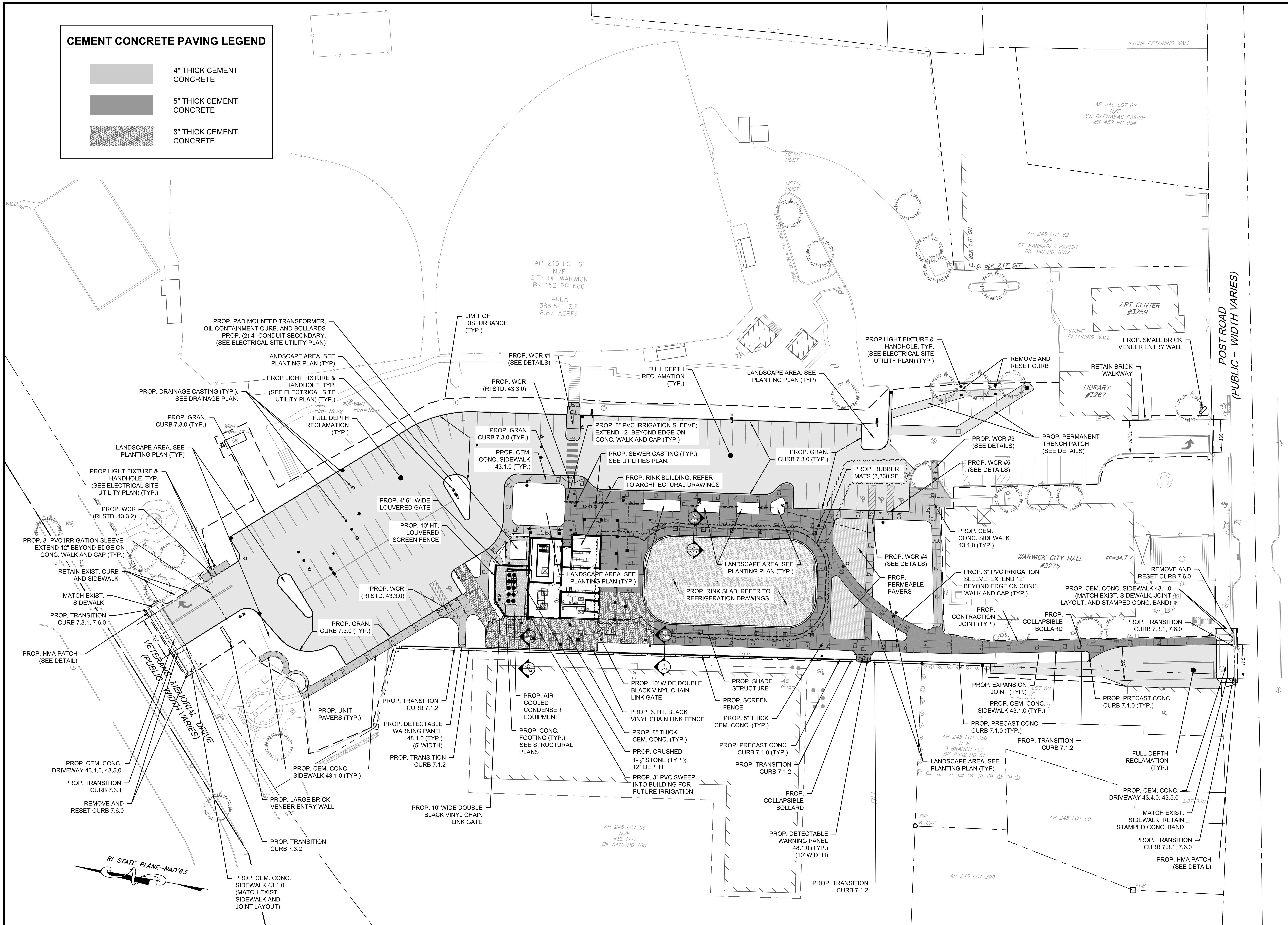
SCALE

30 0 30 60
SCALE IN FEET: 1"=30'

BID SET

SHEET NO.

2.1


CEMENT CONCRETE PAVING LEGEND
4" THICK CEMENT CONCRETE
5" THICK CEMENT CONCRETE
8" THICK CEMENT CONCRETE
AP 245 LOT 61 N/F CITY OF WARWICK BK 152 PG 686 AREA 386,541 S.F. 8.87 ACRES
AP 245 LOT 62 N/F ST. BARNABAS PARISH BK 452 PG 934
AP 245 LOT 62 N/F ST. BARNABAS PARISH BK 380 PG 1007
STONE RETAINING WALL
METAL POST
BLOCK RETAINING WALL
ART CENTER #3259
LIBRARY #3267
WARWICK CITY HALL #3275
POST ROAD (PUBLIC ~ WIDTH VARIES)
VETERANS MEMORIAL DRIVE (PUBLIC ~ WIDTH VARIES)
RI STATE PLANE-NAD'83
AP 245 LOT 95 N/F KSL LLC BK 5415 PG 180
AP 245 LOT 380 N/F 3 BRANCH LLC BK 8552 PG 61
AP 245 LOT 59
AP 245 LOT 398
PROP. PAD MOUNTED TRANSFORMER, OIL CONTAINMENT CURB, AND BOLLARDS PROP. (2)-4" CONDUIT SECONDARY. (SEE ELECTRICAL SITE UTILITY PLAN)
LIMIT OF DISTURBANCE (TYP.)
LANDSCAPE AREA. SEE PLANTING PLAN (TYP)
PROP. LIGHT FIXTURE & HANDHOLE, TYP. (SEE ELECTRICAL SITE UTILITY PLAN) (TYP.)
PROP. DRAINAGE CASTING (TYP.). SEE DRAINAGE PLAN.
PROP. GRAN. CURB 7.3.0 (TYP.)
FULL DEPTH RECLAMATION (TYP.)
PROP. WCR #1 (SEE DETAILS)
PROP. WCR (RI STD. 43.3.0)
PROP. WCR (RI STD. 43.3.2)
PROP. 3" PVC IRRIGATION SLEEVE; EXTEND 12" BEYOND EDGE ON CONC. WALK AND CAP (TYP.)
RETAIN EXIST. CURB AND SIDEWALK
MATCH EXIST. SIDEWALK
PROP. TRANSITION CURB 7.3.1, 7.6.0
PROP. HMA PATCH (SEE DETAIL)
PROP. CEM. CONC. SIDEWALK 43.1.0 (TYP.)
PROP. SEWER CASTING (TYP.). SEE UTILITIES PLAN.
PROP. RINK BUILDING; REFER TO ARCHITECTURAL DRAWINGS
PROP. 4'-6" WIDE LOUVERED GATE
PROP. 10' HT. LOUVERED SCREEN FENCE
LANDSCAPE AREA. SEE PLANTING PLAN (TYP.)
PROP. RINK SLAB; REFER TO REFRIGERATION DRAWINGS
PROP. RUBBER MATS (3,830 SF±)
PROP. WCR #3 (SEE DETAILS)
PROP. WCR #5 (SEE DETAILS)
PROP. WCR #4 (SEE DETAILS)
PROP. PERMEABLE PAVERS
PROP. PERMANENT TRENCH PATCH (SEE DETAILS)
REMOVE AND RESET CURB
RETAIN BRICK WALKWAY
PROP. SMALL BRICK VENEER ENTRY WALL
REMOVE AND RESET CURB 7.6.0
PROP. CEM. CONC. SIDEWALK 43.1.0 (MATCH EXIST. SIDEWALK, JOINT LAYOUT, AND STAMPED CONC. BAND)
PROP. CONTRACTION JOINT (TYP.)
PROP. COLLAPSIBLE BOLLARD
PROP. EXPANSION JOINT (TYP.)
PROP. PRECAST CONC. CURB 7.1.0 (TYP.)
PROP. TRANSITION CURB 7.1.2
PROP. UNIT PAVERS (TYP.)
PROP. DETECTABLE WARNING PANEL 48.1.0 (TYP.) (5' WIDTH)
PROP. AIR COOLED CONDENSER EQUIPMENT
PROP. CONC. FOOTING (TYP.); SEE STRUCTURAL PLANS
PROP. 10' WIDE DOUBLE BLACK VINYL CHAIN LINK GATE
PROP. 6. HT. BLACK VINYL CHAIN LINK FENCE
PROP. 8" THICK CEM. CONC. (TYP.)
PROP. CRUSHED 1-½" STONE (TYP.); 12" DEPTH
PROP. 3" PVC SWEEP INTO BUILDING FOR FUTURE IRRIGATION
PROP. SHADE STRUCTURE
PROP. SCREEN FENCE
PROP. 5" THICK CEM. CONC. (TYP.)
PROP. DETECTABLE WARNING PANEL 48.1.0 (TYP.) (10' WIDTH)
PROP. CEM. CONC. DRIVEWAY 43.4.0, 43.5.0
PROP. TRANSITION CURB 7.3.1
REMOVE AND RESET CURB 7.6.0
PROP. LARGE BRICK VENEER ENTRY WALL
PROP. TRANSITION CURB 7.3.2
PROP. CEM. CONC. SIDEWALK 43.1.0 (MATCH EXIST. SIDEWALK AND JOINT LAYOUT)
MATCH EXIST. SIDEWALK; RETAIN STAMPED CONC. BAND
FULL DEPTH RECLAMATION (TYP.)

NOTES:

1. AN ARCHEOLOGICAL MONITOR IS REQUIRED TO BE PRESENT FOR THE INSTALLATION OF THE (3) EASTERN SUPPORTS FOR THE SHADE STRUCTURE. CONTRACTOR TO COORDINATE WORK WITH THE RHODE ISLAND HISTORICAL PRESERVATION AND HERITAGE COMMISSION (RIHPHC)

PREPARED BY

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www.BETA-Inc.com

REGISTERED PROFESSIONAL

JARED LINHARES No. 13145 REGISTERED PROFESSIONAL ENGINEER CIVIL 1-31-24

SUBCONSULTANT

PROJECT

City Hall Plaza

Warwick, RI

TITLE

SITE PLAN

NO.	REVISIONS	DATE
1	ADDENDUM #1	03/14/24

DRAWN BY:	CC / NS
DESIGNED BY:	NS / RC
CHECKED BY:	RC
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

SCALE

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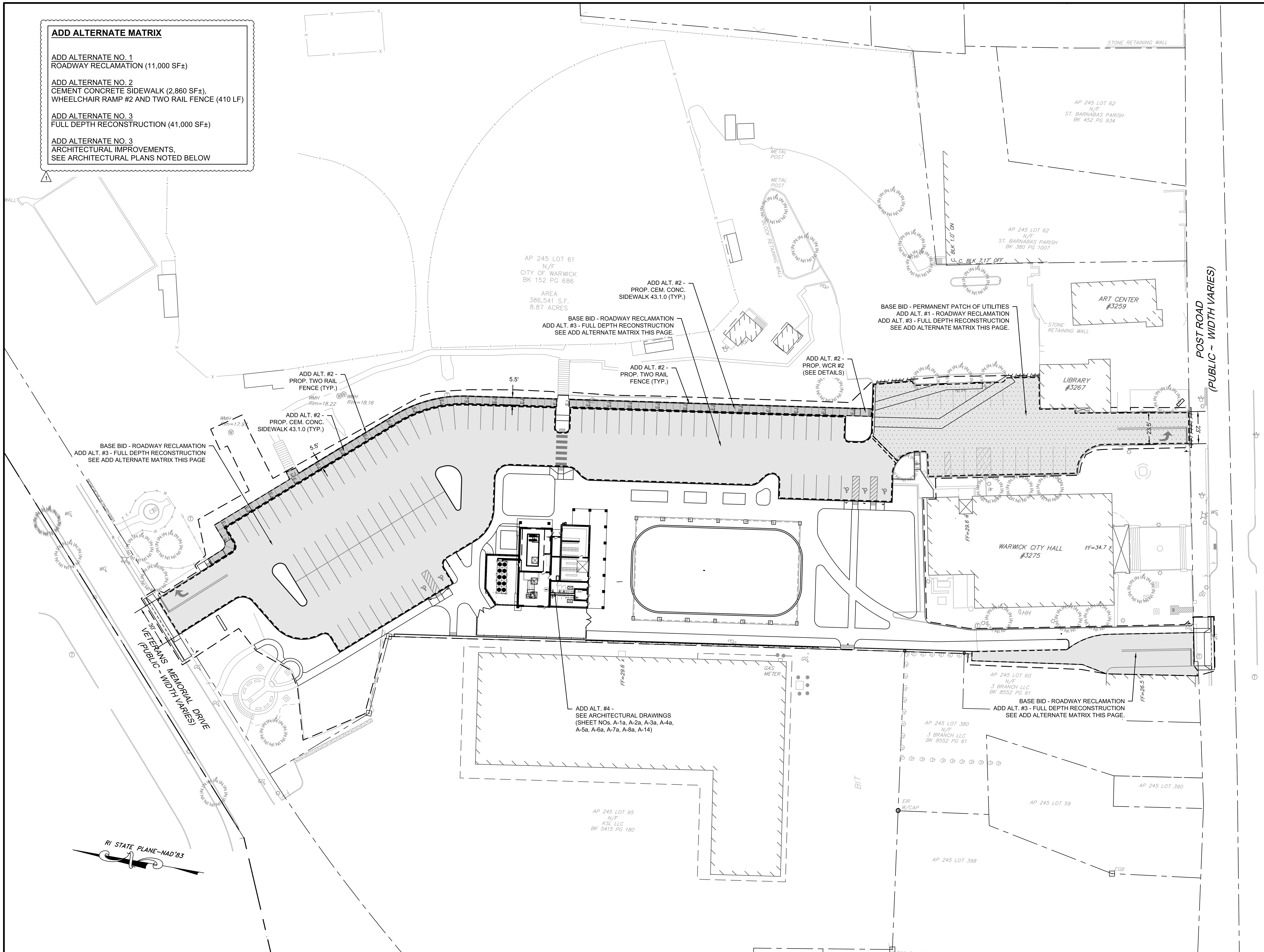
SCALE IN FEET: 1"=30'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

BID SET

SHEET NO.

3.2


ADD ALTERNATE MATRIX
ADD ALTERNATE NO. 1
ROADWAY RECLAMATION (11,000 SF±)
ADD ALTERNATE NO. 2
CEMENT CONCRETE SIDEWALK (2,860 SF±), WHEELCHAIR RAMP #2 AND TWO RAIL FENCE (410 LF)
ADD ALTERNATE NO. 3
FULL DEPTH RECONSTRUCTION (41,000 SF±)
ADD ALTERNATE NO. 3
ARCHITECTURAL IMPROVEMENTS, SEE ARCHITECTURAL PLANS NOTED BELOW
AP 245 LOT 61 N/F CITY OF WARWICK BK 152 PG 686
AREA 386,541 S.F. 8.87 ACRES
AP 245 LOT 62 N/F ST. BARNABAS PARISH BK 452 PG 934
AP 245 LOT 62 N/F ST. BARNABAS PARISH BK 380 PG 1007
STONE RETAINING WALL
ART CENTER #3259
LIBRARY #3267
WARWICK CITY HALL #3275
POST ROAD (PUBLIC ~ WIDTH VARIES)
VETERANS MEMORIAL DRIVE (PUBLIC ~ WIDTH VARIES)
ADD ALT. #2 - PROP. CEM. CONC. SIDEWALK 43.1.0 (TYP.)
BASE BID - ROADWAY RECLAMATION
ADD ALT. #3 - FULL DEPTH RECONSTRUCTION
SEE ADD ALTERNATE MATRIX THIS PAGE.
ADD ALT. #2 - PROP. TWO RAIL FENCE (TYP.)
ADD ALT. #2 - PROP. WCR #2 (SEE DETAILS)
BASE BID - PERMANENT PATCH OF UTILITIES
ADD ALT. #1 - ROADWAY RECLAMATION
ADD ALT. #3 - FULL DEPTH RECONSTRUCTION
SEE ADD ALTERNATE MATRIX THIS PAGE.
ADD ALT. #4 - SEE ARCHITECTURAL DRAWINGS (SHEET NOs. A-1a, A-2a, A-3a, A-4a, A-5a, A-6a, A-7a, A-8a, A-14)
AP 245 LOT 60 N/F 3 BRANCH LLC BK 8552 PG 61
AP 245 LOT 380 N/F 3 BRANCH LLC BK 8552 PG 61
AP 245 LOT 95 N/F KSL LLC BK 5415 PG 180
AP 245 LOT 59
AP 245 LOT 390
AP 245 LOT 398
RI STATE PLANE-NAD'83

PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

JARED LINHARES
No. 13145
REGISTERED PROFESSIONAL ENGINEER
CIVIL 1-31-24

SUBCONSULTANT

PROJECT

City Hall Plaza

Warwick, RI

TITLE

ADD ALTERNATES PLAN

NO.	REVISIONS	DATE
1	ADDENDUM #1	03/14/24

DRAWN BY:	CC / NS
DESIGNED BY:	NS / RC
CHECKED BY:	RC
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

SCALE

30 0 30 60
SCALE IN FEET: 1"=30'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

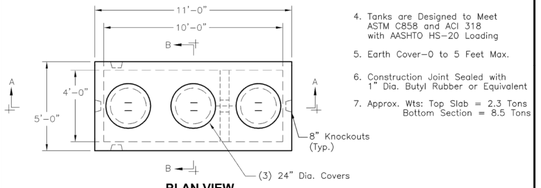
BID SET

SHEET NO.

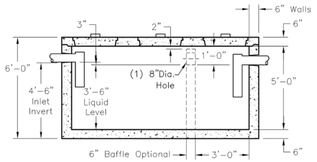
3.3

NOTES:

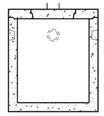
1. Concrete: 5,000 P.S.I Minimum Strength @ 28 Days
2. Steel Reinforcing–ASTM A–615, Grade 60
3. Cover to Steel–1" Minimum
4. Tanks are Designed to Meet ASTM C858 and ACI 318 with AASHTO HS–20 Loading
5. Earth Cover–0 to 5 Feet Max.
6. Construction Joint Sealed with 1" Dia. Butyl Rubber or Equivalent
7. Approx. Wts: Top Slab = 2.3 Tons Bottom Section = 8.5 Tons



PLAN VIEW



SECTION A-A

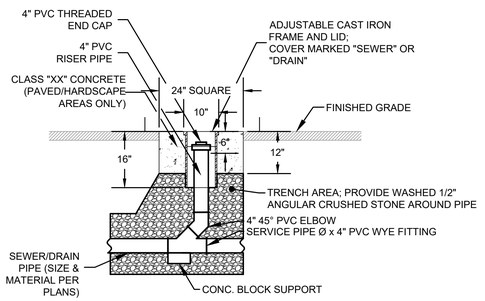


SECTION B-B

Oldcastle Precast®

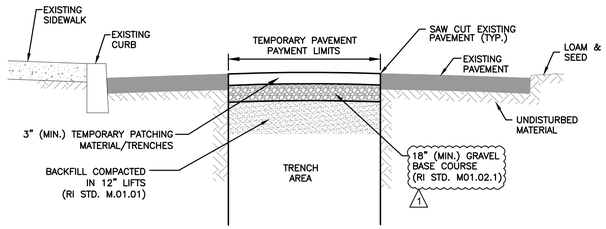
GT-1000	4'-0" x 10'-0" x 4'-6" I.D. Grease Interceptor 1,000 Gallon Capacity
FILE NAME: 322ESCGGT1000_DET.DWG	
ISSUE DATE: January, 2008	
www.oldcastleprecast.com	

(OR APPROVED EQUAL)



TYPICAL DRAIN CLEANOUT DETAIL

N.T.S.

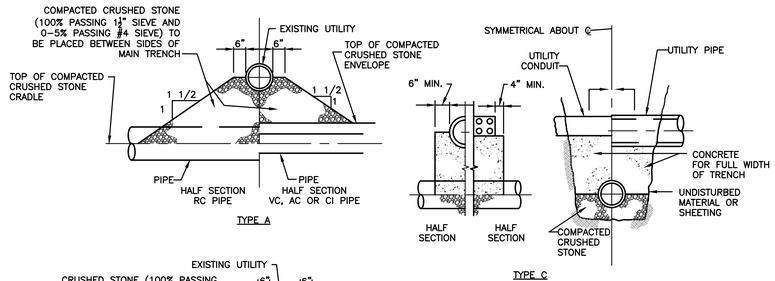


NOTES:

1. BITUMINOUS CONCRETE SHALL ADHERE TO RIDOT STANDARD SPECIFICATIONS, SECTION 401.
2. GRANULAR BASE MATERIAL SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY (AASHTO T180), AND SHALL ADHERE TO RIDOT STANDARD SPECIFICATIONS, SECTION 301.
3. ANY TEMPORARY PATCH INSTALLED PRIOR TO SEPTEMBER 1 IN ANY YEAR SHALL BE REPLACED WITH PERMANENT PATCH NO LATER THAN DECEMBER 1 OF THAT YEAR. TEMPORARY PATCHES MADE BETWEEN SEPTEMBER 1 AND MARCH 30 SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH CAN BE INSTALLED, NO LATER THAN JUNE 15.
4. IF TEMPORARY PATCH IS INSTALLED, CONTRACTOR MAY ALLOW NO MORE THAN 45 DAYS FOR SETTLING BEFORE PERMANENT RESTORATION. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN TEMPORARY ROADWAY RESTORATIONS IN A SAFE CONDITION FOR ALL TYPES OF TRAVEL UNTIL A PERMANENT PAVEMENT REPAIR HAS BEEN MADE. TO ENSURE PROPER MAINTENANCE, THE CONTRACTOR SHALL PERFORM PERIODIC INSPECTION OF EACH TEMPORARY PATCH UNTIL IT IS REPLACED WITH A PERMANENT PATCH.

TEMPORARY PAVEMENT

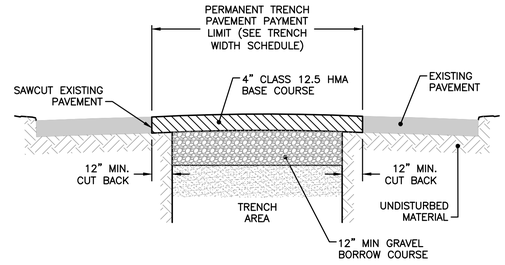
NOT TO SCALE



NOTE: TYPE C SUPPORT TO BE PROVIDED WHERE DIRECTED

TYPICAL SUPPORTS FOR UTILITES

NOT TO SCALE

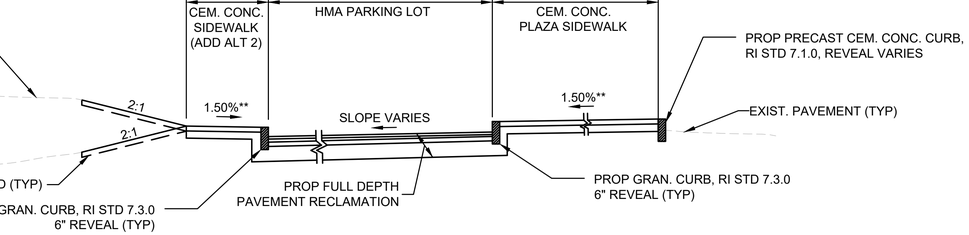


NOTES

1. MAXIMUM PAVEMENT THICKNESS PER COURSE NOT TO EXCEED 3 INCHES.
2. CONTRACTOR TO VARY PAVEMENT THICKNESS TO MAINTAIN A MINIMUM CROSS SECTIONAL SLOPE EQUALING 0.02 FT/FT.
3. CUT BACK DISTANCES SHALL BE AS DIRECTED BY THE ENGINEER, HOWEVER UNDER NO CIRCUMSTANCES LESS THAN THE MINIMUM INDICATED.

PERMANENT TRENCH WIDTH PAVEMENT

NOT TO SCALE



TYPICAL FULL DEPTH PAVEMENT RECLAMATION SECTION

NTS

** TOLERANCE FOR CONSTRUCTION ±0.5%

PAVEMENT NOTES

FULL DEPTH RECLAMATION

EXISTING PAVEMENT TO BE SCARIFIED AND MIXED WITH GRAVEL FROM UPPER 13 INCHES OF PARKING LOT PAVEMENT STRUCTURE. EXCESS MATERIAL TO BE REMOVED IF NECESSARY TO ENSURE FINAL SURFACE COURSE GRADES MATCH PROPOSED ELEVATIONS CALLED FOR ON GRADING PLAN.

SURFACE COURSE:	1.5" HMA SURFACE COURSE - CLASS 9.5 OVER
BASE COURSE:	2.5" HMA BASE COURSE - CLASS 12.5 OVER
SUB-BASE:	8" RECLAIMED SUB-BASE MATERIAL

FULL DEPTH PAVEMENT (ADD ALTERNATE 3)

SURFACE COURSE:	1.5" HMA SURFACE COURSE - CLASS 9.5 OVER
BASE COURSE:	2.5" HMA BASE COURSE - CLASS 12.5 OVER
SUB-BASE:	12" GRAVEL BORROW SUB-BASE COURSE

HMA DRIVEWAY APRONS

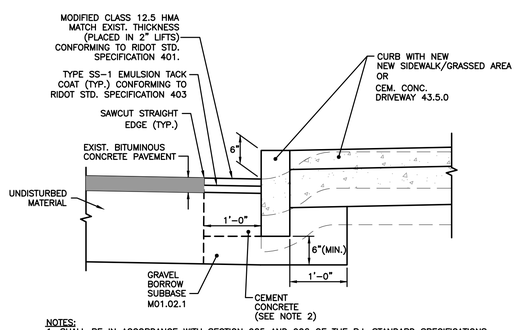
SURFACE:	3" HMA SURFACE COURSE - CLASS 9.5 OVER
SUB-BASE:	8" GRAVEL BORROW

CEMENT CONCRETE SIDEWALKS AND WHEELCHAIR RAMPS

SURFACE:	4" DEPTH CEMENT CONCRETE WALK SURFACE (SEE DETAILS AND PLANS FOR TYPE AND CONDITION) 4000 PSI, 3/4" OVER
BASE COURSE:	8" GRAVEL BORROW

CEMENT CONCRETE DRIVEWAYS AND RADIAL WHEELCHAIR RAMPS

SURFACE:	8" DEPTH CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4" OVER
BASE COURSE:	8" GRAVEL BORROW



NOTES:

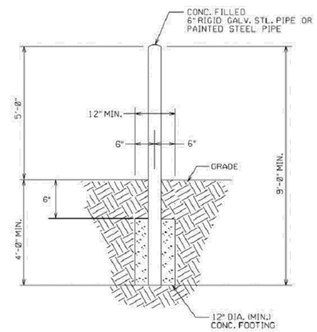
1. SHALL BE IN ACCORDANCE WITH SECTION 905 AND 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. CEMENT CONCRETE SHALL BE USED ONLY WHEN THE CURB IS SET AFTER THE BASE AND/OR BINDER COURSES ARE IN PLACE, OTHERWISE THE CEMENT CONCRETE WILL BE ELIMINATED AND THE GRAVEL BROUGHT UP TO BOTTOM OF THE BASE COURSE.
3. CURB SETTNG AND DRIVEWAY DEVELOPMENT SHALL CONFORM TO R.I. STANDARD 7.6.0 AND 43.4.0.

PERMANENT HMA PATCH DETAIL

NOT TO SCALE

National Grid / Supplement to Specifications for Electrical Installations / ESB 759B July 2010

29.0 BOLLARD DETAIL



TYPICAL BOLLARD DETAIL

PREPARED BY

BETA
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REGISTERED PROFESSIONAL

JARED LINHARES
No. 13145
REGISTERED PROFESSIONAL ENGINEER
CIVIL
1-31-24

SUBCONSULTANT

PROJECT

City Hall Plaza

Warwick, RI

TITLE

SITE DETAILS

NO.	REVISIONS	DATE
1	ADDENDUM #1	03/14/24

DRAWN BY:	WC
DESIGNED BY:	TD
CHECKED BY:	JL / KA
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

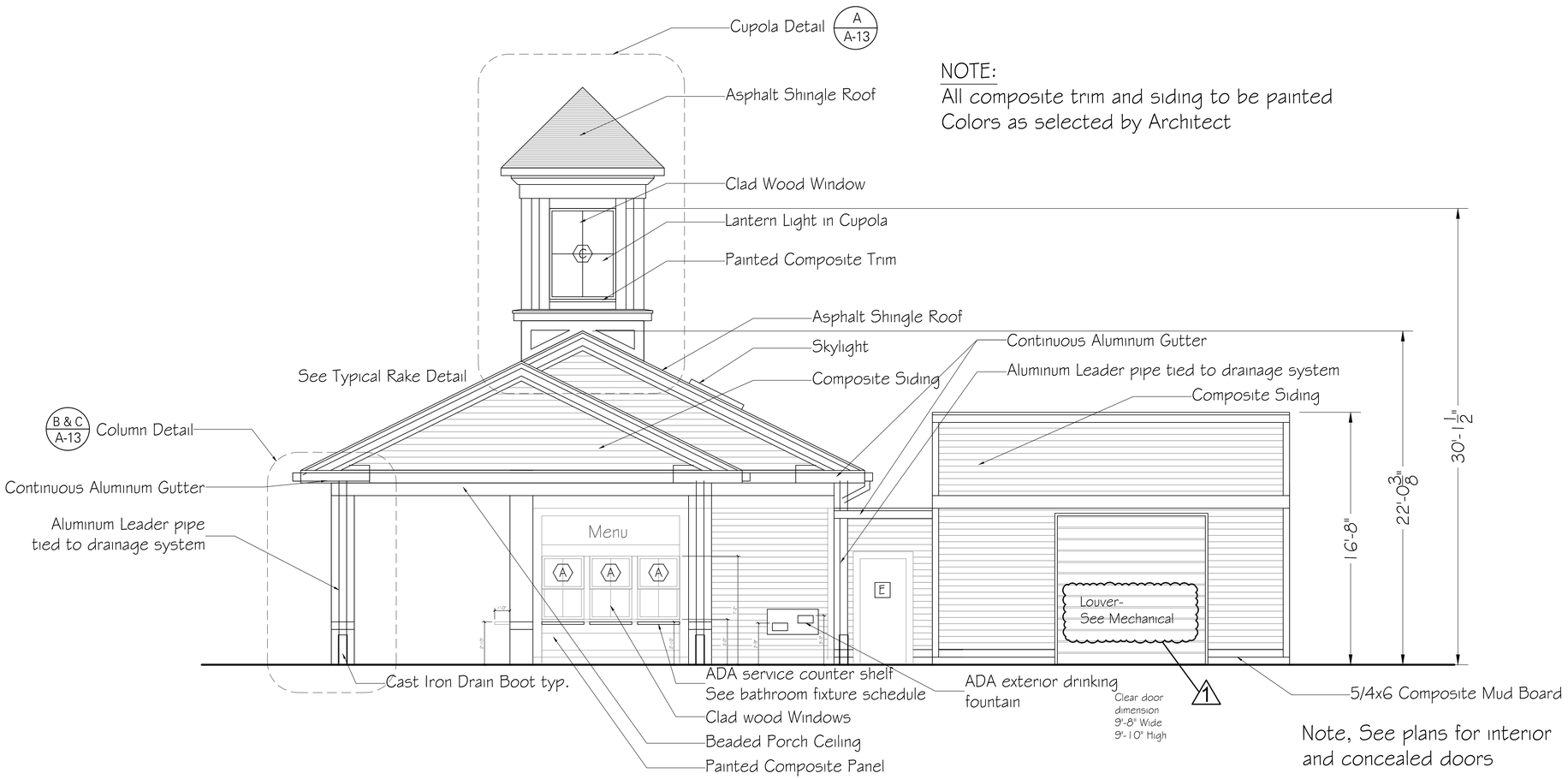
SCALE

AS SHOWN

BID SET

SHEET NO.

5.6



NOTE:
All composite trim and siding to be painted
Colors as selected by Architect

Note, See plans for interior and concealed doors

GLEN S. FONTECCHIO No. 2225 REGISTERED ARCHITECT

PREPARED BY

BETA www.BETA-Inc.com

REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

Warwick Ice Rink

Warwick, RI

TITLE

East Elevation

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

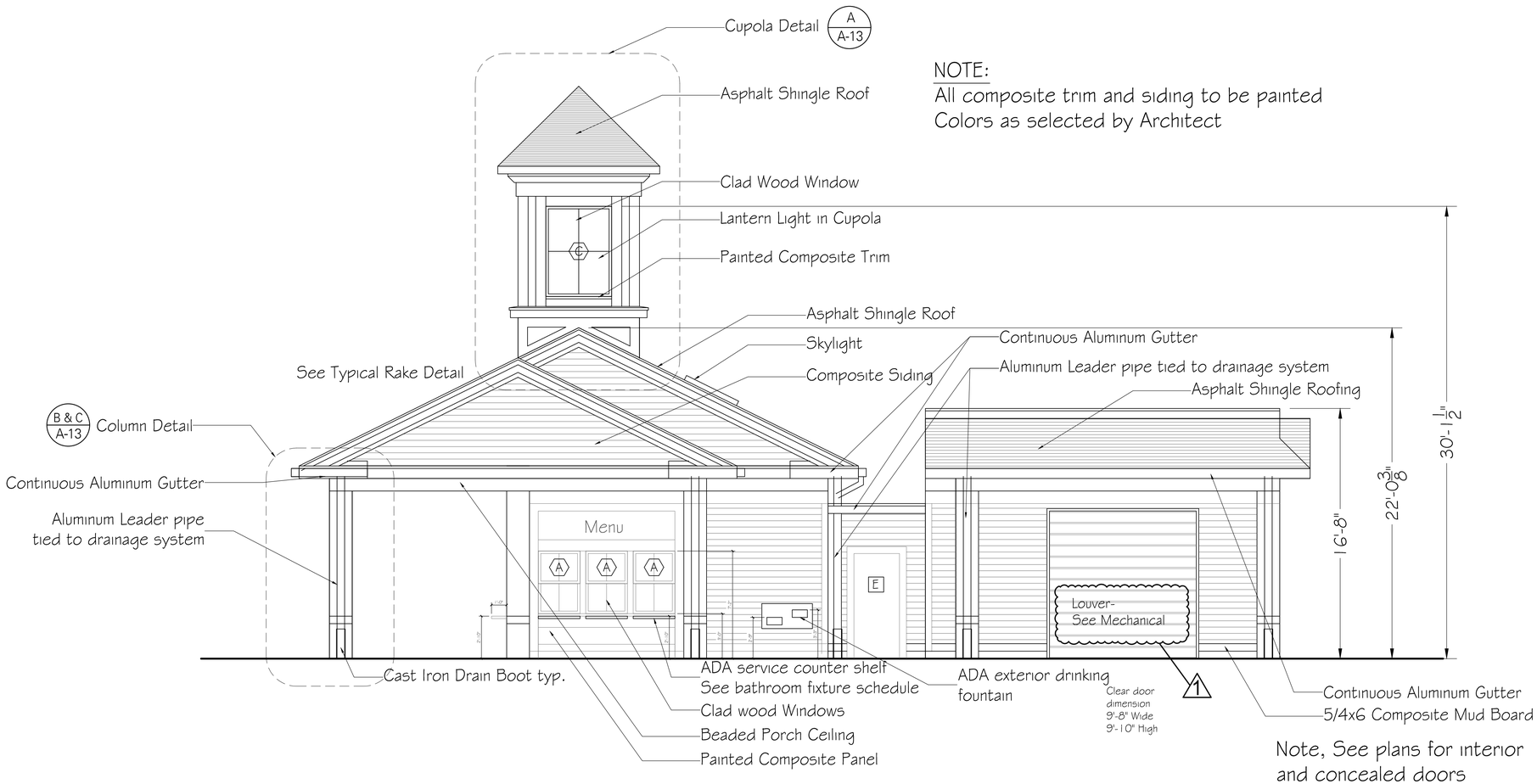
DRAWN BY: GSF
DESIGNED BY: GSF
CHECKED BY: GSF
ISSUE DATE: 1/31/2024
BETA JOB NO.: 10694

SCALE

1/4" = 1'0"

SHEET NO.

A-7



NOTE:
All composite trim and siding to be painted
Colors as selected by Architect

GLEN S. FONTECCHIO No. 2229 REGISTERED ARCHITECT

PREPARED BY

BETA www.BETA-Inc.com

REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

Warwick Ice Rink

Warwick, RI

TITLE

East Elevation
Add Alternate No. 4

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

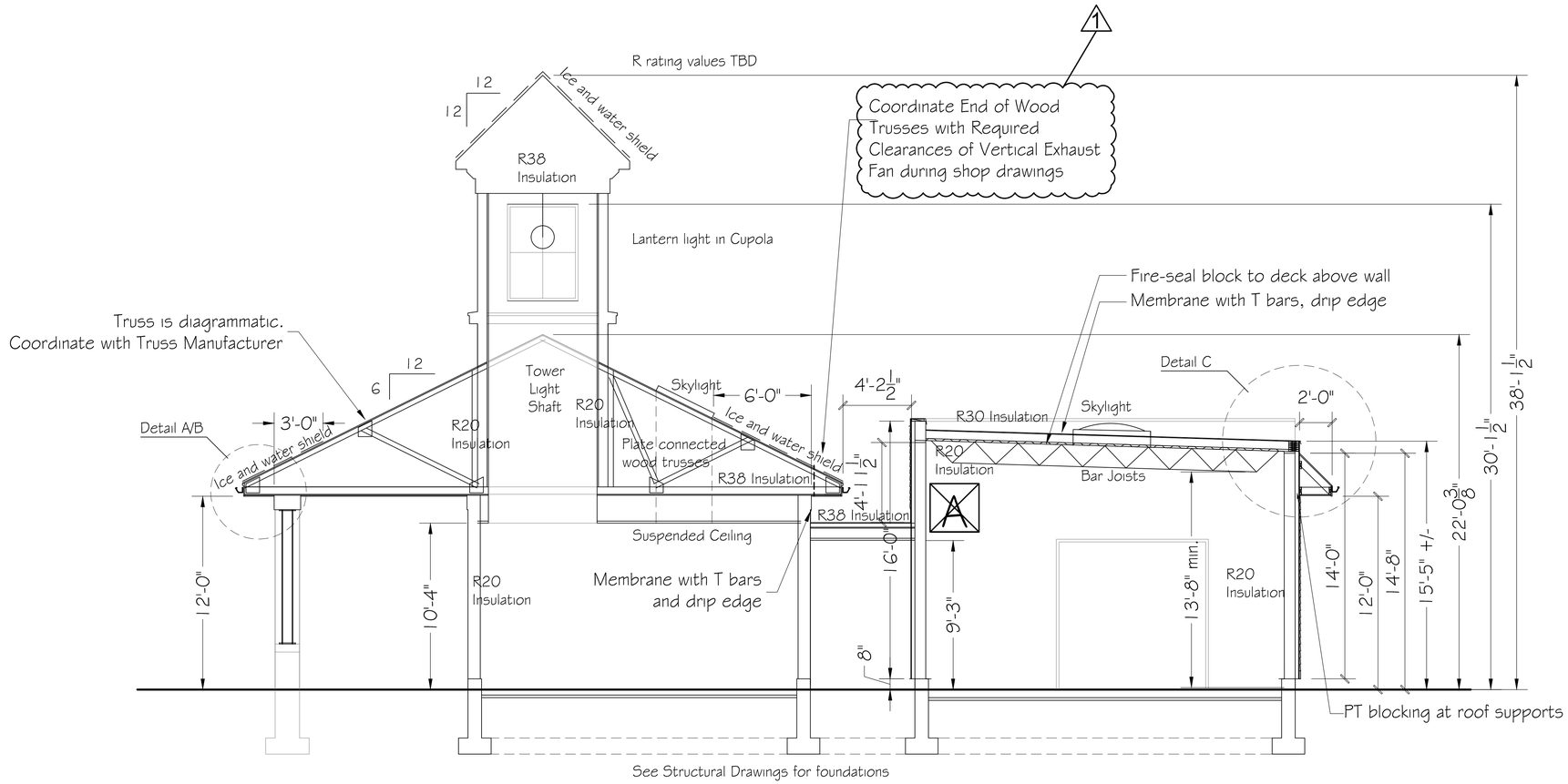
DRAWN BY: GSF
DESIGNED BY: GSF
CHECKED BY: GSF
ISSUE DATE: 1/31/2024
BETA JOB NO.: 10694

SCALE

1/4" = 1'0"

SHEET NO.

A-7a



PREPARED BY

BETA
www.BETA-Inc.com

REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

Warwick Ice Rink

Warwick, RI

TITLE

Section A

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

DRAWN BY: GSF

DESIGNED BY: GSF

CHECKED BY: GSF

ISSUE DATE: 1/31/2024

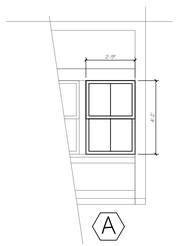
BETA JOB NO.: 10694

SCALE

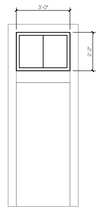
1/4" = 1'0"

SHEET NO.

A-9



A

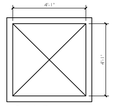


B

C

2246 Skylight

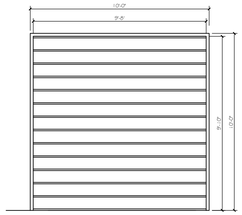
D



CMA Dome
Skylight 4949

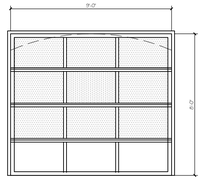
E

NOTE:
All windows to have SDLs



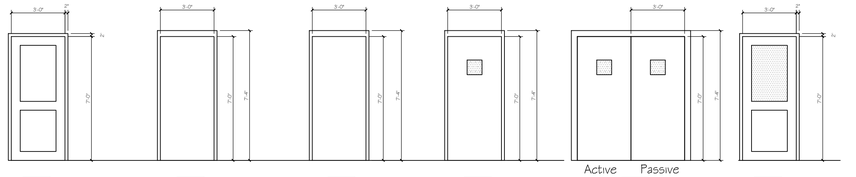
A

Roll Up - Steel



B

Roll Up - Alum., Glass



C

Outswing - Steel

Doors 6,7,8

D

Outswing - Steel

Doors 1,2,3,4

E

Inswing - Steel

Door 11

F

Interior - Steel

Door 9

Fire Rated w/
vision panel

F2

Active Passive

Interior - Steel

Door 10

Fire Rated w/
vision panel

G

Interior - Steel, Glass

Doors 5,12

Note: Coordinate rubber mat. transitions with door thresholds
to ensure ADA compliance and clear, unobstructed door swings

Coord. Hardware and Keying with City
All hardware and thresholds to be ADA compliant

Openings Schedule

Opening Number(s)	Qty	Hardware Group	Elevation	Nominal Width	Nominal Height	Type	Hand	Label	Frame Catalog	Frame Series	Frame Mat'l	Frame Gauge	Frame Profile	Jamb Depth	Facing (Jamb, Hd)	Anchor Type	Frame Construction	Door Label	Door Catalog	Door Series	Door Mat'l	Door Seam	Door Thickness	Door Type	Door Top	Lite Kit	Door Core	Door Finish	Remarks
1	1	03	E-1	36"	84"	Single	RHR		Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2		Ceco	LP	A60	W/SEM	1 3/4"	F	CWELD/TC		POLYS	PG	
2	1	03	E-1	36"	84"	Single	RHR		Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2		Ceco	LP	A60	W/SEM	1 3/4"	F	CWELD/TC		POLYS	PG	
3	1	03	E-2	36"	84"	Single	LHR		Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2		Ceco	LP	A60	W/SEM	1 3/4"	F	CWELD/TC		POLYS	PG	
4	1	03	E-1	36"	84"	Single	RHR		Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2		Ceco	LP	A60	W/SEM	1 3/4"	F	CWELD/TC		POLYS	PG	
5	1	03	E-3	36"	84"	Single	LHR		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A40	W/SEM	1 3/4"	E205	CWELD/TC	SLIMTR	POLYS	PG	
6	1	02	E-4	36"	84"	Single	RHR		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A40	W/SEM	1 3/4"	E201	CWELD/TC		POLYS	PG	
7	1	01	E-3	36"	84"	Single	LHR		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A40	W/SEM	1 3/4"	E201	CWELD/TC		POLYS	PG	
8	1	02	E-3	36"	84"	Single	LHR		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A40	W/SEM	1 3/4"	E201	CWELD/TC		POLYS	PG	
9	1	05	E-2	36"	84"	Single	LHR	BW	Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2	BW	Ceco	LP	A60	W/SEM	1 3/4"	V	CWELD/TC	SLIMTR	POLYS	PG	Wire glass.
10	1	06	E-5	36", 36"	84"	Pair	LHRA	BW	Ceco	S	A60	16	SU	5 3/4"	2", 4"	A17	V2	BW	Ceco	LP	A60	W/SEM	1 3/4"	V	CWELD/TC	SLIMTR	POLYS	PG	Wire glass.
11	1	05	E-6	36"	84"	Single	LH		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A60	W/SEM	1 3/4"	F	CWELD/TC		POLYS	PG	
12	1	03	E-3	36"	84"	Single	LHR		Ceco	S	A60	16	SU	5 3/4"	2", 2"	A04	V2		Ceco	LP	A40	W/SEM	1 3/4"	E205	CWELD/TC	SLIMTR	POLYS	PG	

1

GLEN S. FONTECCHIO
No. 2226
REGISTERED
ARCHITECT

PREPARED BY

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REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

Warwick Ice Rink

Warwick, RI

TITLE

Doors and Windows

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

DRAWN BY: GSF

DESIGNED BY: GSF

CHECKED BY: GSF

ISSUE DATE: 1/31/2024

BETA JOB NO.: 10694

SCALE

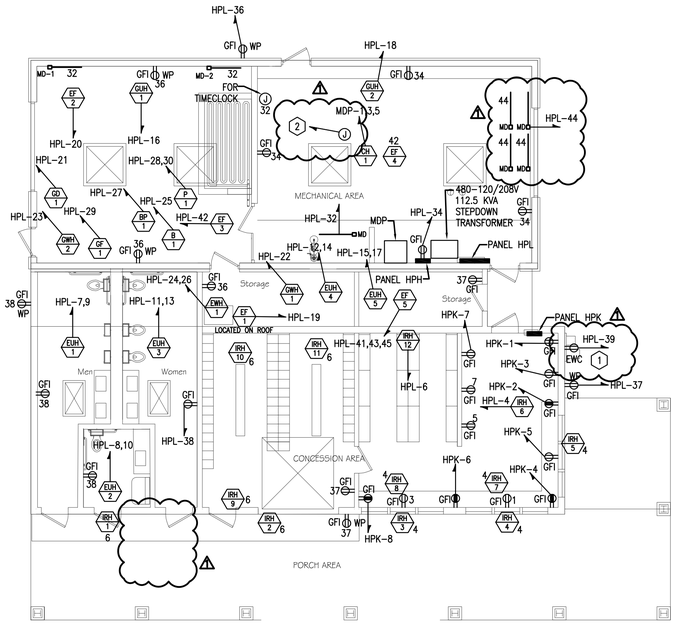
1./4" = 1'0"

SHEET NO.

A-16

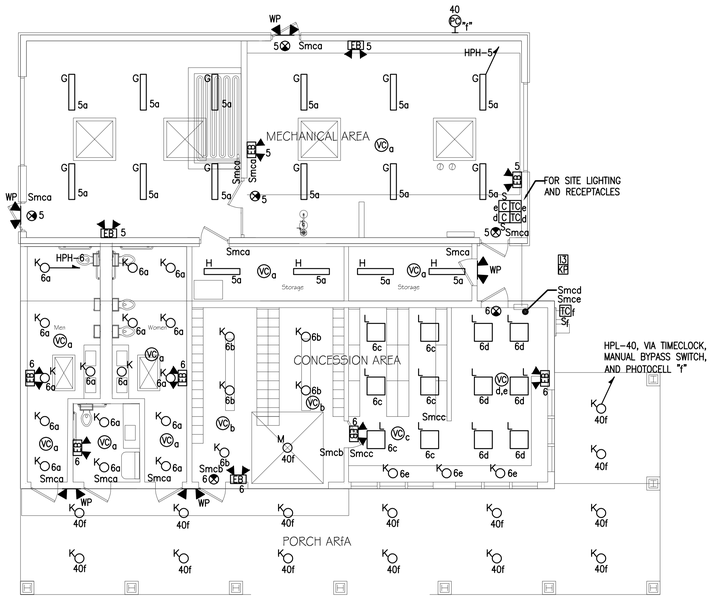
KEYED NOTES:

1. SERVED VIA A 20A/1P GFI CIRCUIT BREAKER IN THE PANEL ENCLOSURE.
2. PROVIDE A 3/4" CONDUIT WITH (1) CAT. 5 CABLE TO TEL/DATA RACK. PROVIDE 15' SLACK ON BOTH ENDS.



CONCESSION BUILDING ELECTRICAL POWER AND SYSTEMS PLAN

SCALE: 1/8" = 1'-0"



CONCESSION BUILDING ELECTRICAL LIGHTING PLAN

SCALE: 1/8" = 1'-0"

PREPARED BY

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REGISTERED PROFESSIONAL

DANIEL JAMES CARROLL
No. 8149
REGISTERED PROFESSIONAL ENGINEER (ELECTRICAL)

SUBCONSULTANT

B|E|R
BUILDING ENGINEERING RESOURCES, INC.
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T 508.230.0260
F 508.230.0265
ber@ber-engineering.com
Office Commons 95, 351 Centerville Road, Warwick, RI 02886
T 401.384.7682
www.ber-engineering.com

PROJECT

City Hall Plaza

Warwick, RI

TITLE

CONCESSION BUILDING ELECTRICAL PLAN

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

DRAWN BY:	WMS
DESIGNED BY:	WMS
CHECKED BY:	DJC
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

SCALE

AS NOTED

BID SET

SHEET NO.

E1.0

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

ITEM	EQUIPMENT DESCRIPTION	ELECTRICAL RATING							TYPE OF CONNECTION REQUIRED								FEEDER INFORMATION	REMARKS
		HP	FLA	KW	VOLTAGE	PH	PANEL	CIRCUIT	C/B SIZE			DIRECT CONN				DISCONNECT CONFIGURATION	VFD	WP		
RH 1	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 2	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 3	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 4	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 5	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 6	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 7	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 8	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 9	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 10	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 11	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
RH 12	INFRARED HEATER		.1		120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
EUH 1	ELECTRIC UNIT HEATER		14.4	3	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #2
EUH 2	ELECTRIC UNIT HEATER		14.4	3	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #2
EUH 3	ELECTRIC UNIT HEATER		9.6	2	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #2
EUH 4	ELECTRIC UNIT HEATER		15.8	3.3	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #2
EUH 5	ELECTRIC UNIT HEATER		15.8	3.3	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #2
GUH 1	GAS UNIT HEATER	.25	5.8	.7	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
GUH 2	GAS UNIT HEATER	.25	5.8	.7	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
EF 1	EXHAUST FAN		6.4	.77	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓							✓	(2)#12 CU & (1)#12 CU G IN 3/4"C	
EF 2	EXHAUST FAN		2.85	.34	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
EF 3	EXHAUST FAN		.85	.1	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓							✓	(2)#12 CU & (1)#12 CU G IN 3/4"C	
EF 4	EXHAUST FAN		7.5	2.7	208	3	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/3P				✓					✓	(3)#12 CU & (1)#12 CU G IN 3/4"C	
EF 5	EXHAUST FAN		46.2	13.31	208	3	SEE FLOOR PLANS	SEE FLOOR PLANS	60A/3P				✓					✓	(3)#6 CU & (1)#10 CU G IN 1"C	
CO 1	CARBON MONOXIDE CONTROLS		2.5	.3	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P			✓							(2)#12 CU & (1)#12 CU G IN 3/4"C	
GWH 1	GAS WATER HEATER		6	.72	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
GWH 2	GAS WATER HEATER		6	.72	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
EWH 1	ELECTRIC WATER HEATER			4.5	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	30A/2P				✓						(2)#10 CU & (1)#10 CU G IN 3/4"C	
B 1	BOILER		12	1.44	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	SEE NOTE #1
BP 1	BOILER PUMP		9.8	1.18	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
P 1	PUMP	2	13.8	2.87	208	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/2P				✓						(2)#12 CU & (1)#12 CU G IN 3/4"C	
CH 1	REFRIGERANT PACKAGE		431	358	480	3	SEE FLOOR PLANS	SEE FLOOR PLANS	500A/3P			✓							(2)3"C WITH (3)#350 KCMIL AL & (1)#1/0 AL G IN EACH	
GF 1	GLYCOL FEED PUMP		3	.36	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS	20A/1P		✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	
MD	MOTORIZED DAMPER			.2	120	1	SEE FLOOR PLANS	SEE FLOOR PLANS			✓								(2)#12 CU & (1)#12 CU G IN 3/4"C	

MECHANICAL CONNECTION SCHEDULE NOTES:

1. PROVIDE EMERGENCY SHUTOFF SWITCHES AS NECESSARY.
2. DISCONNECT IS FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE LINE VOLTAGE WIRING TO A LINE VOLTAGE THERMOSTAT FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS				REMARKS
			NUMBER	TYPE	VOLTS	WATTS	
A	DECORATIVE ORNAMENTAL POLE LIGHT	SPRING CITY LIGHTING– SEE ORNAMENTAL POLE DETAIL ON SHEET E2.1.	1	LED	277	40	
B	SINGLE HEAD LED SITE LIGHT WITH 17'–6" POLE	LITHONIA LIGHTING #RADPTLED–P5–40K–PATH–MVOLT–PT4–DBLXD/ RSS–17'–6"–4B–DM19RAD–DBLXD	1	LED	277	110	
C	DOUBLE HEAD LED SITE LIGHT WITH 17'–6" POLE	LITHONIA LIGHTING(2)#RADPTLED–P5–40K–SYM–MVOLT–PT4–DBLXD/ RSS–17'–6"–4B–DM28RAD–DBLXD	2	LED	277	220	
D	HIGH BAY LED DOWNLIGHT	PHILIPS TGS LIGHTING #CHBP–300W 40K–WD–U–D–B–HM	1	LED	277	300	
F	COLOR CHANGING LED LIGHT FIXTURE	COLOR KINETICS LIGHTING #423–0000–1 INTELIHUE BLAST GENS POWER CORE	1	LED	277	300	
G	4 FOOT LINEAR LED	ORACLE LIGHTING #OLS–D–LED–4"–S–4'–1500L–DIM10–MVOLT–85–WH	1	LED	277	51	
H	4 FOOT LINEAR LED	ORACLE LIGHTING #OLS–D–LED–4"–S–4'–1000L–DIM10–MVOLT–85–WH	1	LED	277	33	
K	RECESSED LED DOWNLIGHT	ELITE LIGHTING #HH4–LED–1200L–DIM10–MVOLT–WD –35K–90+–HH4–4501–WH	1	LED	277	14	
L	2X2 FLAT PANEL LED	METALUX LIGHTING #22FPSL2SCT3	1	LED	277	31	
M	12" WIDE PENDANT LIGHT	PROGRESS LIGHTING #P4403–29	1	LED	120	14	
⊗	LED EXIT SIGN WITH INTEGRAL BATTERY BACK–UP	EVENLITE #TLX–EM–RU–W	1	LED	277	3	
EB	EMERGENCY BATTERY UNIT	EVENLITE #TCL–4–W	1	LED	277	2	
WP	REMOTE EMERGENCY FIXTURE	EVENLITE #PRW–LED–2–MV–B	1	LED	6	1	

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PROJECT

City Hall Plaza

Warwick, RI

TITLE

ELECTRICAL SCHEDULES

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

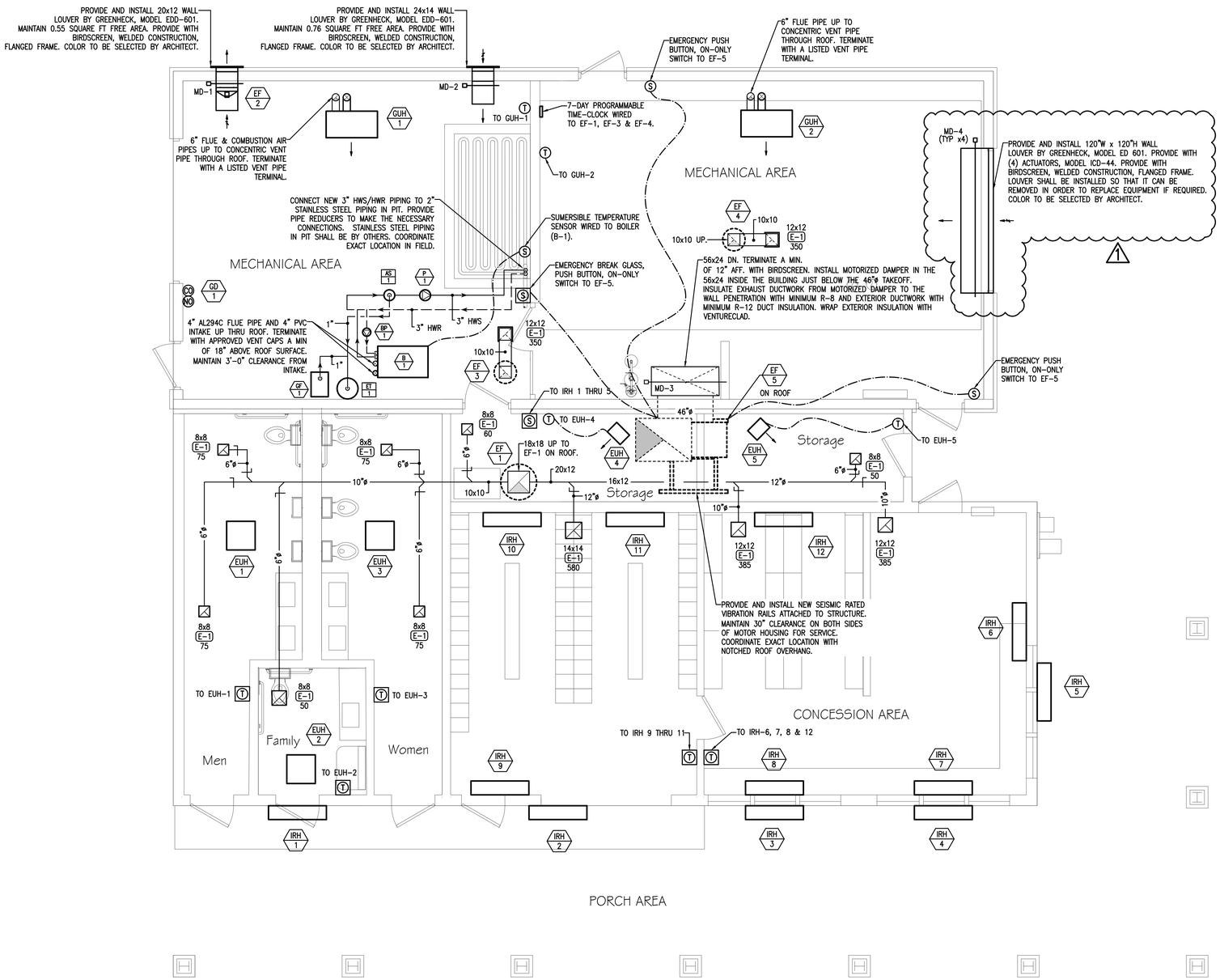
DRAWN BY: WMS
DESIGNED BY: WMS
CHECKED BY: DJC
ISSUE DATE: 01/31/2024
BETA JOB NO.: 10694

SCALE

AS NOTED

BID SET

SHEET NO. E2.2



CONCESSION BUILDING MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

PREPARED BY

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TITLE

CONCESSION BUILDING MECHANICAL PLAN

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

DRAWN BY:	JPK
DESIGNED BY:	JPK
CHECKED BY:	GAA
ISSUE DATE:	01/31/2024
BETA JOB NO.:	10694

SCALE

AS NOTED

Bid Set

SHEET NO.

M1.0

GAS FIRED UNIT HEATER SCHEDULE

GENERAL		PERFORMANCE									ELECTRICAL				PHYSICAL		REMARKS			
		FURNACE					FAN													
TAG	LOCATION	INPUT MBH	OUTPUT MBH	EFFICIENCY (%)	LAT (°F)	STAGES	CFM	ESP (IN WG)	RPM	SPEED	HP	AMPS	VOLTAGE	PHASE	MAX MOUNTING HEIGHT (FT)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
GUH-1	MECHANICAL ROOM	250.0	205.0	82.0	117.0	1	3,995	–	1,075	HIGH	1/3	7.15	120	1	18.0	MODINE PTX250SS0111SBAN	①	①	1 2 3	①②
GUH-2	MECHANICAL ROOM	250.0	205.0	82.0	117.0	1	3,995	–	1,075	HIGH	1/3	7.15	120	1	18.0	MODINE PTX250SS0111SBAN	①	①	1 2 3	①②

① NATURAL GAS FIRED, POWER VENTED, PROPELLER FAN TYPE

① 70°F EAT

1 PROGRAMMABLE THERMOSTAT WITH AUTO/OFF SYSTEM SWITCH AND AUTO/ON FAN SWITCH, HEATING STAGES AS INDICATED
2 CONCENTRIC VENT KIT, HORIZONTAL
3 PROVIDE WITH GAS PRESSURE REGULATOR

① SEE DETAIL
② INSTALL PER MANUFACTURERS INSTRUCTIONS

PUMP SCHEDULE

GENERAL		PERFORMANCE		ELECTRICAL				PHYSICAL		REMARKS			
TAG	SERVICE	GPM	TDH (FT WG)	WATTS	HP	VOLTAGE	PHASE	PIPE CONNECTION (IN)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
BP1	BOILER PUMP	39.0	12.0	480	0.6	120	1	1-1/2	TACO VR15M	①	①	1 2	①②
P-1	SYSTEM PUMP	80	20.0	1,550	2.1	208	1	2-1/2	TACO VR25H	②	①	1 2	①

① CARTRIDGE CIRCULATOR
② VERTICAL INLINE PUMP

① WATER AT 180°F

1 ALL IRON, ECM MOTOR
2 ANSI B16.1 CLASS 125 (175 PSIG AT 250°F)

① SEE DETAILS
② PUMP ENABLE/DISABLE BASED ON BOILER CONTROLLER

BOILER SCHEDULE

GENERAL		PERFORMANCE										ELECTRICAL			PHYSICAL		REMARKS			
		MAXIMUM FIRE				GAS PRESSURE		WATER SIDE												
TAG	LOCATION	MIN. INPUT MBH	MAX. INPUT MBH	GROSS OUTPUT MBH	THERMAL EFFICIENCY (%)	MIN IN. WC	MAX IN. WC	GPM MIN FLOW	GPM MAX. FLOW	LWT (°F)		AMPS	VOLTAGE	PHASE	SHIPPING WEIGHT (LBS)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
B-1	MECHANICAL ROOM	39.9	399.0	387.0	95.0	3.5"	14.0"	4.0	39.0	180.0		12.0	120	1	538.0	HTP ELX-400FBN	①	①	1 2 3	①②③

① NATURAL GAS FIRED, CONDENSING, DIRECT VENT AND COMBUSTION AIR

① WATER SIDE AT 160°F EWT, MAXIMUM FIRE

1 ACID NEUTRALIZER KIT
2 STAINLESS STEEL HEAT EXCHANGER
3 BUILT-IN BOILER CONTROLS
4 4" STAINLESS STEEL VENT KIT.

① SEE DETAIL
② PROVIDE A CONDENSATE DRAIN TO THE FLOOR DRAIN, WITH ACID NEUTRALIZER. CONNECT BOTH THE BOILER CONDENSATE DRAIN AND THE VENT DRAIN (AS APPLICABLE) UPSTREAM OF THE NEUTRALIZER.
③ VENT PIPING SHALL BE INSTALLED BY A LICENSED PLUMBER OR A LICENSED GAS FITTER. WHERE REQUIRED BY THE AHJ, COMBUSTION AIR PIPING ALSO SHALL BE INSTALLED BY A LICENSED PLUMBER OR A LICENSED GAS FITTER.

ELECTRIC UNIT HEATER SCHEDULE

GENERAL		PERFORMANCE					ELECTRICAL			PHYSICAL	REMARKS			
TAG	LOCATION	KW	STAGES	MBH	CFM	FAN SPEED	AMPS	VOLTAGE	PHASE	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
EUH-1	MENS RESTROOM	3.0	1	10.2	–	HIGH	–	208	1	KING KDSRU2030-3	①	①	1 2 3	①②
EUH-2	WOMENS RESTROOM	3.0	1	10.2	–	HIGH	–	208	1	KING KDSRU2030-3	①	①	1 2 3	①②
EUH-3	FAMILY RESTROOM	2.0	1	6.8	–	HIGH	–	208	1	KING KDSRU2020-3	①	①	1 2 3	①②
EUH-4	STORAGE	3.3	1	11.2	520	HIGH	15.9	208	1	KING KB2003-1-T-B1	②	①	1 2	①②
EUH-5	STORAGE	3.3	1	11.2	520	HIGH	15.9	208	1	KING KB2003-1-T-B1	②	①	1 2	①②

① FAN FORCED, COMMERCIAL ELECTRIC CEILING HEATER
② FAN FORCED, COMMERCIAL ELECTRIC UNIT HEATER

① UL LISTED

1 FURNISH AND INSTALL 120V, HARD WIRED, 7 DAY PROGRAMMABLE. WALL MOUNTED THERMOSTAT (WIRED BY E.C)
2 DISCONNECT SWITCH
3 RECESSED MOUNTING FRAME

① INSTALL PER MANUFACTURES INSTRUCTIONS
② COLOR TO BE DETERMINED BY ARCHITECT

EXHAUST FAN SCHEDULE

GENERAL			PERFORMANCE				ELECTRICAL					PHYSICAL		REMARKS			
TAG	LOCATION	SERVICE	CFM	ESP (IN WG)	MOTOR RPM	SONES	HP	VOLTAGE	PHASE	FLA	MOP	WEIGHT (LBS)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
EF-1	ROOF	GENERAL EXHAUST	1750	0.50	1,725	15.3	1/2	115	1	6.4	20.0	129.0	GREENHECK G-120-VG	①	① ②	1 2 3	①②
EF-2	MECHANICAL AREA	GAS DETECTION	400	0.25	1100	6.0	1/4	115	1	2.85	20.0	150.0	GREENHECK AER-E20C-610-VG	②	① ②	1	①②
EF-3	MECHANICAL AREA	GENERAL EXHAUST	350	0.25	860.0	4.2	1/8	115	1	0.85	20.0	47.0	GREENHECK CUE-99-C	①	① ②	1 2 3 4 5	①②
EF-4	MECHANICAL AREA	GENERAL EXHAUST	350	0.25	860.0	4.2	1/8	115	1	0.85	20.0	47.0	GREENHECK CUE-99-C	①	① ②	1 2 3 4 5	①②
EF-5	MECHANICAL AREA	EMERGENCY EXHAUST	30,000	0.50	1,725	46.0	15.0	208	3	46.2	110.0	630.0	GREENHECK USF-40-3-B4-00-01-01	③	① ②	1 6 THRU 21	①②③

① CENTRIFUGAL ROOF MOUNTED EXHAUST FAN
②
③ BELT DRIVE UTILITY SET EXHAUST FAN

① SOUND PERFORMANCE CERTIFIED IN ACCORDANCE TO AMCA 211/311
② UL LISTED

1 SPEED CONTROLLER
2 BACKDRAFT DAMPER
3 14" INSULATED ROOF CURB
4 SPARK RESISTANCE MOTOR
5 ALUMINUM CONSTRUCTION
6 NEMA PREMIUM EFFICIENT MOTOR
7 MOTOR WITH CLASS B OR GREATER INSULATION
8 STANDARD DRIVES
9 COATED FINISH
10 COATING – PERMATECTOR GRAY RAL-7023, MILL FINISH ON ALUMINUM COMPONENTS

11 ROTATION – CW
12 BEARINGS – L(10) LIFE OF 80K HOURS
13 DISCHARGE POSITION – UB
14 SWITCH – NEMA 3R, TOGGLE.
15 POLISHED STEEL SHAFT
16 BOLTED ACCESS DOOR
17 DRAIN CONNECTION – 1" PIPE THREAD WITH PLUG
18 SLIP FIT INLET CONNECTION
19 PUNCHED OUTLET FLANGE
20 STEEL WEATHERHOOD
21 ALUMINUM RUB RING

① INSTALL PER MANUFACTURERS INSTRUCTIONS.
② INSTALL DISCONNECT SWITCH AT THE FAN
③ PROVIDE AND INSTALL EQUIPMENT RAILS AND SECURE TO STRUCTURE. COORDINATE INSTALLATION WITH ARCHITECT/STRUCTURAL.

GAS DETECTOR SCHEDULE

GD-1:
PROVIDE AND INSTALL VENTILATION CONTROL CO/NO2 MONITOR GAS DETECTOR SYSTEM MANUFACTURED BY TOXALERT MODEL GVU-3, WITH:
AUDIBLE ALARM, SILENCE SWITCH, POWER/FAN ON INDICATOR, HIGH GAS CONCENTRATION INDICATOR.
INSTALL PER MANUFACTURERS INSTRUCTION AND INTERLOCK WITH EF-2 AND INTAKE MOTORIZED DAMPER MD-2

MOTORIZED DAMPER SCHEDULE

MD-1 & MD-2
LOW LEAKAGE CLASS-2 MOTORIZED DAMPER WITH 120/1/60 POWERED ACTUATOR. REFER TO PLANS FOR SIZE & QUANTITY. DAMPER SHALL BE INTERLOCKED WITH CO/NO2 MONITORING SYSTEM.

MD-3
LOW LEAKAGE CLASS-2 MOTORIZED DAMPER WITH 120/1/60 POWERED ACTUATOR. REFER TO PLANS FOR SIZE & QUANTITY. DAMPER SHALL BE INTERLOCKED WITH REFRIGERANT LEAK MONITORING SYSTEM.

1 MD-4 (TYP. x4)
LOW LEAKAGE CLASS-1 THERMALLY INSULATED MOTORIZED DAMPER WITH (4) 120/1/60 POWERED ACTUATORS. THERMALLY BROKEN ALUMINUM EXTRUDED BLADES WITH AIR TIGHT SEALS AND GASKETS. REFER TO PLANS FOR SIZE. DAMPERS SHALL BE INTERLOCKED WITH REFRIGERANT LEAK MONITORING SYSTEM.

DIFFUSER AND GRILLE SCHEDULE

GENERAL	PHYSICAL		REMARKS		
TAG	BLOW PATTERN	MANUFACTURER MODEL	TYPE	FEATURES	INSTALL
E-1	–	PRICE 635	①	1 2	①②

① RETURN/EXHAUST/TRANSFER GRILLE, 45° FIXED BLADES ON 1/2" CENTERS, BLADES PARALLEL TO LONG DIMENSION, CONCEALED FASTENING SCREWS, ALUMINUM CONSTRUCTION, WHITE FINISH.

1 REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING TYPE.
2 INSULATED PLENUM BOX

TAG LEGEND
SIZE (IN.)
0x0
XOX — TAG: S=SUPPLY R=RETURN E=EXHAUST
000 — CFM

① *REFER TO ARCHITECTURAL DRAWINGS TO CONFIRM MOUNTING TYPE OF ALL GRILLES AND DIFFUSERS PRIOR TO ORDERING
② PROVIDE A DUCT MOUNTED VOLUME DAMPER AT EACH BRANCH DUCT CONNECTED TO A DIFFUSER OR GRILLE. EXCEPTIONS:
- TRANSFER AIR APPLICATIONS (GRILLE IS NOT CONNECTED BY A DUCTWORK SYSTEM TO A FAN)
- EXHAUST AND RETURN GRILLES WHERE ONLY ONE GRILLE SERVES THE FAN/AIR HANDLING SYSTEM
- GRILLES CONNECTED TO RELIEF AIR HOODS AND RELIEF AIR LOUVERS

GAS FIRED INFRARED HEATER SCHEDULE

GENERAL		PERFORMANCE				ELECTRICAL			PHYSICAL			REMARKS			
TAG	LOCATION	INPUT MBH (HIGH)	INPUT MBH (LOW)	MIN. GAS PRESSURE ("WC)	MAX GAS PRESSURE ("WC)	AMPS	VOLTAGE	PHASE	SUGGESTED MOUNTING HEIGHT (FT)	WEIGHT (LBS)	MANUFACTURER MODEL	TYPE	RATINGS	FEATURES	INSTALL
IRH-1	PORCH AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-2	PORCH AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-3	PORCH AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-4	PORCH AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-5	PORCH AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-6	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-7	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-8	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-9	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-10	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-11	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②
IRH-12	CONCESSION AREA	35.0	24.0	7.0	14.0	0.1	120	1	11.0	55.0	STERLING SUNSCAPE	①	①	1 2 3 4	① ②

① NATURAL GAS FIRED, INFRARED HEATER

① ANSI Z83.19 & ANSI Z83.26

1 TWO STAGE GAS VALVE
2 HEAT SHIELD
3 CONTROL SWITCH
4 WALL MOUNTING BRACKET

① INSTALL PER MANUFACTURERS INSTRUCTIONS
② MAINTAIN MANUFACTURERS CLEARANCE REQUIREMENTS

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PROJECT
City Hall Plaza
Warwick, RI

TITLE
MECHANICAL SCHEDULES

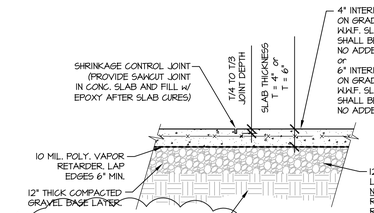
NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/24

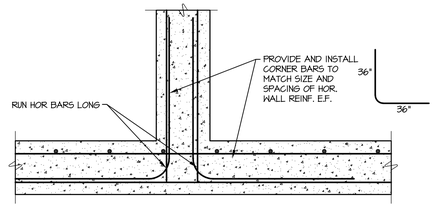
DRAWN BY: JPK
DESIGNED BY: JPK
CHECKED BY: GAA
ISSUE DATE: 01/31/2024
BETA JOB NO.: 10694

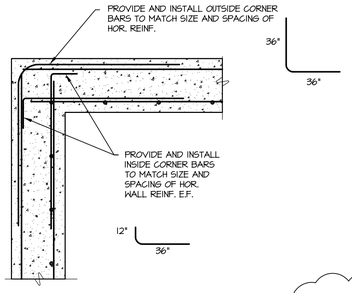
SCALE
AS NOTED

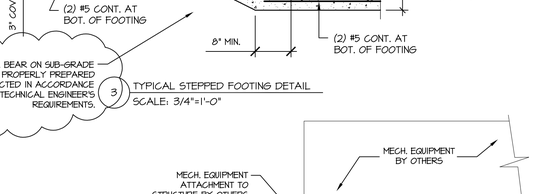
Bid Set

SHEET NO.
M2.0









GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL FULLY COORDINATE AND VERIFY ALL DIMENSIONS, ELEVATIONS, GRADES, IMPLIED LOCATIONS, AND SIZES SHOWN ON STRUCTURAL DRAWINGS WITH EXISTING FIELD CONDITIONS AND ALL CONSULTANT DRAWINGS AND REPORTS INCLUDING GEOTECHNICAL REPORT.

2. ALL SIGNIFICANT DISCREPANCIES FOUND SHALL BE REPORTED TO THE ARCHITECT OF RECORD.

CODE INFORMATION AND DESIGN LOADS (EXCEPT AS NOTED):

BUILDING CODE: RI SBC-1 2021 (WARWICK, RI)
RELATED REFERENCE: ASCE 7-10

SNOW AND ROOF LOADS/FACTORS:

MIN. ROOF LIVE LOAD: 20 PSF
GROUND SNOW LOAD (Pg): 30 PSF
FLAT ROOF SNOW LOAD (Pf): 30 PSF
SNOW LOAD IMPORTANCE FACTOR (Is): 1.0
SNOW EXPOSURE FACTOR (Ce): 1.0
THERMAL FACTOR (Ct): 1.0

GEOTECHNICAL FACTORS:

FROST DEPTH: 3'-4"

ASSUMED SITE SOIL CLASSIFICATION TYPES (AS SPECIFIED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM): GM, GC, SM, SM-SC AND ML (SHALL BE VERIFIED BY GEOTECHNICAL ENGINEER LICENSED IN THE PROJECT STATE).

ASSUMED SITE DESIGN LATERAL SOIL PRESSURE: 45 PSF PER FOOT OF DEPTH (SHALL BE VERIFIED BY GEOTECHNICAL ENGINEER LICENSED IN THE PROJECT STATE).

ASSUMED SOIL BEARING CAPACITY: SEE "FOUNDATION NOTES" IT IS ASSUMED THAT THE SOILS SUPPORTING THIS CONSTRUCTION PROJECT ARE SUITABLE TO SUPPORT THE PROPOSED BUILDING (WITH THE SPECIFIED FOUNDATION ELEMENTS), SIDEWALKS, AND PAVEMENTS WITHOUT ADVERSE AFFECTS DUE TO SETTLEMENT, DIFFERENTIAL SETTLEMENT, BUOYANCY, ETC. THE DEVELOPER, GENERAL CONTRACTOR, AND/OR OWNERS SHALL RETAIN THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEER TO TEST AND EVALUATE THE SITE IN, AROUND, AND BELOW THE BUILDING FOOTPRINT TO VERIFY THESE ASSUMPTIONS AND PROVIDE A GEOTECHNICAL ENGINEERING REPORT.

SEISMIC FACTORS:

GROUND ACCELERATIONS: Ss=.174g, S1=.060g
SEISMIC IMPORTANCE FACTOR (Ie): 1.0
OCCUPANCY CATEGORY: II
SEISMIC DESIGN CATEGORY: B
SEISMIC SITE CLASS (ASSUMED): D
ANALYSIS PROCEDURE: EQUIV. LATERAL FORCE PROCEDURE
LATERAL FORCE RESISTING SYSTEM:
ORDINARY CMU SHEARWALLS & LIGHT-FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE

WIND FACTORS:

RISK CATEGORY: II
BASIC WIND SPEED (V): 127 MPH
EXPOSURE CATEGORY: B
TOPOGRAPHIC FACTOR (Kzt): 1.0
ENCLOSURE CLASSIFICATION: ENCLOSED
INTERNAL PRESSURE COEFF GCpi: ±0.18 (ENCLOSED BLDG.)

FOUNDATION NOTES:

1. ALL TOPSOIL, SUBSOIL, AND SOIL CONTAINING ORGANIC OR UNSUITABLE BEARING MATERIAL SHALL BE CLEARED FROM THE BUILDING FOOTPRINT.
2. ALL SOIL SUPPORTED FOOTINGS SHALL BE FOUNDED UPON COMPACTED NATURAL SUBGRADE OR MECHANICALLY IMPROVED SUBGRADE WITH A BEARING CAPACITY OF AT LEAST 3000 PSF. SOIL BEARING CAPACITY SHALL BE VERIFIED BY A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE PROJECT STATE. SEE GEOTECHNICAL REPORT PREPARED BY S.W. COLE ENGINEERING, INC.
3. G.C. SHALL BE RESPONSIBLE FOR DETERMINING THE SITE'S SUITABILITY TO SUPPORT THE BUILDING. FURTHERMORE, THE G.C. SHALL BE RESPONSIBLE FOR CONSTRUCTING THIS BUILDING AND SURROUNDING SITE/SUBGRADE IN STRICT ACCORDANCE WITH THIS REQUIREMENT.
5. ALL FOOTINGS SHALL EXTEND AT LEAST 40" BELOW FINISHED GRADE. G.C. SHALL COORDINATE ALL PROPOSED GRADES PRIOR TO CONSTRUCTION.
6. BEDROCK / LEDGE SHALL BE EXCAVATED A MINIMUM OF 4" BELOW BOTTOM OF FOOTING ELEVATION AND COVERED WITH A LAYER OF COMPACTED GRAVEL.
7. SOIL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 IN LIFTS NOT TO EXCEED 6" LOOSE DEPTH.
8. BACKFILL SYMMETRICALLY AGAINST ALL FOUNDATION WALLS IN INCREMENTS NOT TO EXCEED 2 FEET MAXIMUM DIFFERENTIAL.
9. SEE PLUMBING AND ELECTRICAL DRAWINGS FOR UNDER FLOOR SYSTEMS AND SPECIAL GRANULAR FILL MATERIAL REQUIREMENTS.
10. NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER OR ICE.
11. ALL SLABS-ON-GRADE SHALL BE PLACED ON A LAYER OF COMPACTED FINE GRANULAR FILL UNDER A 10 MIL. POLY VAPOR RETARDER. COORDINATE ADDITIONAL SUBGRADE PREPARATION REQUIREMENTS WITH CIVIL AND/OR GEOTECHNICAL ENGINEERS OF RECORD.
12. ALL SLABS-ON-GRADE SHALL BE PLACED ON A VAPOR BARRIER ON A 12" COMPACTED GRAVEL BASE.
13. FORCES DUE TO HYDROSTATIC PRESSURE HAVE NOT BEEN CONSIDERED IN THE DESIGN OF THE FOUNDATION FOR THIS STRUCTURE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/OWNER TO CONFIRM WITH A GEOTECHNICAL ENGINEER, CIVIL ENGINEER, OR OTHER QUALIFIED DESIGN PROFESSIONAL TO ENSURE HYDROSTATIC FORCES DO NOT EXIST.
14. GENERAL CONTRACTOR SHALL COORDINATE ALL INSULATION, DRAINAGE, DAMP-PROOFING AND WATER-PROOFING DETAILS WITH ARCHITECT OF RECORD.
15. A MODIFIED PROCTOR TEST SHALL BE PERFORMED BY A SOILS TESTING LAB ON EACH TYPE OF SOIL TO BE COMPACTED.
16. FIELD DENSITY TESTS SHALL BE PERFORMED BY AN INDEPENDENT SOILS TESTING LAB TO VERIFY COMPACTION. A COPY OF ALL TEST REPORTS SHALL BE FILED WITH THE ARCHITECT OF RECORD.

CONCRETE NOTES:

1. ALL FOOTING AND WALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI AT 28 DAYS (ENTRAINED AIR CONTENT BETWEEN 4.5% AND 7%.
2. ALL INTERIOR SLAB CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI AT 28 DAYS AND CONTAIN NO AIR ENTRAINMENT.
3. ALL EXTERIOR SLAB CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI AT 28 DAYS (ENTRAINED AIR CONTENT BETWEEN 4.5% AND 7%).
4. ALL CONCRETE SHALL CONTAIN AN APPROVED WATER-REDUCING ADMIXTURE.
5. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
6. ALL REINFORCING BARS SHALL BE ASTM A-615 GRADE 60 UNLESS NOTED OTHERWISE.
7. ALL REINFORCING BAR SPLICES SHALL CONFORM TO REQUIREMENTS OF ACI 318, BUT IN NO CASE SHALL THEY BE LESS THAN 2'-0" OR 48xDIA.
8. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185, Fy=60 KSI
9. ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AT SIDES AND ENDS AND BE SECURELY WIRED TOGETHER.
10. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES, FLOOR DEPRESSIONS AND CUT OUTS.
11. COORDINATE ALL FOUNDATION PENETRATIONS WITH ARCHITECT, PLUMBING, MECHANICAL, ELECTRICAL CONTRACTORS AND LOCAL AGENCIES.
12. ALL CONCRETE SHALL BE DETAILED, FORMED, HANDLED, PLACED, AND PROTECTED IN ACCORDANCE WITH PROCEDURES AND GUIDELINES PRESCRIBED IN THE LATEST EDITION OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI-318, MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE STRUCTURES, ACI-301, AND ACI-305/306 GUIDES FOR HOT/COLD WEATHER CONCRETING.
13. GENERAL CONTRACTOR SHALL CAREFULLY COORDINATE ALL FORM-WORK, REBAR PLACEMENT, CONCRETE MIX DESIGN, AND CONCRETE PLACEMENT TO ENSURE ACCURATE AND COMPLETE CONCRETE DISTRIBUTION THROUGHOUT. ALL PRECAUTIONS, SHALL BE TAKEN TO AVOID "HONEYCOMBING" AND VOIDS IN CONCRETE FOUNDATION. TECHNIQUES, SUCH AS PRE-STAGING CONCRETE VIBRATORS IN CONGESTED AREAS, MODIFIED CONCRETE MIX DESIGNS TO PROMOTE COMPLETE DISTRIBUTION, ETC. SHALL BE EMPLOYED AT THE CONTRACTOR'S DISCRETION.
14. CONCRETE VOIDS AND EXCESSIVE "HONEY-COMBING" SHALL BE DOCUMENTED AND REPORTED TO THE ARCHITECT OF RECORD FOR ANALYSIS AND PREPARATION OF A REPAIR METHOD. PARGING, DRY-PACKING, AND "FLOATING" THE ADJACENT SLAB TO FILL VOIDS ARE UN-ACCEPTABLE METHODS OF REPAIR FOR FILLING SIGNIFICANT VOIDS.
15. G.C. SHALL COORDINATE ALL CONCRETE FINISHES WITH ARCHITECT OF RECORD. ALL CONCRETE THAT SHALL BE CONSIDERED ARCHITECTURALLY EXPOSED SHALL BE POURED AND FINISHED IN A MANNER WHICH WILL PRODUCE THE DESIRED ARCHITECTURAL FINISH. G.C. SHALL COORDINATE THE CONCRETE MIX DESIGN (I.E. SELF CONSOLIDATING CONCRETE), REBAR PLACEMENT, AND METHODS OF VIBRATION TO PRODUCE A FULLY CONSOLIDATED CONCRETE POUR FREE OF VOIDS AND/OR "HONEY-COMBING".
16. CHECKED SHOP DRAWINGS (5 SETS) SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL PRIOR TO FABRICATION. THE GENERAL CONTRACTOR MUST REVIEW THE SHOP DRAWINGS PRIOR TO SUBMISSION TO THE ARCHITECT OF RECORD. ALL COPIES OF THE SHOP DRAWING SUBMITTALS SHALL BEAR A DATED AND SIGNED SHOP DRAWING STAMP WHICH DOCUMENTS THE GENERAL CONTRACTOR'S APPROVAL.
17. A MIX DESIGN (5 COPIES) SHALL BE SUBMITTED FOR APPROVAL FOR EACH TYPE OF CONCRETE. MIX DESIGN SUBMITTAL SHALL INCLUDE HISTORICAL BREAK DATA FOR EACH MIX OF CONCRETE.
18. A SET OF FOUR (4) CONCRETE TESTS CYLINDERS SHALL BE TAKEN BY AN INDEPENDENT CONCRETE TESTING LAB ON EACH DAY WHEN CONCRETE PLACEMENT EXCEEDS 5 CUBIC YARDS. ONE CYLINDER SHALL BE BROKEN AT 7 DAYS, TWO AT 28 DAYS, AND ONE AT 56 DAYS. A COPY OF ALL TEST REPORTS SHALL BE FILED WITH THE ARCHITECT OF RECORD.

STRUCTURAL STEEL NOTES:

1. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC SPECIFICATIONS AND CODES, LATEST EDITION.
2. ALL WIDE FLANGE SECTION STRUCTURAL BEAMS (W) SHALL BE ASTM A992 Fy = 50 KSI. BASE PLATES, CHANNELS, ANGLES, AND MISC. STRUCTURAL STEEL SHALL BE ASTM A-36, Fy = 36 KSI. ALL SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL BE ASTM A-500 GRADE B FY MINIMUM 46 KSI.
3. ALL ANCHOR BOLTS AND THREADED RODS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554 AND A307.
4. ALL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-325 FOR 3/4" DIAMETER HIGH STRENGTH BOLTS UNLESS NOTED OTHERWISE.
5. ALL WELDING ELECTRODES SHALL BE E70XX.
6. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS AND SHALL CONFORM TO THE AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION", LATEST EDITION.
7. NO CONNECTION SHALL CONSIST OF LESS THAN TWO 3/4" DIAMETER BOLTS OR WELDS DEVELOPING A MINIMUM OF 10,000 POUNDS UNLESS NOTED OTHERWISE.
8. ALL FILLET WELDS SHALL BE A MINIMUM OF 1/4" UNLESS NOTED OTHERWISE.
9. ALL WELDS SHALL BE VISUALLY INSPECTED AND ALL FULL PENETRATION WELDS SHALL BE INSPECTED BY ULTRA-SONIC TESTING.
10. AN INDEPENDENT STEEL TESTING AGENCY SHALL PERFORM ALL INSPECTION AND TESTING. THE STRUCTURAL STEEL FABRICATOR AND ERECTOR SHALL SCHEDULE ALL WORK TO ALLOW THE ABOVE TESTING REQUIREMENTS TO BE COMPLETED. A COPY OF ALL TEST REPORTS SHALL BE FILED WITH THE ARCHITECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH RELATION TO TEMPERATURE DIFFERENTIALS AND STABILITY.
12. AFTER FABRICATION, ALL STEEL, EXCEPT THAT TO BE GALVANIZED, SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS AND RECEIVE ONE COAT OF APPROVED PRIMER PAINT OR APPROVED PREFATORY APPLICATION SPECIFIED BY THE CORROSION INHIBITING COATING MANUFACTURER.
13. THE FABRICATOR SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL.
14. CUTS, HOLES, OPENINGS, ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL BE SHOWN ON SHOP DRAWINGS FOR STRUCTURAL STEEL AND SHALL BE MADE IN THE SHOP. BURNING OF HOLES OR CUTS IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER OF RECORD.
15. FULL MOMENT CONNECTIONS SHALL BE DESIGNED AND DETAILED TO DEVELOP THE FULL CAPACITY OF THE MEMBERS BEING CONNECTED.
16. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
17. THE DESIGN, FABRICATION, PAINTING, AND ERECTION OF STEEL JOISTS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF THE STEEL JOIST INSTITUTE (SJI) STANDARD SPECIFICATIONS.
18. CONTINUOUS HORIZONTAL BRIDGING SHALL BE PROVIDED WITH DESIGN AND CONNECTION DETAILS CONFORMING TO SJI SPECIFICATIONS. ALL BRIDGING SHALL BE INSTALLED BEFORE ANY CONSTRUCTION LOADS ARE PLACED ON THE JOISTS. THE ENDS OF ALL BRIDGING LINES SHALL BE SECURELY ANCHORED TO ADJACENT WALLS OR BEAMS AT TERMINATION POINTS.
19. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

STEEL DECK NOTES:

1. ALL STEEL DECKING SHALL CONFORM TO THE STEEL DECK INSTITUTE (SDI) APPLICABLE SPECIFICATIONS AND REQUIREMENTS. INSTALLATION SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS IN ACCORDANCE WITH SDI SPECIFICATIONS.
2. STEEL DECK SHALL TYPICALLY BE STORED OFF THE GROUND AT THE JOBSITE, AND BE PROTECTED FROM THE ELEMENTS WITH A WATERPROOF COVERING WHERE REQUIRED.
3. DECK SHEETS SHALL BE PLACED IN ACCORDANCE WITH APPROVED ERECTION LAYOUT DRAWINGS SUPPLIED BY THE DECK MANUFACTURER AND IN CONFORMANCE WITH THE MANUFACTURER'S STANDARDS. UNLESS NOTED OTHERWISE, END LAPS SHALL OCCUR OVER SUPPORTS AND SHALL NOT BE LESS THAN 2" MINIMUM.
4. ALL STEEL TO BE USED FOR DECKING SHALL BE GALVANIZED.
5. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL FINISH REQUIREMENTS.
6. UNLESS NOTED OTHERWISE ON PLANS, THE FOLLOWING DECKING SHALL BE PROVIDED: STEEL DECK SHALL BE 1½" (TYPE B) 20 GAUGE STEEL ROOF DECK (G-90 GALVANIZED) BY VULCRAFT, OR APPROVED EQUAL.
7. SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

STRUCTURAL LUMBER, ENGINEERED LUMBER:

1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "TIMBER CONSTRUCTION STANDARDS" OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE "NATIONAL DESIGN SPECIFICATION FOR STRESS-GRADE LUMBER AND ITS FASTENINGS" OF THE NATIONAL FOREST PRODUCTS ASSOCIATION.
2. THE MINIMUM GRADES AND DESIGN VALUES REQUIRED FOR CONVENTIONAL, STRUCTURAL LUMBER SHALL BE:
3. STUDS: CONSTRUCTION GRADE SPRUCE-PINE-FIR, FC=1000 PSI, E=1,300,000 PSI,
4. JOISTS/RAFTERS/BEAMS: SPRUCE-PINE-FIR NO. 2, FB=875 PSI, E=1,400,000 PSI
5. PRESSURE TREATED LUMBER: SOUTHERN PINE NO. 1, E=1,400,000 PSI
6. ALL EXTERIOR WALL STUDS SHALL BE AT LEAST 2x6 @ 16" O.C. UNLESS NOTED OTHERWISE. FURTHERMORE, ALL WALL STUDS ADJACENT TO STEEL COLUMNS SHALL BE FASTENED TO FACE OF COLUMN WITH HILTI X-U POWDER DRIVEN FASTENERS @ 16" O.C.
7. ALL MULTIPLE MEMBER BEAMS AND HEADERS SHALL BE SUPPORTED ON NOT LESS THAN AN EQUAL NUMBER OF STUDS AT EACH END, UNLESS NOTED OTHERWISE.
8. WOOD COLUMNS MADE WITH THREE OR MORE WOOD STUDS SHALL BE NAILED TOGETHER WITH 16d NAILS. NAIL SPACING SHALL BE IN 2 ROWS, SPACED 8" O.C. FROM BOTH SIDES STAGGERED 4" APART.
9. UNLESS OTHERWISE NOTED, ALL EXTERIOR OPENINGS SHALL HAVE NOT LESS THAN ONE JACK STUD AND TWO FULL HEIGHT STUDS AT EACH SIDE OF THE OPENING. ALL INTERIOR BEARING WALL OPENINGS SHALL HAVE NOT LESS THAN TWO JACK STUDS AND ONE FULL HEIGHT STUD AT EACH SIDE OF THE OPENING UNLESS NOTED OTHERWISE.
10. ALL CONVENTIONAL LUMBER ROOF RAFTERS SHALL HAVE A SIMPSON UPLIFT ANCHOR AT EACH BEARING LOCATION. USE SIMPSON LSSU SKEWED AND/OR SLOPED HANGERS AT EACH RAFTER AS REQUIRED. PROVIDE AND INSTALL 1.25"x20 GA. RIDGE STRAPS (10) 8d NAILS) AT ALL CONVENTIONAL RAFTER PAIRS (OR APPROVED SUBSTITUTION).
11. FLUSH FRAMING SHALL BE SUPPORTED BY JOIST HANGERS DESIGNED FOR THE FULL CAPACITY OF THE SUPPORTED MEMBER.
12. PROVIDE AND INSTALL DOUBLE FLOOR JOISTS OR PROPERLY DESIGNED TRUSSES UNDER ALL PARTITIONS RUNNING PARALLEL TO SPAN.
13. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED WITH PRESERVATIVE.
14. EXTERIOR WALL SHEATHING SHALL BE MINIMUM 15/32 APA STRUCTURAL I RATED SHEATHING OR EXTERIOR GRADE. SHEATHING SHALL BE NAILED WITH 8d NAILS NOT LESS THAN 6" O.C. ON ALL PANEL EDGES. ALL WALL HORIZONTAL PANEL EDGES WITHIN 48" OF BUILDING CORNERS MUST BE BLOCKED AND NAILED. SHEATHING PANELS SHALL BE INSTALLED TO SPAN ACROSS FLOOR LEVELS (CENTERED ON BAND JOIST) TO ACHIEVE CONTINUOUS UPLIFT LOAD PATH FROM ROOF TO FOUNDATION.
15. SUB-FLOORING SHALL BE 3/4" TONGUE & GROOVE APA STRUCTURAL I RATED SHEATHING EXPOSURE I UNLESS NOTED OTHERWISE. FASTEN SUB-FLOOR TO SUPPORTING FRAMING WITH INDUSTRY STANDARD SUB-FLOOR ADHESIVE AND 8d NAILS @ 6" O.C.
16. ROOF SHEATHING ON FLAT ROOFS SHALL BE MINIMUM ¾" T&G APA STRUCTURAL I RATED SHEATHING.
17. ROOF SHEATHING ON NON-CURVED SLOPING FRAMING SHALL BE MINIMUM ⅝" T&G APA STRUCTURAL I RATED SHEATHING.
18. ROOF SHEATHING ON FLAT ROOFS AND NON-CURVED SLOPING FRAMING SHALL BE NAILED WITH 8d NAILS NOT MORE THAN 6" O.C. ON ALL SUPPORTED PANEL EDGES. NAILS SHALL BE SPACED 4" O.C. IN AREAS WITHIN 48" OF RIDGES, HIPS, RAKES, AND EAVES.
19. ROOF SHEATHING ON CURVED FRAMING MEMBERS SHALL BE THREE LAYERS OF ¼" APA RATED PLYWOOD SHEATHING WITH END AND SIDE JOINTS STAGGERED BETWEEN SUCCESSIVE LAYERS. EACH LAYER OF SHEATHING SHALL BE FASTENED TO THE SUPPORTING FRAMING WITH 8d RINK-SHANK NAILS @ 12" O.C. ALL NAILS SHALL BE STAGGERED BETWEEN NAILS FROM SUCCESSIVE LAYERS.
20. SOLID BLOCKING SHALL BE PROVIDED AT RIDGES AND EAVES TO SUPPORT AND FASTEN PANEL EDGES IN ALL CIRCUMSTANCES FOR ALL ROOF TYPES WHERE STANDARD FRAMING DOES NOT PROVIDE SUBSTRATE FOR CONTINUOUS PANEL EDGE SUPPORT AND FASTENING.
21. ENGINEERED LUMBER SUPPLIER SHALL SUBMIT TO THE ENGINEER OF RECORD FOR APPROVAL, SHOP DRAWINGS FOR ALL ENGINEERED LUMBER AND I-JOISTS. SHOP DRAWINGS SHALL INCLUDE BUT ARE NOT LIMITED TO: FRAMING LAYOUT PLAN, MEMBER SIZES, NAILING PATTERNS FOR MULTIPLE MEMBERS, BEARING LENGTHS, CONNECTION HANGERS, BLOCKING, BRIDGING, AND SQUASH BLOCKS.
22. LAMINATED VENEER LUMBER (LVL), LAMINATED STRAND LUMBER (LSL), AND PARALLEL STRAND LUMBER (PSL) SHALL BE VERSA-LAM BY BOISE CASCADE OR EQUAL.
23. LVL AND PSL BEAMS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: FB = 3100 PSI, FT = 2150 PSI, FC = 750 PSI FC = 3000 PSI, FV = 285 PSI, E = 2,000,000 PSI
24. PSL COLUMNS/POSTS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: FB = 2650 PSI, FT = 1650 PSI, FC = 750 PSI FC = 3000 PSI, FV = 285 PSI, E = 1,700,000 PSI
25. LVL'S AND PSL'S SHALL BE FREE OF FINGER JOINTS, SCARF JOINTS OR MECHANICAL CONNECTIONS FOR THE FULL LENGTH OF THE MEMBER.
26. ADHESIVE USED SHALL BE WATERPROOF, MEETING THE REQUIREMENTS OF ASTM D-2559-76.
27. ALL SIMPSON CONNECTORS (HANGERS, STRAPS, UPLIFT CONNECTORS, POST CAPS, ECT.) SHALL BE COATED WITH Z-MAX CORROSION RESISTANCE OR APPROVED SUBSTITUTE.
28. ALL FASTENERS IN CONTACT WITH PRESSURE-TREATED LUMBER SHALL BE CERTIFIED FOR USE WITH THE PRESERVATIVE TREATMENT USED.
29. ALL FASTENERS EXPOSED TO MOISTURE, EXPECTED CONDENSATION, PRESSURE TREATED LUMBER, AND/OR THE WEATHER SHALL BE MADE FROM NON-CORROSIVE MATERIALS OR COATED WITH AN APPROVED ANTI-CORROSIVE COATING CERTIFIED AND APPROVED FOR USE WITH THE MATERIALS TO BE FASTENED.
30. ALL PORCH ROOF AND FLOOR BEAMS SHALL BE FASTENED TO RESIST UPLIFT LOADS WITH SIMPSON PC/EPC POST CAPS AND 48" LONG (UNLESS OTHERWISE NOTED) SIMPSON 20GA COIL STRAPS. STRAPS SHALL BE CENTERED OVER THE TOP OF THE BEAM AND BENT DOWN ALONG BOTH SIDES OF POST. FASTEN STRAPS WITH 10D NAILS THROUGH ALL AVAILABLE NAIL HOLES.
31. ALL CEILING FRAMING (INCLUDING TRUSS BOTTOM CHORDS) ADJACENT TO EXTERIOR WALLS SHALL BE FRAMED IN ORDER TO BRACE THE EXTERIOR WALLS AGAINST LATERAL MOVEMENTS. COORDINATE ALL CEILING FRAMING WITH ARCHITECT OF RECORD.
32. AT ALL OVER FRAMED ROOF CONDITIONS FRAMED WITH CONVENTIONAL LUMBER, PROVIDE & INSTALL CONTINUOUS 2X8 CLEAT FASTENED THROUGH SHEATHING AND INTO EACH ROOF RAFTER WITH (2) #10 DECKING SCREWS. FASTEN OVER-FRAMED RAFTERS TO CLEAT WITH (4) 16d TOE-NAILS AND SINGLE #10 DECKING SCREW THROUGH TOP OF RAFTER.

GENERAL NOTES - PRE-ENGINEERED WOOD TRUSSES:

1. WOOD TRUSSES SHALL BE DESIGNED PER THE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES", PUBLISHED BY THE TRUSS PLATE INSTITUTE.
2. ALL ROOF TRUSSES AND OVERHANGING WOOD MEMBERS SHALL BE HELD DOWN WITH UPLIFT ANCHORS PER TRUSS MANUFACTURER'S REQUIREMENTS.
3. WOOD TRUSS FABRICATOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION, SHOP DRAWINGS BEARING SEAL AND SIGNATURE OF THE DESIGN PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF RHODE ISLAND. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ARCHITECT. SHOP DRAWINGS SHALL INCLUDE BUT ARE NOT LIMITED TO: TRUSS LAYOUT PLAN; TRUSS DETAIL SHEETS SHOWING CONFIGURATION, DIMENSIONS, LOADS, MEMBER SIZES AND GRADES, MEMBER FORCES, CONNECTION PLATE SIZES, PERMANENT BRACING REQUIREMENTS, TRUSS CONNECTION HANGERS FOR FLUSH FRAMING, TEMPORARY BRACING REQUIREMENTS, UPLIFT ANCHORAGE HARDWARE (SPECIFIED BY TRUSS DESIGNER), ETC.
4. TRUSS DESIGNER SHALL INCLUDE ALL LOADS REQUIRED BY THE RHODE ISLAND STATE BUILDING CODE AND ALL FURTHER REQUIREMENTS INCLUDED IN THE STRUCTURAL AND ARCHITECTURAL CONTRACT DOCUMENTS. ADDITIONAL REQUIREMENTS MAY INCLUDE, BUT ARE NOT LIMITED TO ADDITIONAL DESIGN LOADS DUE TO WIND AND/OR EARTHQUAKE, SNOW DRIFTING, POINT LOADS AND/OR ADDITIONAL LOADING FROM OTHER FRAMING MEMBERS, SPECIAL TOP CHORD SLOPE REQUIREMENTS FOR DRAINAGE, ETC. TRUSS DESIGNER SHALL CAREFULLY COORDINATE ALL LOADS DUE TO MECHANICAL EQUIPMENT AND PLUMBING FIXTURES WITH THE G.C., ARCHITECT, AND MECHANICAL DESIGN.
5. TRUSS DESIGNER SHALL DESIGN, MANUFACTURE, AND FURNISH ALL FLOOR TRUSSES WHICH MEET A LIVE LOAD DEFLECTION CRITERIA OF L/600 AND ALL ROOF TRUSSES WHICH MEET A TOTAL LOAD DEFLECTION CRITERIA OF THE LESSER OF ¾" OR L/360 UNLESS SPECIFICALLY APPROVED OTHERWISE.
6. WOOD TRUSS ERECTOR SHALL BE RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY ERECTION BRACING.
7. TRUSS SPACING SHOWN IN STRUCTURAL ENGINEERING PLANS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR SHALL REFER TO APPROVED TRUSS SHOP DRAWINGS FOR ACTUAL TRUSS LAYOUT AND SPACING (FOR BOTH BIDDING AND CONSTRUCTION PURPOSES).
8. TRUSS LAYOUT AND DESIGN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT LAYOUT.

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MICHAEL V. CAMERA
No. 9253
REGISTERED PROFESSIONAL ENGINEER (STRUCTURAL)

1. SAWCUT SHRINKAGE CONTROL JOINTS SHALL BE PROVIDED WITHIN 12 HRS. OF SLAB PLACEMENT, AS SOON AS CONCRETE IS CAPABLE OF SUPPORTING SAWCUTTING EQUIPMENT.

2. LOCATE SHRINKAGE CONTROL JOINTS AS INDICATED ON SLAB PLAN, OR AT MAXIMUM SPACING OF 20 FT. O.C. IF NOT INDICATED ON PLANS. RESULTING SHAPE SHALL NOT BE GREATER THAN 400 S.F. NOR EXCEED A 1.5 : 1 LENGTH TO WIDTH RATIO.

3. OPTIONALLY, THE SHRINKAGE CONTROL MAY SUBSTITUTE PRE-FABRICATED PLASTIC STRIPS INSTEAD OF SAWCUTTING. SUBMIT CATALOG CUTS FOR APPROVAL PRIOR TO USING.

4. INSTALLATION OF ALL NON-STRUCTURAL CONCRETE SLABS-ON-GRADE SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST ADDITIONS OF BOTH, ACI-360 AND ACI-302.

1 TYP. INTERIOR SLAB ON GRADE DETAIL
SCALE: NONE

CONCRETE WALL INTERSECTION

CONCRETE WALL CORNERS

2 TYP. REINFORCED CONCRETE WALL DETAILS
SCALE: NONE

3 TYPICAL STEPPED FOOTING DETAIL
SCALE: 3/4"=1'-0"

4 SECTION THROUGH PIER AT STEEL COLUMNS
SCALE: 3/4"=1'-0"

5 SECTION THROUGH MECHANICAL PLATFORM FOUNDATION
SCALE: 3/4"=1'-0"

PREPARED BY

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SUBCONSULTANT

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PROJECT

City Hall Plaza

Warwick, RI

TITLE

Notes & Foundation Details

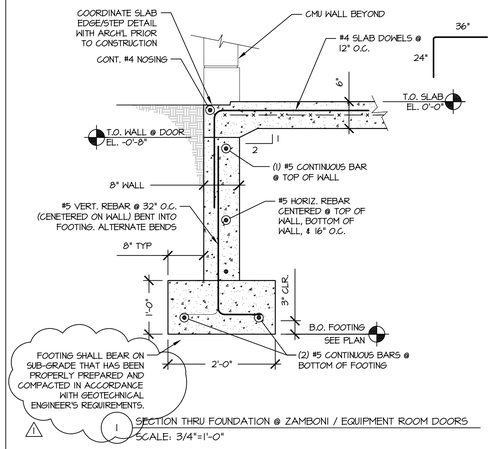
NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/2024

DRAWN BY: MJB / AJH
DESIGNED BY: MJB / AJH
CHECKED BY: MVC
ISSUE DATE: 01/31/2024
BETA JOB NO.: 10694
SCALE AS NOTED

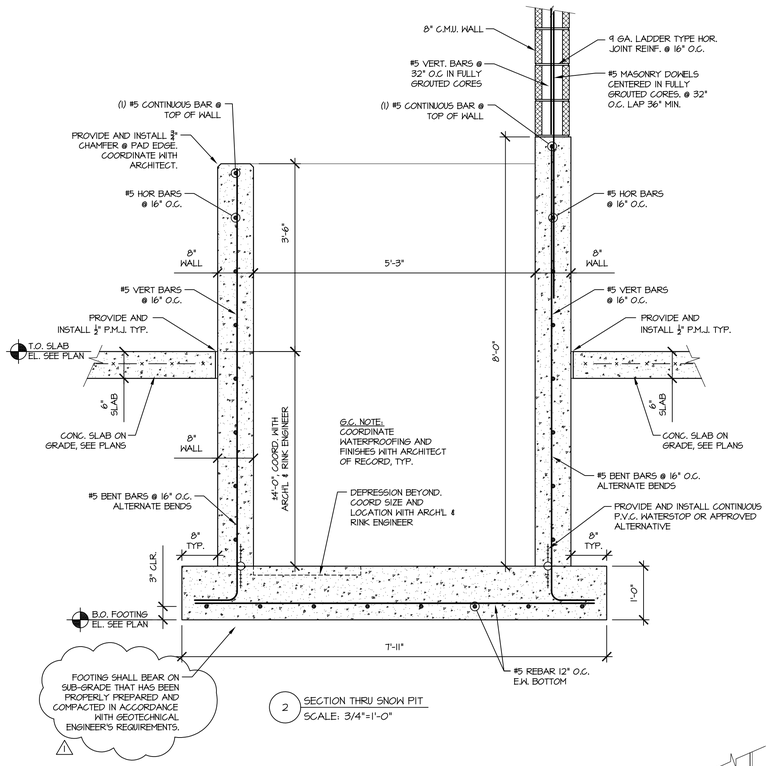
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

BID SET

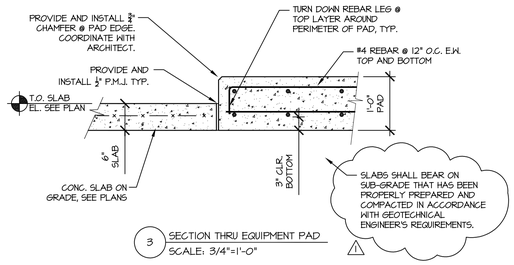
SHEET NO. S0.1



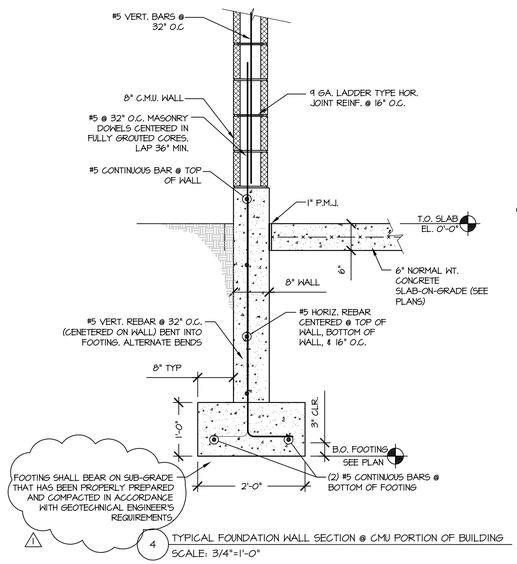
1 SECTION THRU FOUNDATION @ ZAMBONI / EQUIPMENT ROOM DOORS
SCALE: 3/4"=1'-0"



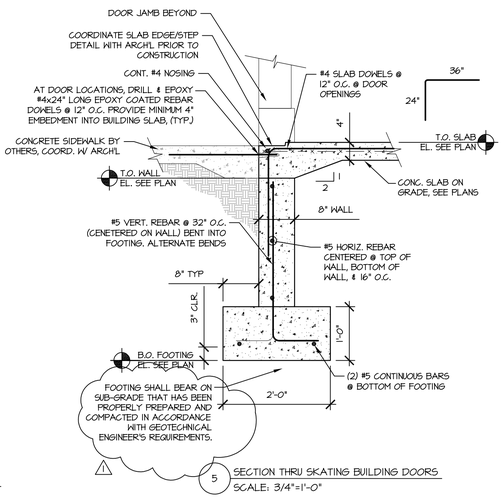
2 SECTION THRU SNOW PIT
SCALE: 3/4"=1'-0"



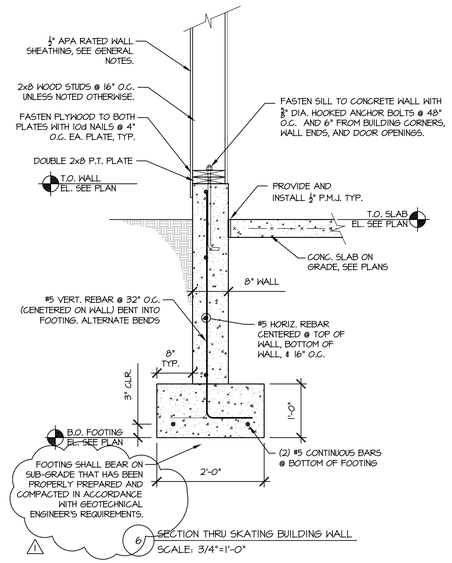
3 SECTION THRU EQUIPMENT PAD
SCALE: 3/4"=1'-0"



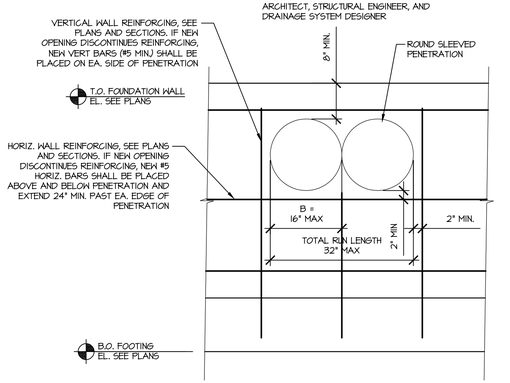
4 TYPICAL FOUNDATION WALL SECTION @ CMU PORTION OF BUILDING
SCALE: 3/4"=1'-0"



5 SECTION THRU SKATING BUILDING DOORS
SCALE: 3/4"=1'-0"



6 SECTION THRU SKATING BUILDING WALL
SCALE: 3/4"=1'-0"



7 TYPICAL FOUNDATION WALL PIPE SLEEVE PENETRATION
SCALE: 3/4"=1'-0"

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PROJECT

City Hall Plaza

Warwick, RI

TITLE

Foundation Details

NO.	REVISIONS	DATE
1	ADDENDUM #1	3/14/2024

DRAWN BY: MJB / AJH

DESIGNED BY: MJB / AJH

CHECKED BY: MVC

ISSUE DATE: 01/31/2024

BETA JOB NO.: 10694

SCALE AS NOTED

BID SET

SHEET NO. S0.2

CODE INFORMATION AND DESIGN LOADS (EXCEPT AS NOTED):

BUILDING CODE: RI SBC-1 2021 (WARWICK, RI)
RELATED REFERENCE: ASCE 7-16

SNOW AND ROOF LOADS/FACTORS:
- MIN. ROOF LIVE LOAD: 20 PSF
- GROUND SNOW LOAD (Pg): 30 PSF
- FLAT ROOF SNOW LOAD (Pf): 30 PSF
- SNOW LOAD IMPORTANCE FACTOR (Is): 1.0
- SNOW EXPOSURE FACTOR (Ce): 1.0
- THERMAL FACTOR (Ct): 1.0

GEOTECHNICAL FACTORS:
- FROST DEPTH: 3'-4"
- DESIGN SOIL BEARING CAPACITY: 3000 PSF (SEE GEOTECHNICAL REPORT BY S. W. COLE ENGINEERING, INC.).

GENERAL NOTES:

1. GENERAL CONTRACTOR SHALL FULLY COORDINATE AND VERIFY ALL DIMENSIONS, ELEVATIONS, GRADES, IMPLIED LOCATIONS, AND SIZES SHOWN ON STRUCTURAL DRAWINGS WITH EXISTING FIELD CONDITIONS AND ALL CONSULTANT DRAWINGS AND REPORTS INCLUDING GEOTECHNICAL REPORT.

2. ALL SIGNIFICANT DISCREPANCIES FOUND SHALL BE REPORTED TO THE ARCHITECT OF RECORD.

3. THE ENTIRE PRE-ENGINEERED METAL BUILDING, INCLUDING ALL OF ITS COMPONENTS, CLADDING, BRACING, CONNECTIONS, ANCHOR BOLTS, ETC. ARE SPECIFICALLY NOT THE RESPONSIBILITY OF CAMERA - O'NEILL CONSULTING ENGINEERS.

FOUNDATION NOTES:

1. ALL SOIL CONTAINING ORGANIC OR UNSUITABLE BEARING MATERIAL SHALL BE CLEARED FROM THE BUILDING FOOTPRINT.

2. ALL EXTERIOR/PERIMETER FOOTINGS SHALL EXTEND AT LEAST 40" BELOW FINISHED GRADE. ALL SOIL SUPPORTED FOOTINGS SHALL BE FOUNDED UPON COMPACTED NATURAL SUB-GRADE OR COMPACTED BANK RUN GRAVEL FILL WITH A BEARING CAPACITY OF AT LEAST 3000 PSF (SEE GEOTECHNICAL REPORT BY S. W. COLE ENGINEERING, INC.). GC SHALL BE RESPONSIBLE FOR VERIFYING THE SOIL BEARING CAPACITY AND PERFORMING INDEPENDENT SOIL COMPACTION / BEARING CAPACITY TESTS. ALL TEST REPORTS SHALL BE SUBMITTED TO THE ARCHITECT OF RECORD FOR REVIEW.

3. ROCK SHALL BE EXCAVATED A MINIMUM OF 12" BELOW BOTTOM OF FOOTING ELEVATION AND COVERED WITH A LAYER OF COMPACTED GRAVEL.

4. A MODIFIED PROCTOR TEST SHALL BE PERFORMED BY A SOILS TESTING LAB ON EACH TYPE OF SOIL TO BE COMPACTED.

5. SOIL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY PER ASTM D1557 IN LIFTS NOT TO EXCEED 6" LOOSE DEPTH.

6. FIELD DENSITY TESTS SHALL BE PERFORMED BY AN INDEPENDENT SOILS TESTING LAB TO VERIFY COMPACTION. A COPY OF ALL TEST REPORTS SHALL BE FILED WITH THE ARCHITECT OF RECORD.

7. BACKFILL SYMMETRICALLY AGAINST ALL FOUNDATION WALLS IN INCREMENTS NOT TO EXCEED 2 FEET MAXIMUM DIFFERENTIAL.

8. SEE PLUMBING AND ELECTRICAL DRAWINGS FOR UNDER FLOOR SYSTEMS AND SPECIAL GRANULAR FILL MATERIAL REQUIREMENTS.

9. NO FOOTINGS OR SLABS SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER OR ICE.

10. ALL SLABS-ON-GRADE SHALL BE PLACED ON A LAYER OF COMPACTED FINE GRANULAR FILL UNDER A 10 MIL. POLY VAPOR RETARDER. COORDINATE ADDITIONAL SUBGRADE PREPARATION REQUIREMENTS WITH CIVIL AND/OR GEOTECHNICAL ENGINEERS OF RECORD.

PRE-ENGINEERED METAL BUILDING NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH RELATION TO TEMPERATURE DIFFERENTIALS AND STABILITY.

2. THE FABRICATOR / METAL BUILDING DESIGNER SHALL FURNISH CHECKED SHOP AND ERECTION DRAWINGS AND OBTAIN APPROVAL PRIOR TO FABRICATING ANY STRUCTURAL STEEL.

3. CUTS, HOLES, OPENINGS, MODIFICATIONS, ETC. REQUIRED IN METAL BUILDING COMPONENTS SHALL BE SHOWN ON SHOP DRAWINGS FOR THE METAL BUILDING AND SHALL BE MADE IN THE SHOP AND APPROVED BY THE METAL BUILDING DESIGNER'S PROFESSIONAL ENGINEER OF RECORD. BURNING OF HOLES OR CUTS IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE METAL BUILDING'S STRUCTURAL ENGINEER OF RECORD.

4. THE DESIGN, FABRICATION, PAINTING, AND ERECTION OF THE PRE-ENGINEERED METAL BUILDING SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF THE METAL BUILDING MANUFACTURER ASSOCIATION'S SPECIFICATIONS.

5. G.C. SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ALL SHOP DRAWINGS SHALL BE THOROUGHLY CHECKED BY BOTH THE ARCHITECT AND GENERAL CONTRACTOR PRIOR TO SUBMISSION TO FOUNDATION DESIGNER.

CONCRETE NOTES:

1. ALL FOOTING AND WALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI AT 28 DAYS (ENTRAINED AIR CONTENT BETWEEN 4.5% AND 7%).

2. ALL INTERIOR SLAB CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI AT 28 DAYS AND CONTAIN NO AIR ENTRAINMENT.

3. ALL EXTERIOR SLAB CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI AT 28 DAYS (ENTRAINED AIR CONTENT BETWEEN 4.5% AND 7%).

4. ALL CONCRETE SHALL CONTAIN AN APPROVED WATER-REDUCING ADMIXTURE.

5. A SET OF FOUR (4) CONCRETE TESTS CYLINDERS SHALL BE TAKEN BY AN INDEPENDENT CONCRETE TESTING LAB ON EACH DAY WHEN CONCRETE PLACEMENT EXCEEDS 5 CUBIC YARDS. ONE CYLINDER SHALL BE BROKEN AT 7 DAYS, TWO AT 28 DAYS, AND ONE AT 56 DAYS. A COPY OF ALL TEST REPORTS SHALL BE FILED WITH THE ARCHITECT OF RECORD.

6. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

7. A MIX DESIGN (5 COPIES) SHALL BE SUBMITTED FOR APPROVAL FOR EACH TYPE OF CONCRETE. MIX DESIGN SUBMITTAL SHALL INCLUDE HISTORICAL BREAK DATA FOR EACH MIX OF CONCRETE

8. ALL REINFORCING BARS SHALL BE ASTM A-615 GRADE 60 UNLESS NOTED OTHERWISE. PLACEMENT OF REBAR SHALL BE IN STRICT ACCORDANCE WITH ACI-318 (LATEST REVISION). HAIRPIN BARS SHALL BE PLACED IN THE CENTER OF THE SLAB DEPTH AND BE HELD IN POSITION WITH CHAIRS AND W.M.F.

9. CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT, SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL PRIOR TO FABRICATION. THE GENERAL CONTRACTOR MUST REVIEW THE SHOP DRAWINGS PRIOR TO SUBMISSION TO THE ARCHITECT OF RECORD. ALL COPIES OF THE SHOP DRAWINGS SUBMITTALS SHALL BEAR A DATED AND SIGNED SHOP DRAWING STAMP WHICH DOCUMENTS THE GENERAL CONTRACTOR'S APPROVAL.

10. ALL REINFORCING BAR SPLICES SHALL CONFORM TO REQUIREMENTS OF ACI 318, BUT IN NO CASE SHALL THEY BE LESS THAN 2'-0" OR 48xDIA. LAP SPLICES IN SLAB "HAIRPIN" BARS SHALL BE MADE WITH AN APPROVED SPLICE DETAIL OR MECHANICAL SPLICE DEVICE. G.C. SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

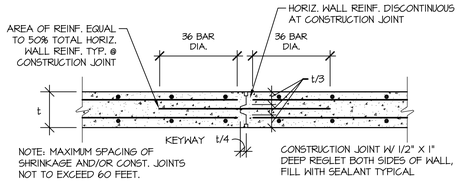
11. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185, Fy=60 KSI

12. ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AT SIDES AND ENDS AND BE SECURELY WIRED TOGETHER. TO MAINTAIN THE TENSILE CAPACITY OF THE SLAB, ALL W.M.F. SHALL BE PLACED IN THE CENTER OF THE SLAB FOUR AND BE HELD OFF THE SUB-GRADE WITH CHAIRS.

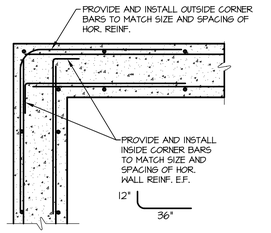
13. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES, FLOOR DEPRESSIONS AND CUT OUTS.

14. COORDINATE ALL FOUNDATION PENETRATIONS WITH ARCHITECT, PLUMBING, MECHANICAL, ELECTRICAL CONTRACTORS AND LOCAL AGENCIES. CUTTINGS/INTERRUPTING OF WIRE MESH OR REBAR IS STRICTLY PROHIBITED.

15. ALL CONCRETE SHALL BE DETAILED, FORMED, HANDLED, PLACED, AND PROTECTED IN ACCORDANCE WITH PROCEDURES AND GUIDELINES PRESCRIBED IN THE LATEST EDITION OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI-318, MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE STRUCTURES, ACI-301, AND ACI-305/306 GUIDES FOR HOT/COLD WEATHER CONCRETING.

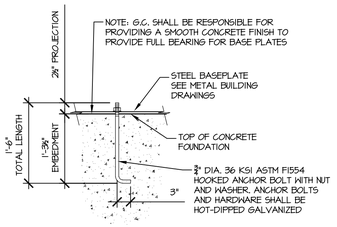


WALL SHRINKAGE/CONSTRUCTION JOINT DETAIL



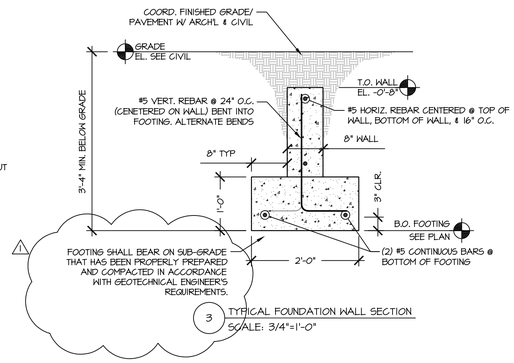
CONCRETE WALL AND FOOTING CORNERS

1 TYPICAL FOUNDATION DETAILS
SCALE: NONE

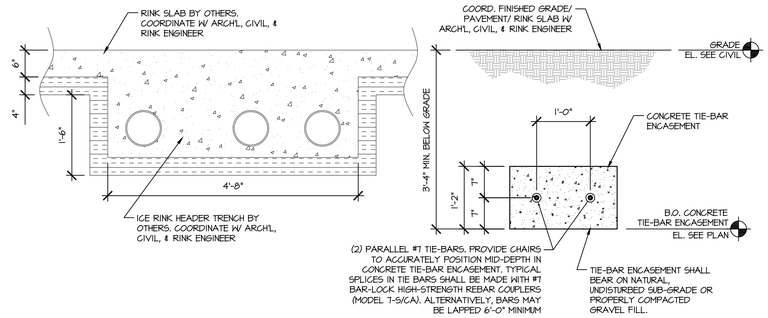


AB-1

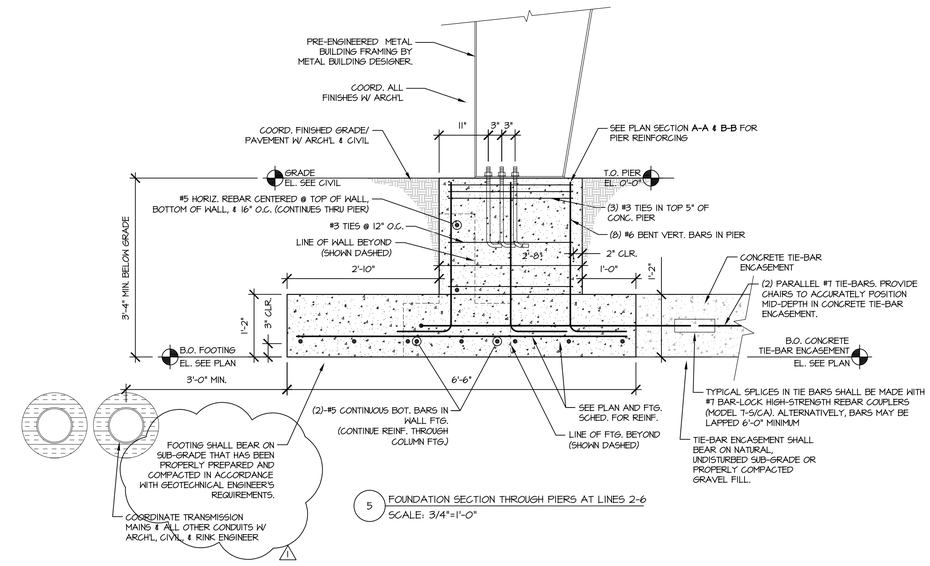
2 ANCHOR BOLT DETAILS
SCALE: 3/4"=1'-0"



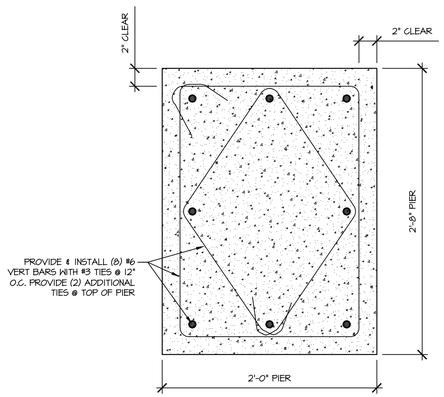
3 TYPICAL FOUNDATION WALL SECTION
SCALE: 3/4"=1'-0"



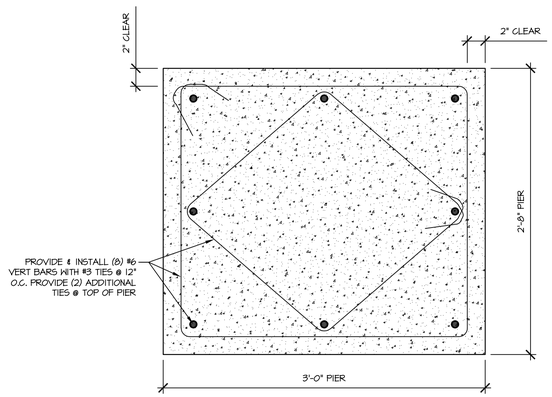
4 SECTION THROUGH CONCRETE TIE-BAR ENCASEMENT
SCALE: 3/4"=1'-0"



5 FOUNDATION SECTION THROUGH PIERS AT LINES 2-6
SCALE: 3/4"=1'-0"



A-A PLAN SECTION THRU PIERS ON LINE 4
SCALE: 1-1/2"=1'-0"



B-B PLAN SECTION THRU PIERS ON LINES 2, 3, 5, & 6
SCALE: 1-1/2"=1'-0"

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PROJECT

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NO.	REVISIONS	DATE
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DRAWN BY: MJB
DESIGNED BY: MJB
CHECKED BY: MVC
ISSUE DATE: 01/31/2024
BETA JOB NO.: 10694
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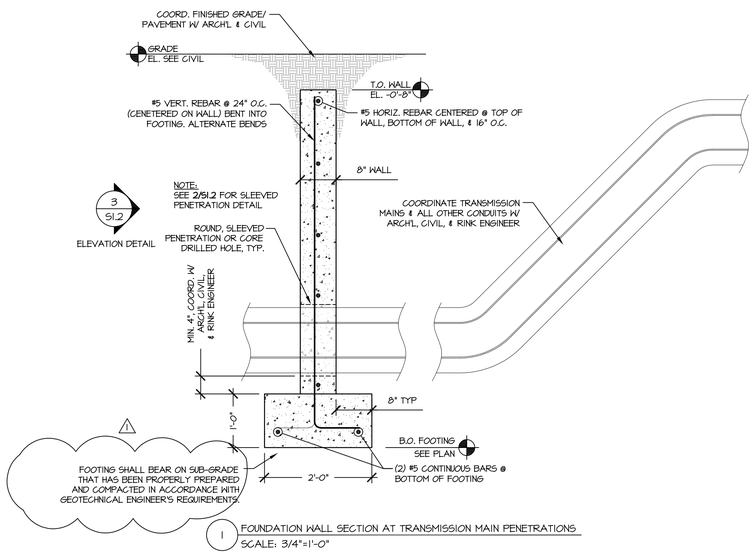
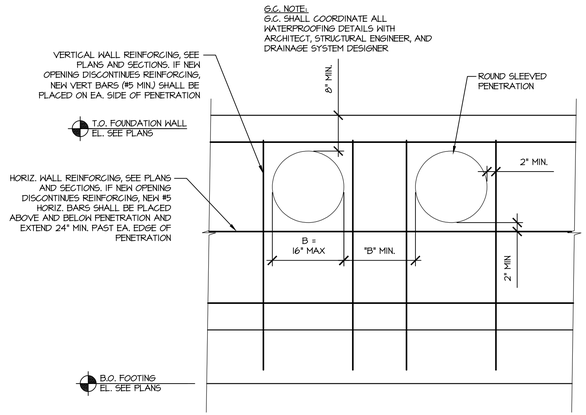
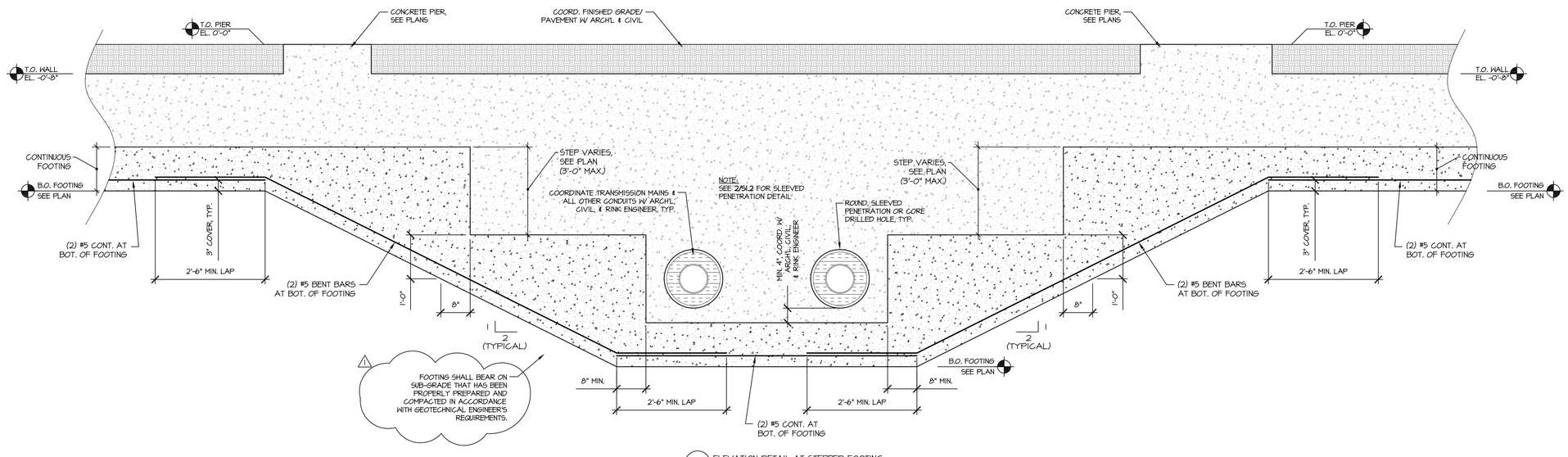


1 FOUNDATION WALL SECTION AT TRANSMISSION MAIN PENETRATIONS
SCALE: 3/4"=1'-0"



2 TYPICAL FOUNDATION WALL PIPE SLEEVE PENETRATION
SCALE: 3/4"=1'-0"



3 ELEVATION DETAIL AT STEPPED FOOTING
SCALE: 3/4"=1'-0"

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