BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

REQUEST FOR PROPOSALS

Item Description: BAILEY BAXTER PLAYSPACE

Date to be opened: JANUARY18, 2022

Issuing Department: **PARKS DEPARTMENT**

QUESTIONS

- Please direct questions relative to the bidding process, how to fill out forms, and how to submit a bid (Pages 1-8) to Purchasing Agent Patti Jordan.
    - Phone: (401) 680-5264
    - Email: pjordan@providenceri.gov
        - Please use the subject line "**RFP Question**"
- Please direct questions relative to the Minority and Women's Business Enterprise Program and the corresponding forms (Pages 9-13) to the MBE/WBE Outreach Director for the City of Providence, Grace Diaz
    - Phone: (401) 680-5766
    - Email: gdiaz@providenceri.gov
        - Please use subject line "**MBE WBE Forms**"
- Please direct questions relative to the specifications outlined (beginning on page 14) to the issuing department's subject matter expert:
    - **Megan Gardner – Landscape Architect**
    - **401-680-7243**
    - **Mgardner@providenceri.gov**

Pre-bid Conference (NON-MANDATORY)
MONDAY, DECEMBER 20, 2021 10:00 AM
61 BAXTER STREET, PROVIDENCE, RI (SITE)

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

INSTRUCTIONS FOR SUBMISSION

Bids may be submitted up to **2:15 P.M.** on the above meeting date at the **Department of the City Clerk. Room 311, City Hall. 25 Dorrance Street, Providence.** At 2:15 P.M. all bids will be publicly opened and read at the Board of Contract Meeting in the City Council Chambers, on the 3rd floor of City Hall.

- Bidders must submit **2 copies** of their bid in sealed envelopes or packages labeled with the captioned **Item Description** and the **City Department to which the RFP and bid are related**. (On page 1)
- Communications to the Board of Contract and Supply that are not competitive sealed bids (i.e. product information/samples) should have "**NOT A BID**" written on the envelope or wrapper.
- Only use form versions and templates included in this RFP. If you have an old version of a form do not recycle it for use in this bid.
- The bid envelope and information relative to the bid must be addressed to:

Board of Contract and Supply
Department of the City Clerk – City Hall, Room 311
25 Dorrance Street
Providence, RI 02903

****PLEASE NOTE: This bid may include details regarding information that you will need to provide (such as proof of licenses) to the issuing department before the formalization of an award.**

This information is NOT requested to be provided in your initial bid by design.

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record. The City has made a conscious effort to avoid the posting of sensitive information on the City's Open Meetings Portal, by requesting that such sensitive information be submitted to the issuing department only at their request.

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BID PACKAGE CHECKLIST

Digital forms are available in the City of Providence Purchasing Department Office or online at **http://www.providenceri.gov/purchasing/how-to-submit-a-bid/**

The bid package **MUST** include the following, in this order:

- Bid Form 1: Bidder's Blank as the cover page/ 1st page (*see page **6** of this document*)
- Bid Form 2: Certification of Bidder as 2nd page (*see page **7** of this document*)
- Certificate Regarding Public Records (*see page **8** of this document)*
- Forms from the Minority and Women Business Enterprise Program: Based on Bidder Category. *See forms and instructions enclosed (pages **9-13**) or on: https://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/*

***Please note: MBE/WBE forms must be completed for EVERY bid submitted and must be inclusive of ALL required signatures. Forms without all required signatures will be considered incomplete.**

- Bidder's Proposal/Packet: Formal response to the specifications outlined in this RFP, including pricing information and details related to the good(s) or service(s) being provided. Please be mindful of formatting responses as requested to ensure clarity.
- Financial Assurance, *if requested* (as *indicated on page 5 of this document under "Bid Terms")*

All of the above listed documents are REQUIRED. (With the exception of financial assurances, which are only required if specified on page 5.)

******Failure to meet specified deadlines, follow specific submission instructions, or enclose all required documents with all applicable signatures will result in disqualification, or in an inability to appropriately evaluate bids.***

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

NOTICE TO VENDORS

1. The Board of Contract and Supply will make the award to the lowest qualified and responsible bidder.
2. In determining the lowest responsible bidder, cash discounts based on preferable payment terms will not be considered.
3. Where prices are the same, the Board of Contract and Supply reserves the right to award to one bidder, or to split the award.
4. No proposal will be accepted if the bid is made in collusion with any other bidder.
5. Bids may be submitted on an "equal in quality" basis. The City reserves the right to decide equality. Bidders must indicate brand or the make being offered and submit detailed specifications if other than brand requested.
6. A bidder who is an out-of-state corporation shall qualify or register to transact business in this State, in accordance with the Rhode Island Business Corporation Act, RIGL Sec. 7-1.2-1401, et seq.
7. The Board of Contract and Supply reserves the right to reject any and all bids.
8. Competing bids may be viewed in person at the Department of the City Clerk, City Hall, Providence, immediately upon the conclusion of the formal Board of Contract and Supply meeting during which the bids were unsealed/opened. Bids may also be accessed electronically on the internet via the City's Open Meetings Portal.
9. As the City of Providence is exempt from the payment of Federal Excise Taxes and Rhode Island Sales Tax, prices quoted are not to include these taxes.
10. In case of error in the extension of prices quoted, the unit price will govern.
11. The contractor will **NOT** be permitted to: a) assign or underlet the contract, or b) assign either legally or equitably any monies or any claim thereto without the previous written consent of the City Purchasing Director.
12. Delivery dates must be shown in the bid. If no delivery date is specified, it will be assumed that an immediate delivery from stock will be made.
13. A certificate of insurance will normally be required of a successful vendor.
14. For many contracts involving construction, alteration and/or repair work, State law provisions concerning payment of prevailing wage rates apply (RIGL Sec. 37-13-1 et seq.)
15. No goods should be delivered or work started without a Purchase Order.
16. **Submit 2 copies of the bid to the City Clerk, unless the specification section of this document indicates otherwise.**
17. Bidder must certify that it does not unlawfully discriminate on the basis of race, color, national origin, gender, gender identity or expression, sexual orientation and/or religion in its business and hiring practices and that all of its employees are lawfully employed under all applicable federal, state and local laws, rules and regulations. (See Bid Form 2.)

BOARD OF CONTRACT AND SUPPLY
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BID TERMS

1. Financial assurances may be required in order to be a successful bidder for Commodity or Construction and Service contracts. If either of the first two checkboxes below is checked, the specified assurance **must accompany** a bid, or the bid will not be considered by the Board of Contract and Supply. The third checkbox indicates the lowest responsible bidder will be contacted and required to post a bond to be awarded the contract.

   a) ☐ A certified check for **$**_____ must be deposited with the City Clerk as a guarantee that the Contract will be signed and delivered by the bidder.

   b) ☒ A bid bond in the amount of **5%** per centum (%) of the proposed total price, must be deposited with the City Clerk as a guarantee that the contract will be signed and delivered by the bidder; and the amount of such bid bond shall be retained for the use of the City as liquidated damages in case of default.

   c) ☒ A performance and payment bond with a satisfactory surety company will be posted by the bidder in a sum equal to one hundred per centum (100%) of the awarded contract.

   d) ☐ No financial assurance is necessary for this item.

2. Awards will be made within **sixty (60) days of bid opening**. All bid prices will be considered firm, unless qualified otherwise. Requests for price increases will not be honored.
3. Failure to deliver within the time quoted or failure to meet specifications may result in default in accordance with the general specifications. It is agreed that deliveries and/or completion are subject to strikes, lockouts, accidents and Acts of God.

The following entry applies only for COMMODITY BID TERMS:

4. Payment for partial delivery will not be allowed except when provided for in blanket or term contracts.

The following entries apply only for CONSTRUCTION AND SERVICE BID TERMS:

5. Only one shipping charge will be applied in the event of partial deliveries for blanket or term contracts.
6. Prior to commencing performance under the contract, the successful bidder shall attest to compliance with the provisions of the Rhode Island Worker's Compensation Act, RIGL 28-29-1, et seq. If exempt from compliance, the successful bidder shall submit a sworn Affidavit by a corporate officer to that effect, which shall accompany the signed contract.
7. Prior to commencing performance under the contract, the successful bidder shall, submit a certificate of insurance, in a form and in an amount satisfactory to the City.

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BID FORM 1: Bidders Blank

1. Bids must meet the attached specifications. Any exceptions or modifications must be noted and fully explained.
2. Bidder's responses must be in ink or typewritten, and all blanks on the bid form should be completed.
3. The price or prices proposed should be stated both in **WRITING** and in **FIGURES**, and any proposal not so stated may be rejected. **Contracts exceeding twelve months must specify annual costs for each year.**
4. Bids **SHOULD BE TOTALED** so that the final cost is clearly stated (unless submitting a unit price bid), however **each item should be priced individually**. Do not group items. Awards may be made on the basis of ***total*** bid or by ***individual items***.
5. All bids **MUST BE SIGNED IN INK**.

Name of Bidder (Firm or Individual): _____

Contact Name: _____

Business Address: _____

Business Phone #: _____

E-Mail Address: _____

Agrees to bid on (Items(s) to be bid): _____

If the bidder's company is based in a state *other than Rhode Island*, list name and contact information for a local agent for service of process that ***is located within Rhode Island***: _____

Please visit http://www.naics.com/search/ and identify the NAICS Code(s) for items being bid on. Enter the NAICS code(s) here or in parentheses next to each item listed immediately above: _____

Delivery Date (when applicable): _____

Name of Surety Company (if applicable): _____

Total Amount in Writing*: _____

Total Amount in Figures*: _____

If you are submitting a unit price bid please insert "Unit Price Bid."

Use additional pages if necessary for additional bidding details.

_____

Signature of Representative

_____

Title

BOARD OF CONTRACT AND SUPPLY
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BID FORM 2: Certification of Bidder
(Non-Discrimination/Hiring)

Upon behalf of_____(Firm or Individual Bidding),

I,_____(Name of Person Making Certification),

being its_____(Title or "Self"), hereby certify that:

1. Bidder does not unlawfully discriminate on the basis of race, color, national origin, gender, sexual orientation and/or religion in its business and hiring practices.
2. All of Bidder's employees have been hired in compliance with all applicable federal, state and local laws, rules and regulations.

I affirm by signing below that I am duly authorized on behalf of Bidder, on this_____day of_____20____.

_____
Signature of Representative

_____
Printed Name

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Certificate Regarding Public Records

Upon behalf of_____(Firm or Individual Bidding),

I,_____(Name of Person Making Certification),

being its_____(Title or "Self"), hereby certify an understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on

this_____day of_____20____.

_____
Signature of Representative

_____
Printed Name

BOARD OF CONTRACT AND SUPPLY
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WBE/MBE Form Instructions

The City of Providence actively seeks Minority and Women business enterprises to participate in bids to meet the City's procurement needs. Pursuant to the City of Providence Code of Ordinances, Chapter 21, Article II, Sec. 21-52 (Minority and Women's Business Enterprise) and Rhode Island General Laws (as amended), Chapter 31-14, et seq. (Minority Business Enterprise), Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is **10%** of the total bid value.
The goal for Women's Business Enterprise (WBE) participation is **10%** of the total bid value.
The goal for combined MBE/WBE participation is **20%** of the total bid value.

Only businesses certified with the State of Rhode Island as minority and/or women business enterprises are counted towards the City's goals. Eligible minority or women-owned businesses are encouraged to seek certification from the State of Rhode Island Minority Business Enterprise Compliance Office at: http://odeo.ri.gov/offices/mbeco/

Note: MBE certification with the State of Rhode Island on the basis of Portuguese heritage is not currently recognized by the City of Providence's MBE program.

Bid Requirements:

All Bidders: All bidders must complete and submit the ***MBE/WBE Participation Affidavit*** indicating whether or not they are a state-certified MBE/WBE and acknowledging the City's participation goals. Submission of this form is required with **every bid**. Your bid will not be accepted without an affidavit.

Bidders who will be subcontracting: Bidders who will be subcontracting must submit the ***Subcontractor Disclosure Form*** as part of their bid submission. All subcontractors, regardless of MBE/WBE status, must be listed on this form. Business NAICS codes can be found at https://www.naics.com/search/. Awarded bidders are required to submit ***Subcontractor Utilization and Payment Reports*** with each invoice.

Waiver Requests:

If the percentage of the total amount of the bid being awarded to MBE or WBE vendors is less than 20% (Box F on the Subcontractor Disclosure Form) and the prime contractor is not a Rhode Island State-certified MBE or WBE, the Bidder must complete the *MBE/WBE Waiver Request Form* for review. Waivers will be considered on a case by case basis.

No waiver will be granted unless the waiver request includes documentation that demonstrates that the Bidder has made good faith efforts to achieve the City's stated participation goals. Waivers must be reviewed and signed by the City of Providence's MBE/WBE Outreach Director, Grace Diaz, or her designee. Department Directors cannot recommend a bidder for award if this form is applicable and absent. If the bid does not meet the participation goals of the City of Providence and a waiver is not filed with the signature of the MBE/WBE Outreach Director or her designee, the bid will not be accepted.

Verifying MBE/WBE Certification

It is the responsibility of the bidder to confirm that every MBE/WBE named in a proposal and included in a contract is certified by the Rhode Island Minority Business Enterprise Compliance office. The current MBE/WBE directory is available at the State of RI MBE Office, One Capitol Hill, 2nd Floor, Providence, RI, or online at http://odeo.ri.gov/offices/mbeco/mbe-wbe.php. You can also call (401) 574-8670 to verify certification, expiration dates, and services that the MBE/WBE is certified to provide. Note: MBE certification with the State of Rhode Island on the basis of Portuguese heritage is not currently recognized by the City of Providence's MBE program.

Form Instructions:

Access all bid forms from http://www.providenceri.gov/oeo/ or http://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/. **Download** the forms as blank PDFs. Once saved on your computer, fill them out using

the Adobe program. The fillable PDFs must be completed in Adobe in order to be saved property. Google Chrome and similar platforms do not allow for the forms to be saved as filled PDFs. Therefore, please download the blank forms to your computer, then fill them out and save.

Assistance with Form Requirements

Examples of completed forms can be found on the City of Providence website at http://www.providenceri.gov/oeo/ or http://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/.

Contract Requirements:

Prime contractors engaging subcontractors must submit the ***Subcontractor Utilization and Payment Report*** to the City Department's Fiscal Agent with every invoice and with request for final payment. This form is not submitted as a part of the initial bid package.

For contracts with duration of less than 3 months, this form must be submitted along with the contractor's request for final payment. The form must include all subcontractors utilized on the contract, both MBE/WBE and non- MBE/WBE, the total amount paid to each subcontractor for the given period and to date. During the term of the contract, any unjustified failure to comply with the MBE/WBE participation requirements is a material breach of contract.

Questions?

For more information or for assistance with MBE/WBE Forms, contact the City of Providence MBE/WBE Outreach Director, Grace Diaz, at mbe-wbe@providenceri.com or (401) 680-5766.

BOARD OF CONTRACT AND SUPPLY
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MBE/WBE PARTICIPATION AFFIDAVIT
Item Discussion (as seen on RFP):
_____
_____
_____
Prime Bidder: _____
Prime Bidder (Company) Phone Number:_____
Prime Bidder (Company) Zip Code: _____

Which one of the following describes your business' status in terms of Minority and/or Woman-Owned Business Enterprise certification with the State of Rhode Island? _____MBE _____WBE _____Neither MBE nor WBE

By initialing the following sections and signing the bottom of this document in my capacity as the contractor or an authorized representative of contractor, I make this Affidavit:
It is the policy of the City of Providence that minority business enterprises (MBEs) and women business enterprises (WBEs) should have the maximum opportunity to participate in procurements and projects as prime contractors and vendors. Pursuant to Sec. 21-52 of the Providence Code of Ordinances and Chapter 31-14 *et seq*. of the Rhode Island General Laws (as amended), MBE and WBE participation goals apply to contracts.

The goal for Minority Business Enterprise (MBE) participation is 10% of the total bid value.
The goal for Women's Business Enterprise (WBE) participation is 10% of the total bid value.
The goal for combined MBE/WBE participation is 20% of the total bid value.

I acknowledge the City of Providence's goals of supporting MBE/WBE certified businesses. Initial _____
If awarded the contract, I understand that my company must submit to the Minority and Women's Business Coordinator at the City of Providence (MBE/WBE Office), copies of all executed agreements with the subcontractor(s) being utilized to achieve the participation goals and other requirements of the RI General Laws. **I understand that these documents must be submitted prior to the issuance of a notice to proceed**. Initial _____

I understand that, if awarded the contract, my firm must submit to the MBE/WBE Office canceled checks and reports required by the MBE/WBE Office on a quarterly basis verifying payments to the subcontractors(s) utilized on the contract.
Initial _____

If I am awarded this contract and find that I am unable to utilize the subcontractor(s) identified in my Statement of Intent, I understand that I must substitute another certified MBE and WBE firm(s) to meet the participation goals. **I understand that I may not make a substitution until I have obtained the written approval of the MBE/WBE Office**.
Initial _____

If awarded this contract, I understand that authorized representatives of the City of Providence may examine the books, records and files of my firm from time to time, to the extent that such material is relevant to a determination of whether my firm is complying with the City's MBE/WBE participation requirements.
Initial _____

I do solemnly declare and affirm under the penalty of perjury that the contents of the foregoing Affidavit are true and correct to the best of my knowledge, information and belief.

_____ _____
Signature of Bidder Printed Name

_____ _____
Company Name Date

BOARD OF CONTRACT AND SUPPLY
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SUBCONTRACTOR DISCLOSURE FORM

Fill out this form only if you WILL SUBCONTRACT with other parties. If you will not subcontract any portion of the proposed bid, do not fill out this form.

Prime Bidder: _____ Primary NAICS Code: _____

Item Description (as seen on RFP):

_____

_____

Please list all Subcontractors below. Include the total dollar value that you propose to share with each subcontractor and the dollar amount to be subcontracted. Please check off MBE and WBE where applicable. The directory of all state-certified MBE/WBE firms is located at www.mbe.ri.gov. Business NAICS codes can be found at https://www.naics.com/search/

Proposed Subcontractor	MBE	WBE	Primary NAICS Code	Date of Mobilization	$ Value of Subcontract
					$
					$
					$
					$
					$
					$
A. MBE SUBCONTRACTED AMOUNT:					$
B. WBE SUBCONTRACTED AMOUNT:					$
C. NON MBE WBE SUBCONTRACTED AMOUNT:					$
D. DOLLAR AMOUNT OF WORK DONE BY THE PRIME CONTRACTOR:					$
E. TOTAL AMOUNT OF BID (SUM OF A, B, & C):					$
F. PERCENTAGE OF BID SUBCONTRACTED TO MBEs AND WBEs. (Divide A by D and multiply result by 100).					%

Please read and initial the following statement acknowledging you understand. If the percentage of the total amount of the bid being awarded to MBE or WBE vendors is less than 20% (Box F) and the prime contractor is NOT a Rhode Island State-certified MBE or WBE, **you must fill out the MBE/WBE WAIVER REQUEST FORM for consideration by City of Providence MBE/WBE Outreach Director**. Initial _____

_____ _____ _____

Signature of Prime Contractor Printed Name Date Signed

BOARD OF CONTRACT AND SUPPLY
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MBE/WBE WAIVER REQUEST FORM

Fill out this form only if you are subcontracting and did not meet the 20% MBE/WBE participation goal.
State-certified MBE or WBE Prime Bidders are NOT REQUIRED to fill out this form.

Submit this form to the City of Providence MBE/WBE Outreach Director, Grace Diaz, at mbe-wbe@providenceri.gov, for review **prior to bid submission.** This waiver applies only to the current bid which you are submitting to the City of Providence and does not apply to other bids your company may submit in the future.

Prime Bidder: _____
Company Trade: _____
Item Discussion (as seen on RFP):
_____
_____
_____

To receive a waiver, you must list the certified MBE and/or WBE companies you contacted, the name of the primary individual with whom you interacted, and the reason the MBE/WBE company could not participate on this project.

MBE/WBE Company Name	Individual's Name	Company Trade	Why did you choose not to work with this company?

I acknowledge the City of Providence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am requesting a waiver of _____ % MBE/WBE (20% minus the value of **Box F** on the Subcontractor Disclosure Form). If an opportunity is identified to subcontract any task associated with the fulfillment of this contract, a good faith effort will be made to select MBE/WBE certified businesses as partners.

_____	_____	_____
Signature of Prime Contractor	Printed Name	Date Signed
_____	_____	_____
Signature of City of Providence MBE/WBE Outreach Director	Printed Name of City of Providence MBE/WBE Outreach Director	Date Signed



BOARD OF CONTRACT AND SUPPLY
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SUPPLEMENTAL INFORMATION

If the issuing department for this RFP determines that your firm's bid is best suited to accommodate their need, you will be asked to provide proof of the following prior to formalizing an award.

An inability to provide the outlined items at the request of the department may lead to the disqualification of your bid.

This information is NOT requested to be provided in your initial bid that you will submit to the City Clerk's office by the "date to be opened" noted on page 1. This list only serves as a list of items that your firm should be ready to provide on request.

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record.

You must be able to provide:

- Business Tax ID will be requested after an award is approved by the Board of Contract and Supply.
- Proof of Insurance

BOARD OF CONTRACT AND SUPPLY
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BID FORM 3: Supplemental Bid Form

To whom it may concern:

1. The undersigned, having familiarized (himself) (themselves) (itself) with the **BAILEY BAXTER PLAYSPACE** bid affecting the cost of work, and with the Contract Documents (which includes the Invitation for Bids, Instructions to Bidders, Form of Bid Bond, Form of Agreements, form of Non-Collusive Affidavit, Addenda (if any), Drawings, Technical Specification, Form of Surety Bond(s); as prepared by the Providence Parks Department, and on file in the office of the City Clerk 3rd Floor, City Hall, Providence, RI 02903, hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services including utility and transportation services, and to perform such other required work for the **BAILEY BAXTER PLAYSPACE** and such other required and incidental work, complete, all in accordance with the above listed documents and for the unit prices for work in-place for the following items and quantities.

2. In submitting this Bid, the bidder understands that the right is reserved by The Providence Parks Department to reject any and all Bids, If written notice of acceptance of this Bid is mailed, telegraphed or delivered to the undersigned within (90) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an Agreement in the prescribed form and furnish the required bond within (10) days after the Agreement is presented to him/her for signature.

Herewith in accordance with the instructions to Bidders.

3. Attached hereto is an affidavit in proof that the undersigned has not colluded with any person in respect to this. Bid or any bids for the Contractor for which this Bid is submitted. Also attached is a Statement of Bidder's Qualifications.

4. Application unit prices are contained in the Agreement (established as the result of either a Unit Price Bid or a Supplemental Schedule of Unit Prices), the City of Providence may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the application unit prices specified in the Contract.

6. The City of Providence reserves the right to determine the lowest responsible Bidder based on past experience with the City and/or recommendations by City and/or state agencies with an interest in this procurement. The City reserves the right to award the project to the appropriate bidder in the best interest of the City of Providence.

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his establishments, and that he/she does not permit his/her employees to perform their services at any location, under his/her control, where segregation facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any contract resulting from acceptance of this Bid. As used in this certification, term "segregation facilities" means any waiting rooms, work rooms, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employee which are segregated by explicit directive or are in fact segregated on basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he/she has obtained identical certification from proposed subcontractors for specific time periods) he/she will obtain identical certification from proposed subcontractor prior to the award of subcontracts exceeding $10,000.00 which are not exempt from provisions of the Equal Opportunity Clause, and that he /she will retain such certifications in his/her files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. & 1001.

DATE _____, 20___

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Name of Bidder and Official Address:

_____

_____

_____

E-Mail: _____

Name of Authorized Representative (Contact):

_____

By _____
(Signature)

Title _____

Phone: _____

Bidder shall indicate, in space provided,
the earliest possible Project Start-up Date:_____**, 20 _____**

ADDENDA: The undersigned acknowledges receipt of the following Addenda, if any, and has included the provisions thereof in this Bid (If Any):

Addendum No.	**Date**	**Addendum No.**	**Date**
_____	_____, 20 ____	_____	_____, 20 ____
_____	_____, 20 ____	_____	_____, 20 ____

Sub-Contractors (If Any):

Name: _____ **Scope of Work:** _____**MBE / WBE**

Name: _____ **Scope of Work:** _____**MBE / WBE**

Name: _____ **Scope of Work:** _____**MBE / WBE**

BOARD OF CONTRACT AND SUPPLY

CITY OF PROVIDENCE, RHODE ISLAND

SUPPLEMENTAL BID FORM

BAILEY BAXTER PLAYSPACE

BASE BID: Bailey Baxter Playspace project comprises a total of 8 Lots owned by the Providence Parks Department and Providence Public Properties; occupied by the Providence Public School Department. The site is located at the intersections of Baxter Street and Norwich Avenue in Lower South Providence. The project is located in an Environmental Justice Zone and includes adherence to the approved RIDEM Remedial Action Work Plan and its associated Soils Management Provisions; included in the attached Appendices. The project is divided into areas A and B. Project is to commence in Area A and continue into Area B after school has ended on June 24, 2022. All work to be completed prior to Academic School year, September 2022, future date to be provided.

The City of Providence is seeking qualified contractors to perform the following scope of work that shall include but is not limited to: Coordination with and removal and disposal of Alternate Cover Soils as per Environmental Engineered disposal application submittal to RIRRC; demolition and removal of existing play structure, fencing , bituminous concrete, trees and brush, furnish and install geotextile separator fabric and certified clean borrow gravel, fill, planting soil and loam per proposed elevations and according to site Capping Plan; furnish and install playground equipment, outdoor classroom elements and site furnishings, custom wood elements ; deliver and install playground equipment supplied by Owner, furnish and install Engineered Wood Fiber mulch, boulder retaining wall, stabilized stonedust paths, concrete walks, welded wire mesh fencing and gates, ribbed metal fencing, native boulders, and native tree, shrub and ground cover plantings.

ADD ALTERNATES include: Furnish and Install (2) 26' double wide swing gates and cable existing maple tree per City Forester directive.

In addition to stating the Total Base Bid, The bidder shall state Unit Prices for related work listed under each bid item which represents the work items included in the Total Base Bid. The Unit Prices are quoted for computing adjustments to the Base Bid prior to Contract award, as well as during the course of construction, based upon extra work ordered by the City or for work countermanded, reduced or omitted by the City in order to stay within the Project budget.

Base Bid Items and Unit prices are to be Completed prices to be added or deducted on the basis of quantities of work involved, for each item in place in the unit indicated.

All Work Included in this Project Shall be Completed for the lump sum of:

_____

_____**Dollars**

($_____), TOTAL BASE BID

CONTINGENCY: (+$20,000)_____) Dollars

BASE BID WITH CONTINGENCY:

_____

_____

($_____) Dollars

BIDDER: _____

ADD ALTERNATES:

1. **Furnish and install (2) 26' Double wide Traffic gates with duckbill gate holdbacks**

_____ **LS** **$**_____
price in writing

2. **Furnish and install (1) cable to secure existing maple tree per City Forester directive**

_____ **LS** **$**_____
price in writing

UNIT PRICES:

1. **Remove and Dispose CL Fence, posts and footings**

_____ **LF** **$**_____
price in writing

2. **Remove and Dispose CL Gates and footings**

_____ **EA** **$**_____
price in writing

3. **Remove and Dispose (13) trees and stumps complete**

_____ **LS** **$**_____
price in writing

4. **Remove and Stockpile concrete curb**

_____ **LS** **$**_____
price in writing

5. **Remove and Stockpile (2) 6' benches**

_____ **LS** **$**_____
price in writing

BIDDER: _____

6. Remove and Dispose rubber play surface

_____ **LS** **$**_____

price in writing

7. Remove and Dispose Play structure

_____ **LS** **$**_____

price in writing

8. Clear, Grub and dispose vegetation and stumps

_____ **LS** **$**_____

price in writing

9. Remove and Dispose alternative cover soils to RIRRC landfill per Ton

_____ **TN** **$**_____

price in writing

10. Remove and Dispose Solid waste soils to RIRRC landfill per Ton

_____ **TN** **$**_____

price in writing

11. Remove and Dispose Bituminous Concrete and Gravel Base

_____ **CY** **$**_____

price in writing

12. Furnish and Install Temporary Tree Protection

_____ **EA** **$**_____

price in writing

13. Furnish and Install Silt Sock Erosion Control – per Linear Foot

_____ **LF** **$**_____

price in writing

BIDDER: _____

14. Furnish and Install Catch Basin Sediment Trap

_____ **EA** **$**_____

price in writing

15. Furnish and Install 8' Temporary Fence- Per Linear Feet

_____**LF** **$**_____

price in writing

16. Furnish and Install 15' W Marafi 140N Orange Geosynthetic Fabric Barrier-15 Per Linear Feet

_____ **LF** **$**_____

price in writing

17. Furnish and Install Certified Clean (via lab sampling and analyses) Gravel Borrow Complete in Place

_____ **TN** **$**_____

price in writing

18. Furnish and Install Certified Clean (via lab sampling and analyses) Common Borrow Complete in Place

_____ **TN** **$**_____

price in writing

19. Furnish and Install Certified Clean (via lab sampling and analyses) Loam Complete in Place

_____ **TN** **$**_____

price in writing

20. Furnish and Install Certified Clean (via lab sampling and analyses) Planting Soil Complete in Place

_____ **CY** **$**_____

price in writing

21. Furnish and Install 4" Concrete walkway with base

_____ **SF** **$**_____

price in writing

BIDDER: _____

22. Furnish and Install 4" Bituminous Concrete Roadway Pavement (2" binder coarse/2" top coarse)

_____ **SF** **$**_____

price in writing

23. Reset stockpiled Granite roadway curbing per Linear foot

_____ **LF** **$**_____

price in writing

24. Furnish and Install 2' Granite round curb per Each

_____ **EA** **$**_____

price in writing

25. Furnish and Install Stabilized stonedust path per square foot

_____ **SF** **$**_____

price in writing

26. Furnish and Install Engineered wood fiber mulch

_____ **CY** **$**_____

price in writing

27. Furnish and Install Syn Lawn with 1" Foam pad Envirofill per Lump sum

_____ **LS** **$**_____

price in writing

28. Furnish and Install 6" pre-cast concrete curb per Linear Foot

_____ **LF** **$**_____

price in writing

29. Furnish and Install 18" boulder Seat Wall per Linear Foot

_____ **LF** **$**_____

price in writing

BIDDER: _____

30. Furnish and Install boulder retaining Wall per Linear Foot

_____ **LF** **$**_____

price in writing

31. Furnish and Install Playworld Abigails's Maze Model # 5002009

_____ **LS** **$**_____

price in writing

32. Furnish and Install (2) Playworld Loopy Whoop Model #ZZUN7096

_____ **EA** **$**_____

price in writing

33. Furnish and Install Berliner two bay swing Model #USP06248

_____ **LS** **$**_____

price in writing

34. Furnish and Install Log Steps

_____ **LS** **$**_____

price in writing

35. Furnish and Install Hardwood Log Bench – per linear foot

_____ **LF** **$**_____

price in writing

36. Furnish and Install Log Stump Seat- per each

_____ **EA** **$**_____

price in writing

37. Furnish and Install Reclaimed Granite Wall block – per linear foot

_____ **LF** **$**_____

price in writing

BIDDER: _____

38. Furnish and Install River Stone inlet set in concrete- per square foot

_____ **SF** **$**_____

price in writing

39. Deliver and Install Kompan Circite Flowite Model #COR10484

_____ **LS** **$**_____

price in writing

40. Deliver and Install (2) Kompan Spinner Bowls Model #ELE400024

_____ **EA** **$**_____

price in writing

41. Deliver and Install Kompan Tot Swing Model # KSW922

_____ **LS** **$**_____

price in writing

42. Furnish and Install Log stack – per lump sum

_____ **LS** **$**_____

price in writing

43. Furnish and Install (4 gauge) 4'height welded wire mesh fence

_____ **LF** **$**_____

price in writing

44. Furnish and Install two (2) 12' Wide Service Gate

_____ **EA** **$**_____

price in writing

45. Furnish and Install one (1) 10' Wide Gate

_____ **EA** **$**_____

price in writing

BIDDER: _____

46. Furnish and Install two (2) 5' Wide Gate (4 GA WWM)

_____ **EA** **$**_____

price in writing

47. Furnish and Install (4 gauge) 6' Height Welded Wire Mesh Fence

_____ **LF** **$**_____

price in writing

48. Furnish and Install 6' Height FenceTec Metal Privacy Fence

_____ **LF** **$**_____

price in writing

49. Furnish and Install Native Boulders sized at: < 30"x36"

_____ **EA** **$**_____

price in writing

50. Furnish and Install Native Boulders sized at: 36"-42"

_____ **EA** **$**_____

price in writing

51. Furnish and Install Native Boulders sized at: > 42"-48"

_____ **EA** **$**_____

price in writing

52. Furnish and Install (2) Dumor 6' benches model #88-60I (or approved equal)- surface mount

_____ **EA** **$**_____

price in writing

53. Furnish and Install (1) Dumor 6' picnic tables model #75- 60I- (or approved equal) - in ground mount

_____ **EA** **$**_____

price in writing

BIDDER: _____

54. Furnish and Install (1) Dumor 8' ADA picnic table model # 75-68-1I – (or approved equal)- in ground mount

_____ **EA** **$**_____

price in writing

55. Furnish and Install (3) Cary Co. 55 gal trash receptacles with dome lid on 30"x30"x4" concrete pad Model # 26BTR5/ETR55/DL32

_____ **EA** **$**_____

price in writing

56. Furnish and Install 2.5-3" Acer rubrum – October Glory'

_____ **EA** **$**_____

price in writing

57. Furnish and Install 8-10' Amelanchier canadensis- multi-stem clump

_____ **EA** **$**_____

price in writing

58. Furnish and Install 8-10' Cercis Canadensis

_____ **EA** **$**_____

price in writing

59. Furnish and Install 2.5-3" Nyssa sylvatica

_____ **EA** **$**_____

price in writing

60. Furnish and Install 8-10' Chionanthus virginicus

_____ **EA** **$**_____

price in writing

BIDDER: _____

61. Furnish and Install 2.5-3" Liriodendrom tulipifera

_____ **EA** **$**_____

price in writing

62. Furnish and Install 2.5-3" Gleditsia triacanthos 'inermis'

_____ **EA** **$**_____

price in writing

63. Furnish and Install #3 Ilex glabra

_____ **EA** **$**_____

price in writing

64. Furnish and Install #3 Clethra alnifolia 'Sugartina'

_____ **EA** **$**_____

price in writing

65. Furnish and Install #2 Ilex verticillata

_____ **EA** **$**_____

price in writing

66. Furnish and Install #5 Viburnum dentatum 'Blue Muffin'

_____ **EA** **$**_____

price in writing

67. Furnish and Install #1 Eupatorium purpureum 'BabbyJoe'

_____ **EA** **$**_____

price in writing

68. Furnish and Install #1 Rudbekia Hirta

_____ **EA** **$**_____

price in writing

BIDDER: _____

69. Furnish and Install #1 Echinacea Purpea

_____ **EA** **$**_____

price in writing

70. Furnish and Install #1 Dryopteris xautralis

_____ **EA** **$**_____

price in writing

71. Furnish and Install #1 Iris versicolor

_____ **EA** **$**_____

price in writing

72. Furnish and Install #1 Symphyotrichum Novea-Angliea

_____ **EA** **$**_____

price in writing

73. Furnish and Install #1 Carex Pensylvanica

_____ **EA** **$**_____

price in writing

Please note that the list above is not intended to include all items required to complete the base bid scope of work but can and shall be used to adjust the contract prior to or after award – in the best interest of the City of Providence.

BIDDER: _____

BID DOCUMENTS:

The complete set of Bid Documents consists of the Bid Form, Technical Specifications, Minority Participation Forms, and the following Drawings:

DRAWINGS:

- **L1- COVER**
- **L2 NOTES**
- **L3 EXISTING CONDITIONS PLAN**
- **L4 DEMOLITION PLAN**
- **CAPPING PLAN**
- **L5 GRADING AND UTILITIES PLAN**
- **L6 LAYOUT PLAN**
- **L7 MATERIALS PLAN**
- **L8 PLANTING PLAN**
- **L9 CONSTRUCTION DETAILS**
- **L10 CONSTRUCTION DETAILS**
- **L11 CONSTRUCTION DETAILS**
- **L12 CONSTRUCTION DETAILS**
- **L13 CONSTRUCTION DETAILS**

TECHNICAL SPECIFICATION:

- **011000 GENERAL REQUIREMENTS**
- **015639 TEMPORARY TREE AND PLANT PROTECTION**
- **024119 SELECTIVE DEMOLITION**
- **116800 PLAY FIELD EQUIPMENT AND STRUCTURES**
- **311000 SITE CLEARING**
- **312000 EARTH MOVING**
- **312500 EROSION AND SEDIMENTATION CONTROLS**
- **321216 ASPHALT PAVING**
- **321313 CONCRETE PAVING**
- **321540 ORGANIC-LOCK FOR STABILIZED PATHWAY AGGREGATE FOOT TRAFFIC**
- **321600 PRECAST CONCRETE CURB**
- **321723 PAVEMENT MARKINGS**
- **321813.07 SYNLAWN TURF SURFACING**
- **321816.13 PLAYGROUND PROTECTIVE SURFACING**
- **323116.10 WELDED WIRE FENCES AND GATES**
- **323110.10 RIBBED METAL VERTICAL PANEL FENCE**
- **323300 SITE FURNISHINGS**
- **329113 SOIL PREPARATION**
- **329119 LANDSCAPE GRADING**
- **329200 TURF AND GRASSES**
- **329300 PLANTS**

BOARD OF CONTRACT AND SUPPLY

CITY OF PROVIDENCE, RHODE ISLAND

ADDITIONAL INFORMATION REQUIRED WITH BID:

- Qualifications to Perform Work – See Form Below for Information Required
- Minority Participation Forms – 10% MBE / 10 % WBE Goal on this Project
- Addenda (If Any) - Must Be Acknowledged on Bid Form
- Product Information for Items Submitted as 'Or Equal' to Specified Materials

PROVISIONS OF THIS PROJECT:

- Upon the Issuance of the Award from the Board of Contract – the City shall issue a Contract to be executed by the City and the vendor incorporating the bid specifications. All Provisions of the Specifications are binding.
- Any Permits Required by the City of Providence and/or State of Rhode Island Shall be Obtained by the Vendor – Permit Fees by the City of Providence Shall be Waived – the State ADA Fee Must be Paid
- The Davis Bacon Act Applies (HUD Projects) – Prevailing Wages Must Be Paid for On Site Hours – On-Site Interviews will be Conducted During the Project – Employees Shall be Advised of the Prevailing Wage Rates Prior to Mobilization on Site
- Certified payrolls Must be Submitted With Pay Requests Including Monthly Utilizations Form
- Performance and Payment Bonds (If Required) Must be Submitted within 10 Days of Award or Bid Bond Will be Forfeited
- An Insurance Certificate Shall be Submitted to the City Within 10 Days of Award
- A Copy of the Vendors Contractor's License Must be Submitted within 10 Days of Award
- All On-Site Personnel Shall be Licensed (If Required) and Shall have Proof of All Licenses Required by the State of Rhode Island to Perform the Work Required
- Pay Requests Must be Submitted on Approved AIA Billing Documents (City will Provide if Needed)
- All Subcontractors Shall be Listed on the Bid Form – All Insurance & Payroll Requirements Apply
    - General Contractor Shall be the Insurance Certificate Holder and the City Shall be Named as 'Additionally Insured' with Respect to Liability Insurance
- A Submittal Log Must be Submitted within 10 Days of Award

CLOSE OUT DOCUMENTS:

- Prior to Final Payment the Vendor Shall Provide the Following:
    - Copies of Permits Signed off and Approved (If Any)
    - Operating Manuals and Warranties Shall Be Transferred and/or Delivered
    - Full and Completed As-Built Drawings Shall be Submitted for Approval
    - Training Shall be Provided to City Personnel (If Required)
    - Certification by Manufactures Representative (If Required)

QUALIFICATIONS:

Qualifications will be evaluated on the basis of similar project experience for:

a. Completion of at least 3 similar projects within the past five years.
b. Size and dollar value of similar completed projects.
c. Contractor's performance with similar projects. (references will be checked)

d.. Relevant experience of individuals assigned to the project.

Questions regarding this bid package shall be submitted via e-mail to **Patti Jordan** at pjordan@providenceri.gov and **Megan Gardner, Design Team Manager** at mgardner@providenceri.gov , no later than five (5) working days before the bid opening date.

Megan Gardner is the project contact and can be reached at 401-680-7243

This project qualifies for prevailing wages per the Prevailing Wages Statute or the Davis Bacon Act (HUD). Certified payrolls will need to be submitted to the owner for all hours worked on site for this project. The Wage Decision for this project shall be as recorded on the Bid Date and is available on the RI Department of Labor website.

Federal Labor Standards
U.S. Department of Housing & Urban Development

Applicability

The Project of Program to which the Construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1. (i) Minimum Wages. All laborers and mechanics employed or working up on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction of development of the project) will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers of mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification or work actually performed, without regard to skill, excepts as provided in 29 CFR Part 5.5 (a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFT part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contact shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee on the classification and wage rate (including the amount designated for fringe

benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withhold from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much that the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract. HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic record relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonable anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) or the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits ins enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship and certification of trainee programs, the registration of the apprentices and trainees, and

the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-34 is available for this purpose and may be purchases from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), Government Printing Office, Washington, Dc 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 20 CFR Part 5.5 (a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less that the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a property executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph AA.3. (ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code. (iii) The contractor of subcontractor shall make the records required under paragraph A.3. (i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprentice program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the age determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable

wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the even the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less that the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirement of Executive Order 11246, s amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontract the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all contract clauses in 29 CFR Part 5.5

7. Contracts termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor as provided in 29 CFR 5.12

8. Compliance with Davis-Bacon and Related Act Requirements. All ruling and interpretations of the Davis-Bacon and Related Act contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering in to this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act of 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty to making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transaction", provides in part: "Whoever, for the purpose of …influencing in any way the action of such Administration…makes, utter of publishes any statement, knowing the same to be false…shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work I excess of forty hours I such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) or this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages for liquidated damages. HUD or its designees shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold of cause to be withheld from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or nay other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidates damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surrounding or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly Part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the

Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Questions regarding this bid shall be sent via e-mail Megan Gardner at mgardner@providenceri.gov. Questions and responses will be sent to all bidders.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

TECHNICAL SPECIFICATIONS – Appendix A

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SECTION 010000 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 All work done under this Contract shall also be in conformance with the Drawings and these Supplemental Technical Specifications.

A. SCOPE OF WORK

1. The general summary of work to be done under this contract consists of, but shall not be limited, to the following as shown in the Contract Documents:

B. WORK COVERED BY CONTRACT DOCUMENTS

C. The Contractor shall execute the scope of work indicated on Plans and Specifications to enhance the use and operations of the site as shown within the project limits.

1. Furnish and install silt sack and erosion control compost filter socks for erosion and sedimentation control
2. Repair or replace any existing site amenities, conditions, walkways, or fencing disturbed or damaged during site improvements.
3. (list of Project Task as noted in the RFP)

D. Work shall be as specifically indicated, shown or described in the Drawings, Technical Specifications, and other Contract Documents.

E. WORK UNDER ADD ALTERNATE

1. The following items of Work described will be addressed as an Add Alternate. All work incorporated with the items and any and all incidental to the items shall be accounted for.
2. Add Alternate #1 Furnish and Install two (2) 26' double swing gate
3. Add Alternate #2 Furnish and Install two (2) cables in existing maple trees

F. PROJECT INFORMATION

1. OWNER
   a. City of Providence Parks Department Roger Williams Park Dalrymple Boathouse, 1000 Elmwood Avenue, Providence, RI 02907, Telephone: 401.680.7200
   b. Superintendent of Parks: Wendy Nilsson
2. OWNER'S REPRESENTATIVE
   a. Megan Gardner, Landscape Architect, mgardner@providenceri.gov 401.680.7243

1.2 PROJECT LOCATION

A. 61 Baxter Street, Providence, RI 02905

1.3 CONSULTING ENGINEER (limited to Site Capping Design and associated Project specificaitons/requirements)

A. VHB - 1 Cedar Street Suite 400 Providence RI, 02903

PART 2 - PRODUCTS

2.1 CONTRACTOR USE OF PREMISES

A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in the Standard Form of Agreement, for the performance of the Work.

1. The Contractor shall maintain vehicular access and utility service to the abutting properties at all times throughout the course of the construction.
2. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of the subcontractors.
3. If directed by the Owner's Representative, the Contractor shall relocate or move any stored items that interfere with operations of the Owner.
4. The Contractor may elect to obtain (at no cost to the Owner) additional storage or work areas off-site if needed to perform the work.

2.2 OWNER OCCUPANCY REQUIREMENTS

A. The Owner (City) anticipates that site inclusive of all on-site amenities beyond the Limit of Work will remain open throughout the course of construction.

B. Contractor shall provide the Owner's Representative with a written plan describing the sequences and durations anticipated for the execution of the Work.

2.3 MOBILIZATION, SITE PREPARATION, & DEMOLITION

A. THE WORK SPECIFIED IN THIS SECTION INCLUDES:

1. Mobilization of all personnel and equipment;
2. Preparing the construction site for construction operations;
3. Materials to be removed and legally disposed of off site.
4. When applicable, verifying and utilizing survey control points as shown on the Drawings
5. Protecting existing site features to remain, such as fences, trees, shrubs and grassed areas outside the limit of work.
6. Protecting underground and overhead utilities and other existing facilities from damage.
7. Where applicable, provisions for site access and of traffic control.
8. At cessation of site improvement operations: Site clean-up
9. De-mobilization of all personnel and equipment.

2.4 CONSTRUCTION STAGING/STOCKPILE AREAS

A. Staging areas within the Park is permitted as shown on the Plans with the prior consent of and coordination with the Owner.

B. Restoration of the site to pre-existing condition shall be the sole responsibility of the Contractor.

2.5 MATERIALS AND EQUIPMENT:

A. Materials to be Removed and Stockpiled.

1. Materials directed to be removed and stockpiled shall be removed, transported to and stacked in a location directed by the Owner's Representative. All materials shall be neatly stacked as directed.
2. If the Owner's Representative determines that any part of the materials identified to be stockpiled are unsuitable for re use on the site or by the Owner elsewhere, such materials shall be evaluated for legal disposal by Owner's Representative and Contractor.

B. Signs: Conform to requirements of Temporary Facilities and Controls.

C. Temporary Site Protection: Temporary chain-link fence, if so desired shall be furnished, installed and maintained at no additional cost to the Owner. At the completion of all work at the site, the Contractor shall remove all temporary fencing and restore the site to its original condition at no additional cost to the Owner.

2.6 TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

A. Make arrangements with the Owner's Representative for storage of materials and equipment in designated locations at the construction site. If staged on site, materials shall be secured from vandalism and or theft.

B. Plastic construction fence or snow fencing if installed shall be maintained in good condition. Provide barricades, barrels, fencing and/or other barriers around excavations and trenches as required for safety. Upon completion, temporary fencing shall be removed and the affected area restored to existing conditions.

2.7 SITE MAINTENANCE

A. Control dust from Contractor operations in accordance with specified dust control measures.

B. Maintain the Site during construction in a manner that will not obstruct use on neighborhood streets. Proceed with the work in an orderly manner, maintaining the construction site free of debris and unnecessary equipment or materials.

C. Legally dispose of all debris, rubbish, hazardous materials, oil, and grease in accordance with local ordinances and approved RIDEM Remedial Action Work Plan and Soil Management Plan.

D. Maintain safety and security of the construction site and any stockpiled or staged materials or equipment if left on site.

2.8 TRAFFIC CONTROL

A. For all of his operations, the Contractor shall provide appropriate traffic control in accordance with, TEMPORARY FACILITIES AND CONTROLS. The purposes of the traffic control are 1) to ensure that operations in the project area are performed in a safe and orderly manner, and 2) to minimize the impact of truck and equipment traffic and noise on adjacent homes near the project area. The Contractor shall be responsible for obtaining any and all required permits and approvals.

B. Police Details, if required by the City, shall be paid directly to and coordinated with Providence Public Safety by the Owner.

2.9 DEMOBILIZATION

A. Contractor shall be responsible for site security and safety at all times. Upon substantial completion of the work, Contractor shall remove all excess materials, equipment, construction debris, temporary facilities and construction measures (fencing, signs, barriers, etc.) from the project area, and shall leave the site in suitable condition for full occupancy and use by the Owner. The sedimentation and erosion controls installed as part of the Work may not necessarily be removed at this time (see below).

B. The Owner’s Representative shall be the sole judge of whether the site has been suitably cleaned.

C. Upon suitable stabilization of all disturbed “erodible” areas (e.g. acceptable level of grass growth in loamed and seeded areas, mulch applied and stable in planting areas, etc.), contractor shall remove and legally dispose of all sedimentation and erosion control measures (silt fence, hay bales, catch basin inserts, etc.). See Section 024119 Selective Demolition, 329200 Turf and Grasses and 329300 Plants for directives and procedures.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. The construction site entrance shall be as indicated on the plans. The Owner will provide access to any locked gates. Any tracked debris from the site present on adjacent roadways shall be removed and the roads swept daily to remove any excess mud, dirt, or rock originating from the site. Trucks hauling material shall be covered and equipped with gates that prevent material from falling out. If present, catch basins within 100 feet of site entry and exit locations shall be protected with inlet sediment control devices and maintained for the duration of the work.

B. Identify, clearly mark and protect all survey monuments, temporary bench marks as well as any adjacent contractors’ work and facilities (if applicable). Repair or replacement shall be at Contractor’s sole expense if damaged by Contractor.

C. Protect existing culverts, sewers, and all other utilities including gas, telecommunications, electricity, and water. Repair or replace at Contractor's sole expense if damaged by Contractor.

D. Utilize or install drum or sawhorse barricades or backfill all open excavations, holes, trenches, and depressions occurring at construction sites or occurring as part of this work.

3.2 CHANGE ORDER PROCEDURE

A. DESCRIPTION

1. The Contractor shall comply with this procedure in the process of giving notification of change and preparing and submitting a proposal for adjustment due to a desired, perceived, or actual change in the work. Changes in the work, or period of performance of the work, may be directed in writing by the Owner's Representative or may be requested by the Contractor. In either case, payment for work accomplished under a modification may not be made until a formal contract modification, incorporating the change into the contract, has been issued and executed. Therefore, it is incumbent upon the Contractor to comply fully with this procedure and to expedite the resolution of changes.

3.3 CHANGE SUBMITTALS

A. When requested, the Contractor shall submit the following to the Owner's Representative in accordance with the Submittals procedures described in these specifications:

1. Proposal cover letter on Contractor's letterhead;
2. Detailed price proposal;
3. Drawings or other explanatory data; and
4. Time extension statement with justification if any time extension is requested.

3.4 COMPLIANCE

A. The Contractor shall take such measures as needed to assure familiarity and compliance by its staff with these procedures. If change proposals are incomplete, unclear, or ambiguous or are not supported by adequate documentation, the data will be returned and the Contractor shall resubmit or supplement the proposal as requested by the Owner's Representative. Delay resulting from the Contractor's noncompliance with this procedure shall not in itself constitute the basis for an extension in the time of performance under the contract.

3.5 PROCESSING CHANGES INITIATED BY THE OWNER'S REPRESENTATIVE

A. The Owner's Representative will initiate changes only in writing. The Owner will sign any Request for Proposal (RFP). This will establish an Extra Work Order (EWO) number, by which the change will be identified until such time as it may be incorporated into the contract by formal Change Order (CO).

B. The Contractor may or may not be authorized to proceed with the changed work pending resolution of changes in the contract price or time of performance. If the work described in the RFP becomes critical to the timely performance of the Contractor's work, a written request for a Notice to Proceed must be forwarded to the Owner immediately. The Owner will issue any Notice to Proceed. This unilateral modification to the contract may be subject to further negotiation regarding price and time for completion.

C. Payment for changed work, covered by an authorized modification, will not be made until a notice to proceed covering the changed work has been executed.

D. The Contractor shall prepare and submit its proposal for change to include at a minimum:

1. A cover letter referencing the EWO number and citing the attachments, if any, which constitute the Contractor's total proposal.
2. A detailed price proposal showing labor, construction equipment, and material quantities and prices at the lowest practical level of each element of the work.
3. Any drawings, sketches, catalog cuts, samples, certifications, or other data required to be submitted by the Owner's Representative that is required to fully document
4. A statement of the proposed change in the time of completion of the contract, together with all required justification for such a change.
5. A statement to the effect that there is "no change in price and/or time of completion of the work under this contract as a result of this proposed change", if that is the case.

E. The Owner may accept the Contractor's proposal without negotiation. Alternatively, upon receipt of a proposal which is satisfactory in form, the Owner's Representative may require negotiation with the Contractor to arrive at a fair and equitable change in the contract price and time of completion. Upon agreement, a contract modification will be issued by the Owner for Contractor's execution.

3.6 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

A. Should the Contractor feel that a change to the work under the contract, or to the contract itself, is necessary or desirable, it shall propose such a change to the Owner's Representative. This proposed change shall include a clear and concise description of the proposed change, along with that information cited in above.

B. Within a reasonable time, the Owner's Representative will review the Contractor's proposal and determine if the proposed change is in the Owner's best interest. If so, Contractor will be advised of this and a an EWO number will be assigned to Contractor's proposal.

3.7 EXECUTING CHANGED WORK

A. The Contractor is cautioned not to proceed with the work described in a proposed change until it is authorized to do so in writing by the Owner's Representative.

3.8 TERMINATIONS AND DELAYS

A. Termination of Contract: If the Contractor or any of his/her subcontractors refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified, as provided for in these Contract Drawings, or violates any other Provisions of this Contract, the Local Public Agency, Local Public Agency, City, by written notice to the Contractor, may terminate the Contractor's right to proceed with the Work. Upon such termination, the City of Providence may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his/her sureties shall be liable to the City of Providence for any additional cost incurred by the City of Providence in its completion of the work and they shall also be liable to the City of Providence for liquidated damages for any delay in the completion of the work as provided below. work and they shall also be liable to the City of Providence for liquidated damages for any delay work. in the completion of the work as provided below. work. If the Contractor's right to proceed is so terminated, the Local Public Agency Local Public Agency City may take possession of and utilize in completing the work such materials, tools, equipment, and plants as may be on the site of the work and necessary thereof. Project work must commence 30 days after award of Contract or as mutually agreed upon by the Contractor and the Owner. The Contractor is required to submit a Work Schedule including all items included in the scope of work. The Work Schedule shall mirror the Schedule of Values which should be in chronological order. Both items are identified in the standard Pre-Bid and Pre-Construction Meeting Minutes as required. The work shall be continuous and the Contractor shall staff the project appropriately to meet the agreed upon work schedule. De- Mobilization from the project, prior to completion, must be agreed upon in writing by the Owner.

3.9 INSPECTION OF WORK

A. DESCRIPTION

1. Work included in this Section consists of periodic observation of construction of the project. The Contractor's work shall be monitored periodically by the Owner's Representative
2. The Owner's Representative presence on site or construction observation work is inspectional in nature and will not include supervision or direction of the actual work of the contractor.
3. In no event will the Owner's Representative be responsible or liable for the contractor's use or administration of personnel, machinery, staging, or other temporary or precautionary construction, safety precautions or procedures, or for compliance by the contractor with the provisions, terms, or specifications of the contract. Observation services provided by the Owner's Representative are solely for the benefit of the Owner.
4. The Contractor shall keep the Owner's Representative informed concerning the work status and projected work schedule through regular communications.
5. The Contractor shall not cover any work related to the required field visits until one of the following occurs:
    a. The Contractor is authorized by the Owner's Representative to proceed after the field visit.
    b. The field visit is re-scheduled by the Owner's Representative to a later construction event
    c. The field visit is waived in writing by the Owner's Representative

6. The Contractor shall request a Final Inspection seven calendar days in advance of the planned completion date. After review of the Notice of Completion, the Owner's Representative may reject the Notice for cause or schedule the Final Inspection. The Owner's Representative will perform its Final Inspection on all phases of the work and develop a comprehensive punch list, which will be provided to the Contractor.
7. The Final Inspection will be scheduled when the punch list items discovered during the Final Inspection have been corrected. If discovered, the Owner's Representative may add new items to the punch list at this inspection.
8. The Contractor is advised that the Owner's Representative will not accept the work until the Owner's Representative determines Substantial Completion has been achieved. Therefore, to minimize its risk, the Contractor should schedule its work to be substantially complete in time to allow the Final Inspection and punch list work to occur in advance of the Project Close Out Date. Due to the construction time period and the anticipated weather conditions, substantially complete will be defined as the completion of construction for all item and the temporary stabilization of all disturbed areas, excluding planting and final seeding. Planting and final seeding is to occur during the time periods specified..
9. Nothing in this Section shall be construed to limit the Owner's Representative right to inspect the work at any time.

3.10 CONSTRUCTION SCHEDULES

A. DESCRIPTION

1. Work included in this Section consists of preparation, submittal, and updating of the project.

3.11 CONSTRUCTION SCHEDULE

A. Submit the following to the Owner's Representative in accordance with the Submittals Section. Submittals are for the record or approval as indicated.

1. The proposed construction schedule shall be submitted for approval within five (5) calendar days after receipt of Notice to Proceed.
2. Submit contract Weekly Summary Reports to the Owner's Representative for the record at weekly site meeting at request by the Owner.
3. Submit construction progress schedule including a two week look ahead as back up to progress invoices.

B. The construction schedule shall show all work activities for completion of the work to be performed under this contract and will reflect Contractor's general sequential approach to the work. The construction schedule will be in a bar chart format. The minimum level of detail (number of activities) shall include the activities described in the Schedule of Values and the Scope of the Work. The construction schedule shall demonstrate completion of all work within the period of performance of the contract in a reasonable and achievable manner.

3.12 PERIODIC SCHEDULE UPDATES

A. The Contractor shall support monthly payment requests with an approved construction schedule marked to indicate progress. Submit updated schedule as necessary.

B. When in the opinion of the Owner's Representative changes in the work occur that significantly affect the schedule, the Contractor shall submit a revised construction schedule for approval. The revised construction schedule shall be submitted within 10 calendar days after it is requested by the Owner's Representative The current approved construction schedule shall be used as a baseline for progress reporting.

C. Acts of God: Claims for additional compensation for 'Acts of God' will be reviewed by the Owner. It is the Contractor's responsibility to secure the work site daily and failure to provide adequate provisions to do so may result in repairs to the site at the Contractor's expense. Documented 'Acts of God' such as the state issuing a 'State of Emergency' may result in the Owner's authorization to proceed repair funded by the Owner. No work shall proceed without written authorization by the Owner.

3.13 SUBMITTAL PROCEDURES

A. DESCRIPTION

1. This Specification Section covers the preparation and submission of all work plans, drawings, samples, manufacturer's literature and brochures, installation instructions, and operation and maintenance manuals as specified herein and in the various sections of these Specifications.
2. A Submittal Schedule shall be submitted for approval within five (5) calendar days after receipt of Notice to Proceed.

3.14 DRAWINGS

A. The term "drawings" as used herein includes 'Shop Drawings' as required for fabrication, erection and installation, layout, and setting of proposed improvements; lists or schedules of materials and catalogues and brochures; performance and test data; and all other drawings and descriptive data pertaining to materials and methods of construction as may be required to show that the materials, equipment, or systems and the positions thereof conform to the requirements of the Contract Documents.

B. Where specified and if so directed by the Owner's Representative provide shop drawings that are accompanied by design computations.

C. Sheet sizes of drawings shall not exceed 24 in. by 36 in. The title block on all drawings shall bear the name of the Owner, the name of the project, and the project location.

D. The Contractor's drawings shall be submitted electronically in PDF format to the Owner's Representative for review and approval.

E. The Contractor shall maintain a complete set of construction drawings at the jobsite, clearly marked to reflect as-built conditions. Upon completion of the work, the Contractor shall submit these Record Drawings to the Owner's Representative.

F. The Owner's Representative will review drawings and schedules only for conformance with the design of the Project and for compliance with the Contract Documents and Contract Drawings. The Contractor shall make any and all updates and corrections required by the Owner's Representative

G. Drawings shall be reviewed and returned within ten (10) working days of receipt of drawings at jobsite. Drawings and all supporting data, catalogs, or similar information shall be prepared by the Contractor or his suppliers and subcontractors but shall be submitted as instruments of the Contractor.

H. The Owner's Representative review of drawings will be of a general nature and shall not relieve the Contractor from responsibility for errors and omissions of any sort, for deviations from Drawings or Specifications, or for conflict with the work of others that may result from such deviations. The Owner's Representative review of drawings will not relieve the Contractor of responsibility to complete the work in accordance with the requirements of the Contract Documents.

I. After Notice of Award, the Contractor shall submit a Submittal Schedule to the Owner's Representative. The Contractor's schedule shall be brought up to date from time to time to show the latest changes, omissions, and additions. The Schedule will be based on the Contractor's Construction Schedule and will show when the Contractor will submit the drawings and when he/she expects them to be returned so that construction activities shown on the Construction Schedule are not interrupted. There will be a minimum of three weeks between these two activities. Specific methods and routines for handling drawing reviews shall be established in advance within the general framework of the Contract Documents.

J. Work for which the Contractor's submittals are required shall not be started until the submittals have been reviewed and accepted in writing by the Owner's Representative. Any revision by the Contractor of a previously accepted submittal must be accepted in writing by the Owner's Representative before implementation.

3.15 SAMPLES

A. The Contractor shall, at his or her expense, furnish the Owner's Representative with samples of the various materials as specified in these Specification and Drawings. Samples shall be delivered to the office of the Owner's Representative at the Contractor's expense.

3.16 PRODUCT DATA

A. The Contractor shall submit to the Owner's Representative all required Material Safety Data Sheets (MSDS) and all Product Data Sheets and any other relevant product information for all items identified in the Technical Specifications and Drawings. All data shall be furnished by the Contractor in accordance with the approved schedule.

B. SUBMITTAL LOG

1. Contractor to provided the following information:
   a. An I.D. number for each item
   b. Specification Section, Paragraph Number and Line Item Number (ie. 321313 / 1.3 / A)
   c. Item Name
   d. Description of the Item
   e. Date Submitted
   f. Status: Approved / Approved As Noted / Rejected
   g. Sub-Contractor (If any) providing the material
   h. Comments

3.17 QUALITY CONTROL DESCRIPTION

A. This Section provides the requirements for Contract quality control (QC) pertaining to the Work, including:

1. QC of products and workmanship;
2. Manufacturer's instructions; and
3. Manufacturer's certificates and field services.

3.18 WORKMANSHIP

A. The Contractor shall comply with industry standards of the region, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. The Contractor shall provide suitably-qualified personnel to produce work of specified quality.

C. The Contractor shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

D. The Contractor shall provide materials to match approved samples.

3.19 MANUFACTURER'S INSTRUCTIONS

A. The Contractor shall require compliance with instructions in full detail, including each step in sequence. Should instructions conflict with the Contract Documents, the Contractor shall request clarification from the Owner’s Representative before proceeding.

3.20 MANUFACTURER'S CERTIFICATES

A. When required in individual Specifications sections, the Contractor shall submit manufacturer's certificates, in duplicate, certifying that products meet or exceed specified requirements.

3.21 TESTING LABORATORY SERVICES (NIC)

A. Not Utilized in this Contract

B. (Modify as Required)

3.22 MANUFACTURER'S FIELD SERVICES

A. When required by the manufacturer or Owner’s Representative, the Contractor shall have the manufacturer provide a qualified representative to observe field conditions, conditions of surfaces and installation, and quality of workmanship as applicable and to make written report of observations and recommendations to the Owner’s Representative

3.23 AUTHORITY OF OWNER’S REPRESENTATIVE

A. The Owner’s Representative will decide all questions that may arise as to the quality and acceptability of materials furnished. All questions that may arise as to the interpretation of the Contract Drawing and Specifications shall be determined by the Owner’s Representative.

B. The Owner and Owner’s Representative shall not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, and the Owner’s Representative will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents.

C. The Owner’s Representative will not be responsible for the acts or omissions of the Contractor or any subcontractors, of the agents or employees of any Contractor or subcontractor, or of any other persons at the site or otherwise performing any of the work.

3.24 COORDINATION OF DRAWINGS AND SPECIFICATIONS

A. The Contractor shall take no advantage of any apparent error or omission in the Contract Drawings or Specifications. In the event the Contractor discovers such a discrepancy, error or omission, he shall immediately notify the Owner’s Representative. After review and consultation with the Owner’s Representative the Owner’s Representative will issue clarifications, provide interpretations and make such corrections as may be deemed necessary for the Contractor to proceed with fulfilling the intent of the Contract Drawings and Specifications.

B. When general reference is made on the Contract Drawings or within the Specifications to any cited Standard Specifications, it shall refer to the current edition of such Specifications or the latest revision thereof or interim Specifications adopted and in effect on the date of Effective Date of Agreement. In the event of a conflict between the Contract Drawings and the specifications, the Owner’s Representative shall be notified to provide a clarification to the Contractor.

3.25 COOPERATION WITH UTILITIES

A. The Contractor will notify all utility companies, all pipeline owners, or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practical.

B. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be crossed, relocated or adjusted are to be moved by the Contractor or its designated agents, except as otherwise noted on the Contract Drawings. In the case of utility lines, the Contractor shall coordinate with the respective utilities for their removal and relocation.

C. Attention is directed to the possible existence of underground facilities not known to the Owner’s Representative or in a location different from that which is shown on the Contract Drawings. The Contractor shall take steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service.

3.26 INDEPENDENT TESTING AND INSPECTION (NIC)

A. Not Applicable under this Contract

3.27 REQUIREMENTS

A. The requirements for sampling and testing or inspection are specified in the Specifications and Drawings. The Contractor shall maintain a complete and up-to-date file of all quality control documentation at the jobsite.

3.28 MATERIAL AND EQUIPMENT

A. DESCRIPTION

1. This Specification Section includes the requirements for the transportation, handling, storage, and protection of materials and equipment as specified herein and in the various Sections of these Specifications. This Section also addresses the procedure for Contractor-proposed product substitutions.

3.29 MANUFACTURER REQUIREMENTS

A. In general, the Contractor shall receive, handle, and store materials and equipment in accordance with manufacturer's recommendations and in a manner which will protect such items from damage or deterioration.

B. GENERAL

C. Products include the material, equipment, and systems used on this Project. Comply with the Specifications, Drawings and referenced standards as minimum requirements.

3.30 TRANSPORTATION AND HANDLING

A. The Contractor shall receive, handle, and store materials and equipment supplied by him/her in a manner that will protect such items from damage or deterioration in accordance with procedures provided by product manufacturers and the Owner.

B. Promptly inspect the shipments to assure that the products comply with requirements, the quantities are correct, and the products are undamaged.

3.31 STORAGE AND PROTECTION

A. Materials and equipment shall be stored off the ground on blocking or pallets and shall be covered for protection from vandalism and weather damage.

B. Materials and equipment shall be stored, tested, and cleaned prior to use, in accordance with the Specification and all specific manufacturers' requirements. Damaged or nonconforming items shall be removed immediately to a separated storage area for expeditious removal from site.

C. The Contractor shall provide a secure outside storage area in the vicinity of the site.

3.32 SUBSTITUTIONS

A. Substitutions will be considered only when a product becomes unavailable due to no fault of the Contractor or when deemed appropriate by the Owner's Representative

B. Document each request with complete data substantiating the compliance of the proposed substitution with the Contract Documents.

C. The requested substation proposed constitutes a representation that the Contractor:

1. Has investigated the proposed product and determined that it meets or exceeds, in all respects, the specified product.
2. Will provide the same warranty for substitution as for the specified product.
3. Will coordinate installation and make other changes which may be required for the Work to be complete in all respects.
4. Waives claims for additional costs which may subsequently become apparent.

D. Substitutions will be considered when they are indicated or implied on shop drawings or product data submittals without separate written request, or when acceptance will require substantial revision of the Contract Documents.

E. The Owner's Representative will determine acceptability of the proposed substitution, and will notify the Contractor of acceptance or rejection in writing within a reasonable time. Only one request for the substitution will be considered for each product. When substitution is not accepted, the Contractor shall provide the specified product.

3.33 REJECTED MATERIALS AND DEFECTIVE WORK

A. Materials furnished by the Contractor and rejected by the Owner's Representative as unsuitable or not in conformity with the specifications shall forthwith be removed from the job-site and work area by the Contractor, and shall not be made use of elsewhere in the work.

B. Any errors, defects, or omissions in the execution of work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Owner or Owner's Representative.

C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect error, omission or act of the Contractor or his employees, as determined by the Owner's Representative, occurring previous to the final payment.

3.34 PROJECT CLOSEOUT

A. DESCRIPTION

1. This Section specifies administrative and procedural requirements for the project closeout including, but not limited to:
    a. Project record document (As-Built drawings) submittal. Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
    b. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Upon completion of work, submit record drawings to the Owner's Representative.
2. Record Specifications
    a. Maintain one complete copy of the Project Manual, including addenda. Mark these documents to show substantial variations in actual Work performed in comparison with the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data. Upon completion of the Work, submit record Specifications.
3. Test Results
    a. Not Applicable for this project
4. REMOVAL OF PROTECTION
    a. Remove temporary protection and facilities installed for protection of the Work during construction. Fencing and erosion and sediment control measures and best management practices can be removed after permanent measures have been established.

3.35 WARRANTIES

A. DESCRIPTION

1. This Section specifies general administration and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.
   a. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials;
   b. General closeout requirements are included in Section "Project Closeout"; and
   c. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the specifications and Drawings.
2. Disclaimers and Limitations
   a. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

B. DEFINITIONS

1. Standard Warranties
   a. Standard product warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
2. Special Warranties
   a. Special warranties are written required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

C. WARRANTY REQUIREMENTS

1. Related Damages and Losses
   a. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for corrections of warranted Work.
2. Reinstatement of Warranty
   a. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
3. Replacement Cost
   a. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner's Representative has benefited from use of the Work through a portion of its anticipated useful service life.
4. Owner's Recourse
   a. Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available

under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights and remedies.

5. Rejection of Warranties
   a. The Owner's Representative reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents. The Owner's Representative reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to counter sign such commitments are willing to do so.
   b. All warranties shall be submitted to the Owner in accordance with conditions of the Contract and the Submittals.

D. WARRANTY PERIOD

1. All warranties required by the Contract documents shall commence on the date of Final Acceptance

END OF SECTION 010000

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements, apply to this Section.

1.2 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

B. Related Requirements:

1. Section 311000 "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

A. (DBH): Diameter breast height; diameter of a trunk as measured by the average of the smallest and largest diameters at a height 54 inches above the ground line for trees with caliper of 8 inches or greater as measured at a height of 12 inches above the ground.

B. Plant-Protection Zone: Area surrounding individual trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings .

D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PRE- CONSTRUCTION MEETINGS

A. Pre-construction Conference: Conduct conference at Project site .

1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
   a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
   b. Arborist's responsibilities.
   c. Coordination of Work and equipment movement with the locations of protection zones.
   d. Trenching by hand or with air spade within protection zones.
   e. Field quality control and maintenance.

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f. Coordination by Parks Department City Forester and Forestry crews.

1.5 ACTION SUBMITTALS

A. Contractor shall arrange site visit with City Forester prior to mobilization to determine the scope of pruning by the Parks Department Forestry Division or Contractor as indicated on the drawings.

1.6 QUALITY ASSURANCE

A. Arborist Qualifications: Licensed arborist in jurisdiction where Project is located .

1.7 FIELD CONDITIONS

A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Moving or parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Backfill Soil: Certified Clean planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

1. Mixture: Well-blended mix of two parts stockpiled soil to one part certified clean planting soil .

B. Protection-Zone Fencing: Fencing fixed in position and meetingthe following requirements:

1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and

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ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.

a. Height: 72 inches .
b. Color: High-visibility orange, nonfading.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.2 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Owner's Representative. Install one sign on protection-zone fencing. Sign to read "Tree Protection Zone - Do not Disturb". Sign to be printed on 24"x 36" white panel with black lettering at a mimimum of 3" height lettering .

C. Maintain protection zones free of trash.

D. Maintain protection-zone fencing in good condition as acceptable by Owner's Representative and remove when construction operations are complete and equipment has been removed from the site.

1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
2. Temporary access is permitted subject to preapproval in writing by Owner's Representative if a root buffer effective against soil compaction is constructed as directed by Owner's Representative. Maintain root buffer so long as access is permitted.

3.3 EXCAVATION

A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 312000 "Earth Moving" unless otherwise indicated.

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B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots as directed by Owner's Representative. Do not cut main lateral tree roots or taproots larger than 2" without direction from Owner's Representative; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.

C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover and wrap with dampened burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil or as directed by Owner's Representative.

3.4 ROOT PRUNING

A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. No roots larger than two (2) inches in diameter may be cut without permission of the City Forester. Cuts must be made with hand-pruner , handsaws, or chainsaws.
3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
4. Cover exposed roots with burlap and water regularly.
5. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."

B. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.5 REGRADING

A. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by Owner's Representative unless otherwise indicated.

1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

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B. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.6 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Owner's Representative.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Owner's Representative. Replacement trees to be equal to the total diameter of mature tree by multiple equal diameter specimens.

B. Trees: Remove and replace trees tha damaged during construction operations that Owner's Representative determines are incapable of restoring to normal growth pattern.

1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 4" or smaller in caliper size.
2. Large Trees: Provide multiple trees of 2-1/2" - 3" caliper size to equal total diameter of tree being replaced. .
   a. Species: As determined by Owner's Representative.
3. Plant and maintain new trees as specified in Section 329300 "Plants."

C. Soil Aeration: Where directed by Owner's Representative, aerate surface soil compacted during construction. Aerate to loosen soil10 feet beyond drip line and no closer than 36" to tree trunk with air spade.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 015639

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SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
2. Section 311000 "Site Clearing" for site clearing and removal of above- and below-grade improvements not part of selective demolition.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner, ready for reuse or store on a per project basis. .

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

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B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PRE-CONSTRUCTION MEETINGS

A. Predemolition Conference: Conduct conference at Project site .

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property , for environmental protection , for dust control and , for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site uses are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Coordination of Owner's continuing use of portions of existing site and of Owner's partial use of completed Work.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.

D. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 FIELD CONDITIONS

A. Owner will occupy portions of the site immediately adjacent to selective demolition area. Conduct selective demolition so Owner's use will not be disrupted.

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B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, Owner will remove the items specifically indicated on the drawings

C. Notify Owner's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding.

B. Notify Owner on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.9 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's use.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

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B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

1. Contact Dig Safe-Provide Dig Safe number to Owner prior to mobilization.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

1. Meet with Owner's Representative to identify local utilities prior to mobilization.

C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs. measured drawings .

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations. Notify Owner of damaged items.
2. Before selective demolition or removal of existing elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the site.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.

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3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of the site.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain adequate ventilation when using cutting torches.
5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
6. Dispose of demolished items and materials promptly and legally off site.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Store items in a secure area until delivery to Owner.
3. Transport items to location designated by Owner's Representative.
4. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Protect items from damage during transport and storage.

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3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner's Representative, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site. Waste materials are to be segregated from native soils. Soils are not be be disposed of along with construction and demolition waste.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

C. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

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SECTION 116800 - PLAY FIELD EQUIPMENT AND STRUCTURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements, apply to this Section.

1.2 SUMMARY

A. Section includes playground equipment as follows:

1. Freestanding playground equipment.
2. Composite playground equipment.

1.3 DEFINITIONS

A. Definitions in ASTM F1487 apply to Work of this Section.

B. IPEMA: International Play Equipment Manufacturers Association.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of playground equipment.

1. Include plans, elevations, sections, and attachment details.
2. Include fall heights and use zones for playground equipment, coordinated with the critical-height values of protective surfacing specified in Section 321816.13 "Playground Protective Surfacing."

C. Samples for Initial Selection: For each type of exposed finish.

1. Manufacturer's color charts.
2. Include Samples of accessories involving color selection.

D. Samples for Verification: For each type of exposed finish on the following products:

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1. Include Samples of accessories to verify color and finish selection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, , and testing agency.

B. Product Certificates: For each type of playground equipment.

C. Material Certificates: For the following items:

1. Shop finishes.
2. Wood-Preservative Treatment: Include certification by treating plant that states type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

D. Sample Warranty: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For playground equipment and finishes to include in maintenance manuals.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of playground equipment that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Structural failures.
   b. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
2. Warranty Period: Varies from date of Substantial Completion .

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The following playground equipment and components shall have the IPEMA Certification Seal:

B. .

1. Playworld Loopywhoop #ZZUN7096.
2. Playworld AbigailsMaze #5002009
3. Berliner 2 bay Swing #USP06248
4. Kompan spinner bowls #ELE400024-37178L- deliver and install only
5. Kompan custom climber #COR104841 - Custom Variant 20119341 - deliver and install only

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6. Kompan one bay swing with bucket seats #KSW922-Custom 20119567 - deliver and install only

2.2 PERFORMANCE REQUIREMENTS

A. Safety Standard: Provide playground equipment according to ASTM F1487 .

2.3 MATERIALS

A. Aluminum: Material, alloy, and temper recommended by manufacturer for type of use and finish indicated.

B. Steel: Material types, alloys, and forms recommended by manufacturer for type of use and finish indicated , hot-dip galvanized.

C. Stainless-Steel Sheet: Type 304; finished on exposed faces with No. 2B finish.

D. Wood: Western red cedar Robinia- black locust , surfaced smooth on all sides and all edges rounded.

E. Opaque Plastics: Color impregnated, UV stabilized, and mold resistant.

F. Suspension Chain and Fittings: ASTM A467/A467M, Class CS, 4/0 or 5/0, welded-straight-link coil chain; hot-dip galvanized ; with commercial-quality, hot-dip galvanized or zinc-plated steel connectors and swing or ring hangers.

G. Suspension Cable: Manufacturer's standard hot-dip galvanized zinc-plated cable; with commercial-quality, hot-dip galvanized or zinc-plated steel connectors and swing or ring hangers.

H. Post Caps: Cast aluminum or color-impregnated, UV-stabilized, mold-resistant polyethylene or polypropylene ; color to match posts.

I. Platform Clamps and Hangers: Cast aluminum or zinc-plated steel, not less than 0.105-inch- nominal thickness .

J. Hardware: Manufacturer's standard; commercial-quality; corrosion-resistant; hot-dip galvanized steel and iron, stainless steel, or aluminum; of a vandal-resistant design.

K. Fasteners: Manufacturer's standard; corrosion-resistant; hot-dip galvanized or zinc-plated steel and iron, or stainless steel; permanently capped; and theft resistant.

2.4 CAST-IN-PLACE CONCRETE

A. Concrete Materials and Properties: Dry-packaged concrete mix complying with ASTM C387/C387M and mixed at site with potable water, according to manufacturer's written instructions, for normal-weight concrete with minimum 28-day compressive strength of 4000 psi, 3-inch slump, and 1-inch- maximum-size aggregate.

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for earthwork, subgrade elevations, surface and subgrade drainage, and other conditions affecting performance of the Work including compliance with RIDEM approved Remedial Action Work Plan and Soil Management Plan.

1. Do not begin installation before final grading required for placing playground equipment and protective surfacing is completed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written installation instructions for each equipment type unless more stringent requirements are indicated. Anchor playground equipment securely, positioned at locations and elevations indicated.

1. Maximum Equipment Height: Coordinate installed fall heights of equipment with finished elevations and critical-height values of protective surfacing. Set equipment so fall heights and elevation requirements for age group use and accessibility are within required limits. Verify that playground equipment elevations comply with requirements for each type and component of equipment.

B. Post and Footing Excavation: Excavate holes for posts and footings as indicated in firm, undisturbed or compacted subgrade soil follow all requirements of RIDEM Remedial Action Work Plan and Soil Management Plan.

C. Post Set with Concrete Footing: Comply with Section 033000 "Cast-in-Place Concrete" ACI 301 for measuring, batching, mixing, transporting, forming, and placing concrete.

1. Set equipment posts in concrete footing. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at the correct angle, alignment, height, and spacing.
   a. Place concrete around posts and vibrate or tamp for consolidation. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
2. Embedded Items: Follow equipment manufacturer's written instructions and drawings to ensure correct installation of anchorages for equipment.
3. Finishing Footings: Smooth top, and shape to shed water.

END OF SECTION 116800

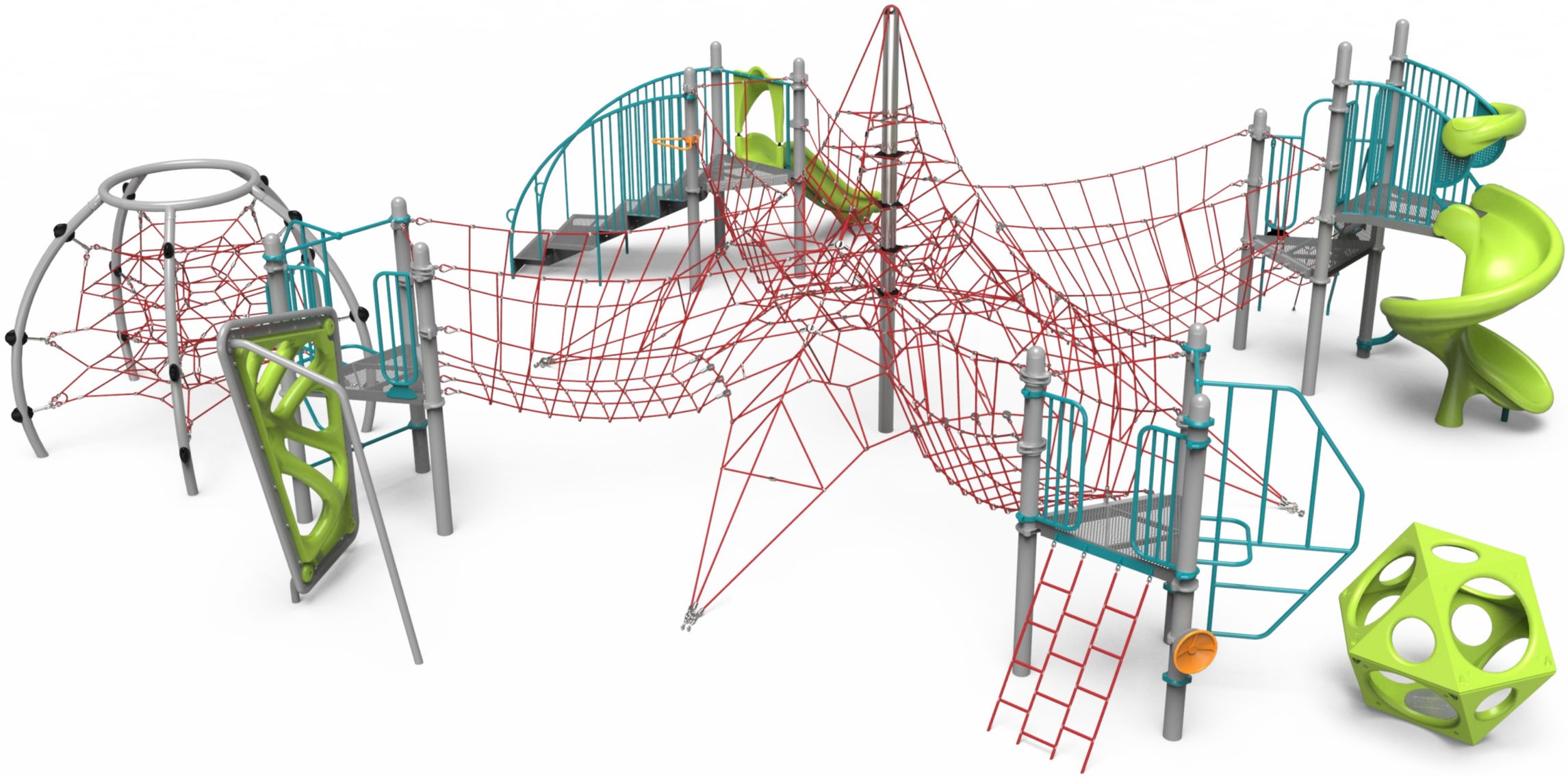
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Abigail's Maze

500-2009

Equipment Manufacturer

PLAYWORLD
The world needs play.



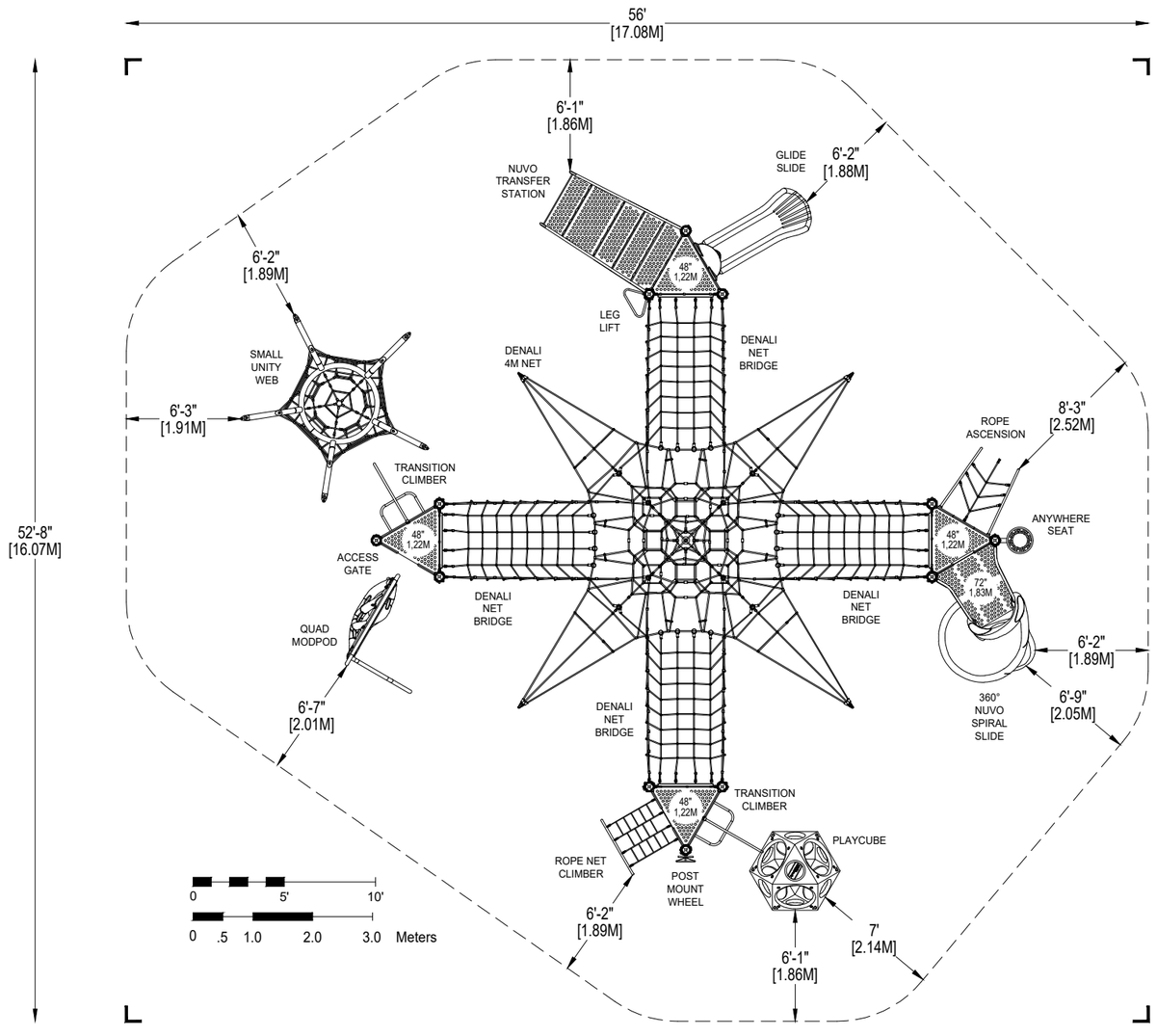
Abigail’s Maze

500-2009

Equipment Manufacturer

PLAYWORLD
The world needs play.





*PLAYGROUND SUPERVISION REQUIRED

PLAYWORLD SYSTEMS, INC.
1000 Buffalo Road
Lewisburg, PA
17837-9795 USA

EQUIPMENT SIZE:
43'7" x 40'6" x 12'10"
13,28M x 12,34M x 3,91M

USE ZONE:
56'0" x 52'8"
17,08M x 16,07M

AREA:	PERIMETER:
2,264 SqFt.	**173'3"**
210,33 SqM.	52,81M

FALL HEIGHT:
8'5"
2,57M

USER CAPACITY:	AGE GROUP:
74	**5-12**

ADA SCHEDULE

	Total Elevated Play Activities: 8		
	Total Ground-Level Play Activities: 3		
	Accessible Elevated Activities	Accessible Ground-Level Activities	Accessible Ground-Level Play Types
Required	4	3	3
Provided	7	3	3

✓ ASTM F1487-11
✓ CPSC #325

PROJECT NO:	SCALE:
500-2009	**1/8"=1'-0"**
DRAWN BY: **M. MERTZ**	Paper Size **B**
DATE: **09-JAN-20**	

ABIGAIL'S MAZE

CATALOG PRE-DESIGN

Abigail's Maze

Design Number: 500-2009 - Bill Of Material

Ref. No.	Part No.	Description	Quantity
	Posts		
1	ZZPM0026	5in OD X 132in STEEL POST W/ RIVETED CAP	10
2	ZZPM0056	5in OD X 168in STEEL POST W/ RIVETED CAP	2
	Decks & Kick Plates		
3	ZZPM0617	TRIANGULAR COATED DECK ASSEMBLY	4
	ADA Items		
4	ZZPM0684	NUVO- 48in TRANSFER STATION	1
	Slides		
5	ZZPM3126	GLIDE SLIDE (48in DECK)	1
6	ZZPM3537	SLIDE- NUVO 360 SPIRAL SLIDE	1
	Activity Panels		
7	ZZPM4290	STEERING WHEEL (POST MOUNT)	1
8	ZZPM4578	ANYWHERE SEAT	1
	Barriers		
9	ZZPM4288	ACCESS GATE	1
	Climbers		
10	ZZPM6190	24in DECK TO DECK CLIMBER	1
11	ZZPM7218	48in ROPE ASCENSION	1
12	ZZPM7227	ROPE CLIMBER (48in DECK)	1
13	ZZPM8939	TRANSITION CLIMBER- PLAYMAKER	2
14	ZZUN6840	MODPODS QUAD- VERTICAL	1
15	ZZUN8727	PLAYCUBE- GROUND LEVEL	1
	Overhead Events		
16	ZZPM5770	LEG LIFT	1
	Bridges		
17	ZZPM1059	DENALI NET BRIDGE (4M NET TO 48in DECK)	4
	Additional Tool & Maintenance Kits		
18	ZZUN1471	INSTALLER HARDWARE KIT	1
19	ZZUN9930	PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL	1
20	ZZXX0678	LABEL KIT- COMPOSITE STRUCTURE - ASTM	1
21	ZZXXGNGUID	GENERAL INSTALLERS GUIDE	1

Abigail's Maze

Design Number: 500-2009 - Compliance and Technical Data
Reference Document: ASTM F1487

Ref. No.	Part No.	Qty.	Description	Unit ASTM Status	Total Weight (lbs)	Pre-Consumer Recycled Content (lbs)	Post-Consumer Recycled Content (lbs)	CO2e Footprint (kgs)	Users	Install Hours	Concrete (Yds3)	Active Play Events
1	ZZXX1054	1	DENALI 4M NET	Certified	440.82			9,142	15	24.00	4.82	1
2	ZZXX1115S	1	UNITY WEB - SMALL	Certified	614.17			5,429	12	3.00	0.00	1
3	ZZXX1117	1	UNITY WEB FOOTING KIT- SMALL	Certified	124.89			59	0	3.50	0.30	0
4	ZZPM0026	10	5in OD X 132in STEEL POST W/ RIVETED CAP	Certified	742.10			1,084	0	10.00	1.20	0
5	ZZPM0056	2	5in OD X 168in STEEL POST W/ RIVETED CAP	Certified	185.02			271	0	2.00	0.26	0
6	ZZPM0617	4	TRIANGULAR COATED DECK ASSEMBLY	Certified	185.60			677	8	4.00	0.00	0
7	ZZPM0684	1	NUVO- 48in TRANSFER STATION	Certified	389.40			418	3	4.00	0.12	0
8	ZZPM3126	1	GLIDE SLIDE (48in DECK)	Certified	131.54			517	2	1.50	0.03	1
9	ZZPM3537	1	SLIDE- NUVO 360 SPIRAL SLIDE	Certified	680.00			1,449	2	6.00	0.15	1
10	ZZPM4290	1	STEERING WHEEL (POST MOUNT)	Certified	8.67			47	1	0.25	0.00	1
11	ZZPM4578	1	ANYWHERE SEAT	Certified	32.35			93	1	0.25	0.00	1
12	ZZPM4288	1	ACCESS GATE	Certified	34.38			92	0	0.50	0.00	0
13	ZZPM6190	1	24in DECK TO DECK CLIMBER	Certified	64.56			178	1	1.00	0.00	1
14	ZZPM7218	1	48in ROPE ASCENSION	Certified	97.46			453	1	3.00	0.18	1
15	ZZPM7227	1	ROPE CLIMBER (48in DECK)	Certified	62.08			1,593	2	2.00	0.06	1
16	ZZPM8939	2	TRANSITION CLIMBER- PLAYMAKER	N/A	120.28			466	4	5.00	0.00	2
17	ZZUN6840	1	MODPODS QUAD- VERTICAL	Certified	324.09			416	4	3.00	0.39	1
18	ZZUN8727	1	PLAYCUBE- GROUND LEVEL	Certified	151.62			429	4	1.50	0.12	1
19	ZZPM5770	1	LEG LIFT	Certified	7.20			33	1	0.50	0.00	1
20	ZZPM1059	4	DENALI NET BRIDGE (4M NET TO 48in DECK)	Certified	317.68			17,784	16			4
21	ZZUN1471	1	INSTALLER HARDWARE KIT	N/A				57				
22	ZZUN9930	1	PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL	N/A				90				
23	ZZXX0678	1	LABEL KIT- COMPOSITE STRUCTURE - ASTM	N/A	0.04			TBD	0	0.08	0.00	0
24	ZZXXGNGUID	1	GENERAL INSTALLERS GUIDE	N/A				1				
			Totals:		**4,713.95**	**630**	**1,300**	**40,776**	**77**	**75.08**	**7.63**	**18**

Abigail's Maze

Design Number: 500-2009 - Compliance and Technical Data
Reference Document: ASTM F1487

Ref. No.	Part No.	Qty.	Description	Unit ASTM Status	Total Weight (lbs)	Pre-Consumer Recycled Content (lbs)	Post-Consumer Recycled Content (lbs)	CO2e Footprint (kgs)	Users	Install Hours	Concrete (Yds3)	Active Play Events
					2,121.28 Kg	284 Kg	585 Kg	41 Metric Tons			5.80 m3	

Abigail's Maze

Design Number: 500-2009 - Compliance and Technical Data
Reference Document: ASTM F1487

Ref. No.	Part No.	Qty.	Description	Unit ASTM Status	Total Weight (lbs)	Pre-Consumer Recycled Content (lbs)	Post-Consumer Recycled Content (lbs)	CO2e Footprint (kgs)	Users	Install Hours	Concrete (Yds3)	Active Play Events

ASTM F1487

The lay-out for this custom playscape, design number 500-2009, has been configured to meet the requirements of the ASTM F1487 standard. In addition, each of the above components listed as "Certified" have been tested and are IPEMA certified. Components listed as "Not Applicable" do not fall within the scope of the ASTM F1487 standard and have not been tested. IPEMA certification can be verified on the IPEMA website, www.ipema.org. In the interest of playground safety, IPEMA provides a Third Party Certification Service which validates compliance.

2010 ADA Standards for Accessible Design

The lay-out was also designed to meet the 2010 Standards published 15-Sep-2010, by the Department of Justice when installed over a properly maintained surfacing material that is in compliance with ASTM F1951 "Accessibility of Surface Systems Under and Around Playground Equipment" as well as ASTM F1292, "Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment", appropriate for the fall height of the structure.

Installation Times

Installation times are based on one experienced installer. A crew of three experienced individuals can perform the installation within the given time, each member working 1/3 of the given hours. [Eg. Installation Time = 30 hours. For a crew of three, each member will work 10 hours on the installation for a total of 30 hours on the project.]

Carbon Footprint

The CO2e (carbon footprint given in Kilograms and Metric Tons) listed above is a measure of the environmental impact this play structure represents from harvesting raw materials to the time it leaves our shipping dock. Playworld Systems nurtures a total corporate culture that is focused on eliminating carbon producing processes and products, reducing our use of precious raw materials, reusing materials whenever possible and recycling materials at every opportunity. Playworld Systems elected to adopt the Publicly Available Specification; PAS 2050 as published by the British Standards Institute and sponsored by Defra and the Carbon Trust. The PAS 2050 has gained international acceptance as a specification that measures the greenhouse gas emissions in services and goods throughout their entire life cycle.

Pre-Consumer Recycle Content

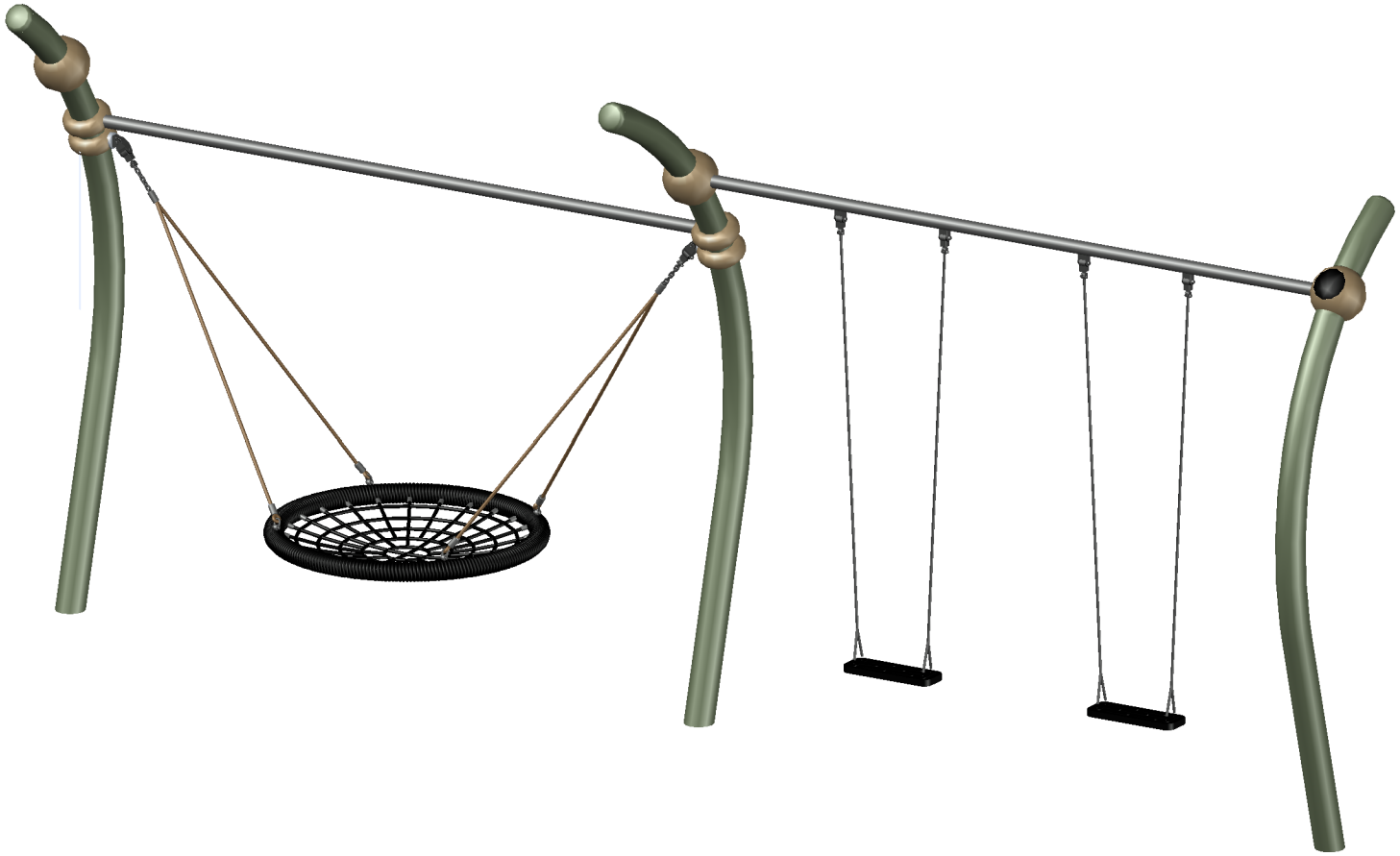
A measurement, in pounds, that qualifies the amount of material that was captured as waste and diverted from landfill during an initial manufacturing process and is being redirected to a separate manufacturing process to become a different product. E.g. 100% of our Aluminum Tubing is made from captured waste material during the manufacturing process of extruded Aluminum products such as rods, flat bars and H-channels.

Post-Consumer Recycle Content

A measurement, in pounds, that qualifies the amount of material that was once another product that has completed its lifecycle and has been diverted from a landfill as a solid waste through recycling and is now being used in a Playworld Systems' product. E.g. **20% to 40% of the steel in our steel tubing and sheet steel have been diverted from landfills. Automobiles are scrapped and recyclable steel is purchased by the steel mill that produces our raw product.

** The amount of Post-Consumer recycled steel fluctuates daily based on the availability of the recycled steel.

Picolino Kombi
KSK.055



Berliner

Berliner Seilfabrik
Play Equipment Corporation

96 Brookfield Oaks Dr., Suite 140,
Greenville, SC 29607

Phone: +1-864-627-1092
Fax: +1-864-627-1178

www.berliner-playequipment.com
info@berliner-playequipment.com



Picolino Kombi

KSK.055 .01

Dimensions (l x w x h)
('-") 5'-2" x 22'-2" x 9-5"

Free height of fall
('-") 6'-2"

Minimum space required
('-") 31'-12" x 34'-5"

Surface
(sqft) 761,90

Format
ANSI A (8,5" x 11")

Scale

Date
08.02.2021

Name
M.Steiber

Change (Name)
1.
2.
3.
4.

Please note: Current design is for conceptual purposes only and is subject to change.

Berliner



Picolino Kombi

KSK.055 .02

Dimensions (l x w x h)
('-") 5'-2" x 22'-2" x 9-5"

Free height of fall
('-") 6'-2"

Minimum space required
('-") 31'-12" x 34'-5"

Surface
(sqft) 761,90

Format
ANSI A (8,5" x 11")

Scale

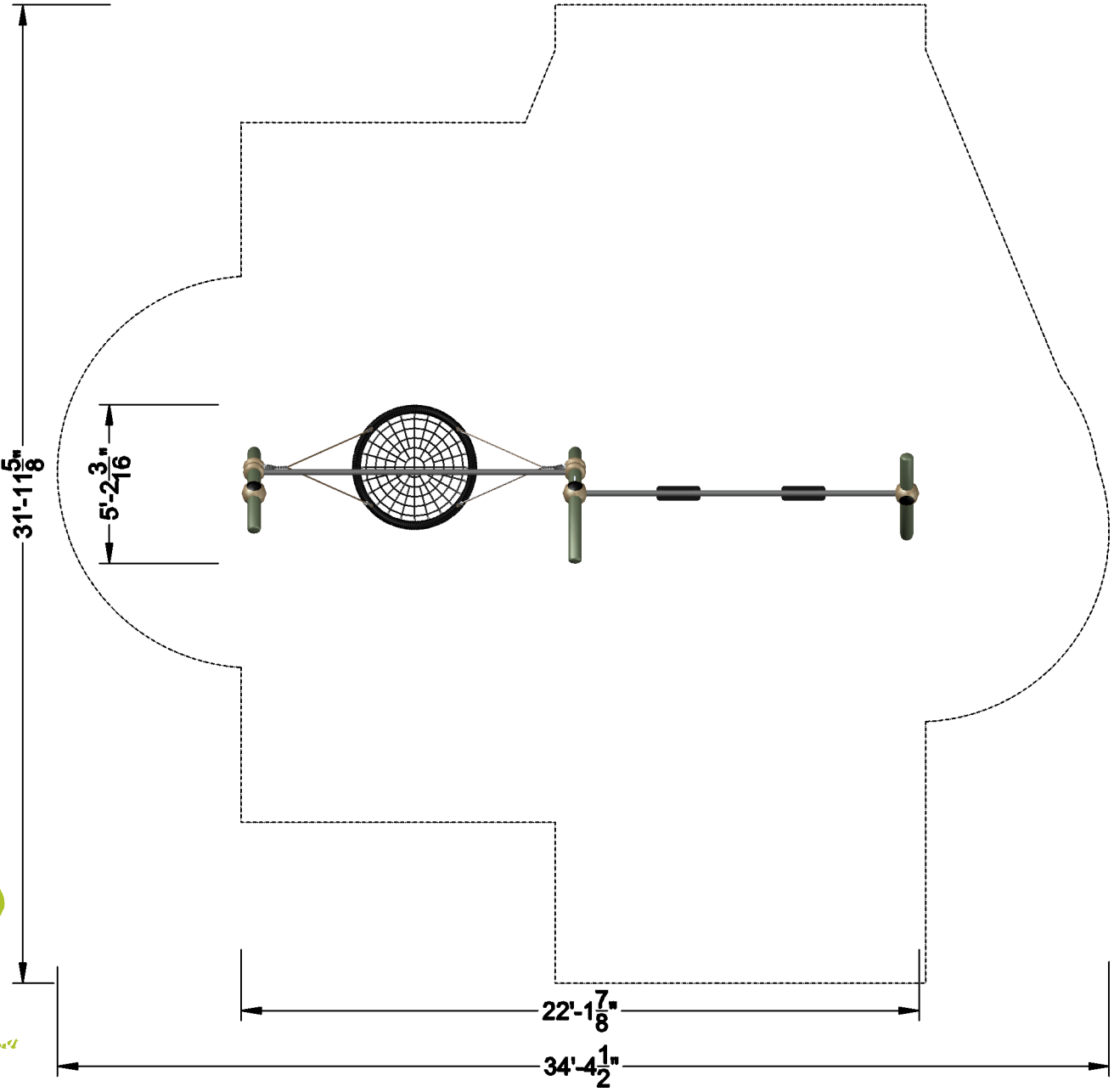
Date
08.02.2021

Name
M.Steiber

Change (Name)
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Please note: Current design is for conceptual purposes only and is subject to change.

Berliner



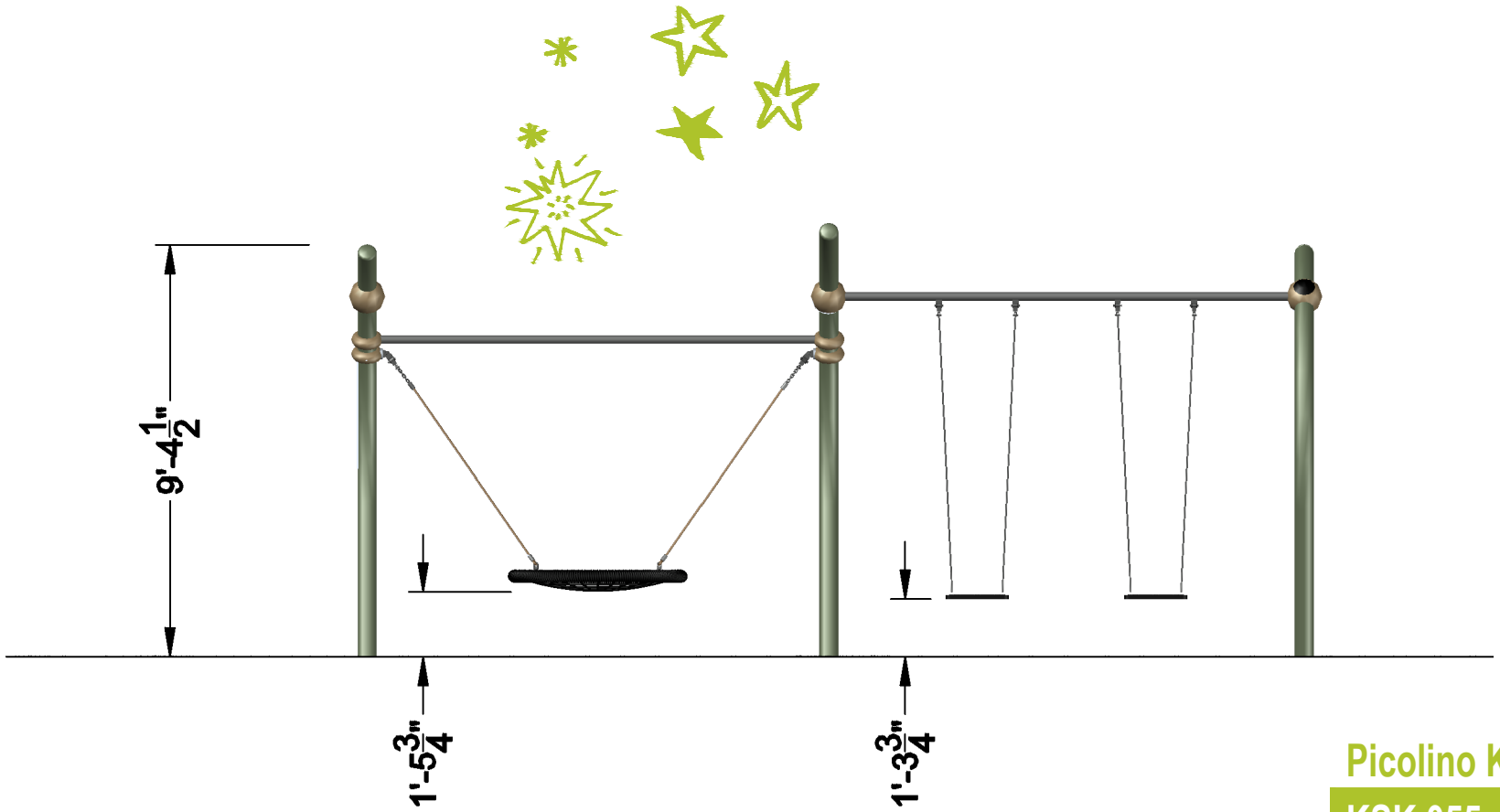
Picolino Kombi

KSK.055 .03

Dimensions (l x w x h)	('-") 5'-2" x 22'-2" x 9-5"
Free height of fall	('-") 6'-2"
Minimum space required	('-") 31'-12" x 34'-5"
Surface	(sqft) 761,90
Format	ANSI A (8,5" x 11")
Scale	3'-16"=1'-0"
Date	08.02.2021
Name	M.Steiber
Change (Name)	1. 2. 3. 4.

Please note: Current design is for conceptual purposes only and is subject to change.

Berliner



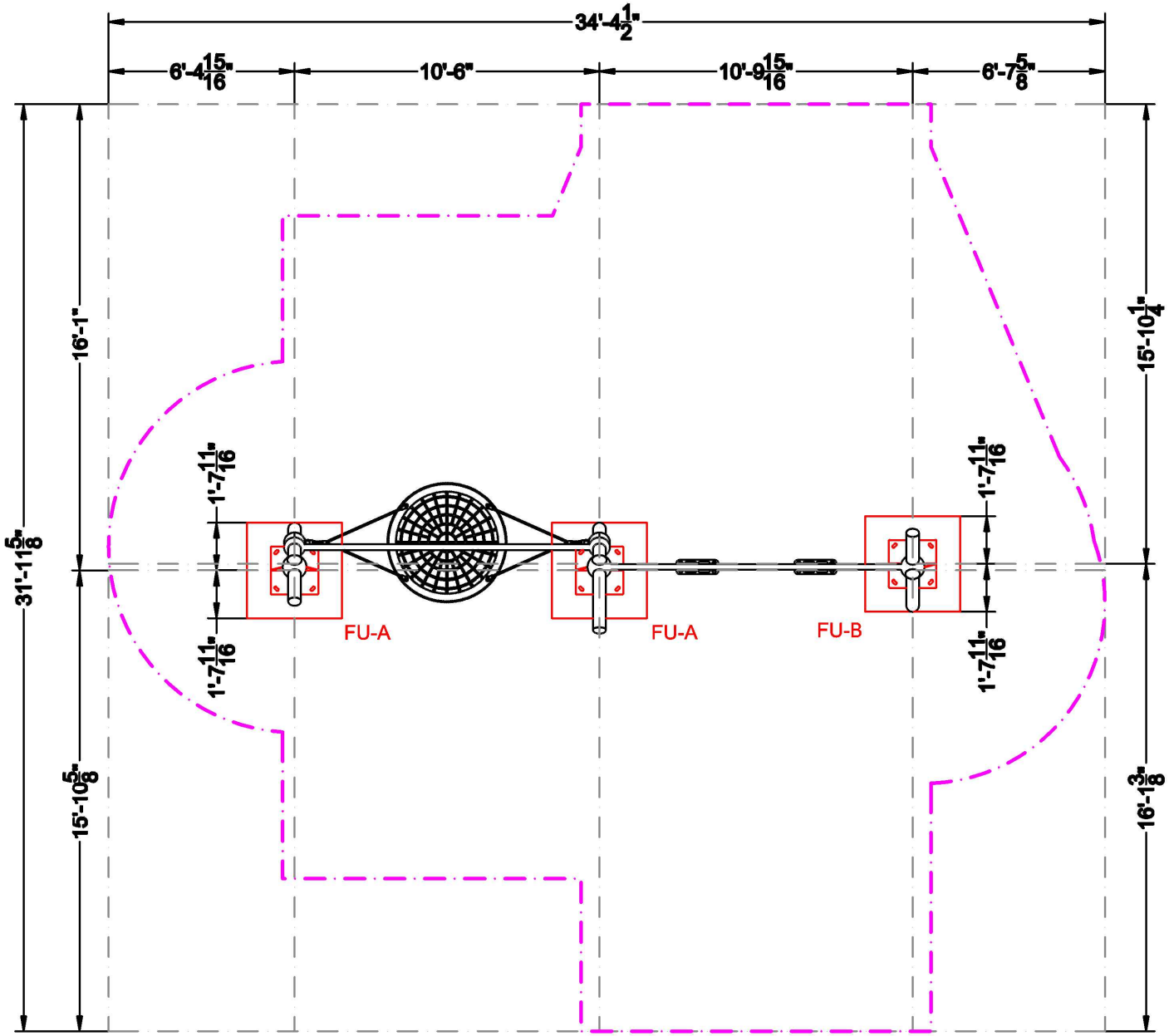
Picolino Kombi

KSK.055 .04

Dimensions (l x w x h)	('-") 5'-2" x 22'-2" x 9-5"
Free height of fall	('-") 6'-2"
Minimum space required	('-") 31'-12" x 34'-5"
Surface	(sqft) 761,90
Format	ANSI A (8,5" x 11")
Scale	1'-4"=1'-0"
Date	08.02.2021
Name	M.Steiber
Change (Name)	1. 3. 2. 4.

Please note: Current design is for conceptual purposes only and is subject to change.

Berliner



Foundations:
3x 1000 x 1000 x 600mm
3'-3 3/8" x 3'-3 3/8" x 1'-11 5/8"

ATTENTION:
Bars and system tubes for stands must be premounted before doing the foundation to ensure the system measure!!!

ATTENTION:
Foundation frames must be premounted before doing the foundation to ensure the system measure!!!

Berliner

Picolino Kombi

KSK.055.11

Dimensions (l x w x h)
('-") 5'-2" x 22'-2" x 9-5"

Free height of fall
('-") 6'-2"

Minimum space required
('-") 31'-12" x 34'-5"

Surface
(sqft) 761,90

Format
ANSI A (8,5" x 11")

Scale
-

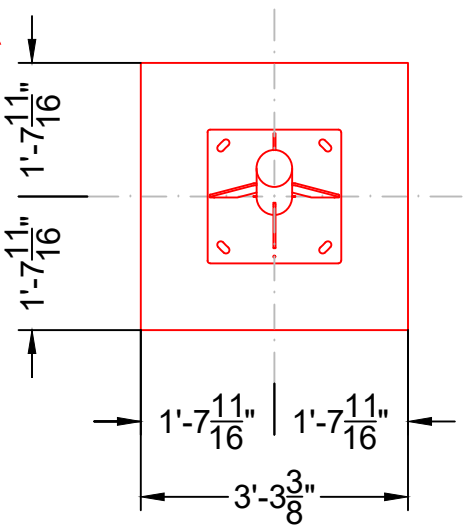
Date
12.02.2021

Name
C.Bader

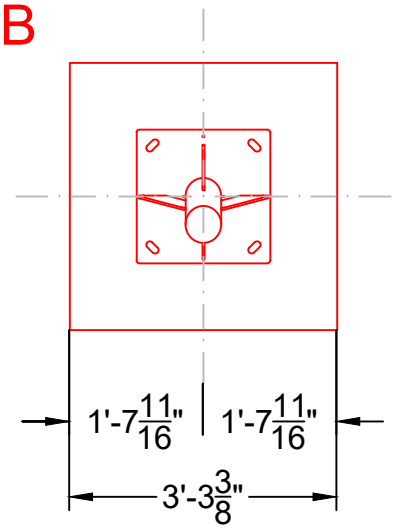
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Please note: Current design is for conceptual purposes only and is subject to change.

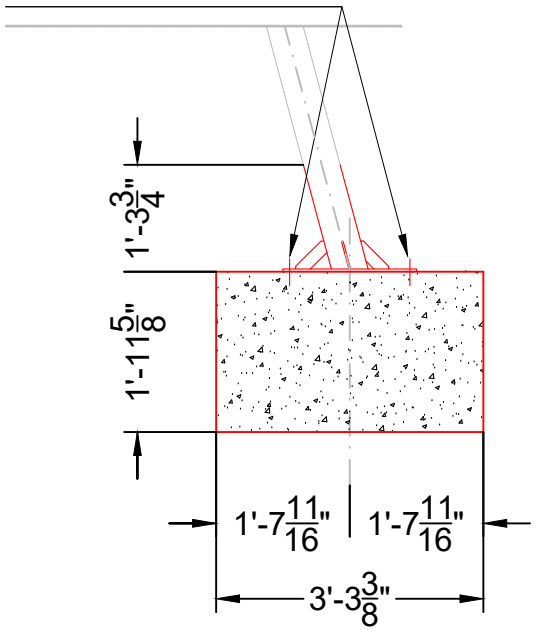
FU-A



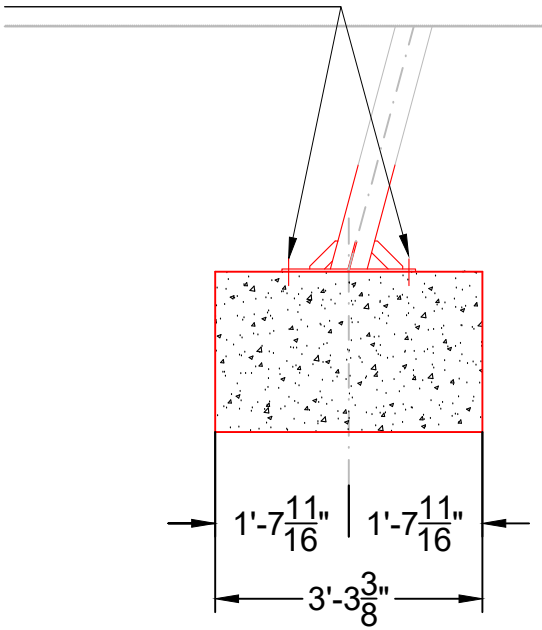
FU-B



Verbundanker
Chemical anchor
Cheville chimique



Verbundanker
Chemical anchor
Cheville chimique



Berliner

Picolino Kombi

KSK.055.12

Dimensions (l x w x h)
('-") 5'-2" x 22'-2" x 9-5"

Free height of fall
('-") 6'-2"

Minimum space required
('-") 31'-12" x 34'-5"

Surface
(sqft) 761,90

Format
ANSI A (8,5" x 11")

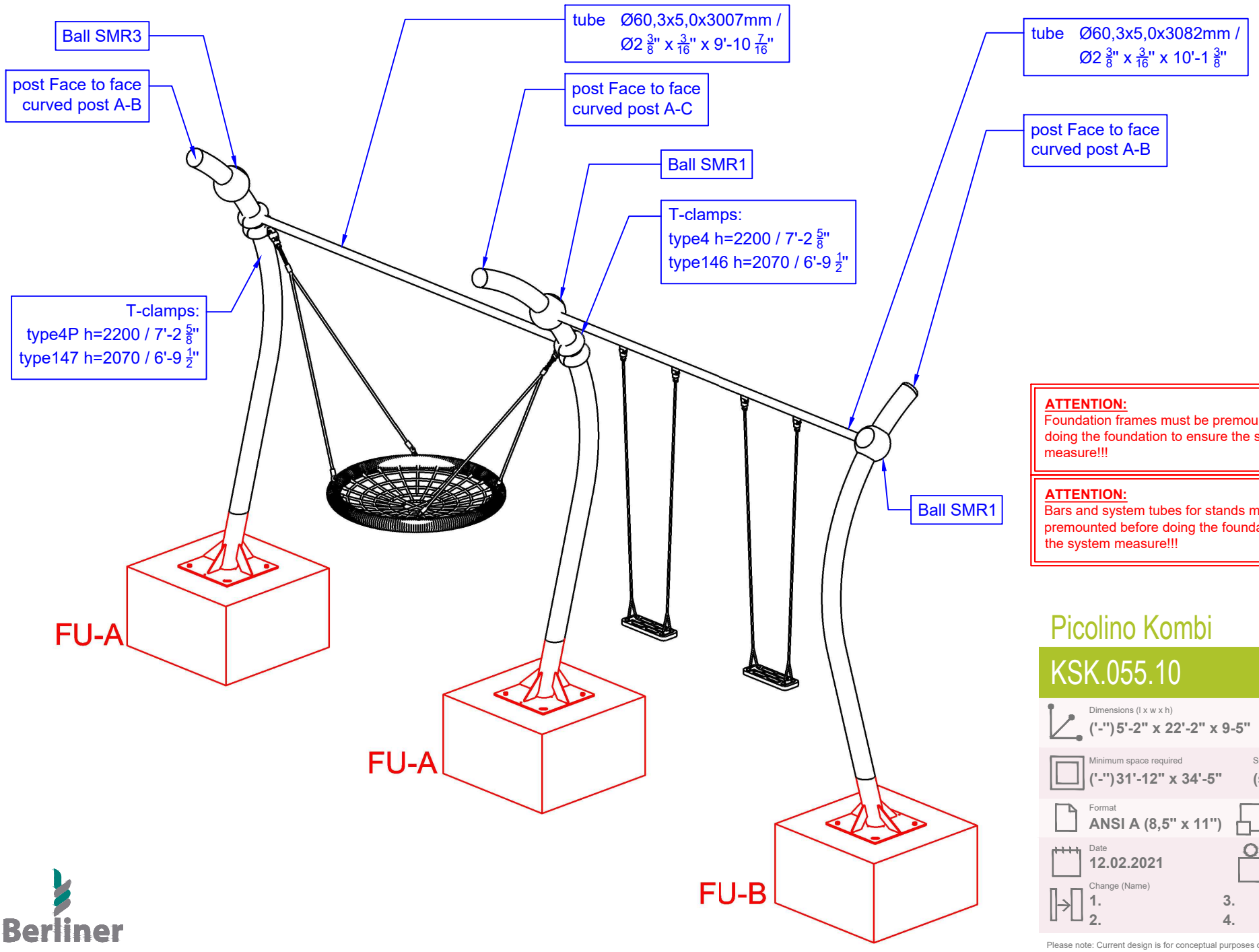
Scale
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Date
12.02.2021

Name
C.Bader

Change (Name)
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3.
4.

Please note: Current design is for conceptual purposes only and is subject to change.



ATTENTION:
Foundation frames must be premounted before doing the foundation to ensure the system measure!!!

ATTENTION:
Bars and system tubes for stands must be premounted before doing the foundation to ensure the system measure!!!

Picolino Kombi

KSK.055.10

Dimensions (l x w x h)
('-") 5'-2" x 22'-2" x 9-5"

Free height of fall
('-") 6'-2"

Minimum space required
('-") 31'-12" x 34'-5"

Surface
(sqft) 761,90

Format
ANSI A (8,5" x 11")

Scale
-

Date
12.02.2021

Name
C.Bader

Change (Name)
1.
2.
3.
4.

Please note: Current design is for conceptual purposes only and is subject to change.

Berliner

Product Specifications

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LOOPY WHOOP

Crown/Post/End Cap (35 ksi)
Shall be cast of high strength Almag 35 (535.0-F) aluminum alloy. Ultimate tensile strength shall be 35 ksi. Yield strength shall be 18 ksi. Each crown and post cap shall be fastened to the end of the tubing with drive rivets. Plastic post end caps and plastic rivets are unacceptable. Finished with a 420 micro finish and a baked on polyester powder coating. (See Superdurable Polyester Powder Coat Finish) ASTM Specifications: B-26. Federal Specifications: QQ-A-601.

Support Post - Loopy Whoop
Shall be an all welded assembly fabricated of 1.315 in. outside diameter, 14 gauge galvanized steel tubing, 2.375 in. outside diameter, 10 gauge galvanized steel tubing (See Tubing), #1018 hot rolled, cold drawn flat steel and 11 gauge hot rolled, pickled and oil flat steel. Finished with a baked on polyester powder coating. (See Superdurable Polyester Powder Coat Finish)

Loopy Whoop Weldment (New 3.5 od)
An all welded assembly shall be fabricated of 3.5 in. outside diameter, 13 gauge galvanized steel tubing; 1.315 in. outside diameter, 14 gauge galvanized steel tubing; 1.029 in. outside diameter, 14 gauge galvanized steel tubing. Finished with a baked on polyester powder coating. (See Superdurable Polyester Powder Coat Finish)

Bearing Unit - Loopy Whoop
Shall be fabricated of zinc plated 1018 cold rolled steel, .25 inch pickled and oiled flat steel, .5 inch hot rolled pickled and oiled flat steel, 1045 carbon steel, and a 55 mm outside diameter by a 35 mm inside diameter deep groove bearing. Finished with a baked on polyester powder coating. (See SuperDurable Polyester Powder Coat Finish)

Plastic Panel - .75 in.
Shall be fabricated from colored marine grade, .75 in. high density polyethylene and machined. Shall be ultraviolet (UV) stabilized. Meets FDA requirements. ASTM Specifications: D-1238 (Melt Index), D-1505 (Material Density), D-638 (Tensile Strength), D-648 (Heat Distortion Temperature) D-790 (Flexural Modulus), D-1693 and D-2561 (Environmental Stress Crack Resistance), D-2240 (Hardness), D-1822 (Tensile Impact) D-746 (Brittleness), D-1525 (Softening Point).

Plastic Panel - .5 in.
Shall be fabricated of .50 in. (12 mm) high density sheet polyethylene. Shall be ultraviolet (UV) stabilized. Meets FDA requirements. ASTM Specifications: D-1238 (Melt Index), D-1505 (Material Density), D-638 (Tensile Strength), D-648 (Heat Distortion Temperature) D-790 (Flexural Modulus), D-1693 and D-2561 (Environmental Stress Crack Resistance), D-2240 (Hardness), D-1822 (Tensile Impact), D-746 (Brittleness), D-1525 (Vicat Softening Point).

ZZUN7096

Component Number:	**ZZUN7096**
Specification Rev:	**NA**
Component Weight:	**99.15 Lbs.**
Number of Users:	**3**
Amount of Concrete:	**0.18 Yds.**
Pre-Consumer Recycle:	**25.67 Lbs.**
Post-Consumer Recycle:	**43.94 Lbs.**
CO2e Footprint:	**705.00 Kgs.**

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Stripping and stockpiling rock.
6. Removing above- and below-grade site improvements.
7. Disconnecting, capping or sealing, and removing site utilities abandoning site utilities in place.
8. Temporary erosion and sedimentation control.

1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated according to requirements in Section 015639 "Temporary Tree and Plant Protection." .

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

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1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1.5 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.

B. Topsoil stripping and stockpiling program.

1.7 QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of properly trained (i.e., 40-hour OSHA Hazwoper) personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles in accordance with the RIDEM-approved Remedial Action Work Plan and associated soil management provisions.

1.8 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify Dig Safe System One Call for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."

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E. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist. Apply dust control measures as needed to prevent nuisance dusts in accordance with the RIDEM-approved RAWP.

PART 2 - PRODUCTS

2.1 MATERIALS

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."

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B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Locate, identify, and disconnect utilities indicated to be abandoned in place.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner's Representative not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's representative written permission.

D. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Use only hand methods or air spade for grubbing within protection zones.
4. Chip removed tree branches and stockpile in areas approved by Architect dispose of off-site .

B. Fill depressions caused by clearing and grubbing operations with satisfactory certified clean (via lab testing and analyses) soil material in accordance with the RIDEM-approved RAWP unless further excavation or earthwork is indicated.

1. Place certified clean (via lab testing and analysis) fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

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B. Strip topsoil to depth indicated on Drawings in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches .
2. Do not stockpile topsoil within protection zones.
3. Dispose of surplus topsoil in accordance with the RIDEM-approved RAWP. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or re-interred on-Site beneath one of the RIDEM-approved capping methods.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property. All Site soil is known or presumed to be contaminated and must by managed/disposed in accordance with the RIDEM-approved RAWP.

END OF SECTION 311000

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SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade walks pavements turf and grasses .
3. Excavating and backfilling for buildings and structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete pavements.
6. Subbase course and base course for asphalt paving.

B. Related Requirements:

1. Section 329200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation. No backfill can be used as part of Cap for site work.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices .
2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by a geotechnical testing agency, according to ASTM D1586.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct preexcavation conference at Project site .

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
   a. Personnel and equipment needed to make progress and avoid delays.
   b. Coordination of Work with utility locator service.
   c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
   d. Extent of excavation by hand or with air spade.
   e. Field quality control.

1.5 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service "Dig Safe System" for area where Project is located before beginning earth-moving operations.

C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in 312500 - Erosion & Sedimentation Control are in place.

D. Do not commence earth-moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

E. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

F. Do not direct vehicle or equipment exhaust towards protection zones.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide certified clean soil materials when sufficient satisfactory soil materials are not available from excavations. Contractor must provide "certified clean" (via lab testing and analyses per the RIDEM approved RAWP) soils imported to the Site for use in building the Final Site Cap.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

B. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

2.2 GEOTEXTILES

A. Mirafi 140N Orange Subsurface Orange Delineation Nonwoven Geotextile (or approved equal) : manufactured for viusal barrier and soil separation, made from polyolefins or polyesters; with

elongation greater than 50 percent; ; complying with AASHTO M 288-06 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288-06.
2. Tensile Strength a) 2% strain lb./ft 445 b) 5% strain lb./ft 890 c) Ultimate lb./ft 1,400 d) Long-Term (Ta) lb./ft 395
3. Open Area, % >50, <80
4. Apparent Opening Size: 0.6 mm, maximum average roll.
5. Permittivity: 0.02 per second, minimum; ASTM D4491.
6. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

2.3 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXPLOSIVES

A. Explosives: Do not use explosives.

3.3 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil

materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 SUBGRADE INSPECTION

A. Notify Owner's Representative and Environmental Engineer when excavations have reached required subgrade.

B. If Owner's Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted certified clean fill material as directed.

C. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.6 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Owner's Representative.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Owner's Representative.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Removing trash and debris.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.9 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use certified clean (per lab sampling and analyses) soil material.
2. Under walks and pavements, use certified clean (per lab sampling and analyses) soil material.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.10 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

3.11 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place base course under pavements and walks as follows:

1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place base course material under hot-mix asphalt pavement.
3. Shape base course to required crown elevations and cross-slope grades.
4. Place base course 6 inches or less in compacted thickness in a single layer.
5. Place base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.

3.12 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

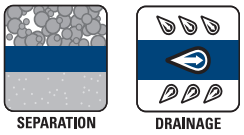
3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Architect.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

TENCATE Mirafi®



Mirafi® Orange Delineation Nonwoven Geotextile

for Visual Barrier, Soil Separation and Drainage



Mirafi® Orange Delineation Geotextiles

TenCate develops and produces materials that function to increase performance, reduce costs and deliver measurable results by working with our customers to provide advanced solutions.

The Difference Mirafi® Orange Nonwoven Geotextiles Make:

- Utility Alert. Mirafi® delineation geotextiles are a visual dig barrier designed to be placed above underground utilities.
- Contaminated Soils. Mirafi® delineation geotextiles separate contaminated soils from clean soils.
- Archeological Sites. Mirafi® delineation geotextiles assist in the long-term protection of historical sites.

APPLICATIONS

Mirafi® nonwoven geotextiles are used in a wide variety of applications in the environmental and general civil markets. These include separation, filtration and protection applications.

Mirafi® delineation geotextiles are is used in many critical subsurface systems. The use of this orange delineation fabric allows for safe excavations where utilities or other sensitive structures may be buried. The highly visible orange nonwoven geotextile serves as a warning to construction workers when the excavation reaches a buried structure.

Excavation near all utilities, (gas, electric, water, Cable TV and telephone) is always a sensitive operation. The use of Mirafi® delineation geotextile is a low cost-effective method of protection. In addition, lining trench's with a geotextile keeps the selected and costly backfill material separated from the native subgrade.

Construction in areas where contaminated soils exist poses risks when trenches or deep footings need to be excavated. These risks are minimized when the Mirafi® delineation geotextile is placed on the contaminated soils before the capping of these areas occurs. The geotextile limits particle movement between the clean new soil and the contaminated substrate. The Mirafi® delineation geotextile offers a visual barrier to future excavations of the contaminated hazard below.

Federal and State laws require that archeological sites must be protected from adverse impacts caused by engineering projects. Many archeological sites throughout the world are left in place to protect them. In some cases, after discovery, they are buried. Sites can be protected through burial below an engineered cover, if the engineering project does not require excavation. The installation of Mirafi® delineation geotextile before the new soil is placed will aide in the long term protection of these archeological sites.

* These guidelines serve as a general basis for installation. Detailed instructions are available from your TenCate representative.







TENCATE Mirafi®

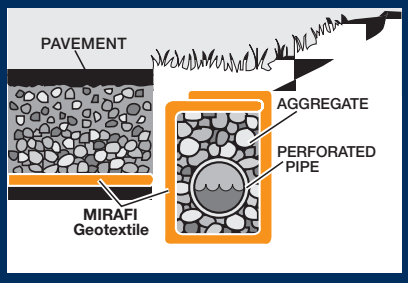
Mirafi® Orange Delineation Nonwoven Geotextiles

for Visual Barrier, Soil Separation and Drainage

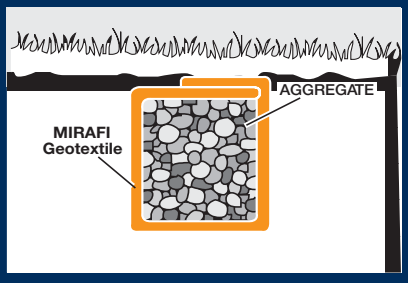
Property / Test Method	Units	140NLO	160NO	180NO
MECHANICAL PROPERTIES				
Grab Tensile Strength ASTM D4632				
Strength @ Ultimate	lbs (N)	100 (445)	175 (779)	240 (1068)
Elongation @ Ultimate	%	75	75	70
Trapezoidal Tear Strength	lbs	50	85	90
ASTM D4533	(N)	(223)	(378)	(400)
CBR Puncture Strength	lbs	310	480	630
ASTM D6241	(N)	(1380)	(2136)	(2802)
UV Resistance (500 hrs.)	% strength	70	80	80
ASTM D4355	retained			
HYDRAULIC PROPERTIES				
Permittivity ASTM D4491	sec^{-1}	2.4	1.5	1.5
Flow Rate ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	175 (7130)	105 (4278)	95 (3870)
Packaging				
Roll Width	ft (m)	15.0 (4.5)	15.0 (4.5)	15.0 (4.5)
Roll Length	ft (m)	360 (110)	300 (91)	300 (91)
Est. Gross Weight	lbs (kg)	157 (71)	220 (100)	271 (122)
Area	yd^2 (m^2)	600 (502)	500 (418)	500 (418)

*NOTE: Mechanical Properties and Hydraulic Properties shown are Typical Value.
Apparent Opening Size (AOS) properties shown are Maximum Average Roll Values.
(Values and methods could change without notice)

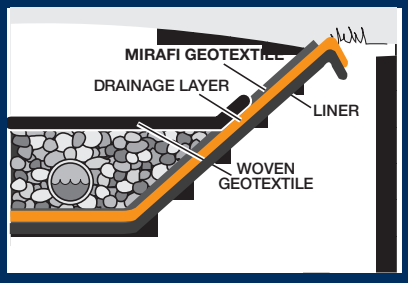
Mirafi® Orange Delineation Geotextiles



Cut-off/Inceptor Drain Along a Roadway Or Another Critical Struction



French Drain Without Pipe



Liner Protection Within a Landfill

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TENCATE materials that make a difference

SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish all labor, materials, equipment and incidentals required and perform all installation, maintenance, removal and area cleanup related to erosion and sedimentation control work required to meet Federal, State, and local permit requirements and as shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to; installation of temporary access ways and staging areas, compost filter socks, catch basin sediment filters (silt sack), sediment removal and disposal, device maintenance, removal of temporary devices, and final cleanup.

B. Related Sections:

1. Section 329119 - Landscape Grading.

1.2 REFERENCES

A. EPA document titled: "Stormwater Management for Construction Activities — Developing Pollution Prevention Plans and Best Management Practices" document number EPA 832-R-92¬005, dated 1992, or most recent edition. State, County Conservation Districts or local Conservation Commission standards can be substituted for the EPA standard if the State, County or Local Conservation Commission standards is equal to, or more detailed than, the EPA standard.

B. State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, Current Edition with latest addenda.

1.3 SUBMITTALS

A. Submit, in accordance with Division 01 10 00 – General Requirements: Submittal Procedures ten (10) days after award of Contract, technical product literature for all commercial products to be used for erosion and sedimentation control.

B. If a NPDES General Permit is required, Contractor shall, prior to the start of construction:

C. Prepare and submit the EPA NPDES Notice of Intent to Discharge to the applicable EPA office in accordance with EPA regulations. Submit one copy of the permit to Owner’s Representative for informational purposes only.

1.4 QUALITY ASSURANCE

A. Be responsible for the timely installation and maintenance of all erosion and sedimentation control devices necessary to prevent the movement of sediment from the construction site to off-site areas or into the stream system via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of the Contractor. No additional charges to the Owner will be considered.

B. Where Contractor's efforts to control erosion and sediment have been demonstrated to be ineffective or potentially ineffective in the opinion of the Owner's Representative, the Owner's Representative may order that additional measures be implemented and constructed at no additional cost to the Owner.

C. Perform Work according to Municipality of Public Works standards.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Catch Basin sediment control devises shall be sediment capture devices specifically designed for this purpose such as "Silt Sack" by Geo-Synthetics, LLC or approved equal.

B. When work is performed outside of normal seeding window straw mulch shall be utilized on all newly graded areas to protect areas against washouts and erosion. Straw mulch shall be comprised of threshed straw of oats, wheat, barley, or rye that is free from noxious weeds, mold or other objectionable material. The straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer. Straw shall be in an air-dry condition and suitable for placement with blower equipment.

C. If newly seeded areas contain slopes greater than 3:1 install Jute Mesh/Netting for erosion control. Jute Mesh should conform to following specifications:

1. Open Area: 70 - 75%
2. Mesh size: 11mm x 18mm
3. Water Absorption: >450% of fabric weight
4. Thickness: 0.25 inch (6 mm)
5. Recommended shear stress: 0.45 lbs./sq.ft. (22 N/sq.m)
6. Recommended flow capacity: 6 fps (1.8 m/s)

D. Compost Filter Sock

E. Machine produced.

1. Straw filled tubes of compacted straw of rice, wheat or barley.
2. Compost filter sock to be certified as weed free.
3. Netting for tubes to be seamless, high density polyethylene with ultra violet inhibitors.
4. Roll length to be 10.0 feet to 25.0 feet.

5. Weight per linear foot, 12-inch: 2.5 lbs. minimum 9-inch: 1.5 lbs. minimum
6. Stakes shall be wooden, 1 1/8-inch x 1 1/8-inch x 2.5 feet long, with lower ends tapered to facilitate driving into compacted soil. Rebar may be substituted for wooden stakes

PART 3 - EXECUTION

3.1 INSTALLATION

A. Catch basin sediment control devices shall be installed according to manufacturer's recommendations and as directed by the Owner's Representative.

B. Staging areas and stabilized construction entrance shall be surfaced with a minimum depth of 6 inches of crushed stone (if so directed by the Owner's Representative). Stabilized construction entrances shall be installed as shown on the Plans.

3.2 MAINTENANCE AND INSPECTION

A. Inspections

B. Make a visual inspection of all erosion and sedimentation control devices once per week and promptly after every rainstorm. If such inspection reveals that additional measures are needed to prevent movement of sediment to offsite areas, promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

C. Sediment Filters

1. Catch basin sediment control devices shall be cleaned of sediment in a manner as recommended by the manufacturer and as directed by the Owner's Representative. Remove sediment from filter bag when saturated with sediment as directed by the Owner's Representative.

3.3 REMOVAL AND FINAL CLEANUP

A. Once the site has been permanently stabilized against erosion, remove all sediment control devices and sediment. Dispose sediment and all waste materials in a proper manner.

B. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.

C. Do not damage structure or device during cleaning operations.

D. Clean channels when depth of sediment reaches approximately one half channel depth.

E. Clean channels when depth of sediment reaches approximately one half channel depth.

END OF SECTION 312500

PART 400

BITUMINOUS PAVEMENTS

SECTION 401

DENSE GRADED HOT MIX ASPHALT (HMA) PAVEMENTS

401.01 DESCRIPTION. This work consists of constructing HMA pavements on prepared foundations in conformity with the dimensions and details indicated on the Plans, and in accordance with these Specifications. These Specifications are applicable to all types of Dense Graded HMA pavements irrespective of aggregate gradation, grade of performance graded asphalt binder (PGAB), or pavement use.

The HMA shall be composed of a mixture of aggregate, PGAB, and filler if required. The aggregate shall be sized, graded and combined in such proportions that the resulting mixture meets the gradation requirements of the job mix formula (JMF).

401.02 MATERIALS.

401.02.1 Aggregates. Aggregates shall meet the applicable requirements of **Subsection M.03.02.2** of these Specifications and AASHTO M 323.

401.02.2 Performance Graded Asphalt Binder (PGAB). All grades shall conform to AASHTO M 320 and R 29. The PGAB shall meet the requirements of PG 64S-28 with the exception of both Class 19.0 and mixes designated as “Base Course” which shall incorporate PG 64S-22 for mixes with less than 15% RAP. Both Class 19.0 and “Base Course” mixes with 15 to 25 percent RAP shall incorporate PG 58S-28.

Should a class of HMA be designated as “Modified”, the binder shall meet the requirements of PG 64E-28 and shall incorporate at least 2.0% SBS polymer. The nonrecoverable creep compliance versus percent recovery of the binder shall be plotted and must fall above the curve in Figure X1.1 in Appendix X1 of AASHTO M 332.

Should a class of HMA be designated as “with WMA” the Contractor shall use a WMA (Warm Mix Additive). WMA shall conform to Section 414 of these specifications.

Re-refined engine oil bottoms (REOB) shall not be used in any PGAB.

401.02.3 Mix Design. HMA mixes shall conform to AASHTO M 323, "Standard Specification for Superpave Volumetric Mix Design". The design procedure shall follow AASHTO R 35 "Standard Practice for Superpave Volumetric Design for Hot-Mix Asphalt (HMA)". The optimum binder content (OBC) shall be determined as follows:

a. The OBC for Class 4.75, Class 9.5, and Class 12.5 when not designated as “Base Course” shall be determined using PG 64S-28.

b. The OBC for Class 4.75, Class 9.5, and Class 12.5 when designated as “Base Course”

with less than 15 percent RAP shall be determined using PG 64S-22.

c. The OBC for Class 4.75, Class 9.5, and Class 12.5 when designated as "Base Course" with 15 to 25 percent RAP shall be determined using PG 58S-28.

d. The OBC for Class 19.0 with less than 15 percent RAP shall be determined using PG 64S-22.

e. The OBC for Class 19.0 with 15 to 25 percent RAP shall be determined using PG 58S-28.

The effective voids in the mineral aggregate ($VMA_{effective}$) and a volumetric phase diagram shall be submitted for each asphalt content during the mix design process. Mix designs shall be developed and signed by an individual certified in "Superpave HMA Mix Design" by the Asphalt Institute. Mix Designs shall be submitted no later than two weeks prior to the date when production of the mixture is scheduled to begin and shall be accompanied by a copy of that individual's certification. No mixture may be produced for State projects until the mix design is approved by the Engineer. Mix designs shall be submitted on forms provided by the Engineer.

The following specific requirements and exceptions to AASHTO M 323 shall apply.

a. The specific gravity, absorption and consensus properties of the aggregates shall be obtained from RIDOT's most recent sampling and testing or from a laboratory accredited to perform AASHTO T 84 and T 85.

b. The implementation of the recommendations of Section 4.2 of AASHTO R 35 is required.

c. The mix shall be coarse graded as defined in Section 6.1.3 of AASHTO M 323.

d. The dust to binder ratio ($P_{0.075}/P_{be}$) shall be 0.5 – 1.0. The effective binder content shall be used to calculate this ratio.

e. In addition to the sieves listed in Table 3 of AASHTO M 323, the 0.600 mm, 0.300 mm and 0.150 mm sieves are required. The 50.0 mm and 37.5 mm sieves are not required.

f. Class 19.0 and mixes designated as "Base Course" shall be designed with a 0%, 10%, 15%, 20% or 25% RAP content. RAP shall not be used in any other mix.

g. $N_{initial}$ shall be 6, N_{design} shall be 50 and N_{max} shall be 75 gyrations.

h. A moisture susceptibility test is not required.

i. The design VMA, VFA, air voids and minimum optimum binder content (OBC) shall meet the following criteria:

Table 1 – HMA Properties

Class of Mix	VMA (minimum)	VFA	Air Voids	Minimum OBC
4.75	17.5%	70% - 80%	4%	7.0
9.5	16.5%	70% - 80%	4%	6.0
12.5	15.5%	70% - 80%	4%	5.5
19.0	14.5%	70% - 80%	4%	5.0

The following procedures shall be adhered to for each mix design:

- Three aggregate trial blends shall be submitted for acceptance before beginning the mix design procedure.

The procedures for mix design submittals shall include:

- All trial mixture data and calculations determined per Section 9 of AASHTO R 35 shall be submitted on forms provided by the Engineer. The Engineer will determine which trial mixture shall be used for the mix design procedure.

- After the mix design is completed it shall be submitted to the Engineer for review and approval.

- The correction factors for each mix for each ignition furnace in the plant lab shall be provided.

The two gyratory cores (AASHTO T 308) and the theoretical maximum specific gravity sample (AASHTO T 209) at the optimum binder content shall be submitted to the Engineer.

Before beginning production of a new HMA mix, a successful plant trial batch shall be performed for that mix and the results forwarded on forms provided by the Engineer.

Should a change in sources of materials be made, a new mix design shall be established before the new material is used. When unsatisfactory results or other conditions make it necessary, the Contractor shall establish a new mix design and submit it to the Engineer for approval.

401.02.4 Quality Assurance.

a. Process Control. The Contractor shall exercise process control over all production operations. This shall require the constant monitoring of equipment, materials, and production activity such as testing and analysis to ensure that the HMA meets all applicable requirements and is produced within the allowable tolerances.

b. Acceptance Testing. Acceptance testing will be conducted by the Engineer.

1. Gradation, Binder Content and Air Void Content

The gradation requirements in Table 2 apply to mixes with and without pay adjustments:

Table 2 – Gradation Requirements

	Class 19.0	**Class 12.5**	**Class 9.5**	**Class 4.75**
25.0mm (1”)	100%	100%	100%	100%
19.0mm (3/4”)	90% - 100%	100%	100%	100%
12.5mm (1/2”)	90% max	90% - 100%	100%	100%
9.5mm (3/8”)	-	90% max	90% - 100%	95% - 100%
4.75mm (#4)	-	-	90% max	85% - 100%
2.36mm (#8)	± 5% from design	± 5% from design	± 5% from design	-
1.18mm (#16)	-	-	-	±5% from design
0.075mm (#200)	≥2%	≥2%	≥2%	≥2%
Control Sieve	2.36mm (#8)	2.36mm (#8)	2.36mm (#8)	1.18mm (#16)

During production of a specific mix, if two consecutive tests do not meet the gradation requirements of Table 2 or one test exceeds double the tolerance on the control sieve, the plant

shall cease production of that HMA mix. Production will be allowed to resume after the Contractor completes a successful trial batch for that class of mix, as approved by the Engineer.

The plant shutdown criteria in Table 3 shall apply for binder content and air voids that exceed the following tolerances:

Table 3 – Plant Shutdown Criteria

Pay Adjustments	Shutdown Criteria	One Test	Two Consecutive Tests
With Pay Adjustments	Optimum Binder Content	±0.6%	-
	Design Air Voids	±2.0%	-
Without Pay Adjustments	Optimum Binder Content	±0.6%	±0.4%
	Design Air Voids	±2.0%	±1.0%

Production will be allowed to resume after the Contractor completes a successful trial batch for that class of mix, as approved by the Engineer.

2. Mix Production – Lots and Sublots.

A standard sublot is 600 tons for HMA sampled at the plant for each production run. A standard lot for each mix is ten sublots. A sample will be randomly selected and tested for each sublot. At least five sublots will be used when calculating pay adjustments.

If the quantity of HMA needed to finish a production run is projected by the Contractor to be less than the standard sublot size of 600 tons, the projected tonnage may be used to select a random sample. If the projected tonnage is not produced or a random sample is unable to be taken, the Engineer may select a sample at the end of the run or at the paver. If no sample is taken, the tonnage will be added to the previous sublot.

Additional samples may be taken at the discretion of the Engineer.

Gyratory cores and theoretical maximum density samples will be retained by the Engineer for two weeks after the results are reported to the Contractor.

(a) Adjustments to Lots.

If less than five sublots are tested after the end of the final standard lot, they will be added to that lot. Five or more sublots tested after the end of the final standard lot will constitute a separate lot.

(b) Plant Pay Adjustments.

(c) If a class of HMA is designated with “Pay Adjustments”, the pay adjustments for deviation from the optimum binder content (established by the mix design) in Table 4 and the design air void content in Table 5 will apply:

Table 4 – OBC Pay Adjustments

Deviation from Optimum Binder Content	Pay Adjustment
Less than or equal to 0.1 %	+2%
0.2%	+1%
0.3%	0%
0.4%	-5%
0.5%	-15%
0.6%	-30%
0.7%	-40%
Greater than 0.7 %	-50% or Remove and Replace*

Table 5 – Air Void Pay Adjustments

Deviation from Design Air Void Content	Pay Adjustment
Less than or equal to 0.5%	+1%
0.6% to 1.0%	0%
1.1% to 1.5%	-5%
1.6% to 2.0%	-10%
2.1% to 2.5%	-30%
2.6% to 3.0%	-40%
Greater than 3.0%	-50% or Remove and Replace*

* The decision to make 50% payment or Remove and Replace will be made by the Engineer

Note: All deviation values will be rounded to the nearest 0.1% before applying pay adjustments.

(b) Calculation of Pay Adjustments for Production Binder and Air Void Content.

For each test, absolute deviations will be used when determining binder and air void content pay adjustments. Absolute deviations are the values of deviation regardless of sign (±).

The average of the absolute deviations from the optimum binder content of all of the sublots in each lot will be used to determine the appropriate pay adjustments for the lots. The same will apply for air void content. No payment will be made for any pavement that is removed.

All other tolerances shall conform to the RI Standard Specifications.

c. Independent Assurance Testing. This testing will be performed by the Department in accordance with the Rhode Island Department of Transportation publication entitled "Schedule for Sampling, Testing and Certification of Materials."

401.03 CONSTRUCTION METHODS.

401.03.1 HMA Mixing Plant. Mixing plants shall be of sufficient capacity and coordinated to adequately handle the proposed production of HMA. The storage yard shall be maintained neat and orderly and the separate stockpiles shall be readily accessible for sampling.

a. Requirements for All Plants.

1. Equipment for Preparation of PGAB. Tanks provided for the storage of PGAB shall be equipped to heat and hold the material at the required temperatures. The heating shall be accomplished by steam coils, electricity, or other approved means such that no flame shall be in contact with the tank. The circulating system for the PGAB shall be designed to assure proper and continuous circulation during the operating period. Provision shall be made for measuring storage tanks. An adequate sampling valve shall be provided to ensure the safe and proper sampling of the PGAB.

2. Cold Feed Bins. The plant shall include no fewer than three (3) storage bins of sufficient capacity to supply the mixer when it is operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates without contaminations. They shall also be so constructed that samples can be readily obtained. Separate dry storage shall be provided for filler or hydrated lime when used and the plant shall be equipped to feed such material into the mixer.

3. Cold Aggregate Feeder. The plant shall be provided with accurate mechanical means for uniformly feeding the aggregate into the drier so that uniform production and temperature will be obtained.

4. Drier. The plant shall include a drier or driers which continuously agitate the aggregate during the heating and drying process.

5. PGAB Control Unit. Satisfactory means, either by weighing or metering, shall be provided to obtain the proper amount of PGAB in the mix within the tolerance specified. Means shall be provided for checking the quantity or rate of flow of PGAB into the mixer.

6. Thermometric Equipment. An armored thermometer of adequate range in temperature reading shall be fixed in the PGAB feed line at a suitable location near the charging valve at the mixer unit.

The plant shall also be equipped with either an approved dial-scale, mercury-actuated thermometer, an electric pyrometer, or other approved thermometric instrument so placed at the discharge chute of the drier as to register automatically the temperature of the exiting material.

The Engineer may require replacement of any malfunctioning or inconsistent thermometer by an approved temperature sensing and recording apparatus for better regulation of the temperature of the material.

7. Dust Collector. The plant shall be equipped with a dust collector constructed to waste or return uniformly all or any part of the material collected as directed.

8. Truck Scales. When required, the HMA shall be weighed on approved scales furnished by the Contractor or on public scales at the Contractor's expense. Such scales shall be tested at least every 60 days or whenever the Engineer deems necessary to assure their accuracy.

9. Scales. Scales shall be so located as to be easily readable from the operator's normal work station; otherwise a remote readout shall be supplied.

All plant scales, including truck scales, shall be certified at the expense of the Contractor by a competent and experienced scales technician as follows:

(a) Annually prior to use in State work.

(b) At intervals of not more than 60 calendar days.

(c) At any time ordered by the Engineer.

10. Safety Requirements. Adequate and safe access to sampling points shall be provided. Guarded ladders to other plant units shall be placed at all points where accessibility to plant operations is required. Accessibility to the top of truck bodies shall be provided by a platform or other suitable device, placed in an acceptable location near the testing laboratory, to enable the Engineer to obtain samples and mixture temperature data. All gears, pulleys, chains, sprockets, and other dangerous moving parts shall be thoroughly guarded and protected. A clear, clean and unobstructed passage shall be maintained at all times in and around the truck loading area.

11. HMA Holding Bin. HMA may be stored in surge and storage systems designed for that purpose. Each surge and storage system must meet the requirements of AASHTO M156, unless otherwise permitted by the Engineer, and may be inspected by the Department to determine acceptance at specific holding times.

Acceptance shall be based upon the ability of the holding bin to hold and discharge mixtures within the quality criteria specified by the mix design and these Specifications.

b. Requirements for Batching Plants.

1. Automatic Proportioning. The plant shall be equipped with automatic proportioning devices. Such devices shall include equipment for accurately proportioning the various components of the mixture by weight in the proper sequence. PGAB and aggregates shall be proportioned by weight. Additives, if required, may be proportioned by volume or weight. The plant shall be equipped to automatically control the sequence and timing of mixing operations. There shall be auxiliary interlock cutoff circuits to interrupt and stop the automatic cycling of the batching operations at any time an error in weighing occurs, when an aggregate bin becomes empty, or when there is a malfunction of any portion of the control system.

2. Recording Equipment. The plant shall be equipped with a digital recorder which will automatically print the following data on delivery tickets:

(a) Batch weights of each size aggregate. Weights printed may be individual or cumulative.

(b) Total weight of aggregates in batch. The weight printed for the last aggregate batched shall be the total weight of aggregates in the batch when cumulative weights are used.

(c) Weight of PGAB in batch.

(d) Weight of total batch.

(e) Total weight of batches in truck.

(f) Total weight of PGAB in all batches in truck.

(g) Date mixed.

(h) The time each batch or load began or the time each was completed.

When silos are utilized, the requirements for delivery tickets shall conform to **Para. c; Requirements for Drum Dryer Mixing Plants**, of this Subsection. In addition, automated batch plant printout tickets generated in accordance with **Para. b** of this Subsection shall be given to the plant inspector and maintained on file.

There shall be sufficient copies of delivery tickets to provide a copy for the plant inspector and a copy for the Resident Engineer for permanent project record. The following information shall also be included on delivery slips:

(i) Name of customer.

(j) Name of project and contract number.

(k) Name of driver and truck number.

(l) Class of HMA.

(m) Additives.

3. Equipment Failure. If at any time the automatic proportioning or recording devices become inoperable, the plant may be allowed to batch and mix HMA for a period of not more than 48 hours from the time of the breakdown, if approved by the Engineer. Written permission of the Engineer will be required for periods of operation without automatic proportioning facilities longer than 48 hours.

4. Screens. Plant screens, capable of screening all aggregates to the specified sizes and proportions and having normal capacities in excess of the full capacity of the mixer, shall be provided.

5. Hot Aggregate Bins. Hot bin storage of sufficient capacity to ensure uniform and continuous operation shall be provided. The bins shall be arranged to ensure separate and adequate storage of appropriate fractions of the aggregate. Each bin shall be provided with overflow pipes, of such size and at such locations as to prevent backing up of material into other compartments or bins. Each bin shall be provided with its individual outlet gate, constructed so that when closed there shall be no leakage. The gates shall cut off quickly and completely. Bins shall be equipped with adequate tell-tale devices to indicate the position of the aggregates in the bins at the lower quarter points. Adequate and convenient facilities shall be provided for obtaining aggregate samples from each hot bin.

6. Aggregate Scales. Scales for any weigh box or hopper shall be of the springless dial type, having a full complement of index pointers and shall be of a standard make and design. They shall be accurate to 0.50 percent, have minimum graduations not greater than 0.50 percent and

shall be readable and sensitive to 0.25 percent or less. The preceding percentages are based on total batch weight.

7. Batching Controls. Batching controls shall be electrically interlocked with the scales to prevent cycling or recycling of batching until scales tare zero.

The batching controls shall meet the following tolerances with respect to the various components weighed in each batch:

Combined Aggregate Components:	±1.5 percent of total batch weight
PGAB:	±0.1 percent of total batch weight

The total weight of the batch shall not vary more than plus or minus 2 percent from the theoretical design weight.

8. Time Locking Device. The mixer shall have an accurate time locking device to control the operation of a complete mixing cycle by locking the weigh box gate, after charging the mixer, until the closing of the mixer discharge gate at the completion of the cycle. It shall lock the PGAB feed throughout the dry mixing period and shall lock the mixer discharge gate throughout the dry and wet mixing periods. The dry mixing period is defined as the interval of time between the opening of the weigh box gate and the commencement of application of the PGAB. The wet mixing period is the interval of time between the commencement of application of the PGAB and the opening of the mixer discharge gate.

The control of the timing shall be flexible and capable of being set at intervals of not more than five seconds throughout the cycles up to three minutes. Changes in mixing time shall be made only when ordered by the Engineer.

9. Weigh Box or Hopper. The equipment shall include a means for accurately weighing each size of aggregate in a weigh box or hopper suspended on scales and of ample size to hold a full batch without hand raking or running over. The gate shall close tightly so that no material is allowed to leak into the mixer while a batch is being weighed.

10. PGAB Control. The equipment used to measure the PGAB shall be accurate to plus or minus 0.5 percent. The PGAB bucket shall be a non-tilting type with a loose sheet metal cover. The length of the discharge opening trough, bucket or spray bar shall be not less than three-fourths the length of the mixer and it shall discharge directly into the mixer. The PGAB bucket, its discharge valve or valves and spray bar shall be adequately heated. Steam jackets, if used, shall be efficiently drained and all connections shall be so constructed that they will not interfere with the efficient operation of the PGAB scales. The capacity of the PGAB bucket shall be at least 15 percent in excess of the weight of PGAB required in any batch. The plant shall have an adequately heated quick-acting, non-drip, charging valve located directly over the PGAB bucket.

The indicator dial shall have a capacity of at least 15 percent in excess of the quantity of PGAB used in a batch. The controls shall be constructed so that they may be locked at any dial setting and will automatically reset to that reading after the addition of PGAB to each batch. The dial shall be in full view of the mixer operator. The flow of PGAB shall be automatically controlled so that it will begin when the dry mixing period is over. All of the PGAB required for one batch shall

be discharged in not more than 15 seconds after the flow has started. The size and spacing of the spray bar openings, trough or PGAB bucket shall provide a uniform application of PGAB the full length of the mixer. The section of the PGAB line between the charging valve and the spray bar shall be provided with a valve and outlet for checking the meter when a metering device is substituted for a PGAB bucket.

11. Mixer. The batch mixer shall be capable of producing a uniform mixture within the job mix tolerances. If not enclosed, the mixer box shall be equipped with a dust hood to prevent loss of dust.

The clearance of blades from all fixed and moving parts shall not exceed one inch unless the maximum diameter of the aggregate in the mix exceeds 1¼-inches, in which case the clearance shall not exceed 1½-inches.

12. Access to the mixer platform shall be by adequate and safe stairways. A hoist or pulley system shall be provided to raise scale calibration equipment, sampling equipment, and other similar equipment from the ground to the mixer platform and return. There shall be adequate and unobstructed space on the mixer platform.

c. Requirements for Drum Dryer Mixing Plants.

1. Proportioning. Aggregates and PGAB shall be proportioned by dry weight of the aggregate. Additives, if required, may be proportioned by volume or weight. The cold aggregate feeder shall be synchronized with the PGAB delivery system. Satisfactory means shall be provided to ensure positive interlocking control between each cold bin, the cold aggregate feeder, and the PGAB delivery system. This interlocking control shall be such that production is interrupted if one or more cold bins becomes empty, or the flow of either aggregate or PGAB is obstructed.

2. Recording Equipment. The plant shall be equipped with a digital recording device approved by the Engineer by which the proportion of aggregate supplied by each cold bin, the flow rates by weight of dry aggregate and of PGAB, and the cumulative weights of dry aggregate and of PGAB incorporated in the mix are automatically printed. These printed records, showing the date and time of printing, shall be provided to the Engineer at the start and at the end of each production period and at any other times or intervals of time as requested.

The plant shall also have a computerized scale system consisting of a weight batcher and/or a truck scale. Delivery tickets shall be printed on an automatic digital recorder which will print the following information on delivery tickets:

(a) Date loaded.

(b) Net weight of mixture in truck. When a truck scale is used the net weight of the mixture shall be automatically calculated by weighing the truck both empty and full.

(c) Time of each load.

There shall be sufficient copies of delivery tickets to provide a copy for the plant inspector and a copy for the Resident Engineer for permanent project record. The following information shall also be included on delivery slips:

(i) Name of customer.

(ii) Name of project and contract number.

(iii) Truck identification and name of driver.

(iv) Class of HMA.

(v) Additives.

3. Equipment Failure. If at any time the automatic recording device or the computerized scale system become inoperable, the plant may be allowed to produce HMA for a period of not more than 48 hours from the time of the breakdown, if approved by the Engineer. Approval will not be granted unless a satisfactory arrangement is made by the Contractor to weigh the mix. Written permission of the Engineer will be required for periods of operation longer than 48 hours during which any required automatic system is not functioning properly.

4. Aggregate Storage. Sufficient storage space shall be provided for each stockpile of various sized aggregates which shall be kept separated until they have been introduced into the cold bins that feed the drier. A minimum of four cold feed bins shall be required.

5. Cold Feed System. The plant shall have a device at each cold bin to feed the aggregate accurately and uniformly. No gravity type feeders will be permitted. Each adjustment opening shall be provided with indicators graduated to allow proportioning. Each cold bin gate shall be interlocked in such a manner that production is interrupted if one or more cold bins becomes empty or the flow is obstructed.

A mineral filler bin, when required, shall be added to the standard plant cold feed bins, and shall feed the mineral filler at adjustable rates accurately and uniformly. The feeder shall be interlocked so that production is interrupted if the bin becomes empty or the flow is obstructed.

The weighing equipment for all aggregates including mineral filler shall consist of a continuous weighing device either as it is proportioned by the individual feeders or after all materials have been deposited on a common belt. Belt scales shall meet the requirements of N.B.S. Handbook 44 and shall be installed according to the scale manufacturer's recommendations.

The plant shall have an adjustable feed rate control for each aggregate cold bin feeder and mineral filler feeder. The plant shall proportion the total aggregate quantity to the drum mixer with such accuracy and uniformity that the variation of material per interval of time shall not exceed an amount equal to 1.5 percent of the total weight of HMA per interval of time.

An automatic aggregate sampling device shall be provided which will divert a representative combined aggregate sample, including mineral filler, into a hopper or container for the purpose of gradation testing. The container shall cut the full width and depth of the aggregate flow. The sampling point shall be after the aggregate is proportioned and prior to its mixing with PGAB.

6. PGAB Control Unit. The PGAB shall be proportioned by a meter accurate to 0.1 percent. A flow switch designed to interrupt production if the PGAB flow is discontinued shall be

installed in the delivery line between the meter and the mixer.

The PGAB delivery system shall be coupled with the aggregate delivery system to automatically maintain the required proportions as the aggregate flow varies. The delivery tolerance for PGAB shall be ±0.2 percent of the total mixture weight.

7. Plant Calibration. The cold feed and PGAB delivery systems shall be calibrated to ensure that the plant is operating within the allowable tolerances. A procedure acceptable to the Engineer and in accordance with the manufacturer's recommendations shall be followed. These calibrations shall be performed prior to the start of each paving season, and at any other time as directed by the Engineer.

8. Mixer Unit. The plant shall include a continuous mixer unit having an automatic burner control and capable of producing a uniform mixture within the job mix tolerances. The mixture shall be discharged into a HMA holding bin meeting the requirements of **Para. a.11** of this Subsection.

The moisture content of the mixture upon discharge from the mixer shall not exceed 1.5 percent by weight.

401.03.2 Hauling Equipment. Trucks or other equipment used for hauling HMA shall have tight, clean, smooth metal beds which have been thinly coated with an approved release agent. No diesel fuel or other material is to be applied to any portion of the vehicle that comes into contact with the HMA. Any hauling equipment not complying with these Specifications will be immediately rejected along with its load of HMA. Each truck shall have a cover of canvas or other suitable material of such size as to protect the mixture from the weather. Truck beds shall be securely covered and, if necessary, insulated to ensure delivery of the mixture at the specified temperature. Cleaning of equipment, vehicles, and truck beds in areas to be paved is prohibited. Any HMA placed in areas where cleaning takes place is subject to rejection by the Engineer.

a. Material Transfer Vehicle (MTV). A material transfer vehicle (MTV) is required for the construction of all HMA friction, surface, intermediate and base courses on all limited access highways. When friction course is used, both the friction course and the underlying layer must be placed using an MTV.

The MTV shall independently deliver HMA from the hauling equipment to the paving equipment. A paving hopper insert with a minimum capacity of 14 tons shall be installed in the hopper of conventional paving equipment when a MTV is used.

As a minimum, the MTV shall have a high capacity truck unloading system which will receive HMA from the hauling equipment; a storage system in the MTV with a minimum capacity of 15 tons of HMA, and a discharge conveyor with the ability to swivel to either side to deliver the mixture to the paver while allowing the MTV to operate from an adjacent lane. In addition, the paving operation must contain a remixing system to blend the mixture prior to placement. The speed of the paver and MTV shall be adjusted to coordinate with the availability of HMA. Failure to keep the MTV supplied with HMA may be cause to cease paving operations for that operation. However, more than 2 stoppages shall result in paving being ceased for that operation.

When an MTV is to be used on a project, the Contractor shall further investigate the possible movement of the fully or partially loaded MTV on the project. If there are any structures on the project that the fully or partially loaded MTV will traverse, the Contractor shall request an Overweight Permit Check from the Department. Such a request shall be made in writing, and shall include the axle configuration, weights, and the project limits. Operations shall not begin until this

permission is received from the Department and one copy forwarded to the Engineer.

The following is a statewide list of limited access highways (included are travel lanes, auxiliary lanes, climbing lanes, acceleration and deceleration lanes, ramps, collector/distributor roads, service roads, and shoulders greater than 8 feet):

I-95	Connecticut State Line to Massachusetts State Line
I-195	I-95 to Massachusetts State Line
I-295	I-95 to Massachusetts State Line
US Route 1	Prosser Trail to Wakefield Cut-Off
RI Route 4	Route 1 to I-95
US Route 6	Route 102 to Route 101; Route 10 to I-295
RI Route 10	Park Avenue to Route 6
US Route 6/RI Route 10	Magnolia Street Bridge to I-95
RI Route 24	Route 114 to Massachusetts State Line
RI Route 37	Natick Avenue to Post Road
RI Route 78	Route 1 to Connecticut State Line
RI Route 99	Route 146 to Mendon Road
East Shore Expressway	I-195 to Wampanoag Trail
RI Route 114	East Shore Expressway to Forbes Street
RI Route 138	Route 1 to Admiral Kalbfus Road
RI Route 146	I-95 to Reservoir Road
RI Route 146	Route 146A to Massachusetts State Line
RI Route 403	Route 4 to Quonset Point
Airport Connector	I-95 to Post Road
Henderson Bridge	Waterman Street/So. Angell Street to Broadway Access Roadway

401.03.3 Pavers. Unless otherwise shown on the Plans, mixtures shall be spread by means of a mechanical self-powered paver capable of spreading the mixture true to line, grade and crown as approved by the Engineer.

HMA pavers shall be self-contained, power-propelled units, provided with activated vibratory screed and solid vibratory screed extenders and capable of spreading and finishing courses of plant

mixed HMA in lane widths applicable to the specified typical section and thickness shown on the Plans. Pavers used for shoulders and similar construction shall be capable of spreading and finishing courses of HMA in the widths, depths and cross slopes indicated on the Plans.

When laying mixtures, the paver shall be capable of being operated at forward speeds consistent with satisfactory laying of the mixture.

The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed.

a. Screeding. The screed and screed extenders shall continually vibrate while placing the mixture and shall effectively produce a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture. The screed shall be heated to maintain the HMA at the required placement temperature. Unless otherwise permitted by the Engineer, the screed extenders shall not extend more than two feet from the edge of the augers or auger extensions.

The paver shall be equipped with automatic screed controls with sensors for either or both sides of the paver, capable of sensing grade from an outside reference line, sensing the transverse slope of the screed and providing the automatic signals which operate the screed to maintain the desired grade and transverse slope. The sensor shall be capable of operating from a ski-type device or reference beam of not less than 25 feet in length. The sensor shall also have the capability of operating from a reference line unless the ski-type device or reference beam can ride on an adjacent, newly placed lift of HMA. A reference line shall also be used for the first course placed over in-place, recycled material.

Reference lines for the control of horizontal alignment shall be provided by the Contractor subject to the approval of the Engineer.

When a reference line is used for automatic grade control, the Contractor shall furnish and install all pins, brackets, tensioning devices, wire and accessories necessary for satisfactory operation of the automatic control equipment using a taut stringline set to grade for reference.

The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent. The paver shall be equipped with automatic feeder controls, properly adjusted to maintain a uniform depth of materials ahead of the screed.

b. Manual Operation. Manual operation will be permitted in the construction of irregularly shaped and minor areas, on plant mixed seal courses, or where otherwise directed.

401.03.4 Conditioning of Existing Surfaces. Surfaces of curbs, gutters, vertical faces of existing pavements, and all structures to be in contact with the HMA shall be given a thin, even coating of tack coat. Care shall be taken to avoid the splattering of surfaces which will not be in contact with the HMA.

When a tack coat is required, the type and grade and the application methods shall conform to the applicable provisions of both **SECTION M.03; MATERIALS** and **SECTION 403; ASPHALT EMULSION TACK COAT**, of these Specifications.

401.03.5 Spreading and Finishing. The mixture shall be laid upon an approved cleaned surface,

spread and struck off to the grade and elevation established. HMA pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable.

The practices and guidelines for placing HMA as outlined in Asphalt Institute Publication MS-22, "Construction of Hot Mix Asphalt Pavements" shall be adhered to unless otherwise permitted by the Engineer.

Unnecessary walking on the uncompacted HMA mat shall not be allowed.

Before beginning a new lane, the screed shall be heated to the proper operating temperature and any clumps of cold material in the paver hopper shall be removed.

No trucks or other equipment shall be allowed on freshly placed HMA unless specifically permitted by the Engineer.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be placed as close to its final position as possible. It shall then be spread, raked, and luted by hand tools in a manner which will minimize segregation and result in the required compacted thickness.

Unless otherwise directed by the Engineer, any layer of HMA called for on side streets or driveways must be placed to a distance of at least three feet beyond the gutter line at the same time that layer is being placed on the adjacent project roadway.

a. HMA Designated for "Bridge Decks". When HMA is being placed on a surface which is covered with a waterproofing membrane, the following precautions shall be observed:

1. No traffic other than paving equipment shall be allowed on the membrane.

2. The paver must be moved carefully on and off the membrane. Initial proper adjustment of the paver to the correct depth is very important to prevent tearing the membrane. The Contractor shall be responsible for making any repairs to the membrane or to the HMA overlay necessary to correct damage caused by the paving operation, all at its expense.

3. Any and all tears of the membrane by the paver or trucks shall be repaired immediately to the satisfaction of the Engineer. Vehicle tires shall be clean of any rocks or materials that would puncture the membrane.

4. Truck drivers shall not make quick stops and starts, nor turn the wheels while parked, nor cross the deck at an angle.

401.03.6 Compaction. Immediately after the HMA has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.

The surface shall be rolled when the mixture is in the proper condition and when rolling does not cause undue displacement, cracking, and shoving.

Two rollers are required for all paving operations that exceed a daily total of 500 tons, except in the case of driveway, sidewalk and bridge deck paving operations. The number, weight and type of roller(s) shall be sufficient to compact the mixture to the required density before it

reaches the minimum compaction temperature. Vibratory rollers used for compaction shall be operated in the vibratory mode. All rollers used for compaction shall have a minimum operating weight of ten tons or greater. The use of equipment which results in excessive crushing of the aggregate will not be permitted.

The speed of a roller shall not exceed five miles per hour.

Rollers shall not be parked on HMA. When reversing direction, the action shall be smooth, not abrupt. The drive wheel shall approach the new mix, not the tiller wheel.

When a vibratory roller is used for finish rolling, it shall be used in the static mode. Finish rolling shall continue until all roller marks are eliminated.

The motion of the rollers shall be slow enough at all times to avoid displacement of the hot mixture, and any displacement resulting from reversing the direction of the rollers, or from any other cause, shall be satisfactorily corrected. The wheels of steel-wheel rollers shall be kept moist and clean to prevent adhesion of the fresh material, but an excess of water will not be permitted.

If satisfactory density cannot be obtained in any lift, and if the Engineer determines it to be structurally inadequate and/or incapable of maintaining material integrity, the Contractor shall remove and replace any such area at its own expense.

Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh hot mixture, which shall then be compacted to conform to the surrounding area. Any area showing an excess or deficiency of PGAB shall be removed and replaced. Said removal and replacement shall be at the Contractor's expense.

For HMA not designated as with "Pay Adjustments" in-place density shall be a minimum of 92% of the theoretical maximum density obtained at the plant and will be determined using a nuclear density gauge or in-place cores.

If a class of HMA is designated as for "Bridge Decks", an oscillatory roller with a minimum operational weight of 8 tons shall be used. For HMA designated as for "Bridge Decks" and with "Pay Adjustments" the pay adjustments will only apply to binder content and air voids.

If a class of HMA is designated as for "Leveling" it shall be placed with a paver. A pneumatic roller with a minimum operational weight of 8 tons shall be used. For HMA designated as for "Leveling" and with "Pay Adjustments" the pay adjustments will only apply to binder content and air voids.

If a class of HMA is designated as for "Patching", "Miscellaneous Work" or "Paved Waterways" it shall be placed by hand. A vibratory plate compactor or roller shall be used. A hand tamper may be used only if requested, and such request is approved by the Engineer.

a. In-Place Density for classes of HMA designated as with "Pay Adjustments"

Compaction density will be measured using cores of in-place pavement. Cores not taken under the direction of and witnessed by the Engineer will not be used for acceptance. The location of all cores will be determined by the Engineer. Each lot and sublot for in-place density cores will be matched as near as practical to each production lot and sublot used at the plant.

All cores shall be extracted after completion of rolling operations and before the paved section is open to traffic. The Engineer will take immediate possession of the cores upon extraction. If the Contractor does not obtain cores before a sublot is open to traffic, no bonus (pay adjustment resulting in more than 0%) will be paid for the sublot but disincentives will still apply. The cores will be retained by the Engineer for 4 weeks after the results are reported to the Contractor.

The Contractor may extract its own cores for QC purposes to monitor in-place density and production quality; such cores will not be used for acceptance.

1. Mat Density

Under the direction and witness by the Engineer, two stratified, randomly selected cores (4" +0"/-0.25" diameter) shall be extracted from the mat by the Contractor for each sublot greater than or equal to 450 tons. One core shall be taken for sublots less than 450 tons. The center of each core used to determine mat density will be at least one foot away from the edge of pavement and any transverse or longitudinal joints or drainage structures.

2. Joint Density

One joint density core shall be extracted for every 3000' or less when a joint is formed. Joint cores shall be extracted so that the center is within two inches of the middle of the sloped portion of a notched-wedge joint or within one inch of the middle of a butt joint.

3. In-Place Density Pay Adjustments

In-place density will be measured and reported as a percent of theoretical maximum density. The pay adjustments from Table 6 will be made for in-place mat density:

Table 6 – Mat Density Pay Adjustments

In-Place Mat Density	**Pay Adjustment**
95.0% and greater	+2%
94.0% to 94.9%	+1%
93.0% to 93.9%	0%
92.0% to 92.9%	-5%
91.0% to 91.9%	-15%
90.0% to 90.9%	-25%
89.0% to 89.9%	-35%
Below 89.0%	Remove and Replace

The pay adjustments from Table 7 will be made for in-place joint density:

Table 7– Joint Density Pay Adjustments

In-Place Joint Density	Pay Adjustment
93.0% and greater	+2%
92.0% to 92.9%	+1%
91.0% to 91.9%	0%
90.0% to 90.9%	-5%
89.0% to 89.9%	-15%
88.0% to 88.9%	-25%
87.0% to 87.9%	-35%
Below 87.0%	-100%

Note: All density values will be rounded to the nearest 0.1% before applying pay adjustments.

In the event material is required to be removed and replaced, the Engineer will determine the limits of the removal. The required in-place density will be 1% less for the first lift placed on gravel subbase.

4. Calculation of Pay Adjustments for In-Place Density

(a) For Mat Density:

For each sublot, the bulk specific gravity (G_{mb}) of the mat density core(s) will be averaged and then compared to the corresponding plant theoretical maximum specific gravity (G_{mm}) to calculate the in-place density for each sublot. The average of the sublot densities in a lot will be used to determine the appropriate pay adjustment for that lot. Lot pay adjustments will be applied to the respective quantity of HMA in each lot.

(b) For Joint Density:

For joint density pay adjustment purposes, a joint lot will be defined as 10 joint density results. However, if less than five joint density results are remaining after the final full joint lot is formed, they will be added to the previous joint lot. Five or more joint density results remaining after the final full joint lot will constitute a separate joint lot.

Calculation of in-place joint density will be determined using the G_{mb} of joint density cores and the project average plant G_{mm} of the respective mix. The average of the individual joint density results in a joint lot will be used to determine the appropriate pay adjustment for that joint lot. The calculation of material quantity used to construct the joints will be based on the joint core density, the specified thickness, a width of one foot and the length of the joint that each core represents. This quantity will be deducted from the total tonnage.

401.03.7 Joints. Placement of the HMA shall be as continuous as possible. Rollers shall not pass over the unprotected end of a freshly laid mixture unless authorized by the Engineer.

Both longitudinal and transverse joints in successive courses shall be staggered so as not to be one above the other. Longitudinal joints shall be staggered a minimum of 6 inches and shall be arranged so that the longitudinal joint in the top course being constructed shall be at the location of the line dividing the traffic lanes. Any HMA that falls on the cold side of the mat during paving operations shall be raked onto the hot joint. Care shall be taken to ensure that the material pushed onto the hot side of the joint remains in the joint area and is not broadcast over the pavement.

Unless otherwise permitted by the Engineer, a notched wedge joint shall be used.

Longitudinal drop-offs will not be allowed on both sides of a lane. Joints shall be constructed so that the height of the notch is the same as the nominal maximum aggregate size. The width of the sloped portion of the joint shall be at least 6" for each inch of lift thickness if the joint will be exposed to traffic but in all cases, it shall be 12" minimum. Tack coat shall be applied to and shall completely cover the longitudinal notched wedge joint, using either a brush or the tack coat distribution truck. Transverse joints and joints at intersections shall be manually brushed with tack coat, leaving a completely covered face.

401.03.8 Pavement Samples. As directed, the Contractor shall cut samples from the compacted pavement for testing by the Engineer. Samples of the mixture shall be taken for the full depth of the course at the locations directed by the Engineer.

Where samples have been taken, new material shall be placed and compacted to conform to the surrounding area.

401.03.9 Surface Tolerances. At the Engineer's discretion, the surface may be tested at selected locations, using an approved 10-foot straightedge furnished by the Contractor. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall at no point exceed 1/4-inch. All humps or depressions exceeding the specified tolerance shall be corrected by removing defective work and replacing it with new material as directed.

401.03.10 Thickness Requirements. The thickness of a pavement shall be that as shown on the Plans and shall not vary from the specified thickness by more than that specified in **Subsection 401.04**, below, except as otherwise provided for in resurfacing existing pavements.

401.03.11 Weather Limitations. HMA shall not be placed on any wet surface, or when weather conditions otherwise prevent the proper handling or finishing of the HMA.

For lifts with a target compacted lift thickness less than or equal to 1.5" both the air and surface temperature in the shade shall be 45° F or greater. For lifts with a target compacted lift thickness greater than 1.5" both the air and surface temperature in the shade shall be 40° F or greater. If an approved WMA (warm mix additive) is used both the air and surface temperature in the shade shall be 35° F or greater regardless of lift thickness. No HMA shall be placed on frozen ground.

For projects that do not specify pay adjustments all rolling shall be completed before the temperature of the mat falls below 165° F. The HMA mat (not including WMA modified pavement) shall be at least 265° F when placed.

401.03.12 Cold Weather Paving. If the existing pavement is removed before the winter shutdown, the Contractor shall not close the project for the season until a new HMA layer has been placed and striped with temporary epoxy pavement markings.

401.03.13 Drop-Offs.

a. Longitudinal Drop-Offs. A longitudinal drop-off occurs along the outside edges of pavement and is the difference in elevation between the top of recently placed HMA pavement and the top of existing ground (or pavement).

1. For Posted Speeds of 35 mph or Less. Drop-offs greater than 3 inches but less than 5 inches shall be tapered to a maximum 1-to-1 slope to existing ground or pavement. Drop-offs 5

inches, or greater, shall be tapered to a maximum 4-to-1 horizontal to vertical slope to existing ground or pavement.

2. For Posted Speeds Greater than 35 mph. Longitudinal drop-offs will not be permitted within 2 feet of a travel lane. The first 2 feet adjacent to a travel lane must be at grade with the travel lane. However, should either the sequence of operation required by the Contract or the Contractor's approved sequence of operation result in overnight drop-offs greater than 3 inches occurring between 2 and 6 feet from the edge of a travel lane, then such drop-offs shall be tapered to a 4-to-1 horizontal to vertical slope to existing ground or pavement.

All tapers shall be constructed with HMA conforming to the requirements of this **SECTION 401** of these Specifications.

Longitudinal drop-offs within the roadway cross section will not be allowed except as otherwise detailed on the Plans or as described in a Special Provision.

Longitudinal drop-offs will not be paid for separately, but will be included in the contract unit price for HMA pavements as listed in the Proposal.

b. Transverse Drop-Offs. Transverse drop-offs occur as follows:

Pavement removal. A transverse drop-off occurs when pavement removal operations cease at the end of a working day. The drop-off is the difference in elevation between the bottom of the excavated pavement and the top of the existing pavement.

Pavement overlay. A transverse drop-off occurs when pavement overlay operations cease at the end of a working day. The drop-off is the difference in elevation between the top of the overlay pavement and the top of the existing pavement.

If traffic is allowed across either of these drop-offs during the period prior to the resumption of pavement removal or pavement overlay operations, tapers must be provided as follows:

1. For Posted Speeds of 35 mph or Less. Transverse drop-offs in place at the end of a working day shall be graded at a slope of 2 feet horizontal to 1 inch vertical.

2. For Posted Speeds Greater than 35 mph. Transverse drop-offs in place at the end of a working day shall be graded at a slope of 5 feet horizontal to 1 inch vertical.

All slopes shall be constructed with HMA conforming to the requirements of **SECTION 401** of these Specifications.

The Contractor shall place "BUMP" signs in accordance with the MUTCD (Manual on Uniform Traffic Control Devices) at each drop-off for each direction of traffic.

Prior to the resumption of pavement overlay operations the transition slope shall be removed as follows: The pavement overlay shall be saw cut back approximately 6 inches to expose a fresh, full thickness vertical face. This face shall be brush-painted or pressure sprayed with tack coat, after which the HMA paving may resume.

Transverse drop-offs will not be paid for separately, but will be included in the contract unit

prices for HMA pavements as listed in the Proposal.

401.04 METHOD OF MEASUREMENT.

401.04.1 Measurement of HMA Pavement. HMA Pavements will be measured by the number of tons actually placed in accordance with the Plans and/or as directed by the Engineer.

a. Determination of Thickness. The design thickness of each course as well as of the total HMA pavement structure shall be that indicated on the Plans, or as ordered by the Engineer.

Prior to the determination of placed thickness, the roadway shall exhibit acceptable workmanship and all defects shall have been corrected. The placed thickness of HMA pavement will be determined by cutting or coring holes to full depth. For courses with In-Place Density Cores specified, the average thickness of the Density Cores will be used to determine placed thickness.

For courses where In-Place Density Cores are not specified the following requirements apply: For projects with less than 1 paved lane mile, two cores will be taken. For projects with 1 to 2 paved lane miles, four cores will be taken. For projects with greater than 2 paved lane miles, two cores will be taken from each lane mile, except that there will be a minimum of ten cores for the project, all at the discretion of the Engineer.

Cores will be measured in accordance with ASTM D3549; Standard Test Method for Thickness or Height of Compacted HMA Paving Mixture Specimens. The depth measurement will be considered as applying for the full width of the lane. Measurements will be made at random locations determined by the Engineer and all information relative thereto will be recorded in the project records.

For the determination of thickness, a shoulder width of eight feet or greater will be considered to be a separate lane of the roadway. A shoulder width of less than eight feet will be considered part of the adjacent lane. The Contractor shall fill all holes cut or cored in the pavement with a compacted, dense HMA which is acceptable to the Engineer. If required by the Engineer, the Contractor shall maintain and control traffic while the pavement samples are being taken and while the holes are being filled and compacted. Payment will be made for the applicable traffic control item(s).

b. Adjustment of Tonnage Quantity.

The pavement thickness will be considered acceptable if both of the following requirements are met:

1. The total HMA tonnage delivered and placed does not exceed the tonnage calculated from the approved area measured from the final surface course width by the project length and the pavement thickness specified in the Contract Documents by more than 5 percent.

and,

2. When Specification Conformity Analysis (Federal Highway Administration Technical Advisory T5080.12; dated June 23, 1989) is applied to the entire roadway or sections thereof as determined by the Engineer, at least 80 percent of the total HMA pavement will have a thickness

that meets the minimum pavement thickness. The minimum pavement thickness is that contained in the contract documents minus ½-inch, (e.g., a total pavement thickness of 7 inches will have a minimum pavement thickness requirement of 6.5 inches).

If the first requirement is not met, no payment will be made for all tonnage exceeding 5 percent, unless unusual field conditions are present and documented (e.g., pavement rutting).

If the second requirement indicates that the pavement thickness is deficient, the Contractor with permission of the Engineer shall place a correction course not less than one inch in depth after compaction, provided an acceptable grade and cross section can be achieved. Where an acceptable grade and cross section cannot be achieved through the above means, the Contractor shall reconstruct by cutting back and into the pavement a sufficient distance to permit the placement of an acceptable depth and place new material to achieve the proper depth, cross section and profile. These areas where a corrective course is placed or reconstruction of the pavement is performed, will be measured again as though originally constructed; no compensation will be made to the Contractor for the material removed or removal of materials and disposal thereof or for restoration of affected supporting base or adjacent construction, or for traffic control, adjusting all utility appurtenances in the roadway or for correcting pavement striping. Compensation will be made for the additional pavement correction course accepted in place.

Determination of the quantity to be used for adjusted payment or exclusion for payment will be based on tons per square yard per inch thickness as determined using in-place density cores or 96% of the plant core (AASHTO T245) densities if in-place densities are not available.

Sweeping and cleaning, as included in the items covered by this section, refers to the normal removal of dust, debris, etc. only. Any sweeping and cleaning necessary due to construction being held over for the winter season, in accordance with the approved construction schedule, will be paid for separately.

Work described in **Subsection 401.03.4; Conditioning of Existing Surface**, will be paid for at the contract unit prices for the material used.

Tolerance Limitation. Pavement will be considered acceptable when meeting the specifications. Pavement that is not accepted will be excluded from the tolerance allowance. When delivery tickets are directly collected by the Engineer from each truck prior to placing in the hopper, the delivery tickets may be used in the determination of total tonnage delivered and placed. Delivery tickets not collected directly by the Engineer prior to placing in the hopper will not be used to determine tonnage.

When delivery tickets are not used to determine tonnage, the accepted total tonnage delivered and placed will be calculated according to the following formula: [final surface course width] x [project length] x [specified pavement thickness] x [the average unit weight of all acceptance density cores] = contract tonnage. If density cores are not required then 96% of the average unit weight of the plant produced acceptance gyratory cores shall be used.

Payment will be made at full contract unit bid prices with pay adjustments for all accepted HMA up to 105% of the contract quantity tonnage. Accepted HMA quantities above 105% and up to 110% of the contract quantity tonnage will be paid at 50% of the contract unit bid price with the resultant adjusted price further modified by additional pay adjustments as applicable according to the following formula: Pay adjustments will apply to 50% of the contract unit bid price for quantities above 105% and up to 110%.

401.05 BASIS OF PAYMENT. The accepted quantity of the HMA will be paid for at its respective contract unit price per ton as listed in the Proposal. The price so-stated constitutes full and complete compensation for all labor, materials and equipment, and for all incidentals required to finish the work, complete and accepted by the Engineer.

Pay adjustments for binder content, air voids and in-place density will be added together to determine a final pay adjustment for both the mat and the joint. If more than one pay adjustment is negative then only the most negative adjustment will be added to the remaining non-negative adjustments to determine the final pay adjustment. Pay adjustments will be applied to the unit bid price for the applicable item code.

SECTION 402

FRICTION COURSES

402.01 DESCRIPTION. This work consists of placing a friction course on prepared, sound, dense surfaces of bituminous concrete at the locations and to the thickness indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

402.01.1 Specific Pavements. The specific pavements and mixes are designated by the column headings of the table that constitutes **Subsection M.03.01** of these Specifications. They are:

a. Dense Friction Course
b. Ramp Friction Course

402.02 MATERIALS.

402.02.1 Composition. The friction course shall consist of aggregate mixed with asphaltic cement in a bituminous hot mix plant.

402.02.2 Mixture.

a. Approval. Each year dense friction course is to be produced at the hot mix plant, either a new mix design shall be submitted or, at the discretion of the Engineer, the current mix design shall be verified.

b. Mix Design. The Contractor shall submit a mix design for the specific pavements. The design, with the allowable tolerances, shall be within the master range indicated for gradation; percent asphalt; Marshall Stability; percent voids; and flow, all as set forth in the Table that constitutes **Subsection M.03.01** of these Specifications for each particular friction course.

1. Mix Tolerances

Passing 3/8"and larger sieves:	± 7 percent
Passing No. 4 to No. 50 sieves:	± 4 percent
Passing No. 200 sieve:	± 2.0 percent

Asphalt content: + 0.2 percent to -0.3 percent

The mix design shall be submitted at least six weeks prior to production.

c. Verification of Mix Design. Sufficient amounts of aggregate and asphalt cement (with additives) shall be submitted to the Engineer at least one month prior to production for the purposes of mix design verification.

The materials used in the mix design will be those approved for the plant at which the friction course is to be produced.

d. Plant Trial Batches. Plant trial batches will be required at the design asphalt content.

402.02.3 Aggregate. Aggregate must be sound, durable and of high quality which includes being resistant to polishing, degradation, and stripping or loss of strength when incorporated in the mix and exposed to water. The aggregate must be from an approved source meeting the criteria stated herein:

a. Coarse Aggregate shall be either crushed ledge stone, crushed granite, or crushed gravel but no combination, blend, or mixture of these will be permitted. It shall have at least 95 percent by weight crushed particles with one or more fractured faces, and 90 percent by weight crushed particles having at least two fractured faces. Coarse aggregate shall also have a loss on abrasion of no more than 40 percent as tested in accordance with AASHTO T96.

1. Crushed gravel is defined as the product of crushing material that is retained on the ¾-inch sieve.

2. The retained coating of coarse aggregate shall be at least 95 percent when tested in accordance with AASHTO T182.

b. Fine Aggregate shall be crushed stone screenings, natural sand, or a blend thereof. No more than 20 percent of the fine aggregate may be natural sand.

c. Aggregate Stockpiles from approved sources shall be available at the plant site no later than two days prior to production for verification testing by the Engineer.

402.02.4 Asphalt Cement. The asphalt cement shall be PG 64-28. It shall contain an approved silicone additive in quantities of 1 ounce per 5,000 gallons of asphalt cement.

To provide adequate stripping resistance, the asphalt cement shall be blended with an approved anti-stripping compound (100 percent active). The dosage level shall be as recommended by the manufacturer. The anti-stripping compound shall be heat stable and capable of remaining in storage indefinitely.

402.03 CONSTRUCTION METHODS.

402.03.1 General Requirements. The mixing, placing and finishing of bituminous friction course shall conform to the applicable requirements of **Subsection 401.03** of these Specifications,

together with the following exceptions and additional conditions:

a. Both the mixing temperature and the temperature of the friction courses at the time of placement shall be within the range of 240^{O}F to 280^{O}F.

b. The plant shall operate solely for the production of this mixture and exclusively for the State of Rhode Island. The unloading of silos must commence within one hour from the time loading begins, and silos must be completely emptied within one hour from the time they are filled. The use of silos for storage will not be permitted.

c. The mixture shall be compacted to the required density with adequately ballasted static steel wheel rollers. Adequately ballasted vibratory rollers may be allowed provided they are used in the static mode.

d. The mixture shall be placed as soon as possible after completion of mixing at the plant. It shall be placed within 90 minutes from the time it is loaded in the truck, subject to the specified placement temperature range.

402.03.2 Production and Placement. When placed on a newly reconstructed surface, the thickness shall be as shown on the Plans with a tolerance of ±¼ inch. When used to overlay an existing roadway, the thickness shall be minimum of 1 inch and a maximum of 1¾ inches to accommodate for rut depths of up to ¾ inch on the existing pavement.

The surface on which the friction course is to be placed shall be treated with a tack coat. Tack coat must be applied uniformly over the surface of the underlying pavement. The surface shall be broom cleaned before the application of tack coat.

Spreading of the mixture shall be performed carefully and the operation shall be as continuous as possible. Particular attention shall be given to the joints and any irregularities shall be removed before compacting.

After placement, the mixture shall be thoroughly and uniformly compacted with power rollers as directed by the Engineer. Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until all roller marks are eliminated, the surface is of uniform texture and true to grade and cross section.

The first pass with the specified roller shall be completed when the temperature of the layer is 240^{O}F ±20^{O}F. At least three passes must be made at all locations on the mat. Each roller shall exert a minimum average force of 150 pounds per inch along the width of each drum. At least two of the rollers must have a minimum dry weight of eight tons each.

Excess concentrations of asphalt can be easily detected during paving operations. All "fat" areas shall be removed immediately. The wasted quantity, as determined by the Engineer, will be subtracted from the quantity shipped that day.

402.03.3 Weather Limitations. Friction course shall not be placed on a wet or damp surface or when the temperature of the surface course, in the shade, is less than 40^{O}F, measured prior to placement. It shall only be placed when the air temperature, in the shade, is at least 40^{O}F and rising.

402.03.4 Time Limitation. Friction course shall only be placed between the period of June 1st to August 31st.

402.04 METHOD OF MEASUREMENT.

402.04.1 Dense Friction Course. "Dense Friction Course" will be measured by the number of tons actually placed in accordance with the Plans and/or as directed by the Engineer.

402.04.2 Ramp Friction Course. "Ramp Friction Course" will be measured by the number of tons actually placed in accordance with the Plans and/or as directed by the Engineer.

402.04.3 Ten Percent Limitation. Pavement thickness will be considered acceptable when placed within the tolerances specified. The total tonnage delivered and placed shall not exceed the tonnage calculated from the approved areas measured from the final surface course width, by the project length, and the pavement thickness in the Contract, by more than 10 percent.

A thicker pavement may be acceptable; however, no payment shall be made for any quantity of asphalt concrete delivered which exceeds 110 percent of the final measured length, times measured width, times specified thickness, times unit weight.

402.05 BASIS OF PAYMENT. The accepted quantities of "Dense Friction Course" and "Ramp Friction Course" will be paid for at their respective contract unit prices per ton as listed in the Proposal. The prices so-stated constitute full and complete compensation for all labor, materials and equipment and all incidentals required to finish the work, complete and accepted by the Engineer.

SECTION 403

ASPHALT EMULSION TACK COAT

403.01 DESCRIPTION. This work consists of furnishing, delivering, and placing a liquid asphalt tack coat on bituminous concrete or Portland cement concrete, prior to the placement of a bituminous concrete overlay, all in accordance with these Specifications.

403.02 MATERIALS. The asphalt emulsion shall be RS-1.

403.03 CONSTRUCTION METHODS.

403.03.1 Equipment. Application of the asphalt emulsion tack coat shall be by means of a pressure distributor capable of producing a uniform continuous fine spray, through multiple nozzles, resulting in a uniform continuous coat of asphalt emulsion over the entire section to be treated. Any puddles of tack coat shall be squeegeed or broomed out or corrected by whatever means chosen by the Contractor which will achieve the required surface treatment. Any areas not receiving the specified coverage of tack coat shall be corrected and brought into compliance.

403.03.2 Application of Bituminous Material.

a. Application Rates. The asphalt emulsion shall be uniformly applied at the following rates over the entire existing surface to be overlaid:

1. Old Pavement. The application rate shall be 0.08 gallons per square yard, plus-or-minus 0.02 gallons per square yard.

2. New Pavement.

(a) For new pavements at least thirty days old or have been opened to traffic: The application rate shall be 0.06 gallons per square yard, plus-or-minus 0.02 gallons per square yard.

(b) For new pavements less than thirty days old and which have not been opened to traffic: A tack coat is not required.

b. Nozzle Settings. Tack coat shall be applied using the proper nozzle settings and the "double coverage" or "triple coverage" techniques as outlined in Chapter 5 of Asphalt Institute Publication MS-22, "Construction of Hot Mix Asphalt Pavements."

c. Additional Requirements. The newly placed tack coat shall be allowed to break and set prior to paving. This process is defined as the separation of the asphalt from the water from within the emulsion which is signified by a change in color of the material from brown to black, the evaporation or removal of the resultant surface water and the adherence of the tack material to the underlying pavement.

NOTE: The Contractor will be required to wait for this process to complete for up to one hour. At the end of this specified period, if the tack coat has not fully transformed as defined herein (break and set), the Contractor may by his choice proceed to pave over the tacked area. Nevertheless, in any case the Contractor shall ensure that should any material be picked up by his equipment, that it be removed by whatever means, prior to its falling onto or affecting the newly placed pavement layer in any way. Special care shall be taken to eliminate or minimize equipment passage over tacked surfaces so as not to hinder or negate the tack's effectiveness in the pavement bonding process. Furthermore, attention shall be given to gore areas to ensure that asphalt emulsion is not sprayed or tracked onto precast gore markers. This shall be accomplished by placing a covering, to be anchored in place, to prevent any movement, over the gore markers. Additionally, the Contractor shall not proceed to pave over any tacked surface until approval from the Engineer is given. Sections not approved by the Engineer shall be corrected and subsequently receive the Engineer's approval prior to paving. Should there be multiple rejections of tack coat, the Engineer reserves the right to suspend paving and require the Contractor to submit a detailed action plan outlining those steps to be taken to ensure proper application of tack coat prior to the commencement of further paving operations.

403.04 METHOD OF MEASUREMENT. "Asphalt Emulsion Tack Coat" will be measured by the number of square yards actually spread in the designated area(s) and at the specified rate, all in accordance with the Plans and/or as directed by the Engineer.

403.05 BASIS OF PAYMENT. The accepted quantity of "Asphalt Emulsion Tack Coat" will be paid for at the contract unit price per square yard as listed in the Proposal. The price so-stated constitutes full and complete compensation for all labor, materials, and equipment, and all

incidentals required to finish the work, complete and accepted by the Engineer.

403.06 FAILURE TO COMPLY. Should the Contractor fail to comply with any portion of this provision, a penalty will be imposed for each tacked subsection not in compliance with these requirements. The penalty for a subsection will be five percent (5%) of the combined contract cost for asphalt and asphalt emulsion tack coat for the particular subsection in noncompliance. The total penalty for a day/night's paving will be the combined fines from all noncompliant subsections or $2500.00, whichever is greater. A tacked subsection will be defined as that area covered with tack coat, the width of a single paving machine's actual asphalt placement, extending to the end of that particular pass of tack coat but not to exceed 0.2 (two-tenths) miles in length. This means that if the Contractor tacks in excess of 0.2 mile on a pass then there would exist multiple tacked subsections each subject to the terms and conditions of this provision.

SECTION 404

PRIME COAT

404.01 DESCRIPTION. This work consists of treating an existing gravel surface with bituminous material, and blotter material, if required, in preparation for receiving a subsequent bituminous course, at the locations indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

404.02 MATERIALS.

404.02.1 Bituminous Materials. Bituminous material used as prime coat may be any of those enumerated in **Subsection M.03.03** of these Specifications. They are:

a. Asphalt Cement; Subsection M.03.03.1

b. Medium Cure Cut-Back Asphalt; Subsection M.03.03.2

c. Rapid Curing Cut-Back Asphalt; Subsection M.03.03.3

d. Emulsified Asphalt; Subsection M.03.03.4

The grade may be changed as required by the Engineer during construction at no change in unit price.

404.02.2 Blotter Material. Blotter material shall meet the requirements of **Subsection M.01.08; Fine Aggregate**, of these Specifications. The material may be accepted in stockpile at the source.

404.03 CONSTRUCTION METHODS.

404.03.1 Equipment. The equipment to be used shall include a power broom, approved broom dragging equipment, rollers, a self-propelled mechanical spreader for spreading coarse aggregate,

a mechanical revolving cylinder-type aggregate spreader or mechanical roller-type hopper spreader for spreading fine aggregate that can be so adjusted as to spread accurately the required amount of material per square yard, a bituminous distributor so designed, equipped, maintained, and operated that bituminous material at even heat may be applied uniformly on variable widths of surface up to 15 feet at readily determined and controlled rates from 0.02 to 2.0 gallons per square yard, with uniform pressure. Distributor equipment shall include a tachometer, pressure gauges, sampling valve, accurate volume measuring devices or a calibrated tank, and a thermometer for measuring temperature of tank contents. Distributors shall be equipped with a power unit for the pump and full circulation spray bars adjustable vertically and laterally, and equipment for heating bituminous material. Other types of aggregate spreaders may be used provided they accomplish results equal to those obtained by the types described herein, and are approved.

Rollers shall be self-propelled steel wheel, vibratory or pneumatic type. The number and weight of rollers shall be sufficient to compact the mixture to form a firm, even and unyielding surface.

404.03.2 Preparation of Surface. The surface to be primed shall be shaped to the required grade and section, shall be free from all ruts, corrugations, segregated material or other irregularities and shall be uniformly compacted.

Delays in priming will necessitate reprocessing or reshaping to provide a smooth compacted surface.

404.03.3 Application of Bituminous Material. Bituminous material shall be applied to the width of the section to be primed by means of a pressure distributor in a uniform, continuous spread. When traffic is maintained, not more than one-half of the width of the section shall be treated in one application. Care shall be taken that the application of bituminous material at the junctions of spreads is not in excess of the specified amount. Excess bituminous material shall be squeegeed from the surface. Skipped areas or deficiencies shall be corrected. Building paper shall be placed over the end of the previous applications and the joining application shall start on the building paper. Building paper used shall be removed and satisfactorily disposed of.

When traffic is maintained, one-way traffic shall be permitted on the untreated portion of the roadbed. As soon as the bituminous material has been absorbed by the surface, and blotter material if required, will not pick up, traffic shall be transferred to the treated portion and the remaining width of the section shall be primed.

The quantities, rate of application, temperatures and areas to be treated shall be approved before application of the prime coat.

404.03.4 Application of Blotter Material. If after the application of the prime coat, the bituminous material fails to penetrate within the time specified and the roadway must be used by traffic, blotter material shall be spread in the amounts required to absorb any excess bituminous material.

404.03.5 Weather Limitations. Bituminous material shall not be applied on a wet surface or when weather conditions would prevent its proper construction. Prime coat will not be applied when the air temperature is below 50^{O}F unless otherwise permitted by the Engineer.

404.04 METHOD OF MEASUREMENT.

404.04.1 Bituminous Material. "Prime Coat" will be measured by the number of square yards actually applied in accordance with the Plans and/or as directed by the Engineer.

404.04.2 Blotter Material. "Blotter Material" will be measured by either the number of tons or the number of cubic yards, as the case may be, actually applied in accordance with the Plans and/or as directed by the Engineer.

404.05 BASIS OF PAYMENT.

404.05.1 Prime Coat. The accepted quantities of "Prime Coat" will be paid for at the contract unit price per square yard as listed in the Proposal.

404.05.2 Blotter Material. The accepted quantity of "Blotter Material" will be paid for at the contract unit price per ton or per cubic yard, as the case may be, as listed in the Proposal.

The prices so-stated constitute full and complete compensation for all labor, materials, and equipment, and all incidentals required to finish the work, complete and accepted by the Engineer.

SECTION 405

SEAL COAT

405.1 DESCRIPTION. This work consists of providing a surface treatment consisting of an application of bituminous material on a prepared gravel foundation, to be followed by an application of cover coat material, at the locations indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

405.02 MATERIALS.

405.02.1 Bituminous Material. Bituminous material used as a seal coat may be any of those enumerated in **Subsection M.03.03** of these Specifications. The specific material to be used will be specified in the Contract. The grade may be changed by the Engineer during construction at no change in the unit price.

405.02.2 Cover Coat Material. Cover coat material shall meet the requirements of **Subsection M.01.08; Fine Aggregate**, for the size specified. The material may be accepted in stockpile at the source.

405.03 CONSTRUCTION METHODS.

405.03.1 Equipment. The equipment to be employed shall conform to the applicable requirements of **Subsection 404.03.1** of these Specifications.

The aggregate spreader shall be equipped with a means of applying the cover coat material to the surface with positive controls so that the required amount of material will be deposited uniformly over the full width of the bituminous material. Other types of aggregate spreaders may be used provided they accomplish equivalent results and are approved.

405.03.2 Preparation of Surface. Seal coating operations shall not be started until the surface is thoroughly compacted by rolling and traffic.

Bituminous material shall not be applied until the surface has been cleaned as required, and the section to be sealed has been approved.

405.03.3 Applying Bituminous Material. Bituminous material shall be applied by means of a pressure distributor in a uniform, continuous spread over the section to be treated. Bituminous material shall be heated to a temperature in accordance with the manufacturer's recommendations. The quantity of bituminous material to be used per square yard shall be as directed. A strip of building paper, at least 3 feet in width and with a length equal to that of the spray bar of the distributor plus one foot, shall be used at the beginning of each spread. If the cut-off is not positive, the use of paper may be required at the end of each spread. The paper shall be removed and disposed of in a satisfactory manner. The distributor shall be moving forward at proper application speed at the time the spray bar is opened. Any skipped areas or deficiencies shall be corrected. Junctions of spreads shall be carefully made to assure a smooth riding surface.

The length of spread of bituminous material shall not be in excess of that which trucks loaded with cover coat material can immediately cover.

The spread of bituminous material shall not be more than 6 inches wider than the width covered by the cover coat material from the spreading device. Under no circumstances shall operations proceed in such manner that bituminous material will be allowed to chill, set up, dry, or otherwise impair retention of the cover coat.

The distributor, when not spreading, shall be parked so that the spray bar or mechanism will not drip bituminous materials on the surface of the traveled way.

405.03.4 Application of Cover Coat Material. Immediately following the application of the bituminous material, cover coat material shall be spread in quantities as designated. Spreading shall be accomplished in such a manner that the tires of the trucks or aggregate spreader at no time contact the uncovered and newly applied bituminous material.

If directed, the cover coat material shall be moistened with water to eliminate or reduce the dust coating of the aggregate. Moistening shall be done the day before the use of the aggregate.

Immediately after the cover coat material is spread, any deficient areas shall be covered by additional material. Initial rolling shall begin immediately behind the spreader and shall consist of one complete coverage with a power roller. Pneumatic tire rolling shall begin immediately after completion of the initial rolling and shall be continued until 3 complete coverages are obtained. Pneumatic tire rolling shall be completed the same day the bituminous material and cover coat materials are applied.

After the application of the cover coat material, the surface where specified shall be lightly

broomed or otherwise maintained as directed. Maintenance of the surface shall include the distribution of cover coat material over the surface to absorb any free bituminous material and cover any area deficient in cover coat material. The maintenance shall be conducted so that imbedded material is not displaced. Excess material shall be swept from the entire surface by means of rotary brooms. The surface shall be swept at the time determined by the Engineer.

405.03.5 Weather Limitations. Bituminous material shall not be applied on a wet surface or when weather conditions would prevent its proper construction. Seal coat will not be applied when the air temperature is below 50°F unless otherwise permitted by the Engineer.

405.04 METHOD OF MEASUREMENT.

405.04.1 Bituminous Material. "Seal Coat" will be measured by the number of square yards actually applied in accordance with the Plans and/or as directed by the Engineer.

405.04.2 Cover Coat Material. "Cover Coat Material" will be measured by either the number of tons or the number of cubic yards, as the case may be, actually applied in accordance with the Plans and/or as directed by the Engineer.

405.05 BASIS OF PAYMENT.

405.05.1 Seal Coat. The accepted quantity of "Seal Coat" will be paid for at the contract unit price per square yard as listed in the Proposal.

405.05.2 Cover Coat Material. The accepted quantity of "Cover Coat Material" will be paid for at the contract unit price per ton or per cubic yard, as the case may be, as listed in the Proposal.

The prices so-stated constitute full and complete compensation for all labor, materials, and equipment, and all incidentals required to finish the work, complete and accepted by the Engineer.

SECTION 406

COLD RECYCLED BASE COURSE
(PAVEMENT REHABILITATION/RECYCLING)

406.01 DESCRIPTION. This work consists of the rehabilitation of an existing pavement structure into a processed asphalt stabilized base (recycled) course. The existing pavement is to be mixed with a specified depth of the existing gravel base. This mixture of pavement and gravel is to be processed, reshaped, rolled, compacted and fine graded to the cross sections and/or grades indicated on the Plans, all in accordance with these Specifications.

406.01.1 Remaining Gravel Base. The remaining gravel base and/or subgrade may be modified to properly accommodate the processed asphalt stabilized base course. Any modifications of this nature, if required, such as, but not limited to, the excavation and replacement of unsuitable materials and trimming and fine grading will be accomplished under separate bid items. Any

movement of the existing recyclable materials to allow for these modifications is included in this bid item.

406.02 MATERIALS. The processed asphalt stabilized base material shall conform to the gradation requirements of either Gradation "A" or Gradation "B," whichever is specified in the Contract.

	Gradation "A"	**Gradation "B"**
Sieve Designation	**% Passing by Weight**	**% Passing by Weight**
3"	100	100
2½"	80-100	100
1½"	70-100	70-100
3/4"	50-85	50-95
NO. 4	30-55	30-75
NO. 50	8-24	8-30
NO. 200	2-12	3-12

If additional aggregate is needed, the Contractor may be directed to add material from an outside source. However, scarified pavement and gravel fines must be mixed together and thoroughly worked and/or reworked as described herein.

Additional gravel shall conform to the requirements for Gravel Borrow as set forth in **Subsection M.01.09, Table I, Column I**, of these Specifications.

406.03 CONSTRUCTION METHODS.

406.03.1 Equipment. The Contractor has the option to utilize whatever equipment can effectively pulverize, crush, mix and/or blend the recyclable materials to specification. Furthermore, the Contractor can either choose to process in-place or load and haul the recyclable materials to an off-site location, process them into the proper recycled material and return it to the job site.

406.03.2 Procedure. Prior to the start of Pavement "Rehabilitation/Recycling" all water and gas gates are to be lowered to a minimum depth of one foot from proposed finish grade. All manholes and catch basin frames, grates and covers are to be removed. The structures are to be covered with a temporary cover which shall overhang the pavement opening by a minimum of one foot on all sides of adequate strength to accommodate truck and construction equipment loadings. The voids remaining after utility gates or drainage structures are lowered are to be filled with gravel borrow material conforming to the requirements of **Table I, Column I** of **Subsection M.01.09** of these Specifications. The existing pavement is to be scarified and mixed with gravel from the roadway structure.

The minimum depth of existing gravel to be incorporated in the rehabilitation process will be shown on the Plans. This quantity will be taken from the uppermost portion of the base layer unless otherwise specified.

Water and calcium shall be added to insure optimum moisture content at the time of compaction. They shall be applied at the rate of 0.25 pounds of calcium chloride per gallon of water per square yard of recycled pavement area. The mixing formula may be modified by the Engineer to compensate for temperature, humidity, weather and/or density determinations.

Any required modifications to the remaining gravel base and/or subgrade such as but not limited to cuts, fills, grade realignment and the removal of unsuitable materials will be made before spreading the asphalt stabilized base material. Existing utility gates, manholes and catch basins are to be adjusted to finish grade.

The thickness of the processed asphalt stabilized (recycled) base course will be shown on the Plans, graded to the specified cross section, plan grades or as directed by the Engineer and compacted to a uniform density of not less than 95 percent of maximum density as determined by AASHTO T180, Method D.

The restored cross section shall be thoroughly compacted to a dense consolidated mass by rolling with an approved roller capable of producing the specified density. The required density will be measured by a Nuclear Density Gauge.

The processed asphalt stabilized base shall be tested for smoothness and accuracy of grade and if any portions are found to lack required smoothness or accuracy such portions shall be re-scarified, reshaped, recompacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy are obtained. The finished surface shall have a tolerance of ½ inch plus or minus to the grades shown on the Plans or as directed.

It is the responsibility of the Contractor to ensure that the equipment/construction methods he intends to use are capable of complying with project specifications.

406.04 METHOD OF MEASUREMENT. "Cold Recycled Base Course" will be measured by the number of square yards of material actually placed in accordance with the Plans and/or as directed by the Engineer.

406.05 BASIS OF PAYMENT. The accepted quantity of "Cold Recycled Base Course" will be paid for at the contract unit price per square yard as listed in the Proposal. The price so-stated constitutes full and complete compensation for all labor, equipment, and materials, including scarifying, mixing, pulverizing, spreading, reshaping, regrading, rolling, compacting, fine grading, any loading, hauling or other handling of recyclable materials, all costs incurred resulting from the Contractor's choice to process materials off-site, costs resulting from moving processed materials to allow for modifications to the remaining gravel base and/or subgrade, the removal and disposal of unsuitable materials, the movement of surplus asphalt stabilized base material from one location to another within the project limits, all material, placement and subsequent removal of temporary covers and structures, and all incidentals required to finish the work, complete and accepted by the Engineer.

406.05.1 Other Operations and Materials. The following work operations and materials may be necessary to properly complete the work as specified above. When required, they will be measured and compensated for under appropriate bid items as follows:

a. Cut and Match Asphalt Pavement.

b. Excavation (to modify the gravel base and/or subgrade or remove unsuitable materials).

c. Reconstruct Catch Basin "D" to Catch Basin "F."

d. Adjust Water Gates.

e. Adjust Gas Gates.

f. Gravel Borrow Subbase (to adjust the gravel base and/or subgrade or to replace unsuitable materials).

g. Coarse or Fine Aggregate from outside sources.

h. Water for Compaction Control.

i. Calcium Chloride for Pavement Rehabilitation.

j. Adjust Catch Basins or Manholes to Grade.

k. Trimming and Fine Grading (to adjust the gravel base or subgrade).

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes Concrete Paving Including the Following:

1. Walks
2. Pads for Benches & Trash Receptacles.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for general building applications of concrete.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PRE-CONSTRUCTION MEETINGS

A. Pre-Construction Meeting: Conduct conference at Project site.

1. Review methods and procedures related to concrete paving, including but not limited to, the following:
   a. Concrete mixture design.
   b. Quality control of concrete materials and concrete paving construction practices.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

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1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified ready-mix concrete manufacturer .

B. Material Certificates: For the following, from manufacturer:

1. Cementitious materials.
2. Steel reinforcement and reinforcement accessories.
3. Fiber reinforcement.
4. Admixtures.
5. Curing compounds.
6. Applied finish materials.
7. Bonding agent or epoxy adhesive.

C. Material Test Reports: For each of the following:

1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.

1.7 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

1.8 PRECONSTRUCTION TESTING

1.9 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

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C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from galvanized-steel wire into flat sheets.

B. Plain-Steel Wire: ASTM A 1064/A 1064M, [**as drawn**] [**galvanized**].

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

D. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

E. Zinc Repair Material: ASTM A 780/A 780M.

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2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150/C 150M, gray portland cement Type I .

B. Normal-Weight Aggregates: ASTM C 33/C 33M, , uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Exposed Aggregate: Selected, hard, and durable; washed; free of materials with deleterious reactivity to cement or that cause staining; from a single source, with gap-graded coarse aggregate as follows:

1. Aggregate Sizes: [**1/2 to 3/4 inch**] nominal.
2. Aggregate Source, Shape, and Color: <**Insert requirements**>.

D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
2. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

E. Water: Potable and complying with ASTM C 94/C 94M.

2.5 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

B. GFRC Glass Fiber: 200-400 individual glass filaments which are lightly bonded to make up a stand

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry or cotton mats.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

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D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

CONCRETE MIXTURES

E. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.

1. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

F. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:

1. Air Content: 6 5 percent plus or minus 1-1/2 percent for 3/4-inch nominal maximum aggregate size.

G. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

H. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use in concrete as required for placement and workability.

I. Concrete Mixtures: Normal-weight concrete.

1. Compressive Strength (28 Days): 4000 psi .
2. Maximum W/C Ratio at Point of Placement: 0.45 .
3. Slump Limit: 8 inches plus or minus 1/2 inch.

2.7 CONCRETE MIXING

A. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

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E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows , to match jointing of existing adjacent concrete paving:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
   a. Tolerance: Ensure that sawed joints are within 3 inches <**Insert dimension**> either way from centers of dowels.

D. Edging: After initial floating, tool edges of paving, and joints in concrete with an edging tool to a 1/4-inch 3/8-inch radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, inspect and complete formwork installation and items to be embedded or cast-in.

B. Remove snow, ice, or frost from subbase surface before placing concrete. Do not place concrete on frozen surfaces.

C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

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D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.

H. Screed paving surface with a straightedge and strike off.

I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

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E. Curing Methods: Cure concrete by moisture-retaining-cover curing or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/2 inch.
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
5. Lateral Alignment and Spacing of Dowels: 1 inch.
6. Vertical Alignment of Dowels: 1/4 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.10 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Drill test cores, where directed by Owner's Representative, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

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SECTION 321540 - ORGANIC-LOCK FOR STABILIZED PATHWAY AGGREGATE: FOOT TRAFFIC

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes materials and execution information for construction with aggregate with Organic-Lock binder for foot traffic applications

1.2 REFERENCES

A. ASTM C136 / C136M – 14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org

B. ASTM D2419 – 14, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregates, ASTM International, West Conshohocken, PA, 2014, www.astm.org

C. C.ASTM F1951 – 14, Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment, ASTM International, West Conshohocken, PA, 2014, www.astm.org

1.3 SUBMITTALS

A. Submit in accordance with Section 013300 - Submittal Procedures:

1. Manufacturer’s product data sheet.
2. 1 quart sample of base course.
3. Base Course gradation indicating that the product meets specifications
4. 1 quart sample of stabilized crushed aggregate paving.
5. Stabilized crushed aggregate gradation indicating that the product meets specifications.
6. Manufacturer’s Material Safety Data Sheet.

1.4 SITE CONDITIONS

A. Ensure that the subgrade and base are properly graded and compacted to required specifications.

B. Do not install the Organic-Lock pathway aggregate during rain. Rain within 3-5 days after installation will increase curing time.

C. Protect all nearby surfaces, plants, and structures from possible contamination from materials or damage by equipment.

1.5 TEST PLOT

A. Install 20 square feet minimum of stabilized crushed aggregate paving including base course, at location approved by Owner's Representative.

B. Allow Owner's Representative to view test plot before proceeding with rest of stabilized crushed aggregate paving.

C. Approved mock-up may remain as part of completed Work

1.6 DELIVERY, HANDLING, AND STORAGE

A. Delivery:

1. Delivery of Organic-Lock is available from the manufacturer or select Organic-Lock dealers. Please contact the manufacturer for more information.
2. Delivery of Organic-Lock pre-blended with aggregate is available from select dealers. Contact your closest dealer or the manufacturer for more information.

B. Handling:

1. Wear appropriate respirator when ventilation is inadequate. Avoid contact with skin and eyes.

C. Storage:

1. Protect stabilized crushed aggregate mix from contamination. Store under cover.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Organic-Lock for Organic-Lock stabilized pathway aggregate provided by:

1. Envirobond Products Corporation, 6191-2100 Bloor Street West Toronto, Ontario, Canada, M6S 5A5. 1-866-636-8476, info@envirobond.com, www.envirobond.com, www.organic-lock.com.

2.2 Crushed Aggregate Materials:

A. Crushed Aggregate Material shall consist of sound, angular, durable particles.

B. Gradation, in accordance with ASTM C136.

C. Organic-Lock Binder

1. Patented powdered organic binder designed to be blended with crushed aggregate
2. Made from 100% naturally occurring materials

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare the Subgrade

1. Excavate the area to the depth required so that finish grade can be established as noted on plans.
2. A Foot-Traffic Pathway will require a full depth of 7-9 inches: 4-6 inches of compacted base depth together with 3 inches of compacted Organic-Lock Pathway Aggregate.
3. Compact the subgrade to 95% Modified Proctor Density.

B. Prepare the Base

1. Spread the base material to approved depth. Crushed, granular road base such as 3/4" minus is an optimal base material.
2. Foot-Traffic Pathway will require 4-6 inches of compacted base material.
3. Depending upon the method of compaction the installation of base material may require separate lifts.
4. Note: Vibratory compaction is only acceptable for the base material, Organic- Lock Pathway Aggregate must be compacted with a single or double drum static roller.
5. Compact the subgrade to 95% Modified Proctor Density.

3.2 WATERSHED MANAGEMENT

A. Crowns and/or cross-slopes must be incorporated into the compacted base material.

B. If the slope is 2% or lower, a crown should be incorporated into the pathway. If the slope is greater than 2%, incorporate a cross-slope.

C. Note: The addition of crowns and cross-slopes is heavily dependent upon surrounding watershed.

3.3 SPREADING

A. The use of a paving machine is highly recommended for large projects to evenly spread Organic-Lock Pathway Aggregate at the specified depth

B. Spread the loose and uncompacted Organic-Lock Pathway Aggregate over the compacted base material.

C. Typically, a lift of 4 inches of loose, pre-wet Organic-Lock Pathway Aggregate will compact to the required 3 inch depth for Foot-Traffic Pathways.

3.4 COMPACTION

A. Make 4-6 passes using a 1 ton double or single static drum roller, or equivalent. A Foot-Traffic Pathway will typically require one lift, compacted to 3 inches.

B. Compaction will vary with different aggregates due to particle shape and size. Compact to 95% Modified Proctor Density.

3.5 COMPLETING INSTALLATION

A. Apply a light spray to the surface of the material to give a clean appearance. Apply water until the water begins to run-off.

B. Do not allow any traffic on the newly installed pathway until fully cured

3.6 3.7 REPAIRS AND PROTECTION

A. Excavate the damaged area and scarify exposed Organic-Lock Pathway Aggregate.

B. Pre-blend the replacement crushed stone aggregate material with Organic-Lock at 34 lbs/ imperial ton. Apply the material to the excavated area and compact.

C. Thoroughly water the material to achieve a 8-10% moisture content, the use of a moisture probe is recommended.

D. Allow the newly installed Organic-Lock Pathway Aggregate to cure, but not completely dry out.

E. Re-compact the material, ensuring that the final grade and crown are maintained. Do not use a vibratory compactor.

END OF SECTION 321540

Stabilized stonedust with Organic-Lock.

Dos & Don'ts



Do:

- Maintain the moisture level of the stabilized stonedust after it is delivered.
- You should be able to make a ball that just barely holds together.
    - Cover the stockpile with a tarp if there is any chance of rain or if it is drying out.
    - Mist with water, if necessary.**
- Install the stabilized stonedust on a well-compacted crushed aggregate base.
- Spray water on the base before installing stonedust to improve bond.
- Allow for about 18% compaction.
    - Install 3.6" loose depth for 3" compacted depth.
    - "Crown" or "cross-slope" the surface to displace storm water runoff.
- Compact with a static roller (1,000 lbs. or more) immediately after installation.
- A hand tamper can be used in hard to reach areas.
- Allow finished path to cure for 48 hours before opening to traffic.



Don't:

- Do not install stabilized stonedust when it is raining or cold (40° or lower).
    - Rainfall within 3 days of installation will extend the curing time.
- **Don't add too much water when maintaining the moisture level.
    - Organic-Lock can become unworkable if too much water is added.
- Don't use a vibratory roller or a plate compactor.
    - Excess vibration causes "fines" to collect on the surface

READ CUSTOM SOILS
AN A. D. MAKEPEACE COMPANY 800-924-5335

Product Information:

Stabilized Stonedust



Description

Stabilized stonedust is 3/8" minus pulverized stone (locally sourced) precision blended with a water-activated binder.

Use

Stabilized Stonedust is the ideal surface for an ADA Compliant nature path or pedestrian walkway. Design specifications are available that allow for light vehicular traffic.

Appearance

A stabilized stonedust pathway has a loose aggregate surface underlain by a solidly bound stonedust slab. Five colors of stonedust have been approved for use with binding agent: Blue, Beige, Rose, Nickel and "Natural" gray.

What we deliver

Stabilized stonedust is delivered to your jobsite completely blended, hydrated and ready for installation.

Benefits:

- Natural, non-toxic materials.
- Low impact - Permeable material.
- Qualifies for LEED v4 points.
- Product installation support from manufacturer's representative.

Limitations:

- Cannot be installed during rain or below 40°.
- Will "track" coarse material when wet. A 20' walk-off area is recommended.
- Washout potential in installations with poor storm water drainage design.
- May require spring maintenance to touch up and re-compact heavy use areas.

SECTION 321600.10 - PRECAST CONCRETE CURBS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The Work of this Section consists of providing labor, equipment, materials, incidental work, and construction methods necessary to furnish and install the precast concrete curb, as indicated on the Contract Documents and as specified.

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General Requirements, apply to this Section.

B. The following items of related work are specified and included in other Sections of the Specifications:

1. Section 312000 – Earth Moving

1.3 REFERENCES

A. The following standards shall apply to the work of this Section.

1. State of Rhode Island Department of Transportation (RIDOT):
   a. Specifications Standard Specifications for Road and Bridge Construction
2. American Society for Testing and Materials (ASTM):
   a. A 615 Deformed and Plain Billet - Steel Bars for Concrete Reinforcement

1.4 SUBMITTALS

A. A.Submit complete shop drawings of precast concrete curbing for Owner's Representative’s approval.

1. Shop drawings shall indicate size, dimension, and finish of each curb type.
2. Submit a complete schedule for quantity, lengths, and size for all curbing on the project.

B. Submit manufacturer’s literature and test reports for all curbing required for project; include each curb type.

1.5 1.5 QUALITY ASSURANCE

A. A.Unless otherwise indicated, pre-cast concrete curb materials and construction shall conform to the applicable portions of the following:

1. RIDOT Specifications Section 906, "Curbing for Roadways".
2. Concrete for all curbing shall be supplied from a single source for entire project
3. Source of concrete shall be approved by Owner's Representative prior to construction

1.6 1.6 DELIVERY, STORAGE, AND HANDLING

A. Precast concrete curb units shall be delivered to the job adequately protected from damage during transit.

B. Curb units shall be stored off the ground with wood cribbing between each unit. Curb shall be protected against staining, chipping, and other damage. Cracked, chipped, or stained units will be rejected and shall not be employed in the work.

C. Store pallets of curbing on pavement or other hard, durable surfaces that will not compact as a result of the weight of the pallets of curbing. Prevent steel strapping of pallets from rusting and staining of pavement. Remove and replace all pavement stained by rusting steel strapping of pallets.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Precast curb units shall be the product of one of the following precast concrete curb suppliers, or an approved equal:

1. Means Precast, Braintree, MA 02184, Tel. (781) 843-1909.
2. Durastone Corporation, P.O. Box 1114, 150 Higginson Avenue, Lincoln, RI 02865, Tel. (401) 596-7225.
3. Precast Specialties Corp., 999 Adams Street, P.O. Box 86, Abington, MA 02351, Tel. (781) 878-7220.

2.2 2.2 CONCRETE MATERIALS

A. Formwork:

1. Forms shall be wood or steel and shall have a "smooth form" surface to produce required finish on exposed portions of precast curbing.

B. Reinforcing Steel:

1. Steel reinforcing bars shall be deformed type conforming to ASTM A 615.
2. Unless otherwise indicated on the Contract Documents, provide a minimum of two No. 3 bars for each curb unit.

C. Concrete for Precast Curbing:

1. Concrete shall be air-entrained type with a minimum 28 day compressive strength of 4000 psi, 3/4inches aggregate, 610 lb. Portland cement per cubic yard. Air content shall be 5% to 7%.

2.3 SIZE AND DIMENSIONS

A. Straight curb units shall be 6 inches x 18 inches, 6 feet lengths.

B. Curved curbing shall be employed on radii up to 100 feet.

C. Arris exposed to traffic shall be rounded to a 3/4 inches radius. Back arris line shall be straight.

D. Curb units shall be true to line, plane, and dimensions.

2.4 FINISH

A. Curb units shall have a uniform, smooth texture finish, free from cracks and other defects. Color of units shall be uniform.

B. Curb shall have no paint, mortar, or other coating.

2.5 CURING

A. Precast units shall be moist cured by steam or water for a sufficient length of time for the concrete to obtain the required compressive strength. Curing compounds will not be permitted.

PART 3 - EXECUTION

3.1 SETTING CURB

A. Curb shall be set in an 18-inch wide trench, with trench bottom at 6 inches below bottom of curb. Excavation shall be filled to required level with dense graded crushed stone provided, installed and paid for under the work of Section 312000 - Earth Excavation, Backfill, Fill, & Grading.

1. All spaces under the curb shall be filled with compacted dense graded crushed stone so that the curb will be completely supported throughout its length.
2. Vertical face of vertical curb shall be plumb, with curb top parallel to adjacent surface.
3. Curb shall be set accurately to line and grade. Curb alignment shall be uniform, with smooth and continuous arris lines. Radius curbs shall meet with a common tangent.

B. Curb units shall be placed accurately to line. Final points (locations where lines of curb intersect) shall be joined by closure pieces made to order and not less than 30 inches in length.

C. Curb shall not be field cut except with the prior permission of the Owner’s Representative.

1. If field cutting of curb is permitted by the Owner's Representative, the curb shall be cut using concrete cutting tools to provide a smooth and uniform saw cut. Sawn end shall match manufactured end, in every respect. Chamfers shall be ground to match abutting curb unit. Field chamfers and sawn end profiles shall be finished with manufacturer recommended bonding agent, to match surface finish of curb unit. In no case, shall field sawn end cut be exposed to view.

D. Curb units shall be butted together with joints between curb units (both front and back) no greater than 1/8 inches. Joint space shall not be filled with mortar.

E. Set curb to required line and grade. Where indicated, provide transition sections to create smooth transition between standard curb and flush curb at entrances, ramps, and all other locations requiring transition curbing as determined by the Owner's Representative.

F. Backfill material on each side of curb shall be as specified for adjacent surface and shall be thoroughly compacted by means of power tampers. Extreme care shall be taken not to destroy alignment. Curb sections disturbed during backfilling or otherwise shall be reset to line and grade, and properly backfilled.

G. Remove and reset all curb sections that do not conform to the vertical and horizontal alignment shown on the Contract Documents.

END OF SECTION 321600.10

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Painted markings applied to asphalt paving.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1. Review methods and procedures related to marking asphalt paving or concrete surfaces including, but not limited to, the following:
   a. Review requirements for protecting pavement markings, including restriction of traffic during installation period.

1.4 ACTION SUBMITTALS

A. Product Data: Include technical data and tested physical and performance properties.

1. Pavement-marking paint, solvent-borne.
2. Glass beads.

B. Shop Drawings:

1. Indicate pavement markings, colors, lane separations, defined parking spaces, and dimensions to adjacent work.
2. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.

C. Samples: For each exposed product and for each color and texture specified; on rigid backing, 8 inches square.

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1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Rhode Island Department of Transportation (RIDOT) of Section T.20 for pavement-marking work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Sherwin-Williams Company (The).

B. Source Limitations: Obtain pavement-marking paints from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" the ABA standards of the Federal agency having jurisdiction and ICC A117.1 .

2.3 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint, Solvent-Borne: MPI #32, solvent-borne traffic-marking paint.

1. Color: White .

B. Glass Beads: AASHTO M 247, Type 1 or FS TT-B-1325D, Type 1 , made of 100 percent recycled glass.

1. Roundness: Minimum 80 percent true spheres by weight.

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement-marking substrate is dry and in suitable condition to begin pavement marking in accordance with manufacturer's written instructions.

B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow asphalt paving or concrete surfaces to age for a minimum of 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils .

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.
2. Broadcast glass beads uniformly into wet markings at a rate of 6 lb/gal..

3.3 PROTECTING AND CLEANING

A. Protect pavement markings from damage and wear during remainder of construction period.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

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SECTION 321813.07 - SYNLAWN TURF SURFACING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Provide equipment and materials, and do work necessary to construct the synthetic grass surfacing system (synthetic lawn), as indicated on the Drawings and as specified.

1. Synthetic grass surfacing surface including all related finish work and maintenance equipment.
2. A complete synthetic grass surfacing system, consisting of polyethylene fibers, cushioning system, designed to provide the look, feel, and safety of optimally maintained natural grass.
3. Testing as specified herein.

B. Contractor shall assume single source responsibility for complete synthetic turf system, including work of base contractor and turf contractor.

1.3 RELATED WORK

A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that relate directly to work of this Section include, but are not limited to the following:

1. Section 329450, GREEN ROOF ASSEMBLIES.

1.4 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirement shall govern.

1. American Society for Testing and Materials (ASTM):
   a. D 1335 Grass surfacing Bind Test for Pile Floor Coverings
   b. D 1557 Moisture - Density Relations of Soils and Soil Aggregate Mixtures using 10-lb. (4.54-kg) Rammer and 18 in. (457 - mm) Drop
   c. D 1577 Test Method for Linear Density of Textile Fibers
   d. D 1682 Test Method for Breaking Load and Elongation of Textile Fabrics

e. D 5034 Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

2. Commonwealth of Massachusetts Highway Department (MHD):
   a. Specifications Standard Specifications for Highways and Bridges

1.5 SUBMITTALS

A. Samples:

1. The Contractor/manufacturer shall submit, prior to the bid, a sample of the exact synthetic grass surfacing system that is specified for this project. System shall not require any infill material.
2. Submit the following samples: Grass surfacing material, 12 x 12 in. Pad, 12 in. x 121 in.

B. The grass surfacing company shall provide evidence direct from the grass surfacing manufacturer stating the installer is STC certified and certified by the manufacturer to install this type of synthetic grass.

C. Shop drawings of synthetic grass surfacing system, indicating dimensions and layout of play area construction including location and details of play equipment

D. Manufacturer's Product Data: Submit manufacturer's product data cut sheets, specifications and installation instructions for all products in the synthetic grass surfacing system, including synthetic grass, base panel, fasteners, certifications and other data as may be required to show compliance with the Contract Documents.

1. A letter and specification sheet certifying that the products of this section meet or exceed specified requirements.

E. Prior to ordering of materials:

1. The Contractor shall submit Shop Drawings indicating:
   a. Field Layout
   b. Roll/Seaming Layout
   c. Methods of attachment, field openings and perimeter conditions.

F. Prior to Final Acceptance, the Contractor shall submit to the Owner:

1. Three (3) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic grass surfacing system.
2. Warranty: Submit Manufacturer Warranty and pre-paid insured warranty policy and ensure that forms have been completed in Owner's name and registered with Manufacturer.
3. Warranty Insurance Policy Certificate—8 year policy and pre-paid insured warranty must be executed prior to Final Payment.

1.6 QUALITY ASSURANCE

A. The synthetic grass surfacing work shall be performed by a firm having at least ten (10) years experience in the installation of materials specified herein on projects comparable to this Project. The firm shall have the approval of the synthetic grass surfacing materials manufacturer. The installation crew shall have installed at least ten (10) similar non-athletic playing field installations.

B. The grass surfacing contractor must provide competent workmen skilled in this specific type of synthetic grass installation. The designated Supervisory personnel on the project must be certified, in writing by the grass surfacing manufacturer, as competent in the installation of this material.

C. Installation of synthetic grass surfacing shall be done only after excavation and construction work which might injure it has been completed. Damage caused during construction shall be repaired before acceptance.

D. Prior to the beginning of installation, the Installer of the synthetic grass surfacing shall inspect the sub-base. The final tolerance-to-grade of the base shall not exceed ¼ inch in ten feet in any direction.

E. The Owner reserves the right to engage an Independent Testing Agency for inspection and testing of synthetic field surfacing and associated work in accordance with Section 014500, QUALITY CONTROL.

1.7 WARRANTIES AND INSURANCE

A. Provide a written warranty stating that all work executed under this section will be free from defects of material and workmanship for a period of eight (8) years from date of Substantial Completion, and that any defects will be remedied on written notice at no additional cost to the Owner. The warranty shall be in writing and shall be signed by the Contractor and synthetic field surfacing materials manufacturer. Guarantee shall include removal and replacement of materials as required to repair synthetic field surfacing at no cost to the Owner.

1. The grass surfacing manufacturer must verify that their onsite representative has inspected the installation and that the work conforms to the manufacturer’s requirements.
2. The manufacturer’s warranty shall include general wear and damage caused from UV degradation. The warranty shall specifically exclude vandalism, and acts of God beyond the control of the owner or the manufacturer.
3. The grass surfacing contractor shall provide a warranty to the Owner that covers defects in the installation workmanship, and further warrant that the installation was done in accordance with both the manufacturer’s recommendations and any written directives of the manufacturer’s onsite representative.
4. All grass surfacing warranties shall be limited to repair or replacement of the affected areas, at the option of the manufacturer, and shall include all necessary materials, labor, transportation costs, etc. to complete said repairs. All warranties are contingent on the full payment by the Owner of all pertinent invoices.

1.8 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.9 DELIVERY, STORAGE, AND PROTECTION

A. Deliver products to project site in wrapped condition.

B. Store products under cover and elevated above grade.

PART 2 - PART 2 PRODUCTS

2.1 BASE COURSE

A. Dynamic Stone Base for shall be constructed of base stone and finishing stone.

1. Base Stone – Crushed stone processed from a stone quarry, washed, graded, free of organic materials.
2. Finishing Stone – Crushed stone processed from a stone quarry, washed, graded, free of organic materials.
   a. Gradation is as follows:

2.2 SYNTHETIC GRASS SURFACING

A. Synthetic Grass Surfacing (Artificial Turf) shall be “SYNLawn SYNSport”, Class A fire Rated, manufactured by SYNLawn; Tel. 866-SYNLawn, and supplied by the New England Turf Store, 5 Fulton Street, Suite 100, Canton, MA 02021; Tel. 781-821-0112, or approved eqiual.

B. The finished rolling turf surface shall appear as mowed grass with no irregularities and shall afford excellent traction for conventional athletic shoes of all types. The finished surface shall resist abrasion and cutting from normal use.

C. Color shall be Green.

D. Fasteners for anchoring to base shall be stainless steel U-shaped staples as recommended and approved by synthetic grass surfacing manufacturer.

E. Adhesives for bonding synthetic grass surfacing shall be as recommended by the synthetic grass surfacing manufacturer.

2.3 CUSHION SYSTEM

A. Turf Cushion: shall be “Brock SP-20”, manufactured by Brock, supplied by Brock INT; or approved equal.

2.4 PERIMETER EDGING

A. Perimeter Edging: shall be a 100% high density polyethylene 2x4 waterproof recycled plastic lumber.

1. Pressure treated wood and any composite board material shall not be permitted.

2.5 MAINTENANCE EQUIPMENT

A. Maintenance Equipment: Provide Power Broom, +/-30" wide synthetic bristle brush rotary head, electric, or battery powered.

PART 3 - PART 3 EXECUTION

3.1 GENERAL

A. The installation shall be performed in full compliance with approved Shop Drawings.

3.2 EXAMINATION OF SUBGRADE

A. Prior to synthetic turf system installation, verify that subgrade is complete.

3.3 AGGREGATE BASE COURSE

A. If the required compacted depth of the stone base course exceeds 3”, the base shall be constructed in 2 or more layers or lifts of approximate equal thickness. Each layer must be compacted in both directions to attain the specified compaction rate.

B. Finished grades of base shall not vary from the specified grade.

C. Aggregate base shall be graded and compacted to the required grade to meet the cross sectional slope as shown on the drawings. The material shall be uniformly distributed and compacted.

3.4 CUSHION SYSTEM

A. Cushion system shall be installed under synthetic lawn system in accordance with manufacturer’s printed instructions.

1. Secure cushion system to top of drain and access covers and around the outer edge of the frame as required and in accordance with manufacturer’s instructions.

3.5 SYNTHETIC GRASS SURFACING INSTALLATION

A. The grass surfacing contractor shall strictly adhere to the manufacturer's printed instructions and installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the manufacturer's onsite representative, and submitted to the Architect/Owner, verifying that the changes do not in any way affect the warranty.

B. Synthetic grass surfacing shall be installed by crews employed by the synthetic grass surfacing manufacturer, in strict accordance with manufacturer's recommendations and instructions including but not limited to pad, fabric, adhesives, seaming tape, sewing line, and abutting adjacent materials.

C. The carpet rolls are to be installed directly over the properly prepared base.

D. The full width rolls shall be laid out across the rolling turf area.

E. Secure the artificial grass around perimeter with stainless steel staples to composite board.

1. Secure synthetic grass surfacing to top of drain and access covers and around the outer edge of the frame as required and in accordance with manufacturer's instructions.

F. Attaching the artificial grass to the border:

1. If there is synthetic nailer around the border, nail the grass to nailer board every 3" to 6" with 20D or 40D nails.

G. All grass surfacing seams shall be glued with a SYNbind adhesive and seaming tape. Seams shall be backed with seam tape.

3.6 CLEANING

A. Protect installed Synthetic Grass surfacing System from subsequent construction operations.

B. Do not permit traffic over unprotected grass surfacing surface.

C. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.

D. All usable remnants of new material shall be come the property of the Owner.

E. The Contractor shall keep the area clean throughout the project and clear of debris.

F. Surfaces, recesses, enclosures, etc., shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.7 PROTECTION

A. Installer shall advise the Contractor of procedures required for protection of finished synthetic grass surfacing during remainder of construction period so that surfacing will be undamaged at time of acceptance.

B. Upon completion of the synthetic grass surface, the Contractor shall be responsible for protection of the grass surface for the remainder of the Contract.

END OF SECTION 321813.07

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Plant-Based Artificial Grass

PRODUCT SPECIFICATIONS



SYNSport

Game-ready and fit for battle, this economical, multi-purpose turf variety is perfect for golf fairways and multi-sport applications indoors and outdoors.



5 Colors in-stock

Field Green | Blue | White | Yellow | Gold

Ask about Custom Colors

- Unmatched Lifetime Warranty
- EnviroLoc™ Plant-Based Backing
- Deluster + UV Protection

SKU	SYNSP
Grass Zone Yarn/Color	Green: PE / Field Green Colors: PE / Turf Color
Grass Zone Denier	10,800 / 6
Thatch Zone Yarn/Color	PE / Field Green / Beige Colors: PE / Matches Turf Color
Thatch Zone Denier	5,000 / 8
Grass Zone Yarn Shape	Legend Mono
Finished Pile Height	1″
Finished Pile Weight	58 oz.
Backing	15 / 18 PP 2-Part / 22oz. EnviroLoc™
Tuft Gauge	3/8″
Total Weight	86 oz.
Tuft Bind	> 8 lbs.
Permeability	> 300 inches per / SY
Features	EnviroLoc™, HeatBlock™, Deluster, UV Stabilizers
Test Data	ASTM D2859, F1292, F1551, F1951, IPEMA Certified



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Primary Yarn Polymer	Polyethylene
Yarn Cross Section	Legend Mono
Standard Color	Green: Field Green Colors: Turf Color
Fabric Construction	Tufted
Second Yarn Polymer Thatch	Polyethylene
Secondary Yarn Color	Green: Field Green / Beige Colors: Matches Turf Color

Primary Backing	15/18 PP 2-Part
Coating Type	22 oz. EnviroLoc™
PE Yarn Denier / Ends	10,800 / 6
Texturized Thatch Denier / Ends	5,000 / 8
Warranty Period	Limited Lifetime

Finish Fabric	English System		ASTM Test
Nominal Specification	*Value*	*Units*	*Method*
Pile Height (Nominal)	1	inches	D-5823
Face Weight	58	oz/yd^2	D-5848
Total Fabric Weight	86	oz/yd^2	D-5848
Primary Backing Weight	6	oz/yd^2	D-5848
Secondary Coating Weight	22	oz/yd^2	D-5848
Tuft Bind	> 8	lbs.	D-1335
Grab Tear Strength (Average)	> 200	lbs.	D-5034
Total Yarn Linear Density	15,800	Denier	D-1577
Elongation to Break	> 30	%	D-2256
Yarn Breaking Strength	> 20	lbs.	D-5793
Machine Gauge	3/8	inches	D-5793
Flammability	Passed	-	D-2859
Water Permeability	> 300	in/hr	D-1551
Fabric Width	15	ft	-

SECTION 321816.13 - PLAYGROUND PROTECTIVE SURFACING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements , apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Organic loose-fill surfacing.

1.3 DEFINITIONS

A. Definitions in ASTM F 2223 apply to Work of this Section.

B. Critical Height: Standard measure of shock attenuation according to ASTM F 2223; same as "critical fall height" in ASTM F 1292. According to ASTM F 1292, this approximates "the maximum fall height from which a life-threatening head injury would not be expected to occur."

C. EWF: Engineered Wood fiber.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of exposed finish.

C. Samples for Verification: For each type of protective surfacing and exposed finish.

1. Include Samples of accessories to verify color and finish selection.
2. Loose-Fill Surfacing: Minimum 1 quart.
3. Drainage/Separation Geotextile: Minimum 12 by 12 inches.
4. Drainage Panel: Minimum 6 by 6 inches.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and testing agency.

B. Material Certificates: For each type of loose-fill surfacing.

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1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 WARRANTY

A. Special Warranty: Manufacturer and Installer agree to repair or replace components of protective surfacing that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Reduction in impact attenuation as measured by reduction of critical fall height.
   b. Deterioration of protective surfacing and other materials beyond normal weathering.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain protective surfacing materials , including loose-fill accessories, from single source from single manufacturer.

1. Provide geosynthetic accessories of each type from source recommended by manufacturer of protective surfacing materials.

2.2 PERFORMANCE REQUIREMENTS

A. Impact Attenuation: Critical fall height tested according to ASTM F 1292.

B. Accessibility Standard: Minimum surfacing performance according to ASTM F 1951.

2.3 ORGANIC LOOSE-FILL SURFACING

A. Engineered Wood Fiber: ASTM F 2075; containing no bark, leaves, twigs, or foreign or toxic materials ; tested for accessibility according to ASTM F 1951.

1. Critical Height: As indicated on Drawings .
2. Uncompressed Material Depth: Not less than as required for critical height indicated **12 inches** .

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for subgrade elevations, slope, and drainage and for other conditions affecting performance of the Work.

1. Verify that substrates are sound and without high spots, ridges, holes, and depressions.

B. Hard-Surface Substrates: Verify that substrates are satisfactory for unitary, protective surfacing installation and that substrate surfaces are dry, cured, and uniformly sloped to drain within recommended tolerances according to protective surfacing manufacturer's written requirements for cross-section profile.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare substrates to receive surfacing products according to protective surfacing manufacturer's written instructions.

B. Hard-Surface Substrates: Clean surface free of laitance, efflorescence, curing compounds, and other contaminants incompatible with protective surfacing.

1. Repair: Fill holes and depressions in unsatisfactory surfaces with leveling and patching material.
2. Treatment: Mechanically abrade or otherwise prepare concrete substrates according to protective surfacing manufacturer's written instructions to achieve adequate roughness.

3.3 INSTALLATION OF LOOSE-FILL SURFACING

A. Apply components of loose-fill surfacing according to manufacturer's written instructions to produce a uniform surface.

B. Loose Fill: Place loose-fill materials to required depth after installation of playground equipment support posts and foundations. Include manufacturer's recommended amount of additional material to offset natural compaction over time.

C. Grading: Uniformly grade loose fill to an even surface free from irregularities.

D. Compaction: After initial grading, mechanically compact loose fill before finish grading.

E. Finish Grading: Hand rake to a uniformly smooth finished surface and to required elevations.

END OF SECTION 321816.13

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SECTION 323116.10 - ORNAMENTAL WELDED WIRE FENCES AND GATES

PART 1 - GENERAL:

1.1 SECTION INCLUDES

A. Decorative welded wire fencing, gates, and accessories.

1.2 SYSTEM DESCRIPTION

A. The manufacturer shall supply a total ornamental welded wire fence system of the style, strength, size, and color defined herein. The system shall include all components as required, and shall be fabricated, coated, and assembled in the United States.

1.3 QUALITY ASSURANCE

A. The contractor shall provide laborers and supervisors who are familiar with the type of construction involved, and the materials and techniques specified.

B. Manufacturer of fence system must have ten (10) years of documented experience in manufacturing the products specified in this section.

1.4 REFERENCES

A. ASTM A525 - Specification for General Requirements for Steel Sheet, Zinc-coated (Galvanized) by the Hot-Dip Process

B. ASTM A641 – Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

C. ASTM A185 – Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

D. ASTM B117 – Practice for Operating Salt Spray (Fog) Apparatus

E. ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity

1.5 SUBMITTALS

A. Manufacturer’s submittal package shall be provided prior to installation.

B. Changes in specification may not be made after the bid date.

C. Samples of assembled materials, components, hardware, accessories, and/or colors, if requested.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Upon receipt, materials should be checked for damage that may have occurred in shipping to the job site.

B. Each package shall bear the name of the manufacturer.

C. Store products in manufacturer's unopened packaging.

D. Store materials in a secure and dry area to protect against damage, weather, vandalism, and theft.

E. Transport, handle and store products with care to protect against damage before installation.

PART 2 - PRODUCTS:

2.1 MANUFACTURER

A. The fencing system shall be Patriot Ornamental Wire Fence as manufactured by Jerith Manufacturing LLC., 14400 McNulty Road, Philadelphia, PA 19154. Telephone: 800-344-2242; Fax: 215-676-9756; email: sales@jerith.com.

B. Substitutions: Approved equal permitted.

C. Nominal fence height shall be 48 inches. Fences taller than 72" shall be made by stacking two same height panels on top of each other.

D. Color shall be Black.

2.2 MATERIALS

A. Structural Components: All posts and rails used in the fence system shall be manufactured from coil steel having a minimum yield strength of 55,000 psi. The steel shall be galvanized to meet the requirements of ASTM A525 with a zinc coating weight of 0.60-1.0 ounces per square foot.

B. Infill: Section infill wires shall be steel with a minimum yield strength of 50,000 psi. The steel shall be galvanized to meet the designation of "regular coating" in accordance with requirements of ASTM A641.

2.3 FINISH

A. Pretreatment: A five stage non-chrome pretreatment shall be applied. The final stage shall be a dry-in-place activator which produces a uniform chemical conversion coating for superior adhesion.

B. Coating: Fence materials shall be coated with a TGIC polyester powder-coat finish system. Epoxy powder coatings, baked enamel or acrylic paint finishes are not acceptable. The finish shall have a cured film thickness of at least 2.0 mils.

C. Tests: The cured finish shall meet the following requirements:

1. Humidity resistance of 1,000 hours using ASTM D2247.
2. Salt-spray resistance of 1,000 hours using ASTM B117.
3. Outdoor weathering shall show no adhesion loss, checking or crazing, with only slight fade and chalk when exposed for 3 years in Florida facing south at a 45 degree angle.

2.4 FABRICATION

A. Fence Sections shall be manufactured with 1" square x 18 gauge (.049") tubing welded every 12" to the top and bottom of welded wire panels. Welded wire panels shall be comprised of 4 (.225") gauge (Washburn & Moen Standard) vertical wires and 6 (.192") gauge horizontal wires. 4 gauge vertical wires shall be placed 3½" on center. 6 gauge vertical wires shall be placed 1¾" on center. Horizontal wires shall be 6 gauge and spaced to provide style differences but no further apart than would allow substantial rigidity of vertical wires. Horizontal and vertical wires shall be assembled by automatic machines or other suitable mechanical means that will ensure accurate spacing and alignment of all members of the finished fabric. The wires shall be connected at every intersection by electric resistance welding in accordance with all requirements in ASTM A185. Sections shall be capable of supporting a 550 lb. load applied vertically at midspan and a concentrated load of 225 lbs. applied horizontally at midspan without permanent deformation.

B. Posts shall be 2½"square x 11 (.125") gauge steel tubing. Posts shall be spaced 70" apart from inside face to inside face. Steel rail ends shall be screwed to terminal posts to receive the 1" square top and bottom rails. The rails shall be secured to the rail ends by stainless steel screws. Steel caps shall be provided with all posts.

C. Residential and light commercial grade gates shall be assembled using gate uprights with 1" outside cross-section dimensions having 7/8" tubes welded to them. A Fence Section shall then be cut to size and secured to two uprights using stainless steel screws. A 1" x .125" diagonal brace shall be provided, cut to length, cold galvanized, touched up, and screwed into position from the top hinge side to the bottom latch side of the gate. All gates shall support a 300 lb. vertical load on the latch side of the gate without collapsing.

D. Heavy duty grade gate frames shall consist of 2" square x .125" wall gate uprights and 1.5" x 1.5" x .125" U-channels for top and bottom members welded at each connection with a 1" x .125" wall diagonal brace welded into place. Infill of matching Fence Section shall be welded into frame.

2.5 WARRANTY

A. The entire fence system shall have a written 8 Year Warranty against rust and defects in workmanship and materials. In addition, the finish shall be warranted not to crack, chip, peel, or blister for the same period.

PART 3 - EXECUTION:

3.1 PREPARATION

A. Verify areas to receive fencing are completed to final grades and elevations.

B. Ensure property lines and legal boundaries are clearly established.

C. Remove any surface irregularities which may cause interference with the installation of the fence.

3.2 FENCE INSTALLATION

A. Install fence in accordance with the manufacturer's instructions.

B. Excavate post holes to proper depth to suit local conditions for stability and support of the fence system without disturbing the underlying materials. Excavate deeper as required for adequate support in soft and loose soils.

C. Set fence posts in concrete footers at 70" spacing from inside of post to inside of post. Note that this fence must be stepped for installations on a slope. It can not follow the grade.

D. Center and align posts in holes to required depth. Place concrete around posts and tamp for consolidation. After tamping, check alignment of posts, and make necessary corrections before the concrete hardens.

E. Insert rail ends into horizontal rails and fasten in place to the posts.

3.3 GATE INSTALLATION

A. Set gate posts plumb and level for gate openings specified in construction drawings.

B. Install gates to allow full opening without interference after concrete has hardened around gate posts. Adjust hardware for smooth operation. Install one drop rod for double gates.

3.4 ACCESSORIES

A. Install post caps and other accessories to complete fence.

3.5 CLEANING

A. Contractor shall clean site of debris and excess materials. Post hole excavations shall be scattered uniformly away from posts.

B. If necessary, clean fence system with mild household detergent and clean water. Excess concrete must be removed from posts and other fencing material before it hardens.

END OF SECTION 323116.10

SECTION 323119.10 - RIBBED METAL VERTICAL PANEL FENCE

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The contractor shall provide all labor, materials, and appurtenances necessary for installation of the privacy metal fence system defined herein at project site.

1.2 RELATED WORK

A. Section 312000 – Earth Moving

B. Section 321313 – Concrete Paving

1.3 SYSTEM DESCRIPTION

A. The manufacturer shall supply a steel framework Trac system design manufactured by FenceTrac or approved equal. The system shall include all components (i.e., all necessary Trac components, posts, gates, and hardware) required. Privacy filler materials will be Hefti-Rib manufactured by Fabral or approved equal.

1.4 QUALITY ASSURANCE

A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.5 REFERENCES

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM B117 - Practice for Operating Salt-Spray (Fog) Apparatus.

C. ASTM D523 - Test Method for Specular Gloss.

D. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.

E. ASTM D822 - Practice for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.

F. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.

G. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.

H. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

I. ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.

1.6 SUBMITTAL

A. The manufacturer's submittal package shall be provided prior to installation.

1.7 PRODUCT HANDLING AND STORAGE

A. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage, and to protect against damage, weather, vandalism, and theft.

PART 2 - MATERIALS

2.1 MANUFACTURER

A. The commercial ornamental steel fence system shall conform to FenceTrac standard system with Steel Hefti-Rib 22 Gauge 7.2" x 1-1/2" Rib 38 7/8” x 6'-0" style filler materials supplied by Fabral, or approved equals. FenceTrac is manufactured in Tulsa, OK. Contact: 918-794-8722; info@fencetrac.com

2.2 MATERIAL

A. Steel material for fence framework and posts, when galvanized prior to forming, shall conform to the requirements of ASTM A924/A924M, with a minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft2 (276 g/m2), Coating Designation G-90.

B. Material for the Top and Bottom Tracs shall be 18 Ga. steel. Material for the Post Mount and Vertical-H Tracs shall be 18 Ga. steel. The cross-sectional shape of the rails shall conform to the manufacturer's roll-formed U-channel design. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

2.3 FABRICATION

A. All fence framework shall be pre-cut to specified lengths. The Post Mount Tracs shall be pre-drilled for attachment to the posts.

B. The manufactured steel framework shall be subjected to a thermal stratification coating process. Starting with the initial pre-rinse and cleaning, then adding a zinc phosphate protective coating, epoxy primer coating and heating process, and a separate electrostatic spray application of a TGIC polyester powder coat finish. The total coating shall be a minimum thickness of 4 mils (0.1016mm). The color shall be Black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

C. Completed sections shall be capable of supporting appropriate wind speeds according to ASCE 7-05 for Commercial/Industrial designed systems only. Residential applications will vary, and wind speed testing can be calculated for an additional cost if necessary. Panels without special ornamentation or custom additions on top shall be biasable up to a 45% change in grade.

PART 3 - EXECUTION

3.1 PREPARATION

A. All new installation shall be laid out by the contractor in accordance with the construction plans.

3.2 FENCE INSTALLATION

A. Fence post shall be spaced according to FenceTrac installation instructions or Submittal drawings. For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence sections shall be attached to posts with self-tapping screws supplied by the manufacturer. Posts shall be set in concrete footers having a minimum depth of 36” (Note: In some cases, local restrictions of freezing weather conditions may require a greater depth). The “Earthwork” and “Concrete” sections of this specification shall govern material requirements for the concrete footer. Posts setting by other methods such as plated posts or grouted core-drilled footers are permissible only if shown by engineering analysis to be sufficient in strength for the intended application. Alternative materials on posts are also possible with the FenceTrac system, additional contact may be necessary to complete special post installations.

3.3 FENCE INSTALLATION MAINTENANCE

A. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. FenceTrac spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-FenceTrac parts or components will negate the manufactures’ warranty.

3.4 GATE INSTALLATION

A. Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application, weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.5 CLEANING

A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

END OF SECTION 323119.10

SECTION 323300 - SITE FURNISHINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Seating.
2. Tables.
3. Trash receptacles.

1.3 ACTION SUBMITTALS

A. A. Manufacturer's Literature: Submit copies of each of manufacturer's material descriptions, dimensions, details, and installation instructions for the following. Submit manufacturer's material descriptions for primer coat and finish coat.

1.4 INFORMATIONAL SUBMITTALS

A. Complete Shop Drawings for the installation of 6’ bench without back

B. Complete Shop Drawings for the installation of ADA picnic table

C. Complete Shop Drawings for the installation of 6' picnic table with benches

D. Complete Shop Drawings for the installation of trash receptacle with metal hood

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For site furnishings to include in maintenance manuals.

B. The Contractor shall furnish and deliver standard written manufacturer's guarantee in Owner's name covering all materials and workmanship under this Section 323300, Site Furnishings, in addition to, and not in lieu of, guarantee requirements set forth under Section 010000, GENERAL REQUIREMENTS, and other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

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C. Supplier shall pay for repairs of any damage to any part of the project caused by defects in his work and for any repair to the materials or equipment caused by replacement. All repairs are to be done to the satisfaction of the Owner's Representative.

D. Any part of the work installed under this contract requiring excessive maintenance shall be considered as being defective, and shall be replaced by the Supplier during the one year guarantee period at no cost to the Owner.

PART 2 - PRODUCTS

2.1 SEATING

A. 72" long bench with backrest, surface mount on concrete pad, Ipe wood slats with black supports, (model #88-60I) as manufactured by Dumor, Inc P.O. Box 142 Mifflintown, PA 17059 or approved equal

2.2 TABLES

A. 8' long ADA picnic table, in-ground mount, Ipe wood slats with Black supports, (model #75-68-1I) as manufactured by DuMor, Inc., P.O. Box 142, Mifflintown, PA 17059 800.598.4018, or approved equal.

B. 6' long picnic table, in-ground mount, Ipe wood slats with Black supports (model #75-60I) as manufactured by DuMor, Inc. P.O. Box 142, Mifflintown, PA 17059 800.598.018 or approved equal.

2.3 TRASH RECEPTACLES

A. 24" x 32" round black steel trash receptacle with dome lid surface mount on concrete pad, Model # 26BTR5/ETR55/DL3 as manufactured by The Cary Company.

2.4 FABRICATION

A. Factory Assembly: Factory assemble components to greatest extent possible to minimize field assembly. Clearly mark units for assembly in the field.

2.5 GENERAL FINISH REQUIREMENTS

A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

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PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.

B. All metal inserts, anchor slots, anchors, anchor bolts, fastenings, and other fastening devices, for attachment of site improvement items to pavements, except as otherwise specified under other Sections of this Specification, shall be in specified, provided, delivered installed and paid for under the work of this Section 02800, Site Furnishings.

C. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.

D. Free-standing site improvement items shall be set plumb and horizontal regardless of the pitch of the finished surrounding grade unless otherwise shown on the Contract Documents.

E. The Contractor shall be responsible for timing the delivery of site improvement items so as to minimize the on-site storage time prior to installation. All stored materials are the responsibility of the Contractor and shall be protected from weather, careless handling and vandalism.

F. Contractor shall be responsible for the correct location of site improvement items. Take particular care to maintain shapes, plumb and level during the pouring of concrete.

G. All Work shall be accurately set to established lines and elevations and rigidly set in place to supporting construction.

H. Install site furnishings level, plumb, true, and positionedat locations after final aproval in the field by Owner's Representative.

I. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

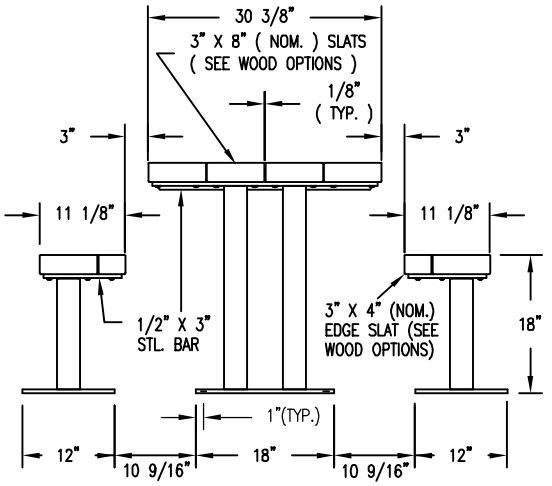
J. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply

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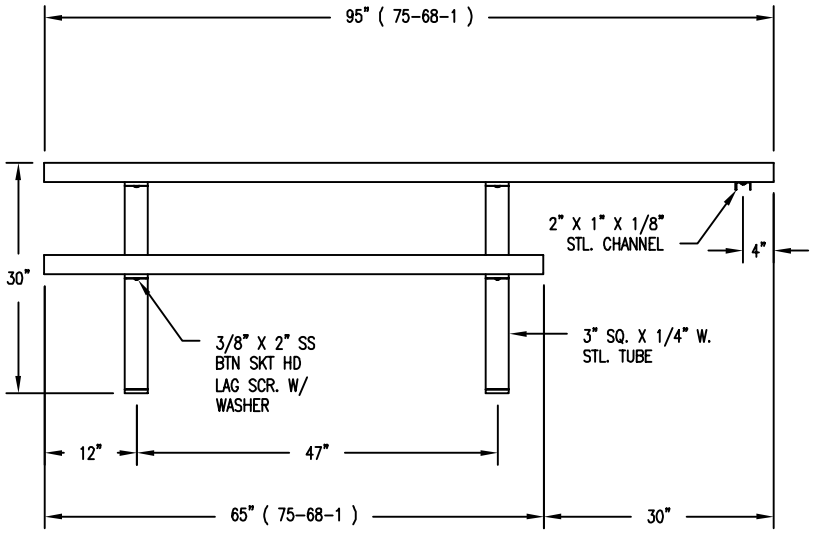
with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

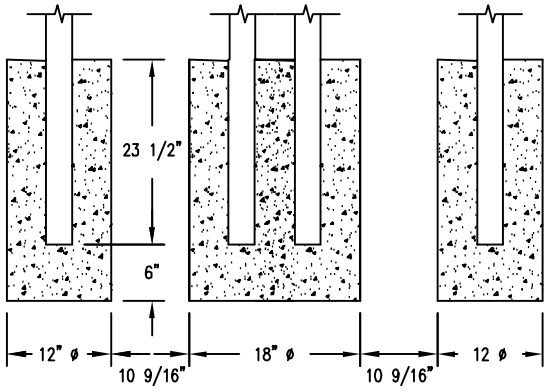
END OF SECTION 323300

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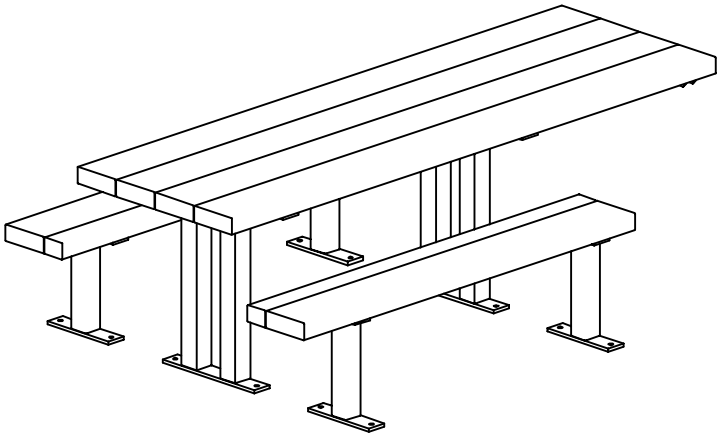


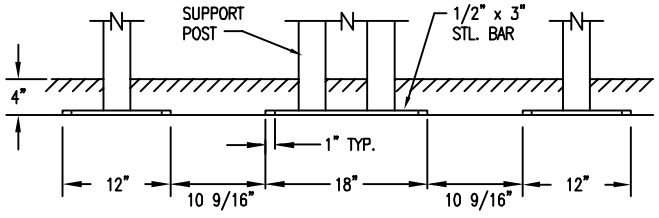
☐ S-2 SURFACE MT





☐ S-1 EMBEDMENT





☐ S-4 SUB FLOOR

NOTES

1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.

2.) 1/2" X 3 3/4" EXPANSION ANCHOR BOLTS PROVIDED FOR OPTIONS S-2 AND S-4.

WOOD OPTIONS

☐ 'C' & BTR. DOUGLAS FIR KD S4S EE

☐ IPE S4S EE

☐ OTHER _____

DuMor, inc.	PICNIC TABLE	DATE DRAWN : 03/22/94 DRAWN BY : AWH DATE REV. : 11/09/11 REV. BY : RDH	REV. E	DRAWING NUMBER 75-68-1	SHEET 1 OF 2

NOTES:

1.) DURING ASSEMBLY PROCEDURE; DO NOT COMPLETELY TIGHTEN HARDWARE.
2.) THE ACTUAL PARTS WILL NOT BE NUMBERED. NUMBERS ONLY APPLY TO DRAWING.
3.) UPON COMPLETION OF ASSEMBLY SQUARE ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.
4.) MOUNT AND ANCHOR AS SPECIFIED.

TOOLS REQ'D

3/4" WRENCH
1/4" ALLEN WRENCH
1/2" MASONRY DRILL BIT
DRILL

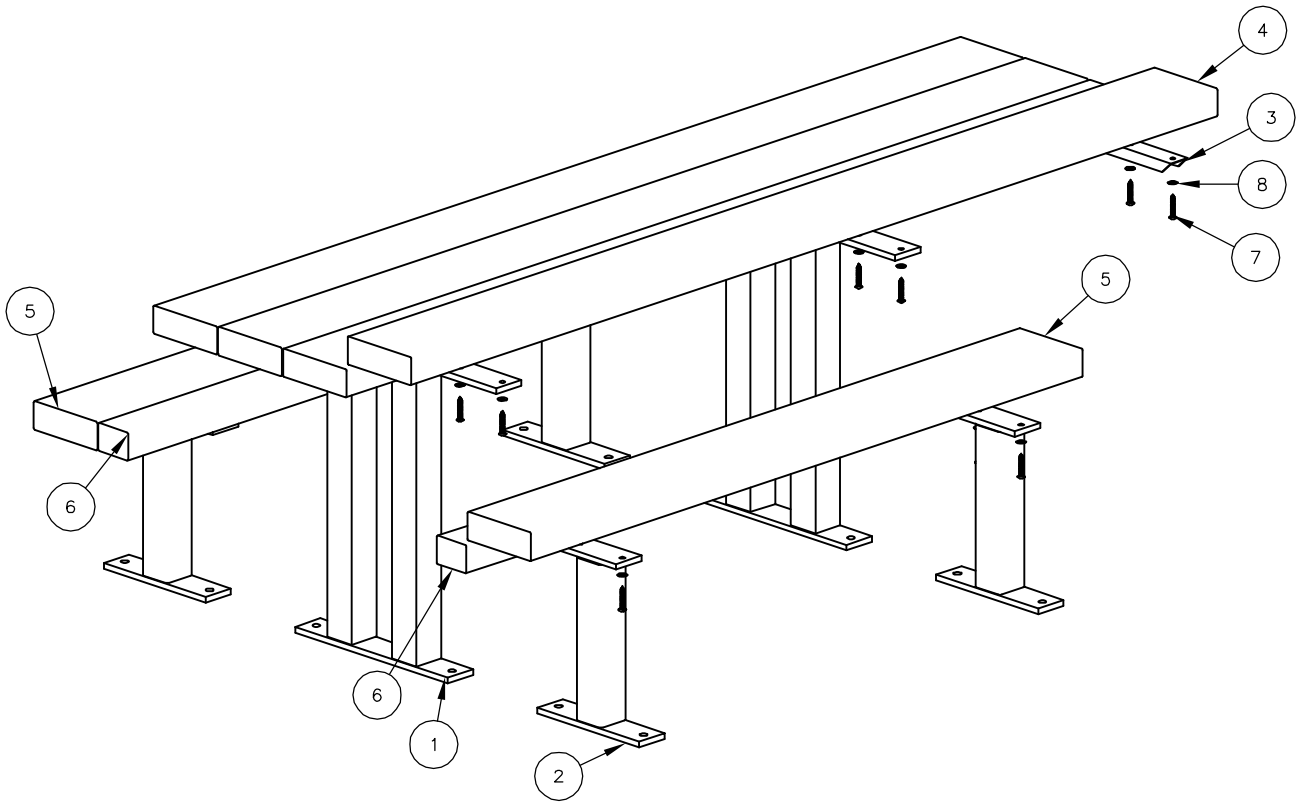
PARTS LIST

ITEM	QTY	PART NO	DESCRIPTION
1	2	0-75-00-03/S-2	TABLE SUPPORT FOR SURFACE MOUNT
2	4	0-75-00-04/S-2	SEAT SUPPORT FOR SURFACE MOUNT
3	1	0-75-68-05	END CHANNEL
4	4	0-75-68-1-01	3" X 8" X 95" WHLCHR TOP PLANK
5	2	0-75-68-1-02	3" X 8" X 65" SLAT, WOOD
6	2	0-75-68-1-03	3" X 4" X 65" SLAT, WOOD
7	36	1-13-016	3/8" X 2" SS BTN SKT HD LAG SCR
8	36	1-22-024	3/8" SS FLAT WASHER

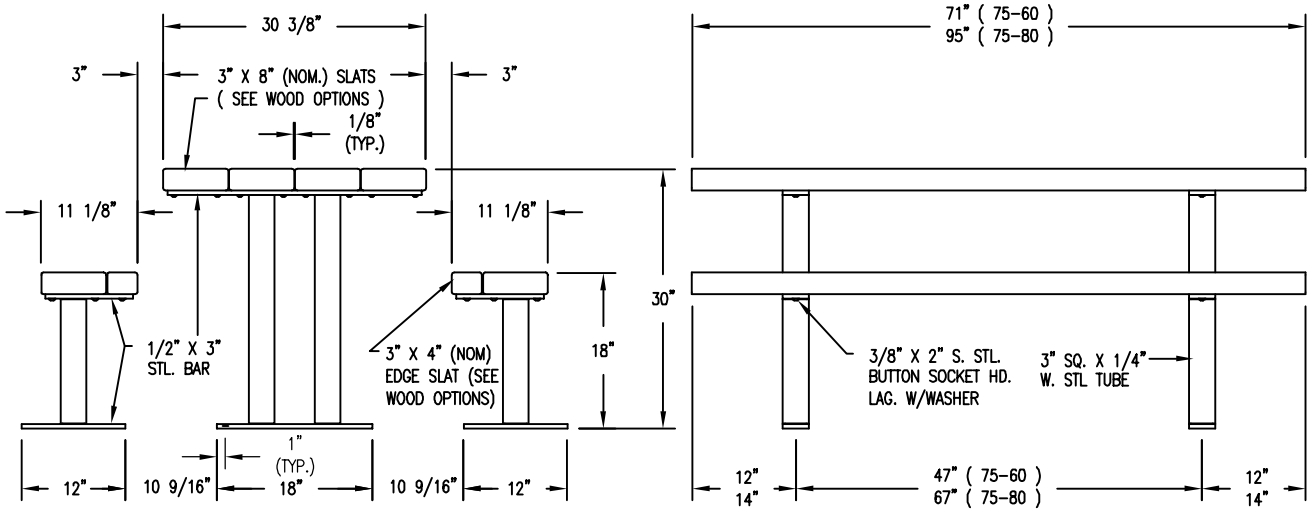
KITS PROVIDED

ITEM	QTY	PART NO	DESCRIPTION
9	3	K-ANC0860-4	1/2" X 3 3/4" SS ANCHOR KIT (4PC)
10	2	K-BL0632-18	3/8" LAG HARDWARE KIT (18PC)

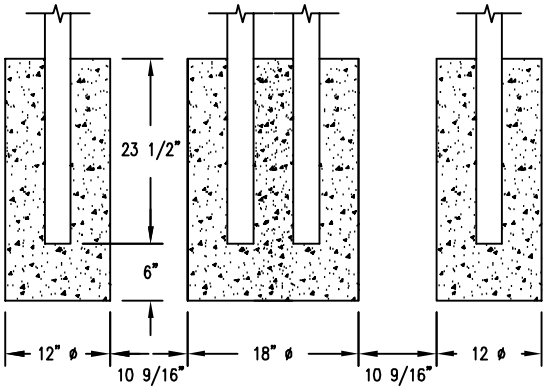
(1) ATTACH SLATS TO SUPPORTS.



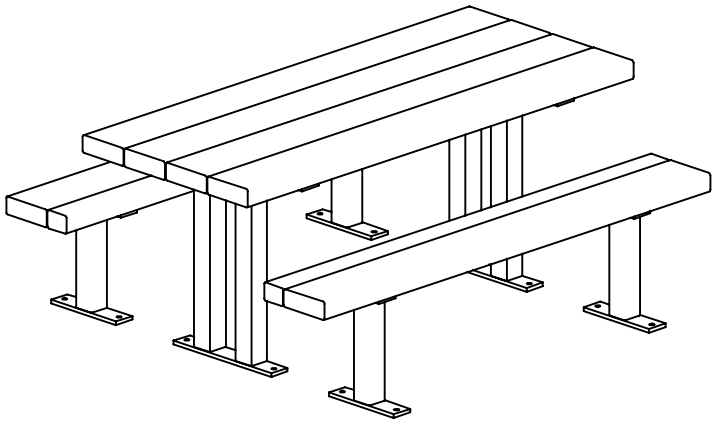
DuMor, inc.	ASSEMBLY INSTRUCTIONS	DATE DRAWN : 03/22/94 DRAWN BY : AWH DATE REV. : 11/09/11 REV. BY : RDH	REV. E	DRAWING NUMBER 75-68-1	SHEET 2 OF 2

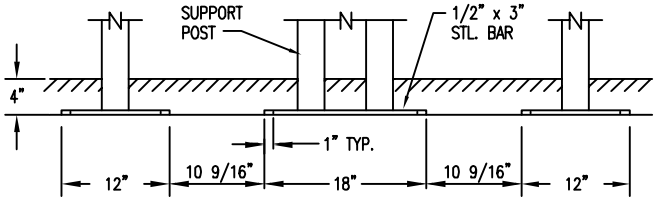


☐ S-2 SURFACE
(AS SHOWN)



☐ S-1 EMBEDMENT





☐ S-4 SUB FLOOR

LENGTH OPTIONS

☐ 6' TABLE
☐ 8' TABLE

WOOD OPTIONS

☐ 'C' & BTR. DOUGLAS FIR KD S4S EE
☐ IPE S4S EE
☐ OTHER _____

NOTES

1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.
2.) 1/2" X 3 3/4" EXPANSION ANCHOR BOLTS PROVIDED FOR OPTIONS S-2 AND S-4.

DuMor, inc.	PICNIC TABLE	DATE DRAWN : 03/22/94 DRAWN BY : AH DATE REV. : 11/09/11 REV. BY : RDH	REV. F	DRAWING NUMBER 75 SERIES	SHEET 1 OF 2

NOTES:

1.) DURING ASSEMBLY PROCEDURE; DO NOT COMPLETELY TIGHTEN HARDWARE.
2.) THE ACTUAL PARTS WILL NOT BE NUMBERED. NUMBERS ONLY APPLY TO DRAWING.
3.) UPON COMPLETION OF ASSEMBLY SQUARE ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.
4.) MOUNT AND ANCHOR AS SPECIFIED.

TOOLS REQ'D

3/4" WRENCH
1/4" ALLEN WRENCH
1/2" MASONRY DRILL BIT
DRILL

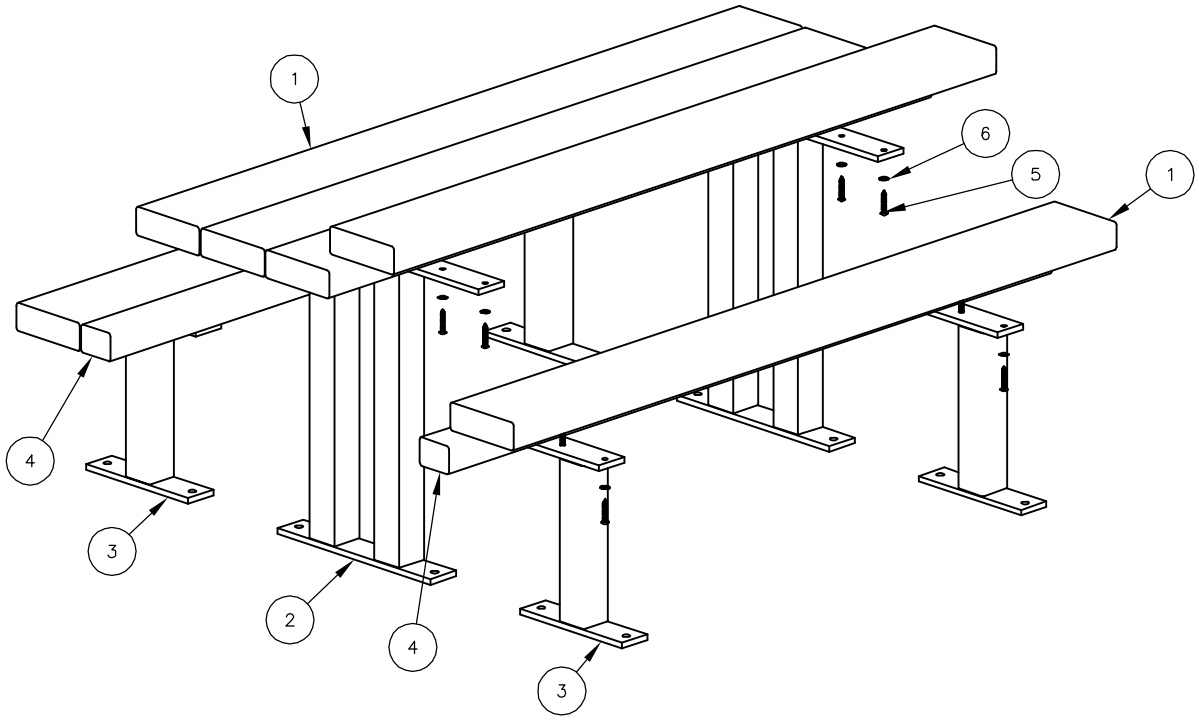
PARTS LIST FOR S-2

ITEM	QTY	PART NO	DESCRIPTION
1	6	0-38-60-01	3" X 8" X 71" SLAT, WOOD
2	2	0-75-00-03/S-2	TABLE SUPPORT FOR SURFACE MOUNT
3	4	0-75-00-04/S-2	SEAT SUPPORT FOR SURFACE MOUNT
4	2	0-88-60-02	3" X 4" X 71" WOOD INT'R SLAT
5	28	1-13-016	3/8" X 2" SS BTN SKT HD LAG SCR
6	28	1-22-024	3/8" SS FLAT WASHER

KITS PROVIDED FOR S-2

ITEM	QTY	PART NO	DESCRIPTION
7	3	K-ANC0860-4	1/2" X 3 3/4" SS ANCHOR KIT (4PC)
8	1	K-BL0632-30	3/8" LAG HARDWARE KIT (30PC)

(1) ATTACH SLATS TO SUPPORTS.



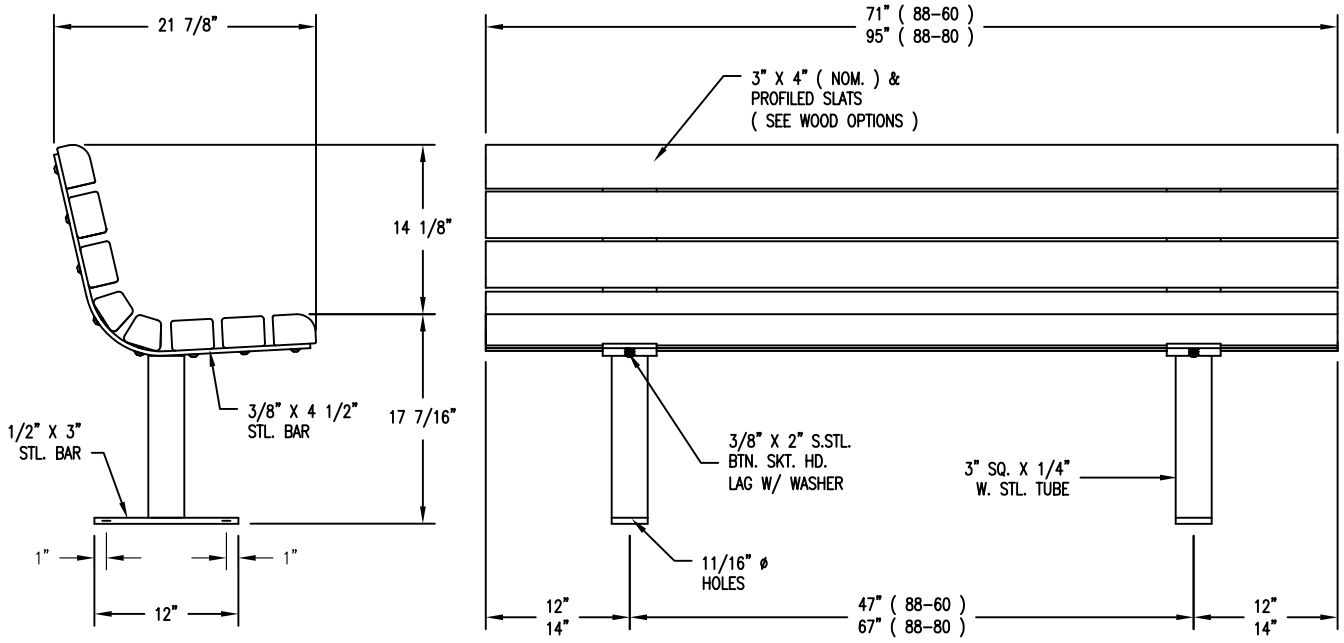
DuMor, inc.

ASSEMBLY INSTRUCTIONS

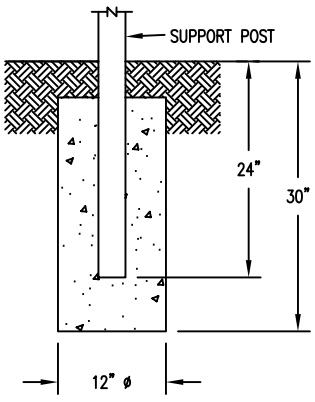
DATE DRAWN : 3/22/94
DRAWN BY : AH
DATE REV. : 11/09/11
REV. BY : RDH

REV. F

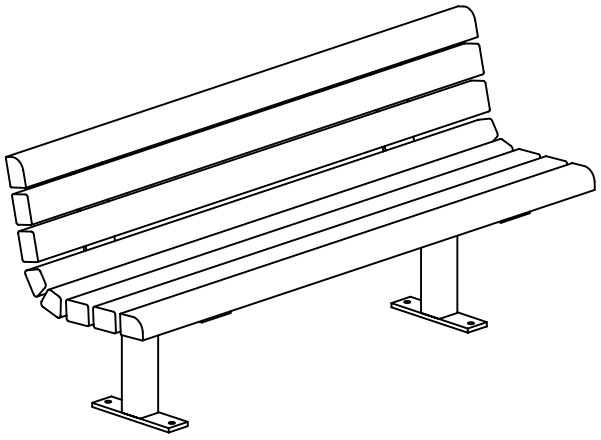
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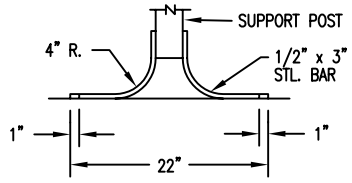


☐ S-2 SURFACE

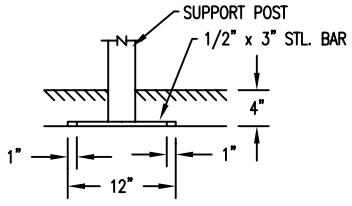


☐ S-1 EMBEDMENT





☐ S-3 GULL WING



☐ S-4 SUB FLOOR

LENGTH OPTIONS

☐ 6' BENCH

☐ 8' BENCH

NOTES

1.) ALL STL. MEMBERS COATED W/ ZINC RICH EPOXY THEN FINISHED W/ POLYESTER POWDER COATING.

2.) ALL WOOD MEMBERS TREATED W/ CLEAR PRESERVATIVE.

3.) 1/2" X 3 3/4" EXPANSION ANCHOR BOLTS PROVIDED FOR S-2, S-3 & S-4 OPTIONS.

WOOD OPTIONS

☐ 'C' & BTR. DOUGLAS FIR KD S4S EE

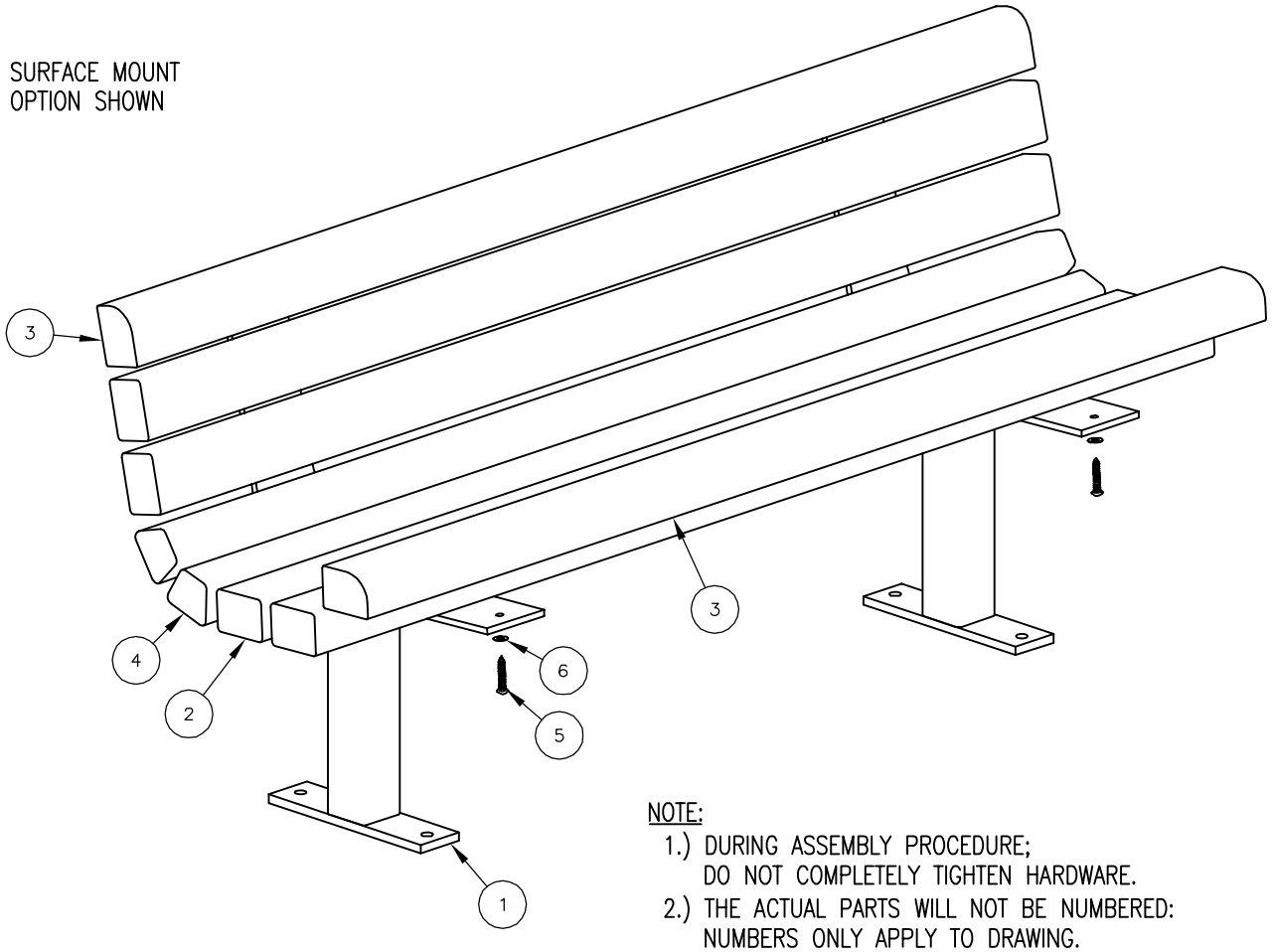
☐ IPE S4S EE

☐ OTHER _____

DuMor, inc.
P.O. Box 142 Mifflintown, PA 17059-0142

SCALE : NONE	TITLE : BENCH			
DATE DRAWN : 7/31/95				
DRAWN BY : AH	REV. E	DRAWING NUMBER 88 SERIES	SHEET 1 OF 2	
DATE REV. : 10/26/11				
REV. BY : ESS				

SURFACE MOUNT
OPTION SHOWN



NOTE:
1.) DURING ASSEMBLY PROCEDURE;
DO NOT COMPLETELY TIGHTEN HARDWARE.
2.) THE ACTUAL PARTS WILL NOT BE NUMBERED:
NUMBERS ONLY APPLY TO DRAWING.
3.) SEE SPEC. SHEET 1 FOR MOUNTING OPTION.

STEP 1:
USE 2 – PCS. SUPPORT FOR SURFACE MOUNT (1)
4 – PCS. 3" X 4" X 71" WOOD INT'R SLATS (2)
2 – PCS. 3" X 4" X 71" WOOD EDGE SLATS (3)
2 – PCS. 3" X 4" X 71" WOOD TRAP SLATS (4)
16 – PCS. 3/8" X 2" SS. BTN. SKT. HD. LAG SCR. (5)
16 – PCS. 3/8" SS. FLAT WASHER (6)
ATTACH SLATS (2, 3, & 4) TO SUPPORT FOR SURFACE MOUNT (1) USING HARDWARE (5 & 6). TIGHTEN TO SNUG FIT. REPEAT UNTIL ALL SLATS ARE ATTACHED.

STEP 2:
UPON COMPLETION OF BENCH ASSEMBLY SQUARE ALL COMPONENTS THEN TIGHTEN ALL HARDWARE.

STEP 3:
ANCHOR ACCORDING TO SUPPORT OPTION USED.

ITEM	QTY	PART NO	DESCRIPTION
1	2	0-88-00-01/S-2	BENCH SUPPORT FOR SURFACE MOUNT
2	4	0-88-60-02	3" X 4" X 71" WOOD INT'R SLAT
3	2	0-88-60-03	3" X 4" X 71" WOOD EDGE SLAT
4	2	0-88-60-04	3" X 4" X 71" WOOD TRAP SLAT
5	16	1-13-016	3/8" X 2" SS BTN SKT HD LAG SCR
6	16	1-22-024	3/8" SS FLAT WASHER

DuMor, inc.
P.O. Box 142 Mifflintown, PA 17059-0142

SCALE : NONE
DATE DRAWN : 7/31/95
DRAWN BY : AH
DATE REV. : 12/15/08
REV. BY : ESS

TITLE : BENCH ASSEMBLY

REV. D
DRAWING NUMBER 88 SERIES
SHEET 2 OF 2

IF YOU... MIX IT. FILL IT. PACK IT. SHIP IT.

WE HAVE A PRODUCT FOR YOU



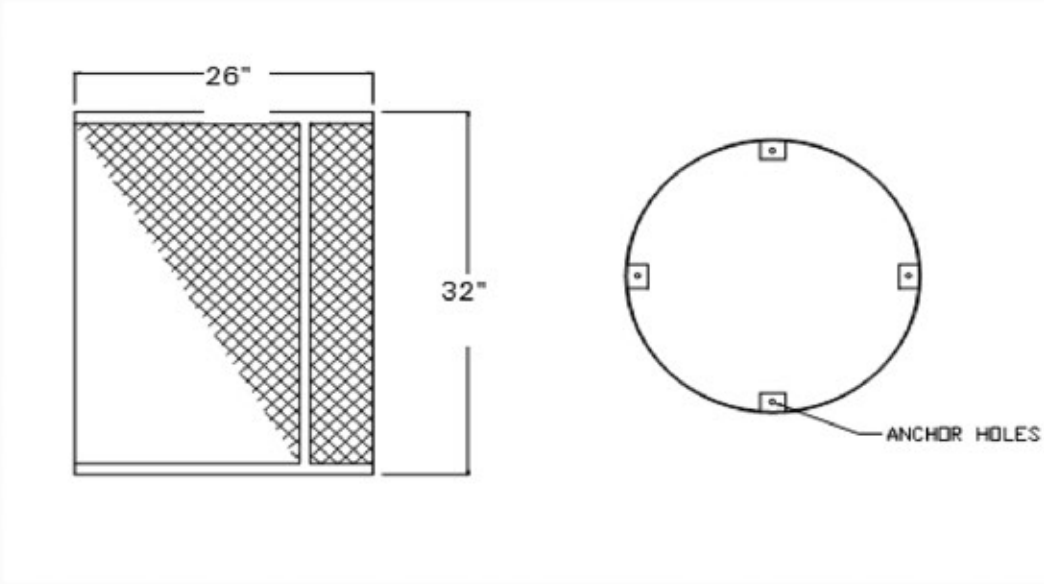
55 Gallon Black Metal Trash Receptacle Cage

Product Category: Outdoor Trash Receptacles

Part #	26BTR5
Color	Black
Material	Steel

The CARY COMPANY Est. 1895

1195 W. Fullerton Ave. | Addison, IL 60101 | T: 630.629.6600 | F:630.629.3690 | TheCaryCompany.com



Materials: **3/4" 9 gauge expanded metal wrap**
12 gauge vertical support bands
12 gauge formed horizontal support bands



Unit is designed for portable or "bolt down" application. Unit should be secured to a location with use of the four (4) anchor holes.

The CARY COMPANY Est. 1895

DMF	55 GALLON TRASH RECEPTACLE
4/9/2009	
ETR55.OVW	

IF YOU... MIX IT. FILL IT. PACK IT. SHIP IT.

WE HAVE A PRODUCT FOR YOU



55 Gallon Black Steel Dome Trash Receptacle Lid

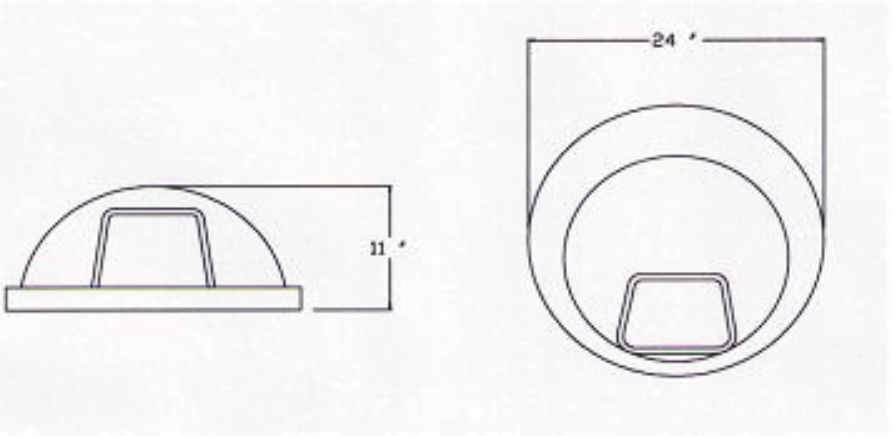
Product Category: Outdoor Trash Receptacles

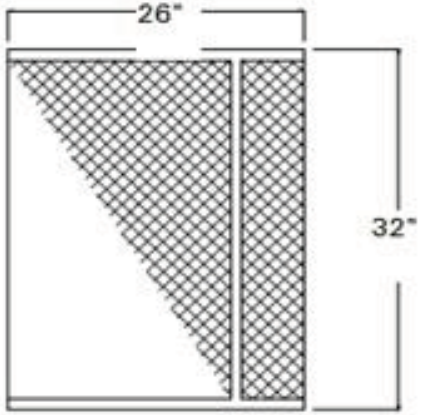
Part #	26BTRD
Color	Black
Material	Steel

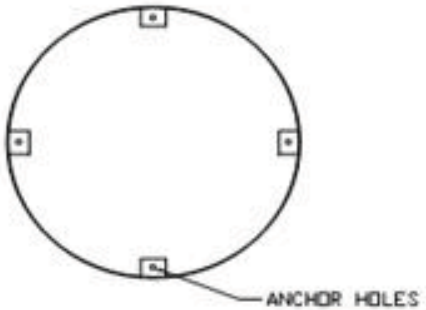
The CARY COMPANY Est. 1895

1195 W. Fullerton Ave. | Addison, IL 60101 | T: 630.629.6600 | F:630.629.3690 | TheCaryCompany.com

Note: 55 gallon barrel is required for DL32 to fit with the ETR55 apparatus







Dome Lid is stamped steel for strength and rigidity. Features a lightweight anodized door flap, hinged at top center with hard plastic surround.



ETR55 with DL32 (55 gallon)
Shown with separately priced dome lid. (Container must have 55 gallon drum liner for dome lid to rest on.)

Materials:

3/4" 9 gauge expanded metal wrap
12 gauge vertical support bands
12 gauge formed horizontal support bands

Unit is designed for portable or "bolt down" application. Unit should be secured to a location with use of the four (4) anchor holes.

DMF	55 GALLON TRASH RECEPTACLE
4/9/2009	ETR55 / DL32
	Supplied By: **The Cary Company** Ph: 630-629-6600 www.thecarycompany.com
ETR55.DWW	

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 1.1 DESCRIPTION OF WORK

A. Provide all materials, equipment and labor necessary to complete the work as indicated on the drawings or as specified herein.

B. The principal work of this section includes, but may not be limited to, the following:

1. Grading and Spreading Loam.
2. Preparations of Areas for Seeding.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Requirements, apply to this Section.

1.3 SUMMARY

A. Related Requirements:

1. Section 329200 "Turf and Grasses" for placing planting soil for turf and grasses.
2. Section 329300 "Plants" for placing planting soil for shrubs and perennials.

1.4 UNIT PRICES

A. Work of this Section is affected by Cubic Yard.

1.5 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil as indicated.

B. CEC: Cation exchange capacity.

C. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.

D. Imported Soil: Soil that is transported to Project site for use.

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E. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

F. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.

G. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."

H. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

I. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

J. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

K. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

L. USCC: U.S. Composting Council.

1.6 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1.7 ACTION SUBMITTALS

A. Certified analysis and source of off-site loam to be provided. Certification shall list soil additives to loam including rates and type.

B. Product Data: For each type of product.

1. Include recommendations for application and use.
2. Include test data substantiating that products comply with requirements.
3. Include sieve analyses for aggregate materials.

C. Samples: For each bulk-supplied material, 1-quart volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

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1.8 QUALITY ASSURANCE

A. Contractor shall specialize in work outlined with a minimum of five (5) years experience on similar projects.

B. Do not make substitutions without written approval. If specified materials are not available, obtain approval for substitution from the Owner's Representative.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Do not move or handle materials when they are wet or frozen.

PART 2 - PRODUCTS

2.1 CLEAN SCREENED LOAM

A. Loam shall consist of screened fertile, loose, friable fine sandy loam or sandy loam free of subsoil, refuse, stamps, roots, rocks, cobbles, stones, brush, noxious weeds, litter and other materials which are larger than one inch (1”) in any dimension and which will prevent healthy plant growth. Organic matter shall constitute not less than five percent (5%) nor more than twenty percent (20%) as determined by wet combustion method (Chromic acid reduction). The Contractor shall notify the Owner or Owner’s Representative of the intended source of certified clean loam (via lab sampling and analyses) to be employed at least two (2) weeks prior to the intended time of use to allow time for sampling.

B. Loam shall possess good filtration and permeability rates, and shall possess a mechanical analysis where: N 85% of sand size is 0.5 to 1.0 mm and N 95% of sand mix is between 0.5 and 2.0 mm and no more than 5% of mix is less than 0.5 mm.

C. Acidity range of approximately pH 5.5 to 7.5 when tested according to methods of testing or A.O.A.C. and organic content not less than 5% nor more than 20% as determined by wet combustion method (Chromic acid reduction).

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2.2 LIMESTONE

A. Dolomitic limestone contain up to 50% magnesium carbonate in a dry, granular form. Limestone shall be ground to such a fineness that at least 50% will pass through a 100-mesh sieve and 90% to 100% will pass through a 20-mesh sieve.

2.3 JUTE MESH

A. Where indicated on the Plans, Jute mesh shall be uniform, open, plain weave of undyed and unbleached single jute yarn, a minimum of four (4) feet in width plus or minus one (1) inch. There shall be 78 warp ends per width and 41 weft ends per yard. Weight shall average 1.22 pounds per linear yard, plus or minus 5%.

B. Staples for Erosion Control Materials: 9 gauge staples shall be used with jute mesh: 11 gauge with woven paper.

2.4 WATER

A. Clean, fresh, potable water.

PART 3 - EXECUTION

3.1 GRADING AND SPREADING LOAM

A. Remove all debris and other inorganic materials on any prepared subgrades as per RIDEM and RAWP requirements, and reshape and dress any damaged or eroded slopes, swales, and other areas. Scarify and loosen subgrade to a friable condition in any areas where compaction may have occurred. Loam shall not be placed until subgrade is in suitable condition and free of excessive moisture or frozen materials.

B. Loam shall be spread as required on all disturbed and bare areas to produce an even depth as shown on the Plans. Fill all depressions in existing grades with suitable fill material as specified in Section 312000 prior to spreading loam, then shape and finish grade to depth of loam required.

C. Area shall be progressively fine graded and machine and hand raked, with loam added as required to correct depressions and other irregularities, to produce smooth and unbroken finish grades and the depth of loam required.

D. Drawings show grading design intent to achieve a uniform grade not less than 1.25% slope. Finish grades shall conform to lines, grades, sections, and shapes of lawn areas as required. Final grade shall provide positive drainage across all grassed lawn and field areas. Provide smooth, uniform, smooth transitions at all changes and break in grade. Loam is to be held to a consistent depth of 1/2" below adjacent pavements surfaces.

E. Starter fertilizers: All required materials shall be spread and distributed into the soil at rates and amounts specified herein.

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F. After establishment of finish grade, entire area shall be hand raked and rolled using a light roller.

3.2 PREPARATION OF AREAS FOR SEEDING

A. GENERAL DESCRIPTION: This work shall consist of the preparation of the seed bed. Work shall be done as described herein:

1. Areas shall be finely raked to a finished grade. Substantially, all sticks, litter, wire, weeds, cable or stones larger than one (1") inch in greater dimension shall be removed and disposed of as directed.
2. Where the soil has become compacted, prior to fine raking, areas to be seeded shall be scarified by discing, york raking, or other approved method to a minimum depth of three (3) inches.
3. No seeding will be permitted on areas where the seed bed has not been properly prepared or where the soil is compacted.
4. Request inspection of the work for approval before proceeding with seeding operations.

3.3 APPLICATION OF LIMESTONE

A. When applied dry, limestone shall be spread evenly and incorporated thoroughly into the soil by discing or other approved means.

B. When applied hydraulically, no discing will be necessary.

C. Granular treatment to be applied at the rate of 25 to 50 lbs. per 1,000 square feet or as required by soil pH test to produce a pH of 6.0 to 6.5.

3.4 APPLICATION OF STARTER AND MAINTENANCE FERTILIZER

A. One application of turf maintenance fertilizer will be required before final acceptance of seeded areas.

B. Fertilizer shall be Organic-based and be OMRI (Organic Materials Review Institute) Certified

C. Application Rate: Apply 2-3 pounds per 100 square feet.

D. Fertilizer shall be applied at a time, which shall be requested in writing by the Contractor, and approved in writing by the Owner’s representative.

3.5 APPLYING JUTE MESH

A. Apply jute mesh loosely but smoothly to fit the contour of the finished grade, parallel to and in same direction as the flow of water. The up-slope end of the each separate strip or piece of jute mesh shall be buried in a six (6) inch minimum vertical anchor slot of junction slot with the soil tamped firmly against the mesh. Where more than one width of material is required, edges shall overlap a minimum of twelve (12) inches, and the up-slope section of mesh will be on top.

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Down-hill ends of the jute mesh shall be folded under approximately four (4) inches and stapled in place. Staples will be inserted through the mesh along edges, overlaps, and in the center of all jute mesh strips at intervals not greater than three (3) feet. All anchor slots, junction slots, check slots, and terminal folds shall have five (5) staples spaced not more than nine (9) inches on center across widths.

B. On seeded banks, jute shall be applied immediately after seeding. On shrub banks, apply jute after finish grading. Cut openings in mesh for each plant and plant and mulch as specified.

3.6 GENERAL

A. Place planting soil and fertilizers according to requirements in other Specification Sections.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

C. Proceed with placement only after unsatisfactory conditions have been corrected.

3.7 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

A. Excavation: Excavate soil from designated area(s) to a depth of 12 inches and dispose of per RIDEM and approved RAWP requirements .

B. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

C. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.

D. Screening: Pass unamended soil through a 3-inch sieve to remove large materials.

3.8 PROTECTION

A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Vehicle traffic.
4. Foot traffic.
5. Excavation or other digging unless otherwise indicated.

B. If planting soil or subgrade is overcompacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Architect and replace contaminated planting soil with new planting soil.

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3.9 CLEANING

A. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.

B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113

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SECTION 329119 - LANDSCAPE GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Final grade topsoil for finish landscaping.

B. Related Sections:

1. 329113 - Soil Preparation
2. 329200 - Turf and Grasses

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Topsoil:

1. Basis of Measurement: By Cubic Yard (CY) .
2. Basis of Payment: Includes excavating existing topsoil, supplying topsoil materials, stockpiling, preparing and scarifying substrate surface, placing where required, and rolling.

1.3 SUBMITTALS

A. Samples: Submit, in air-tight containers, 1 cup sample of loam to testing laboratory.

B. Materials Source: Submit name of imported materials source.

1.4 QUALITY ASSURANCE

A. Furnish each topsoil material from single source throughout the Work.

B. Perform Work in accordance with RIDOT Standard Specifications for Road & Bridge Construction, latest edition .

C. Follow all requirements as outlined in the RIDEM approved RAWP for Soil Management.

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PART 2 - PRODUCTS

2.1 MATERIAL

A. Topsoil: Fill Type S2 as specified in Section 329300.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

A. Protect landscaping and other features remaining as final Work.

B. Protect existing structures, sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

A. Eliminate uneven areas and low spots.

B. Remove debris, loose roots, branches, stones, in excess of 1/2 inch in size. Remove contaminated subsoil.

C. Scarify surface to depth of **6** inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

A. Place topsoil in areas where to thickness as scheduled. Place topsoil during dry weather.

B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

C. Remove roots, weeds, rocks, and foreign material while spreading.

D. Manually spread topsoil close to plant material, and path to prevent damage.

E. Roll placed topsoil.

F. Remove surplus subsoil and topsoil from site.

G. Leave stockpile area and site clean and raked, ready to receive landscaping.

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3.5 TOLERANCES

A. Section 014000 - Quality Requirements: Tolerances.

B. Top of Topsoil: Plus or minus 1/2 inch.

3.6 PROTECTION OF INSTALLED WORK

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Prohibit construction traffic over topsoil.

3.7 SCHEDULES

A. Compacted topsoil thicknesses:

1. Seeded Grass: 4 inches.

END OF SECTION 329119

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SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Seeding.
2. Hydroseeding.

B. Related Requirements:

1. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

1.3 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.

E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

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1.5 INFORMATIONAL SUBMITTALS

A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

B. Product Certificates: For fertilizers, from manufacturer.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals or AmericanHort.
2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the National Association of Landscape Professionals:
    a. Landscape Industry Certified Technician - Exterior.
    b. Landscape Industry Certified Lawn Care Manager.
    c. Landscape Industry Certified Lawn Care Technician.
5. Pesticide Applicator: State licensed, commercial.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Accompany each delivery of bulk materials with appropriate certificates.

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1.9 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion .

1. Spring Planting: April 15 - May 15 .
2. Fall Planting: August 15 - October 15

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:

C. Grass-Seed Mix: Seed mix as follows:

1. 30% Improved Per. Rye
2. 30% Turf Type Tall Fescue
3. 30% Chewings Fescue
4. 5% Creeping Red Fescue
5. 5% Miniature or Dutch White Clover
6. Application Rate: 5-7 lbs per 1,000 sq ft
7. Products may be acquired from the following source (or approved equal) :
   a. Allen's Seed Store : 693 S County Trail Exeter, RI 02822 Phone: 401 294 2722

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: fertilizer to have a ratio of 18 Nitrogen (N) - 24 Phosphorous (P) - 12 Potassium (K)

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B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: fertilizer to have a ratio of 18 Nitrogen (N) - 24 Phosphorous (P) - 12 Potassium (K)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
2. Protect grade stakes set by others until directed to remove them.

3.3 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."

B. Placing Planting Soil: Place and mix planting soil in place over exposed subgrade .

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

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3.4 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph .

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 5 to 8 lb/1000 sq. ft.

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

3.5 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer , and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.6 TURF RENOVATION

A. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.

1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
2. Install new "certified clean" planting soil as required.

B. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.

C. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.

D. Mow, dethatch, core aerate, and rake existing turf.

E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.

F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.

G. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches .

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H. Apply soil amendments and initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.

1. Initial Fertilizer: Commercial fertilizer applied according to manufacturer's recommendations.

I. Water newly planted areas and keep moist until new turf is established.

3.7 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches .

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow to a height of 1-1/2 to 2 inches .

3.8 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches .

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B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.9 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.10 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

3.11 MAINTENANCE SERVICE

A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Seeded Turf: 60 days from date of Substantial Completion .
    a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

END OF SECTION 329200

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SECTION 329300 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plants.
2. Tree stabilization.

B. Related Requirements:

1. Section 015639 "Temporary Tree and Plant Protection" for protecting, trimming, pruning, repairing, and replacing existing trees to remain that interfere with, or are affected by, execution of the Work.
2. Section 329200 "Turf and Grasses" for turf (lawn) and meadow planting, hydroseeding, and erosion-control materials.

1.3 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than sizes indicated ; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.

C. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

D. Finish Grade: Elevation of finished surface of planting soil.

E. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.

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F. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

G. Planting Area: Areas to be planted.

H. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

I. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

J. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

K. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.

L. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 COORDINATION

A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.

1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site .

1.6 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

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1.7 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

B. Sample Warranty: For special warranty.

1.8 CLOSEOUT SUBMITTALS

1.9 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Five years' experience in landscape installation in addition to requirements in Section 014000 "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
   a. Landscape Industry Certified Technician - Exterior.
   b. Landscape Industry Certified Interior.
   c. Landscape Industry Certified Horticultural Technician.
5. Pesticide Applicator: State licensed, commercial.

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

1. Selection of plants purchased under allowances is made by Architect, who tags plants at their place of growth before they are prepared for transplanting.

C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

D. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject

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unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Handle planting stock by root ball.

E. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

F. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
2. Do not remove container-grown stock from containers before time of planting.

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3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.11 FIELD CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: March 15 to June 1 .
2. Fall Planting: September 15- Dec 1 .

C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1.12 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
   b. Structural failures including plantings falling or blowing over.
   c. Faulty performance of tree stabilization .
   d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Periods: From date of planting completion Substantial Completion .
   a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
3. Include the following remedial actions as a minimum:
   a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
   b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
   c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
   d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

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PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.
2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

2.2 FERTILIZERS

A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.

1. Size: 21-gram tablets.
2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.

2.3 MULCHES

A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:

1. Type: Ground or shredded bark .
2. Size Range: 3 inches maximum, 1/2 inch minimum .
3. Color: Natural - no orange mulch.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through a 1-inch sieve; soluble-salt content of 2 to 5 dS/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

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1. Organic Matter Content: 50 to 60 percent of dry weight.
2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

2.4 TREE-STABILIZATION MATERIALS

A. Trunk-Stabilization Materials:

1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood , free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
2. Guys and Tie Wires: ASTM A 641/A 641M, Class 1, galvanized-steel wire, two-strand, twisted, 0.106 inch in diameter.

2.5 MISCELLANEOUS PRODUCTS

A. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

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B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 PLANTING AREA ESTABLISHMENT

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."

B. Placing Planting Soil: Blend planting soil in place .

C. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

D. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at application rate according to manufacturer's written recommendations .

3.4 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits.

1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
2. Excavate approximately three times as wide as ball diameter for ball & burlap or container-grown stock.
3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
5. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
6. Maintain supervision of excavations during working hours.
7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.

B. Backfill Soil: Subsoil and topsoil removed from excavations may be used as backfill soil unless otherwise indicated.

C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

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3.5 TREE, SHRUB, AND VINE PLANTING

A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.

B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.

1. Backfill: Planting soil . For trees, use excavated soil for backfill.
2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
   a. Quantity: per manufactuer's recommendations .
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.

1. Backfill: Planting soil . For trees, use excavated soil for backfill.
2. Carefully remove root ball from container without damaging root ball or plant.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
   a. Quantity: per manufacturers recommendations .
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

3.6 TREE, SHRUB, AND VINE PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Do not apply pruning paint to wounds.

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3.7 TREE STABILIZATION

A. Trunk Stabilization by Upright Staking and Tying: Install trunk stabilization as follows unless otherwise indicated:

1. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip out. Use a minimum of two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend to the dimension indicated on Drawings one-third of trunk height above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
2. Upright Staking and Tying: Stake trees with three stakes. high and up to in caliper. Space stakes equally around trees.
3. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
4. Support trees with two strands of tie wire, connected to the brass grommets of tree-tie webbing at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.

B. Trunk Stabilization by Staking and Guying: Install trunk stabilization as follows unless otherwise indicated on Drawings. Stake and guy trees more than 14 feet in height and more than 3 inches in caliper unless otherwise indicated.

1. Site-Fabricated, Staking-and-Guying Method: Install no fewer than three guys spaced equally around tree.
   a. Securely attach guys to stakes 72 inches long, driven to grade. Adjust spacing to avoid penetrating root balls or root masses. Provide turnbuckle for each guy wire and tighten securely.
   b. Support trees with bands of flexible ties at contact points with tree trunk and reaching to turnbuckle . Allow enough slack to avoid rigid restraint of tree.
   c. Support trees with guy cable or multiple strands of tie wire, connected to the brass grommets of tree-tie webbing at contact points with tree trunk and reaching to turnbuckle . Allow enough slack to avoid rigid restraint of tree.
2. Proprietary Staking and Guying Device: Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.8 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 18" radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.

3.9 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or

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vertical position, and performing other operations as required to establish healthy, viable plantings.

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.10 REPAIR AND REPLACEMENT

A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Landscape Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.

B. Remove and replace trees that are more than 50 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of same size as those being replaced for each tree of 4 inches or smaller in caliper size.
2. Species of Replacement Trees: Same species being replaced .

3.11 CLEANING AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

D. After installation and before Substantial Completion , remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

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3.12 MAINTENANCE SERVICE

A. Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:

1. Maintenance Period: 12 months from date of planting completion .

END OF SECTION 329300

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BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

Appendix B:

RIDEM/RAWP Compliance Documents: Environmental Overview, RAWP, RAWP Addendum, and RIDEM Approval Letter

Compliance with the RIDEM-Approved Remedial Action Work Plan:

Site Remediation and RIDEM Compliance:

The Project area is known to be contaminated with certain compounds of concern at concentrations that require remediation in accordance with the RIDEM Remediation Regulations. RIDEM has approved a Remedial Action Work Plan (RAWP) for the Project. This section is not meant to include all contractor requirements outlined in the RAWP, RAWP-Addendum, or RIDEM Approval Letter, and therefore, it is the responsibility of all bidders and ultimately the selected Contractor and their subcontractors to thoroughly read, understand, and comply with the applicable requirements with respect to soil management, soil disposal, and installation of engineered barriers which will serve as caps to residual soil contamination that is not disposed off-Site. Copies of the RAWP, a RAWP-Addendum, and RIDEM's Remedial Approval Letter are provided as attachments to this bid package. If any information in this section of the RFP conflicts with any other information or Project specifications, the bidder shall assume the more comprehensive/conservative design/specifications shall govern unless clarified in writing by the City.

Please note that the RAWP and the RAWP Addendum make reference to a limited area of Site soil that was determined to be "hazardous" due to elevated lead concentrations. All soils at the Site identified as "hazardous" have been previously excavated and removed from the Site in accordance with the RAWP under a separate Project. Therefore, there are no requirements and no scope of work the Contractor needs to consider with respect to disposal of the "hazardous" soil in this RFP. However, the RAWP requires that all soil excavated during the Project be managed as contaminated soil and either be re-interred beneath one of the RIDEM-approved caps or transported off-Site to a licensed disposal facility.

The City has engaged the services of an environmental consultant (VHB, Inc. of Providence, RI) to provide part-time, limited contractor monitoring during project implementation and especially during intrusive activities, soil loading for disposal, and capping. At times when a representative from VHB is not on-Site, a representative of the City may be present to observe the Contractor's work for compliance with the Project specifications and RIDEM requirements. It shall be the selected Contractor's responsibility to communicate and cooperate with VHB on all matters relating to the RAWP and RIDEM compliance. Any violations of or failure to comply with the RAWP, RAWP Addendum, RIDEM Approval Letter, or Remediation Regulations must be rectified by the Contractor and/or their subcontractors as soon as practical once identified at Contractor's expense.

A Capping Plan consistent with the RAWP indicating the required minimum thicknesses of certain clean fill materials, mulch, geotextile barriers, etc. is included in the Project Plan Set.

A disposal facility approval from the Rhode Island Resource Recovery Corporation (RIRRC) for disposal of up to 3,000 tons of excess Site soils as ""Alternative Cover Material" (we are awaiting decision from RIRRC) at their Johnston, RI Landfill is attached. Please review the requirements specified in the approval letter applicable to the transporter including, but not limited to requirements for notification to the RIRRC scale house and making payment arrangements in advance of delivering soils, segregating out large stones and/or debris or other deleterious materials greater than 12-inches in diameter. VHB, on behalf of the City, will provide a Material Shipping Record (MSR) for the Contractor's use to transport and track the soils being disposed. The Contractor is responsible to provide copies of the MSRs and disposal weight slips provided by the landfill to the City and VHB in a timely manner.

The volume of soil required to be excavated and disposed to successfully complete this Project shall be minimized by the contractor to the greatest extent possible. The RIRRC approved volume for disposal is

conservative and the City does not anticipate this maximum approved volume to be generated. The soil disposal fees proposed by the Contractor shall be a comprehensive Lump Sum Cost for excavation, handling, management, stockpiling, loading, trucking and disposal to the RIRRC Landfill in Johnston, RI as "Alternative Cover Material" based on an estimated volume of soil of 1,422 tons. Each bidder shall also provide a Unit Cost Per Ton and the actual fees paid will be adjusted based upon the unit rate per ton and the tonnage as shown on the disposal facility weight slips. For example, if a contractor bids $100,000 and $70.32/ton based on the assumption of 1,422 tons of soil, but only 1,000 tons of soil are generated, then the work will be paid $70,320. Similarly, if 1,500 tons are generated, then $105,480 will be paid to the contractor.

The selected contractor is responsible for notifying the DigSafe Network and all other utilities owned by the City of Providence that are not in the DigSafe Network requesting that utilities at the Project area be pre-marked a minimum of 3-business days prior to the work start date.

Perimeter Security fencing – Site security is to be addressed by the utilization of 8-foot high temporary construction fencing. The fencing will be secured and locked at the conclusion of each workday. Access to the Site shall be restricted to authorized personnel only

Clearing and grubbing and disposal of debris (trash, old fencing, etc.) and existing asphalt/concrete currently at the Site is represented on the Demolition Plan sheet L-4 as per unit pricing.

The selected contractor is responsible for their own health and safety and for the health and safety of their sub-contractors. The contractor shall prepare and follow their own Health & Safety Plan (HASP) for the project. The HASP shall be followed by the Contractor and by their subcontractors and any visitors to the Site. Since the earth work involves excavation and management of contaminated soils and the Site is a RIDEM listed waste site, the HASP must be prepared by a Certified Industrial Hygienist (CIH), and all employees involved in the earthwork activities or potentially exposed to Site soil must be OSHA-40 Hour Hazwoper Trained and shall also have received the annual 8-hour OSHA Hazwoper Refresher Training. Copies of the training certificates shall be included as an Attachment to the Contractor's HASP. A copy of the Contractor's HASP shall be submitted to the City and VHB for review and approval a minimum of 2-weeks prior to the Project start date.

All imported soil (i.e., not stone, stone dust, or mulch), including gravel based fill (i.e. structural gravel), loam, common borrow, etc. must first be certified by the Contractor, *prior to Site import via laboratory sampling and analysis*, to be "clean" in accordance with the RAWP. Please refer to the RAWP for the number of required samples and type of lab analyses required based upon the volume of each type of material to be imported. Copies of the clean fill laboratory analytical reports shall be provided to the City/VHB for approval prior to material import. Once certified to be clean, imported soil shall be placed on top of an overlapping (by at least 4-feet) layer of 6-mil (minimum thickness) poly sheeting and the Contractor shall ensure that the clean fill is not co-mingled with native contaminated Site soils.

Dust control by the Contractor is required at all times. The Contractor shall monitor the Project for visible nuisance dusts and shall apply water as needed and/or as directed by the City or VHB personnel monitoring the ongoing Site activities. All stockpiles generated that are not actively being worked and at the end of each work day shall be covered and secured (via sand bags or other appropriate weighted materials) with an overlapping (by a minimum of 4-feet) layer of 6-mil (minimum thickness) polyethylene sheeting and surrounded by erosion controls (e.g., straw waddles).

For areas of the Site where the RIDEM approved cap includes a geotextile, the Contractor shall ensure that the geotextile meets the specification indicated in the RAWP (refer to RAWP section 4.6). A copy of the Geotextile Product Specification Sheet from the manufacturer must be submitted to the City and VHB for approval prior to use.

Based upon the expected depth of construction, groundwater is not expected to be encountered during construction of this Project and groundwater is not a media of concern. Therefore, no groundwater management specifications or requirements are included in the RAWP.

Preparation of Daily Operations Logs (refer to Section 4.3 of the RAWP) and the preparation of an Environmental Land Usage Restriction with a Post-Construction Soil Management Plan (refer to Section 4.15 of the RAWP) will be the responsibility of VHB and not the Contractor.

A representative of VHB will be present at the Site Pre-Bid Meeting at 10 am on December 20, 2021 to answer questions with respect to the RAWP and associated Project requirements described in this section of the RFP.

Baxter Street and Bailey School Playground

Assessor's Plat 48; Lots 767, 768, 769, 770, 780, 781, 782, and 783
Providence, Rhode Island

PREPARED FOR

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June 4, 2021

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1

Introduction

On behalf of our Client, the City of Providence (the City), Vanasse Hangen Brustlin, Inc. (VHB) has completed this Remedial Action Work Plan (RAWP) for the reconstruction of the Baxter Street playground, Bailey School playground and adjacent undeveloped parcels to construct one interconnected playground area located on Baxter Street and Norwich Avenue in Providence, Rhode Island, referenced hereafter as the "Project" or "Project Area." The Project Area is further described as eight (8) recreational use or vacant undeveloped parcels totaling approximately 0.59 acres. The Project Area is further identified by the following addresses: 56, 57, 58, 61, 62/64, and 66 Baxter Street and 5 and 9 Norwich Avenue; and the City of Providence Tax Assessor's Plat Map 48, Lots 767, 768, 769, 770, 780, 781, 782, and 783. A Location Map is included as **Figure 1** illustrating the extent of the Project Area. The RIDEM has assigned file number SR-28-0548 B to the Project Area.

This RAWP has been prepared in accordance with Section 1.10 of the *Rhode Island Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases* (Remediation Regulations) to detail the remedy recommended in the Site Investigation Report (SIR) and approved by the RIDEM Office of Land Revitalization and Sustainable Materials Management (OLRSMM) in a Program Letter dated September 21, 2020 relative to impacts to soils identified during Site investigation activities. This plan was prepared with consideration to the following reports and correspondence:

- Release Notification Form and Limited Subsurface Investigation (LSI), dated April 9, 2020, and prepared by VHB;
- Letter of Responsibility, issued by the RIDEM OLRSMM, dated April 15, 2020;
- Pre-Site Investigation Public Notice Summary Letter, dated June 24, 2020, and prepared by VHB;
- Summary of the Pre-Site Investigation Public Notice, prepared by VHB, dated August 28, 2020;
- Site Investigation Report (SIR) and SIR Checklist, received by the Department on September 14, 2020, and prepared by VHB;
- Program Letter, issued by the RIDEM OLRSMM, dated September 21, 2020;
- Post-Site Investigation Public Notice Letter, prepared by VHB, dated February 17, 2021; and

› Remedial Decision Letter, issued by the RIDEM OLRSMM, dated March 9, 2021.

VHB performed these investigations on behalf of the City to support their efforts to reconstruct the Baxter Street and Bailey School playgrounds in Providence, Rhode Island.

Pursuant to the Rhode Island General Laws, Title 23, *Health and Safety*, Chapter 23-19.14, *Industrial Property Remediation and Reuse Act*, Section 23-19.14-15, *Environmental Equity and Public Participation,* a public meeting was advertised in the Providence Journal on June 26, 2020 and held virtually via Zoom in accordance with the Emergency Declaration issued by then-Governor Gina M. Raimondo due to the COVID-19 Pandemic (Executive Order 20-05) on July 14, 2020. Following the public comment period, VHB submitted the Pre-Site Investigation Summary Letter to the RIDEM OLRSMM on August 28, 2020.

Site investigation activities were summarized in the SIR submitted to the RIDEM OLRSMM on September 14, 2020. The RIDEM OLRSMM issued a Program Letter on September 21, 2020. Post-Site Investigation Public Notices were subsequently conducted to all abutting property owners, tenants, and other interested parties regarding the substantive findings of the completed investigation in accordance with Sections 1.8.7 and 1.8.9 of the Remediation Regulations on February 17, 2021. No substantive comments were received during the 14-day opportunity for public review and comment on the technical feasibility of the proposed remedial alternatives and the RIDEM OLRSMM issued a Remedial Decision Letter on March 9, 2021.

This RAWP presents a remedial action to eliminate direct exposure to impacted soils in across the Project Area via excavation of contaminated soil during reconstruction and the implementation of a cap. An Environmental Land Usage Restriction (ELUR), which will include a Soil Management Plan (SMP), will be recorded by the City for the regulated/capped portions of the Project Area associated with exceedances of the RIDEM Method 1 Criteria.

VHB prepared a draft ELUR (attached as **Appendix B**) on behalf of the Client. The draft ELUR proposes the following restrictions and requirements:

› Limited future use of the property;
› Capped areas are to remain in place and be maintained in good conditions, as needed;
› RIDEM notification and appropriate soil compliance should future soil excavation/disturbances be required unless otherwise exempt; and
› Annual evaluation of the properties for ELUR compliance.

Implementation of the RAWP is proposed to commence concurrently with Project construction. This RAWP has been prepared on behalf of and for the exclusive use of the City. Limitations associated with this practice are included in **Appendix A**.

2

Site Description and Overview

2.1 Location and Site Description

The Baxter Street and Bailey School playgrounds, hereinafter referred to as the "Site" or "Project Area," are located in Providence, Rhode Island. The Project Area is further described as eight (8) recreational use or vacant undeveloped parcels totaling approximately 0.59 acres. The Project Area is further identified by the following addresses: 56, 57, 58, 61, 62/64, and 66 Baxter Street and 5 and 9 Norwich Avenue; and the City of Providence Tax Assessor's Plat Map 48, Lots 767, 768, 769, 770, 780, 781, 782, and 783. A Location Map is included as **Figure 1** and a Conceptual Site Plan is included as **Figure 2**.

The Project Area currently consists of parcels developed as recreational playgrounds and undeveloped parcels. The Project Area is generally surrounded by primarily residential properties, including commercial properties to a lesser extent. Beyond the immediate vicinity of the Project Area, residential areas primarily lie to the north, south and west and commercial to the east of the Site. The commercial properties to the east include the Bailey School, Lifespan Community Health Services offices, a Walgreens Pharmacy and general office space.

2.2 Environmental Setting

The topography across the Site is mostly flat. The center of the Site is approximately 69 feet above mean sea level.

According to the United States Department of Agriculture Soil Conservation Service, soils at the Site primarily consists of Urban land, which is a Class A soil classified as sand and gravel and well to excessively drained with high infiltration rates.

According to the RIDEM Environmental Resources Map, groundwater underlying the Site has been classified by the RIDEM as category GB. Groundwater resources classified as GB are known or presumed to be unsuitable for public or private drinking water uses without treatment due to known or presumed degradation.

The nearest waterbody is the Mashapaug Pond located approximately 0.75 miles southwest of the Site. According to the RIDEM Water Quality Regulations, the Mashapaug Pond is a

Class B water body. Class B water bodies are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They are suitable for compatible industrial processes and cooling, hydropower, aqua cultural uses, navigation, and irrigation and other agricultural uses. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges.

The Flood Insurance Rate Maps Providence County, Rhode Island (Community Panel No. 44007C0316G dated March 2, 2009) indicates that the Site is primarily located in an "Area of Minimal Flood Hazard Zone X" defined as the areas outside of the Special Flood Hazard Area and higher than the elevation of the 0.2-percent-annual-chance flood.

2.3 Site Operational History

The Project Area has been developed for residential and more recently recreational purposes since at least 1938. The Project Area currently consists of parcels developed as recreational playgrounds and undeveloped parcels.

3

Summary of Site Soil and Groundwater Conditions

Site Investigation activities in accordance with the Remediation Regulations have been completed at the Site by VHB. Pertinent data from the assessment has been included in the following reports previously prepared by VHB or others for the Site.

- Phase I Environmental Site Assessment prepared by Amec Foster Wheeler, dated January 31, 2018;
- Limited Subsurface Investigation Memo prepared by VHB, dated March 27, 2020; and
- Site Investigation Report prepared by VHB, dated September 9, 2020.

The following sections further outline the constituents of concern identified in soil within the Project Area to address the requirements of the RIDEM Site Remediation Regulations.

3.1 Soil

Soil data associated with investigations beginning in March 2020 and summarized in the SIR indicated exceedances for lead, naphthalene and SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene phenanthrene and pyrene above the RIDEM RDEC and I/CDEC at the Site as previously described. No exceedances of the applicable GB-LC were reported.

However, two boring locations (SB-10 and SB-12) were associated with exceedances of the USEPA Maximum Concentration of Contaminants for Toxicity Characteristic (MCCTC) for lead from 0 to 5 feet below grade.

3.2 Groundwater

The results of groundwater sampling conducted in August 2020 did not indicate any concentrations above the GB Groundwater Objectives set forth in the Remediation Regulations.

4

Remedial Activities

As detailed in Section 1.10 of the Remediation Regulations, this work plan describes the remedial actions necessary under these regulations.

4.1 Remedial Objectives (§ 1.10)

The remedial objective for this Site as recommended in the SIR and approved by the RIDEM OLRSMM is to reduce possible direct exposure to impacts soils via limited soil excavation, capping, and institutional controls. Remediation will be conducted concurrently with Project reconstruction.

In accordance with Section 1.10 of the Remediation Regulations, this section addresses remedial objectives for all potentially impacted media (soil, groundwater, surface water, air, and sediment) for the Site. Remedial objectives for each of the media prescribed by the regulations are discussed below.

4.1.1 Soil

The remedial objective for soil is to reduce possible direct exposure to impacted soils and entrainment through wind and runoff via limited excavation, capping, and institutional controls. Exceedances of the RIDEM Method 1 Criteria were detected across the majority of the Site. These contaminated soils will be excavated and disposed off-Site at a licensed facility during construction to accommodate necessary grading, or otherwise reinterred beneath a RIDEM-approved cap on-Site. VHB will conduct a Limited Design Investigation (LDI) across the Site to further pre-characterize on-Site soils for disposal purposes.

Exceedances of the USEPA MCCTC were limited to only a central portion of the Site. VHB will conduct a LDI to also further delineate the extent of the hazardous soils in this area and provide clean endpoints (horizontally), since contamination has already been determined to not extend deeper than 5 feet below grade (vertically). Hazardous soils from this area will be excavated for off-Site disposal at a licensed facility.

Since contaminated (non-hazardous) soils will remain beneath the cap, an ELUR will be required for the Site. The ELUR will require that the cap remains in place and that any soil disturbed post-remediation be managed in accordance with a RIDEM-approved Soil Management Plan (SMP).

4.1.2 Groundwater

Groundwater assessment conducted as part of subsurface investigations at the Site did not identify any contaminants in groundwater present at levels above the applicable standards established in the Remediation Regulations. Therefore, no remedial activities are required or proposed for groundwater in this RAWP.

Although dewatering during excavations are not anticipated for this Project, it should be noted that the project may still require authorization from the RIDEM Office of Water Resources Rhode Island Pollutant Discharge Elimination System (RIPDES) Program if construction plans change and a discharge of water generated during dewatering activities to a receiving water is deemed necessary. Disposal of groundwater removed from excavations at a licensed disposal facility is also an option for groundwater disposal.

4.1.3 Air

Compounds of concern identified during the Site Investigation do not pose a major concern for volatilization into outdoor air. Additionally, no occupied building structures are proposed at the Site. Therefore, no remedial objectives for air are proposed. However, dust control measures will be required during construction and earthwork activities. Refer to the dust control subsection (**Section 4.8**) below for information pertaining to fugitive dust issues.

4.1.4 Surface Water/Sediment

Entrainment of impacted soil through wind and stormwater runoff has the potential to impact adjacent surface water and sediments. By capping impacted soil, the potential for migration through entrainment will be eliminated. Surface and erosion runoff controls will also be provided as detailed in the soil stockpile management/erosion control subsection (**Section 4.7**) below.

4.2 Proposed Remedy (§ 1.10.3)

Remedial actions will be conducted concurrently with Site reconstruction. The remedial action will consist of the encapsulation of soil throughout the Site in order to eliminate potential direct exposure.

The following minimum encapsulation methods, depicted on **Figure 3**, are proposed for the Site.

1) Minimum of 12 inches of clean, imported fill or engineered wood fiber mulch underlain with a geotextile fabric;
2) Minimum of 4 inches of clean, imported fill or engineered wood fiber mulch underlain with a geotextile fabric surrounding pre-existing mature trees;
3) Synthetic turf underlain with a 1 inch foam pad underlain with a minimum 11 inches of stone base underlain with a geotextile fabric;

4) 4 inches of bituminous paving (asphalt or concrete) underlain with minimum of 6 inches of a clean, imported fill subbase material;

5) 4 inches of decomposed granite (stone dust) underlain with minimum of 8 inches of a clean, imported fill subbase material underlain with a geotextile fabric;

6) Minimum of 2 feet of clean, imported fill underlain with a geotextile fabric.

Currently, the plan is to conservatively install a geotextile fabric beneath areas capped with 2-feet of clean fill, but that the City recognizes doing so is more protective than the minimum-RIDEM approved design standards for earthen caps. Therefore, the City may choose to eliminate the fabric in areas capped with 2-feet of clean fill when Site development occurs. Deviations to the capping plans, if any, will be documented in the Closure Report.

Playscape equipment/hardscape features and associated footings/curbing, including (but not necessarily limited to) log steps, native bounders, log stacks, balance stumps, hardwood log benches, and welded wire fencing/gates will function as a cap if they are permanent structures and are restrictive of the underlying soils.

Trees, shrubs and grass will be planted at various locations within an approved landscaped cap as described above.

Caps may transition into others in some areas (i.e. bituminous pavement into landscaped area) in which case the approved thicknesses will be tapered from one into the other.

Since impacted soil will be left in place with a cap, an ELUR will be required for the Site. An ELUR is a legal document drafted for the purpose of placing a notice of restrictions on the use or physical condition of a property for the protection of human health. The ELUR will require that the cap remains in place and any soil disturbed post-remediation will be managed in accordance with a RIDEM approved SMP. A copy of the draft ELUR for this property is included in **Appendix B**. Upon completion of the proposed reconstruction activities and RIDEM approval, the ELUR will be filed by the City in the Providence Land Evidence Records.

The proposed remedy will meet the remedial objectives as follows:

1) The use of a cap will prevent migration of hazardous substances by eliminating impacted soil exposure to wind;

2) The use of the cap will physically prevent direct contact with impacted soil beneath the cap;

3) Volatilization is not a concern for the Site; however, the cap will prevent entrainment of contaminants through wind and rain; and

4) Surface runoff will be controlled through the use of erosion controls during construction as described herein.

4.3 Points of Compliance (§ 1.10.6)

During Site construction activities, VHB, serving as the environmental consultant for the City, will monitor construction on a periodic, part-time basis to document that the engineered controls are properly constructed in accordance with the RAWP. Operation logs will be prepared by VHB for those days where construction monitoring is completed and submitted upon completion of the Project as an attachment to a Remedial Action Closure Report (RACR).

Proper disposal of excess impacted soil will be supported by laboratory reports, transportation records, and disposal paperwork. The proper installation of the cap will be documented by photographs and field measurements. These points of compliance will be presented in a RACR along with Operations Logs and other pertinent information demonstrate compliance with this RAWP. Annually, the area subject to the ELUR, which includes the engineered barrier, will be inspected and documented to identify areas in need of maintenance/repairs, and evaluated to ensure that all property restrictions are being adhered to. The annual inspection will be documented in a written report with an Annual Compliance Evaluation Form, which will be forwarded to the RIDEM OLRSMM annually.

4.4 Proposed Schedule (§ 1.10.7)

The proposed Site remedy consists of soil encapsulation via engineered controls and implementation of an ELUR. The remedial actions will be completed concurrently with Site redevelopment construction. Construction is targeted to begin in the Fall of 2021.

The Remedial Action Closure Report, draft ELUR, and draft SMP will be submitted within 30 days following the completion of the remedial action. The ELUR and SMP will be finalized by the Responsible Party within 60 days following the approval by RIDEM OLRSMM and will be recorded with the City of Providence Land Evidence Records. A recorded copy of the ELUR will be forwarded to the RIDEM OLRSMM within 15 days of filing.

4.5 Contractors and/or Consultants (§ 1.10.8)

The City anticipates putting the project out to bid in late Summer 2021; therefore, a contractor has not yet been selected to complete this project. The City and/or VHB serving as their environmental consultant will conduct periodic inspections once construction begins to document proper soil management activities and installation of the engineered cap.

4.6 Design Standards and Technical Specifications (§ 1.10.10)

The minimum encapsulation methods as outlined in **Section 4.2** and depicted on **Figure 3**, are proposed for the entirety of the Site.

A figure depicting the specifications of these cap types is also attached as Exhibit D of the ELUR (located in **Appendix B** of this report).

In areas where a geotextile fabric will be used as part of the engineered barrier/cap, the fabric will possess minimum specifications applicable to geotextiles used for the purposes of

soil separation as established by the American Association of State Highway Transportation Officials (AASHTO) Publication M-288-06. Specifically, the fabric shall pose a minimum permittivity of 0.02 sec^{1}, a minimum apparent opening size of 0.6 mm (maximum average roll value), and an ultraviolet stability of at least 50% after 500 hours of exposure. Specifications relative to the biaxial grid material, if used, include:

Property		Strength
1. Tensile Strength		
	a) 2% strain lb./ft	445
	b) 5% strain lb./ft	890
	c) Ultimate lb./ft	1,400
	d) Long-Term (Ta), lb./ft	395
2. Open Area, %		> 50, < 80

All soil imported to the Site for construction of the cap (including, but not limited to, loam, common borrow, planting soil, gravel borrow, etc.) will meet RDEC or will be certified to be non-jurisdictional. Clean fill proposed to be used at the Site will be sampled and approved **prior** to importation to the Site. Clean fill and imported soil will be sampled for arsenic at a frequency of one sample per 500 cubic yards. One-quarter of the total number of compliance samples of clean fill (which equates to one sample per 2,000 cubic yards) will be sampled for VOCs, Polycyclic Aromatic Hydrocarbons (PAHs), Total Metals (PP13), and TPH.

4.7 Soil Stockpile Management

Temporary stockpiling of Site soil may be necessary for work to be conducted at the Site. The locations of temporary stockpiles will be at the discretion of the contractor. All excavated material which requires stockpiling will be temporarily staged on top of 6-milimeter (6-mil) polyethylene sheeting and covered with 6-mil polyethylene sheeting in a contractor-designated stockpile area on Site. The stockpiles will be covered whenever there is no active earthwork associated with said stockpiles. Stockpiles of clean imported soil will be sufficiently separated from stockpiles of excavated impacted soil so as to avoid potential comingling of the materials.

4.8 Dust Control

All reasonable precautions will be taken to prevent the excessive generation of dust during soil excavation, stockpiling, loading, and other soil handling activities. Work at the Site must comply with all applicable federal, state, and local regulations, including the RIDEM Air Pollution Control Regulations, and specifically Regulation No. 5 regarding control of fugitive dust. Dust control measures must be implemented as required, to prevent airborne particulate matter from leaving the Site at all times. Dust control measures (such as wetting soils or the application of calcium chloride) shall be implemented on an as needed basis (i.e. visual evidence of airborne dust) throughout the project. All stockpiles shall be inspected on a regular basis to ensure compliance with RIDEM Air Pollution Control Regulations. RIDOT or

their designee will conduct periodic Site visits to ensure dust control measures are being implemented if necessary. This information will then be recorded in the Operating Logs.

4.9 Sedimentation and Erosion Control

Prior to the start of excavation activities, sediment and erosion controls, consisting of compost filter socks, silt fencing, or other equivalent methods proposed by the construction contractor will be installed at the Site as applicable. A stabilized construction entrance will be installed, if needed (e.g., at an entrance to a materials/soils staging area), or other means to reduce the tracking of soils into the area roadways will be implemented by the contractor, if required, in accordance with project specifications.

4.10 Health and Safety Plan

A copy of VHB's site-specific plan is attached as **Appendix C**. A separate Health and Safety Plan will be developed by the contractor, or their sub-consultant, for their use during implementation with consideration to OSHA regulations.

4.11 Operating Log (§ 1.10.14)

An Operating Log that conforms with the requirements of Section 1.10.14 of the Remediation Regulations will be utilized and maintained during all remedial actions. The Operating Logs will detail information such as thickness, composition, and location of the cap and will also document earthwork activities and monitoring to ensure that the appropriate regulations are complied with. A copy of the Operating Log template is included as **Appendix D**. The Operating Log will be readily available at the Site during construction. The Responsible Party will keep a copy of the Operating Log for a minimum of three years following completion of the remedy. All information recorded in the Operating Logs will be summarized in a Remedial Action Closure Report submitted to the RIDEM OLRSMM, following the completion of remediation and redevelopment activities.

The Responsible Party's environmental consultant will prepare Operating Logs to document the remedial activities are performed in accordance with this RAWP. The contractor will be responsible for completing the Daily Operating Log or other suitable documentation regarding proper implementation of the remedy during times when the environmental consultant is not present.

4.12 Management of Remediation Waste

Any remediation waste generated will be managed in accordance with state and federal requirements and disposal documentation will be provided to RIDEM OLRSMM. If excess Site soil is generated, the material will be sampled for the appropriate disposal parameters and disposed of at a permitted facility. Copies of disposal paperwork (e.g., weight slips) will be included in the RACR.

4.13 Security Procedures (§ 1.10.15)

Security will be addressed by the utilization of temporary construction fencing, as needed. In addition to fencing where needed, any open excavations will be secured at the conclusion of each workday, using methods such as backfilling open excavation areas, placing road plates over areas that have not been backfilled, etc. Access to any fenced off areas will be controlled by the use of a gate. The fence gate will be secured at the conclusion of each workday during the construction project by the construction superintendent.

4.14 Shutdown, Closure, and Post-Closure Requirements (§ 1.10.16)

Upon completion of the Project, a RACR will be submitted to the RIDEM OLRSMM summarizing all RAWP-related field activities completed and compliance with the applicable provisions of the RAWP. The report will also include a schedule for yearly cap inspection and a description of any applicable maintenance requirements necessary to repair or maintain the cap in accordance with the ELUR and post-construction SMP.

4.15 Institutional Controls and Notices (§ 1.10.17)

The ELUR and SMP will be finalized by the Responsible Party following the approval by RIDEM OLRSMM and will be recorded for the properties in the Land Evidence Records of the City of Providence. A recorded copy of the ELUR will be forwarded to RIDEM OLRSMM by the Responsible Party. A copy of the draft ELUR and SMP are attached as **Appendix B**.

4.16 Compliance Determination

Successful completion of the Site capping activities documented in the Operating Logs, along with field measurements, photo-documentation, soil disposal weight slips will be used to demonstrate compliance with the work plan. All information associated with these actions will be submitted to RIDEM OWM as required.

5

Certification Statements

VHB submits the following statements of certification.

Certification by Preparer:

Vanasse Hangen Brustlin, Inc. has prepared this RAWP for contaminated soil for the Henderson Bridge Project in accordance with the requirements of Section 1.10 of the Remediation Regulations and certifies the accuracy of the information contained in the report to the best of our knowledge.

6/2/2021

Prepared by: Fred T. Bevans
Environmental Scientist

Date

6/2/2021

Reviewed by: Peter M. Grivers, P.E., LSP
Senior Project Manager

Date

Certification by Owner/Operator

I, a representative of the City of Providence, Department of Planning & Development, certify that the information contained in this report is a complete and accurate representation of the conditions at the Baxter Street and Bailey School Playground and the proposed remedial activities to the best of my knowledge.

6/4/21

Owner/Operator Representative

Date

EMILY FREEDMAN

Printed Name

COMMUNITY DEVELOPMENT DIRECTOR

Title

6

References

Amec Foster Wheeler Environment & Infrastructure, Inc. Phase I Environmental Site Assessment for 56, 57, 58, 61, 62 and 66 Baxter Street Providence, Rhode Island 02905, January 31, 2018.

Vanasse Hangen Brustlin, Inc., Limited Subsurface Investigation Memo, March 31, 2020.

Vanasse Hangen Brustlin, Inc., Site Investigation Report, September 9, 2020.

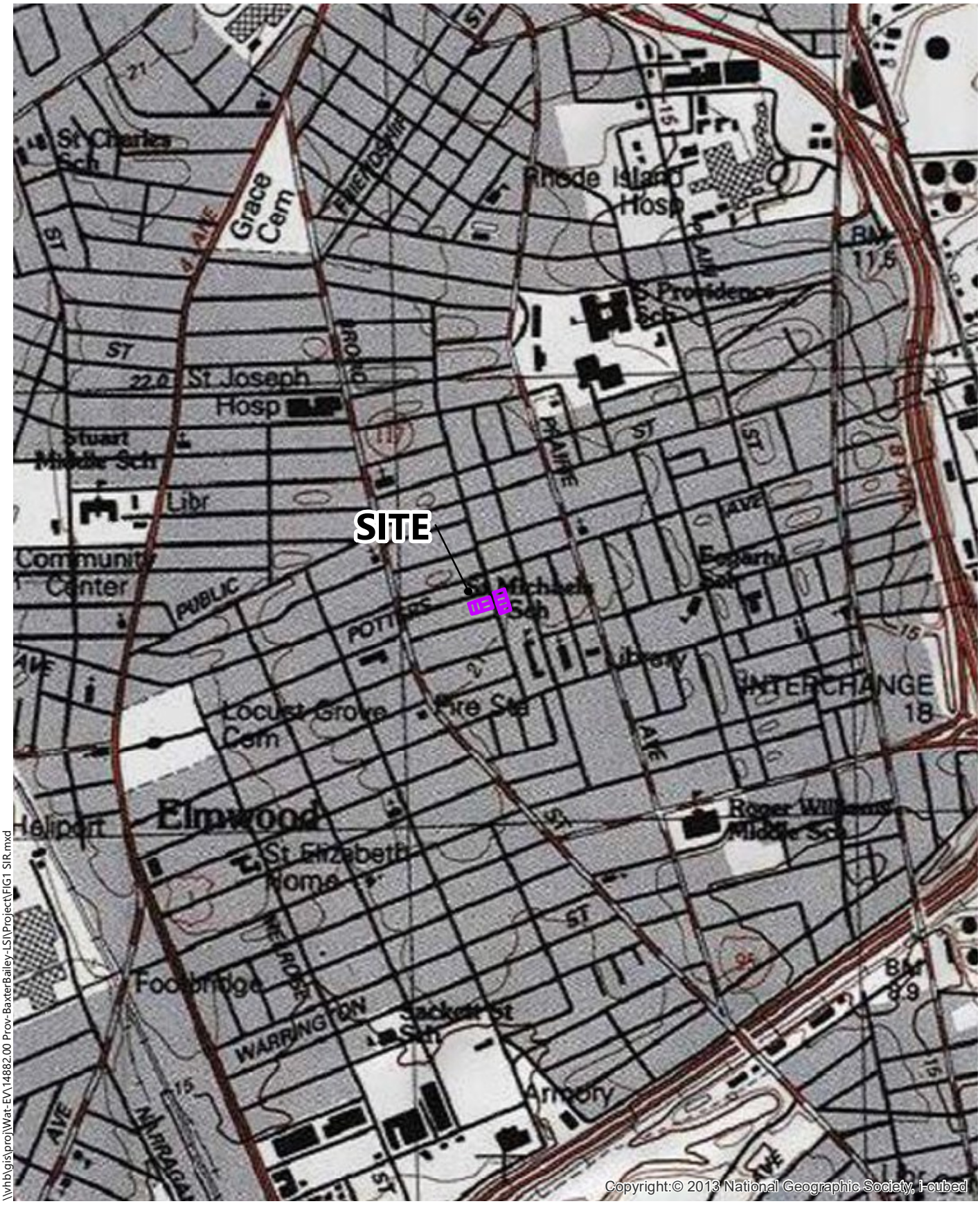
Hermes, O.D., L.P. Gromet and D.P. Murray, Bedrock Geologic Map of Rhode Island, 1994.

Rhode Island Department of Environmental Management Rules and Regulations for Groundwater Quality, June 2010.

Rhode Island Department of Environmental Management Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, recodified January 2019.

Rhode Island Department of Environmental Management Water Quality Regulations, December 2010.

Figures



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0 250 500 1000 Feet

Legend

Parcel Outline

Baxter Bailey Playground | Providence, RI

Site Locus Map
RAWP

Providence Tax Assessor GIS

OPEN PLAY

BAXTER STREET

SMALL GROUP SEATING

OPEN SPACE
APPROX. 90' x 40'

OUTDOOR CLASSROOM

OUTDOOR CLASSROOM AMPHITHEATER

NORWICH AVENUE

ROBERT L. BAILEY, IV ELEMENTARY SCHOOL

LEGEND

- STABILIZED STONE DUST PATH
- ASPHALT ROADWAY
- SIDEWALK
- ENGINEERED WOOD FIBER MULCH
- GRASS
- ARTIFICIAL TURF

N

0 5' 10' 20'

ISSUED FOR 85% REVIEW

PROVIDENCE
PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONCEPT PLAN

BAILEY BAXTER PLAY SPACE

61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-SC.dwg

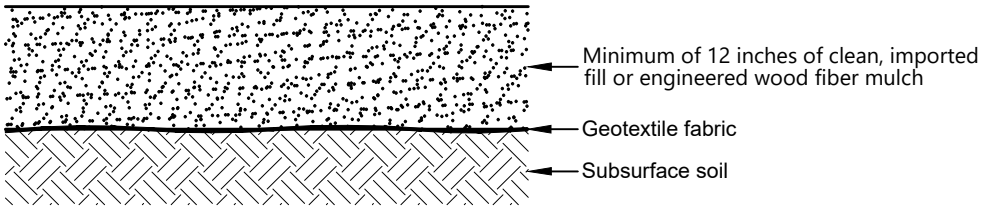
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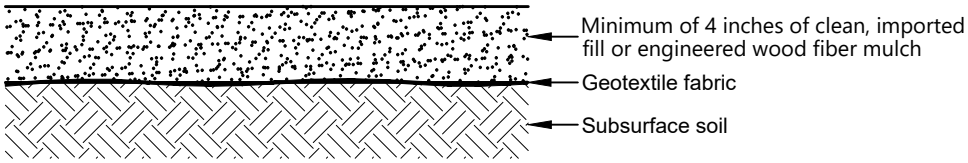
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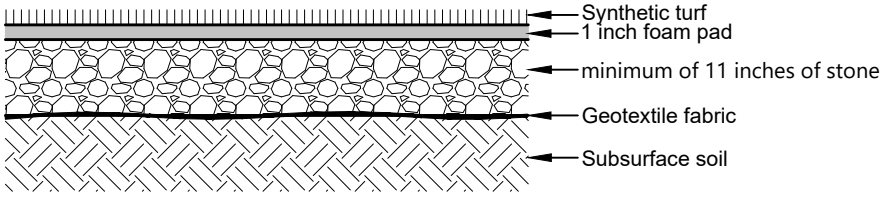
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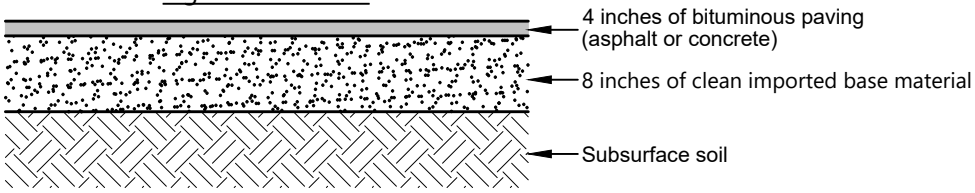
Option 1- Minimum of 12 inches of clean, imported fill or engineered wood fiber mulch underlain with a geotextile fabric



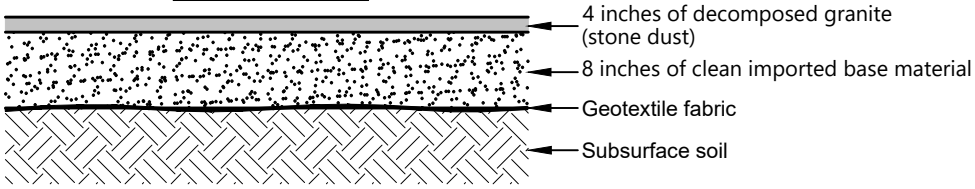
Option 2 - Minimum of 4 inches of clean, imported fill or engineered wood fiber mulch underlain with a geotextile fabric surrounding pre-existing mature trees



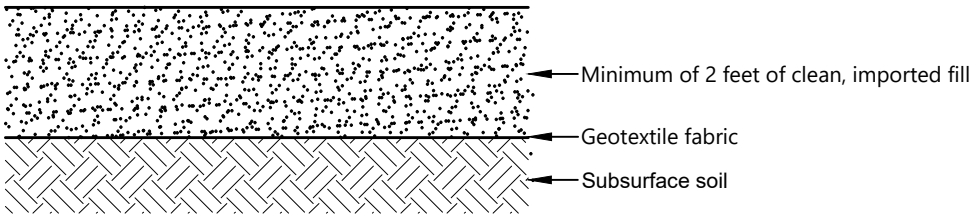
Option 3 - Synthetic turf underlain with a 1 inch foam pad underlain with a minimum 11 inches of stone base underlain with a geotextile fabric



Option 4 - 4 inches of bituminous paving (asphalt or concrete) underlain with minimum of 8 inches of a clean, imported fill subbase material



Option 5 - 4 inches of decomposed granite (stone dust) underlain with minimum of 8 inches of a clean, imported fill subbase material underlain with a geotextile fabric



Option 6 - 2 feet of clean fill underlain with a geotextile fabric

Appendix A: Limitations

Limitations

Baxter Street and Bailey School Playground
Providence, Rhode Island

This report has been prepared for the sole and exclusive use of Vanasse Hangen Brustlin, Inc. and the City of Providence and is subject to and issued in connection with the Agreement and provisions thereof. Any use or reliance upon information provided in this report, without the specific written authorization of Client and VHB, shall be at the User's sole risk.

In conducting this work plan, VHB has obtained and relied upon information from multiple sources to form certain conclusions regarding potential environmental issues at and in the vicinity of the subject property. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information.

No attempt has been made to assess the compliance status of any past or present Owner or Operator of the Site with any federal, state, or local laws or regulations.

The findings, observations, and conclusions presented in this report are limited by the scope of services outlined in our Agreement, which regulates schedule and budgetary constraints imposed, but the Client for the current phase of environmental assessment. Furthermore, the assessment has been performed in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

The assessment presented in this report is based solely upon information gathered to date. Should further environmental or other relevant information be developed at a later date, the Client should bring the information to the attention of VHB as soon as possible. Based upon an evaluation, VHB may modify the report and its conclusions.

Appendix B: Draft ELUR and SMP

ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmental Land Usage Restriction ("Restriction") is made on this _____ day of _____, 20___ by ~~[property owner]~~**the City of Providence**, and its successors and/or assigns (hereinafter, the "Grantor").

WITNESSETH:

WHEREAS, the Grantor _____ (name) is the Owner in fee simple of certain real property identified as **the City of Providence Tax Assessor's Plat Map 48, Lots 767, 768, 769, 770, 780, 781, 782, and 783**~~[specify Plat, Lot(s), address and Town or City]~~ in Providence, Rhode Island (the "Property"), more particularly described in Exhibit A (Legal Description) which is attached hereto and made a part hereof;

WHEREAS, the Property (or portion thereof identified in the Class I survey which is attached hereto as Exhibit 2A and is made a part hereof) has been determined to contain soil and/or groundwater which is contaminated with certain Hazardous Materials and/or petroleum in excess of applicable ~~[~~**residential** ~~or~~ **and industrial/commercial Direct Exposure Criteria**~~, and/or applicable groundwater objective]~~ ~~criteria~~ pursuant to the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations");

WHEREAS, the Grantor and the Rhode Island Department of Environmental Management ("Department") have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Department pursuant to R.I.G.L. § 23-19.14-1 and that this restriction shall be a Conservation Restriction pursuant to R.I.G.L. § 34-39-1 et. seq. and shall not be subject to the 30-year limitation provided in R.I.G.L. § 34-4-21;

WHEREAS, the Department's written approval of this Restriction is contained in the document entitled: ~~[~~**Remedial Decision Letter**~~/ Settlement Agreement/ Order of Approval/ Remedial Approval Letter]~~ issued pursuant to the Remediation Regulations;

WHEREAS, to prevent exposure to or migration of Hazardous Substances and to abate hazards to human health and/or the environment, and in accordance with the ~~[~~**Remedial Decision Letter**~~/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter]~~, the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the ~~[Property/Contaminated Site]~~**Property**;

WHEREAS, the Grantor believes that this Restriction will effectively protect public health and the environment from such contamination; and

WHEREAS, the Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against the Grantor and the Grantor's successors and assigns.

NOW, THEREFORE, Grantor agrees as follows:

A. Restrictions Applicable to the ~~[Property/Contaminated Site]~~Property: In accordance with the ~~[~~**Remedial Decision Letter**~~/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter]~~, the use, occupancy and activity of and at the ~~[~~**Property**~~/ Contaminated Site]~~ is restricted as follows:

i. No residential use of the ~~[Property/Contaminated Site]~~Property shall be permitted that is contrary to Department approvals and restrictions contained herein;

~~ii. No groundwater at the [Property/Contaminated Site]~~Property ~~shall be used as potable water;~~

~~iii.~~ii. No soil at the ~~[Property/Contaminated Site]~~Property shall be disturbed in any manner without written permission of the Department's Office of Land Revitalization & Sustainable Materials Management, except as permitted in the Remedial Action Work Plan (RAWP) or Soil Management Plan (SMP), Exhibit B and attached hereto, approved by the Department in a written approval letter dated _____(date);

[iii. Humans engaged in activities at the ~~[Property/Contaminated Site]~~Property shall not be exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved Direct Exposure Criteria set forth in the Remediation Regulations;

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~~[iv. Water at the [Property/Contaminated Site]~~Property ~~shall be prohibited from infiltrating soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved leachability criteria set forth in the Remediation Regulations;~~

~~[v. No subsurface structures shall be constructed on the [Property/Contaminated Site]~~Property ~~over groundwater containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved GA or GB Groundwater Objectives set forth in the Remediation Regulations;~~

~~[vi.~~[iv. The engineered controls at the ~~[~~**Property/ Contaminated-Site**~~]~~ described in the ~~[~~**RAWP ~~or SMP]~~** contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in ~~[residential or industrial/commercial]~~ recreational activity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved ~~[~~**residential or industrial/commercial**~~]~~ Direct Exposure Criteria in accordance with the Remediation Regulations; and

~~[vii.~~[v. The engineered controls at the ~~[~~**Property**~~/ Contaminated-Site]~~ described in the ~~[~~**RAWP ~~or Soil Management Plan SMP]~~** contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained so that water does not infiltrate soils containing Hazardous Materials and/or petroleum in concentrations

exceeding the applicable Department-approved leachability criteria set forth in the Remediation Regulations.

B. No action shall be taken, allowed, suffered, or omitted at the ~~[~~**Property**~~/ Contaminated Site]~~ **if such action or omission is reasonably likely to:**

i. Create a risk of migration of Hazardous Materials and/or petroleum;
ii. Create a potential hazard to human health or the environment; or
iii. Result in the disturbance of any engineering controls utilized at the ~~[Property/Contaminated Site]~~Property, except as permitted in the Department-approved ~~[~~**RAWP**~~ or SMP]~~ contained in Exhibit B.

C. Emergencies: In the event of any emergency which presents a significant risk to human health or to the environment, including but not limited to, maintenance and repair of utility lines or a response to emergencies such as fire or flood, the application of Paragraphs A (iii.-viii.) and B above may be suspended, provided such risk cannot be abated without suspending such Paragraphs and the Grantor complies with the following:

i. Grantor shall notify the Department's Office of Land Revitalization & Sustainable Materials Management in writing of the emergency as soon as possible but no more than three (3) business days after Grantor's having learned of the emergency. (This does not remove Grantor's obligation to notify any other necessary state, local or federal agencies.);

ii. Grantor shall limit both the extent and duration of the suspension to the minimum period reasonable and necessary to adequately respond to the emergency;

iii. Grantor shall implement reasonable measures necessary to prevent actual, potential, present and future risk to human health and the environment resulting from such suspension;

iv. Grantor shall communicate at the time of written notification to the Department its intention to conduct the Emergency Response Actions and provide a schedule to complete the Emergency Response Actions;

v. Grantor shall continue to implement the Emergency Response Actions, on the schedule submitted to the Department, to ensure that the ~~[Property/Contaminated Site]~~Property is remediated in accordance with the Remediation Regulations (or applicable variance) or restored to its condition prior to such emergency. Based upon information submitted to the Department at the time the ELUR was recorded pertaining to known environmental conditions at the ~~[Property/Contaminated Site]~~Property, emergency maintenance and repair of utility lines shall only require restoration of the ~~[Property/Contaminated Site]~~Property to its condition prior to the maintenance and repair of the utility lines; and

vi. Grantor shall submit to the Department, within ten (10) days after the completion of the

Emergency Response Action, a status report describing the emergency activities that have been completed.

D. Release of Restriction; Alterations of Subject Area: The Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of the ~~[Property/Contaminated Site]~~Property inconsistent with this Restriction unless the Grantor has received the Department's prior written approval for such alteration. If the Department determines that the proposed alteration is significant, the Department may require the amendment of this Restriction. Alterations deemed insignificant by the Department will be approved via a letter from the Department. The Department shall not approve any such alteration and shall not release the ~~[Property/Contaminated Site]~~Property from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the ~~[Property/Contaminated Site]~~Property in accordance with applicable regulations.

E. Notice of Lessees and Other Holders of Interests in the ~~[Property/Contaminated Site]~~Property: The Grantor, or any future holder of any interest in the ~~[Property/Contaminated Site]~~Property, shall cause any lease, grant, or other transfer of any interest in the ~~[Property/Contaminated Site]~~Property to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Restriction. The failure to include such provision shall not affect the validity or applicability of this Restriction to the ~~[Property/Contaminated Site]~~Property.

F. Enforceability: If any court of competent jurisdiction determines that any provision of this Restriction is invalid or unenforceable, the Grantor shall notify the Department in writing within fourteen (14) days of such determination.

G. Binding Effect: All of the terms, covenants, and conditions of this Restriction shall run with the land and shall be binding on the Grantor, its successors and assigns, and each Owner and any other party entitled to control, possession or use of the ~~[Property/Contaminated Site]~~Property during such period of Ownership or possession.

H. Inspection & Non-Compliance: It shall be the obligation of the Grantor, or any future holder of any interest in the ~~[Property/Contaminated Site]~~Property, to provide for annual inspections of the ~~[Property/Contaminated Site]~~Property for compliance with the ELUR in accordance with Department requirements.

~~[~~**An officer or Director of the ~~company~~ City with direct knowledge of past and present conditions of the ~~[Property/Contaminated Site]~~Property (the "Company Representative"), or~~]~~ A qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the ~~[Property/Contaminated Site]~~Property, evaluate the compliance status of the ~~[Property/Contaminated Site]~~Property on an annual basis. Upon completion of the evaluation, the ~~[Company~~ City **Representative or**~~]~~ environmental professional will prepare and simultaneously submit to the Department and to the Grantor or future holder of any interest in the ~~[Property/Contaminated Site]~~Property an evaluation report detailing the findings of the inspection , and noting any compliance violations at the ~~[Property/Contaminated Site]~~Property. If the ~~[Property/Contaminated Site]~~Property is

determined to be out of compliance with the terms of the ELUR, the Grantor or future holder of any interest in the ~~[Property/Contaminated Site]~~Property shall submit a corrective action plan in writing to the Department within ten (10) days of receipt of the evaluation report, indicating the plans to bring the ~~[Property/Contaminated Site]~~Property into compliance with the ELUR, including, at a minimum, a schedule for implementation of the plan.

In the event of any violation of the terms of this Restriction, which remains uncured more than ninety (90) days after written notice of violation, all Department approvals and agreements relating to the ~~[Property/Contaminated Site]~~Property may be voided at the sole discretion of the Department.

I. Terms Used Herein: The definitions of terms used herein shall be the same as the definitions contained in Section 3 (DEFINITIONS) of the Remediation Regulations.

IN WITNESS WHEREOF, the Grantor has hereunto set (his/her) hand and seal on the day and year set forth above.

[**Name of Person(s), company, LLC or LLP**]

By: _____ _____
Grantor (signature)_____ _____Grantor (typed name)

STATE OF RHODE ISLAND
COUNTY OF _____

In (CITY/TOWN), in said County and State, on the _____ day of _____, 20___, before me Personally appeared _____, to me known and known by me to be the party executing the foregoing instrument and (he/she) acknowledged said instrument by (him/her) executed to be (his/her) free act and deed.

Notary Public: _____

My Comm. Expires: _____

Baxter Street and Bailey School Playground
~~**Post Remediation Soil Management Plan**~~
Assessor's Plat 48; Lots 767, 768, 769, 770, 780, 781, 782, and 783
Providence, Rhode Island
~~**Site Name, Address, Plat & Lot**~~

This Soil Management Plan (SMP) has been prepared to establish procedures that will be followed should future construction/maintenance activities at the **Baxter Street and Bailey School Playground** ~~**(Site Name)**~~ property require the need to manage soils ~~**(ground water if applicable)**~~ excavated from the subsurface or when existing site surfaces / Department approved engineered controls (asphalt, concrete, landscaping and/or foundations) are disturbed. The plan serves to supplement, and will be initiated by, the RIDEM notification requirement established by the Environmental Land Use Restriction (ELUR) for the property.

Background

The Property, located at 56, 57, 58, 61, 62/64, and 66 Baxter Street and 5 and 9 Norwich Avenue~~**(address)**~~, was formerly developed for residential and more recently recreational purposes since at least 1938.~~**(background info / history)**~~. The property was found to contain lead, naphthalene and semivoltine organic compounds~~**(contamination info)**~~ during a site investigation performed at the property. The property currently consists of parcels developed as recreational playgrounds and undeveloped parcels.~~More recently, the site has been **(remediated or)** developed with a **(current use)**~~. The Department approved remedy included ~~**(…brief remedy description)**~~excavation of contaminated soils and capping across the property. The regulated site soils are covered with Department approved engineered controls, consisting of building foundations, asphalt pavement, and landscaping ~~**(or other as applicable)**~~ in order to prevent direct exposure to regulated soils and/or infiltration through soils which exceed the Department's Method 1 ~~(GA or GB) Leachability Criteria~~Residential and Commercial/Industrial Direct Exposure Criteria.

Applicable Area

This SMP and affiliated ELUR, which restricts the property to ~~**(Residential or Industrial/Commercial)**~~ recreational use, pertains to the ~~**(**~~**entire**~~ **or portions)**~~ Property. See attached site figure.

Soil Management

The direct exposure pathway is the primary concern at the site. Individuals engaged in activities at the site may be exposed through incidental ingestion, dermal contact, or inhalation of vapors or entrained soil particles if proper precautions are not taken. Therefore, the following procedures will be followed to minimize the potential of exposure.

During site work, the appropriate precautions will be taken to restrict unauthorized access to the property.

During all site/earth work, dust suppression (e.g. watering, etc) techniques must be employed at all times. If it is anticipated due to the nature of the contaminants of concern that odors may be generated during site activities, air monitoring and means to control odors will be utilized, as appropriate (e.g. odor-suppressing foam, etc).

In the event that an unexpected observation or situation arises during site work, such activities will immediately stop. Workers will not attempt to handle the situation themselves but will contact the appropriate authority for further direction.

In the event that certain soils on site were not previously characterized, these soils are presumed to be regulated until such time that it is demonstrated to the Department, through sampling and laboratory analysis that they are not regulated. (For example, presumptive remedies or locations of previously inaccessible soil.)

If excess soil is generated / excavated from the Property, the soil is to remain on-site for analytical testing, to be performed by an environmental professional, in order to determine the appropriate disposal and/or management options. The soil must be placed on and covered with polyethylene/plastic sheeting during the entire duration of its staging and secured with appropriate controls to limit the loss of the cover and protect against storm-water and / or wind erosion (e.g. hay bales, silt fencing, rocks, etc).

Excavated soils will be staged and temporarily stored in a designated area of the property. Within reason, the storage location will be selected to limit the unauthorized access to the materials (e.g., away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than 60 days without prior Department approval.

In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (e.g. drum or lined roll-off) or secondary containment will be utilized.

Soils excavated from the site may not be re-used as fill on residential property. Excavated fill material shall not be re-used as fill on commercial or industrial properties unless it meets the Department's Method 1 Residential Direct Exposure Criteria for all constituents listed in Table 1 of the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). Copies of the laboratory analysis results shall be maintained by the site owner and included in the annual inspection report for the site, or the closure report if applicable. In the event that the soil does not meet any of these criteria, the material must be properly managed and disposed of off site at a licensed facility.

Site soils, which are to be disposed of off-site, must be done so at a licensed facility in accordance with all local, state, and federal laws. Copies of the material shipping records

associated with the disposal of the material shall be maintained by the site owner and included in the annual inspection report for the site.

Best soil management practices should be employed at all times and regulated soils should be segregated into separate piles (or cells or containers) as appropriate based upon the results of analytical testing, when multiple reuse options are planned (e.g. reuse on-site, reuse at a Department approved Industrial/Commercial property, or disposal at a Department approved licensed facility).

All non-disposable equipment used during the soil disturbance activities will be properly decontaminated as appropriate prior to removal from the site. All disposable equipment used during the soil disturbance activities will be properly containerized and disposed of following completion of the work. All vehicles utilized during the work shall be properly decontaminated as appropriate prior to leaving the site.

At the completion of site work, all exposed soils are required to be recapped with Department approved engineered controls (2 ft of clean fill or equivalent: building foundations, 4 inches of pavement/concrete underlain with 6 inches of clean fill, and/or 1 foot of clean fill underlain with a geotextile liner) consistent or better than the site surface conditions prior to the work that took place. These measures must also be consistent with the Department approved ELUR recorded on the property. Any clean fill material brought on site is required to meet the Department's Method 1 Residential Direct Exposure Criteria or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. The Annual Inspection Report for the site, or Closure Report if applicable, should include either analytical sampling results from the fill demonstrating compliance or alternatively include written certification by an Environmental Professional that the fill is not jurisdictional.

Groundwater Management
(if applicable)

Worker Health and Safety

To ensure the health and safety of on-site workers, persons involved in the excavation and handling of the material on site are required to wear a minimum of Level D personal protection equipment, including gloves, work boots and eye protection. Workers are also required to wash their hands with soap and water prior to eating, drinking, smoking, or leaving the site.

Department Approval

In accordance with Section A iii of the ELUR, no soil at the property is to be disturbed in any manner without prior written permission of the Department's Office of Land Revitalization & Sustainable Materials Management, except for minor inspections, maintenance, and landscaping activities that do not disturb the contaminated soil at the Site. As part of the notification process, the site owner shall provide a brief written

description of the anticipated site activity involving soil excavation. The notification should be submitted to the Department no later than 60 days prior to the proposed initiation of the start of site activities. The description shall include an estimate of the volume of soil to be excavated, a list of the known and anticipated contaminants of concern, a site figure clearly identifying the proposed areas to be excavated/disturbed, the duration of the project and the proposed disposal location of the soil.

Following written Notification, the Department will determine the post closure reporting requirements. Significant disturbances of regulated soil will require submission of a Closure Report for Department review and approval documenting that the activities were performed in accordance with this SMP and the Department approved ELUR. Minor disturbances of regulated soil may be documented through the annual certification submitted in accordance with Section H (Inspection & Non-Compliance) of the Department approved ELUR. The Department will also make a determination regarding the necessity of performing Public Notice to abutting property owners/tenants concerning the proposed activities. Work associated with the Notification will not commence until written Department approval has been issued. Once Department approval has been issued, the Department will be notified a minimum of two (2) days prior to the start of activities at the site. Shall any significant alterations to the Department approved plan be necessary, a written description of the proposed deviation, will be submitted to the Department for review and approval prior to initiating such changes.

Appendix C: VHB Site-Specific Health and Safety Plan

SITE HEALTH AND SAFETY PLAN

Bailey/Baxter Play-space
56, 57, 58, 61, 62 and 66 Baxter Street, 5 and 9 Norwich Avenue
Providence, Rhode Island

PROJECT NO. 14882.00

March 12, 2020

1 Cedar Street
Suite 400
Providence, RI 02903
Telephone: (401)272.8100
Facsimile: (617) 924-2286
info@vhb.com
www.vhb.com

HEALTH & SAFETY BRIEFING FORM
Emergency Phone Numbers

City of: Providence	State: Rhode Island
Agency	Phone
Fire Department	911 or 401.243.6060
Police	911 or 401.272.3121
Ambulance/EMS	911
National Poison Center	800-682-9211
Rhode Island Hospital	401.444.4000
RIDEM 24-Hour Emergency Reporting	401.222.3070
DigSafe Reporting Line	888.344.7233

Nearest Hospital

Address**:**	Rhode Island Hospital 593 Eddy Street Providence, RI 02903
Directions and Map:	Attachment D
Emergency Evacuation Meeting Point:	VHB vehicle
Evacuation Signal:	Vocal Signal

Summary of Site-Related Hazards

Chemical Hazards and Source: Potential oil and/or hazardous materials (OHM)

Physical Hazards: Cold stress; slip/trip/fall hazards to include manholes, trenches, vehicles; sunken pavement; high traffic areas; fire/explosion hazards; sun (UV); wild animals; noise; excavations; underground or overhead utilities present.

The following emergency equipment is located on-site at the following locations:

First-aid Kit:	In vehicle
Eyewash:	In vehicle
Shower:	None available on-site. Call 911 or go to hospital.
Fire Extinguisher:	In vehicle

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ACKNOWLEDGEMENT

This Site Health and Safety Plan (HASP) outlines procedures, guidelines, and certification of hazard assessment which are intended to be used by VHB, Inc. (VHB) personnel while conducting regulated on-site work activities. This HASP has been prepared in accordance with applicable Occupational Safety and Health Administration (OSHA) standards including 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPER). This HASP presents a generic framework to be used for the preparation of a Site-specific HASP as may be deemed necessary for on-site work to be performed by VHB. A copy of this plan will be available on-site during all site activities. A designated VHB staff member at the site will serve as the site safety and health officer (SSHO) and will advise other on-site VHB personnel of exposure conditions, controls, and the need for protective equipment as outlined in this plan. This plan will be made available to sub-contractors, client personnel, or other involved parties.

The Site-specific HASP has been developed by VHB after reviewing relevant site-specific field data compiled to date and outlines site-specific hazards and control procedures. The HASP may be revised based on new data obtained during on-site activities and/or changes in site conditions or activities.

The Site HASP has been developed specifically for the site conditions anticipated. This document is to be reviewed and referenced in the field as necessary. The HASP and appendices must be reviewed and understood by all VHB site personnel and subcontractors prior to any on-site work. Then Site personnel must sign and date the “Team Members Sign-off Page” at the end of this HASP indicating that the HASP was read and understood.

The Site HASP was prepared by:

Tyler Phillips

Date Completed: 3/12/2020

This Site HASP has been reviewed and approved by:

VHB, INC.
BY:

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I. SITE DESCRIPTION

Location

The Site is located at 56, 57, 58, 61, 62 and 66 Baxter St and 5 and 9 Norwich Avenue in Providence, Rhode Island. The Site is owned by the Providence Parks Department and Providence Public Schools. Portions of the Site are currently operated as children's playgrounds, asphalt parking and vacant lots that were formerly residential homes. The Site is surrounded by a school and residential properties. The Site is bounded to the south by Norwich Ave and other residential properties; to the east by Robert L Bailey IV Elementary School; to the north by other residential properties and Gladstone Street; and to the west by other residential properties.

Hazards On-site

Soil and groundwater at the Site may be contaminated with OHM.

Site Use

Currently the Site is developed for recreational purposes.

Site Status

The western portion of the Site includes a vacant lot that is currently being used to park vehicles and a children's playground owned by the City of Providence. The eastern portion of the Site is paved asphalt used for vehicle parking and another children's playground owned by Robert L. Bailey IV Elementary School.

Surrounding Population

The surrounding population consists of primarily residential properties and roads. The Site is located near busy streets, so care must be taken when crossing or working near roadways.

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II. ON-SITE OBJECTIVES

Planned work will consist of the following activities:

VHB will oversee the advancement of up to sixteen (16) soil borings to 5' below ground surface at the Site. The borings will be advanced using a Geoprobe™ via direct push methods. VHB has contacted DIGSAFE to mark out utilities. An estimated (1) day of drilling oversight will be required.

Work is planned to begin and completed on March 13,2020.

III. ON-SITE CONTROL AND ORGANIZATION

A. On-Site Control

The purpose of on-site control is to prevent unauthorized entry to the site and prevent inadvertent contact with contaminated and potentially contaminated areas. Because contaminated media may be located below grade in the groundwater and/or soils, no site controls have been established at the site.

During fieldwork, access to the work area will be limited to authorized personnel with proper personal protective equipment and appropriate training. No unauthorized access of personnel or motor vehicles will be allowed within the work area.

A Buddy System will be in effect during all on-site activities. The system generally organizes units of at least two personnel each.

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Project Organization

VHB Personnel

Health & Safety Manager: Fred Bevans

The Health and Safety Manager will serve to provide senior level support and assume responsibility for the implementation of Health and Safety activities under work performed during this project. Fred Bevans will serve as the Health and Safety Manager and provide senior technical review of HASPs, as well as supporting the team in assessing potentially applicable Health and Safety Requirements.

Task Manager (TM): Peter Grivers

The TM has responsibility and authority to direct all work operations. The TM coordinates safety and health functions with the Site Safety and Health Officer (SSHO), has the authority to oversee and monitor the performance of the SSHO, and bears ultimate responsibility for the proper implementation of the HASP.

Site Safety and Health Officer (SSHO): Tyler Phillips

The (SSHO) has full responsibility and authority to develop and implement this HASP and verify compliance. The SSHO reports to the TM. The SSHO is on site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected.

Site Supervisor: Tyler Phillips

The Site Supervisor is responsible for field operations and reports to the TM. The Site Supervisor ensures the implementation of the HASP requirements and procedures in the field.

Site Personnel: Site workers are responsible for ensuring compliance with the HASP. Site workers are required to use appropriate PPE; report incidents, unsafe acts and conditions; and following the work and safety and health instructions of the TM, SSHO, and Site Supervisor.

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Regulatory Representatives (insert name & contact info for any agency personnel who visit the site during field activities.)

Name/Title	Agency

Client Representatives (record the name & contact info of any client representatives who visit the site during field activities.)

Name/Title	Organization
_____	_____
_____	_____
_____	_____

Contractors

Subcontractors shall be made aware of the site emergency response procedures and any potential fire, explosion, health and safety concerns identified in this HASP and will receive a HASP briefing prior to the start of work by VHB personnel. It is VHB's policy to require subcontractors to provide their own HASP while working on the job-site in addition to following procedures established by VHB.

Name/Title	Organization
_____	
_____	

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Personnel Training Requirements

The Task Manager is responsible for confirming that VHB personnel working on site have received the necessary training prior to working on the site. The following training is required of VHB personnel working on the site.

1. Site personnel: VHB site personnel must have completed a 40-hour OSHA HAZWOPER training program. If the 40-hour training program was completed more than 12 months prior to commencement of site work, then VHB personnel must have completed an 8-hour refresher training class at a point during the prior 12-month period. A wallet-size copy of the most recent HAZWOPER training certificate must be available at the site at all times. Personnel must also have additional health and safety training as required by the VHB Employee Manual.

2. Managers and Supervisors: In addition to the requirements above, any on-site supervisor must also have received an additional 8 hours of HAZWOPER supervisor training as outlined in the OSHA HAZWOPER standard at 29CFR1910.120. This training is also required for staff supervising subcontractors.

Pre-Entry Briefing

Site Workers and Visitors: In addition to the training requirements above, a site-specific briefing must be provided to all individuals, including visitors, who enter the site beyond the site entry point. The briefing must include the following information about the site:

- Availability of the HASP
- Recognition of site hazards
- Site lay-out including work zones, places of refuge, emergency procedures, emergency exits and evacuation routes
- Training on the use of site-specific Personal Protective Equipment (PPE)
- Decontamination procedures for equipment and PPE

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Communication Procedures

A VHB cellular phone must be present at the work site for use in emergency situations or for other work-related use by VHB field personnel. The phone must be checked each day prior to site activities to ensure proper operation. In the event of an emergency, first contact the appropriate emergency response agency (i.e. medical, fire, police), and then notify the TM or SSHO.

Medical Surveillance

Refer to the VHB Medical Surveillance Program for routine medical surveillance requirements. Employees who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or exposed during an emergency incident to hazardous substances at concentrations above the permissible exposure limits or the published exposure levels without the necessary personal protective equipment being used, should seek medical attention as soon as possible.

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IV. HAZARD EVALUATION

A. Chemicals of Concern

Chemicals suspected to be at the Site parcels may include lead and petroleum aromatic hydrocarbons. The concentrations are unknown at this point in time.

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Permissible Exposure Limits

Chemical Contaminant	Potential Hazard	OSHA PEL (8-Hour TWA)	NIOSH REL (8-Hour TWA)*	IDLH
Lead	Toxic by inhalation, ingestion, and skin and/or eye contact. Affects the eyes, gastro intestinal system, central nervous system, kidneys, blood, and gingival tissue. Symptoms of exposure include lassitude, insomnia, facial pallor, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, paralysis of wrist and ankles, encephalopathy, kidney disease, irritated eyes and hypertension.	0.05 mg/m3	0.05 mg/m3	100 mg/m3
Naphthalene	Toxic by inhalation, skin absorption, ingestion, and skin and/or eye contact. Affects eyes, skin, blood, liver, kidneys, and central nervous system. Symptoms may include eye, nose, and/or throat irritation, respiratory sensitivity, cough, pulmonary secretions, difficulty breathing, and chest pain.	50 mg/m3	50 mg/m3	250 ppm
Coal Tar Pitch Volatiles	Toxic by inhalation and skin and/or eye contact. Affects respiratory system, skin, bladder, and kidneys. Symptoms may include dermatitis of skin and bronchitis.	0.1 mg/m3	0.2 mg/m3	80 mg/m3

VHB site worker's exposure to airborne contaminants will be monitored periodically during any intrusive site activities when airborne concentrations of contaminants could exceed the VHB action level.

In accordance with the OSHA Hazard Communication Standard and the HAZCOM training requirements outlined in the VHB Employee Manual, Safety Data Sheets (SDS) will be maintained and available at the site for all chemicals, including decontamination chemicals, used on-site by VHB personnel. Secondary containers will be labeled pursuant to the VHB Hazard Communication Plan. Personnel will read the SDSs and follow the appropriate safety precautions when using the chemicals.

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Any questions regarding the SDS information will be referred to the SSHO or Health and Safety Manager.

Biological Hazards

Biological hazards may be encountered particularly on an undeveloped, abandoned or vacant, or wooded site. Biological hazards may include:

Disease-Carrying Animals - Animals may carry the rabies virus or deer ticks that may transmit the Lyme disease virus to humans. Avoid all contact with animals or heavily vegetated areas that may contain ticks. If contact with plant flora is made, check the body for ticks, including the scalp.

Poisonous Reptiles – Snakes such as rattlesnakes, water moccasin, copperhead are found in New England. Avoid areas that may harbor snake populations such as high grasses, shrubs, or crevices.

Poisonous insects – common examples include bees and wasps. Hives can be located above, below or on the ground. If necessary, an insecticide may be recommended for control; check with the SSHO. Long sleeves and long pants will offer some protection against inadvertent contact. *VHB and subcontractor personnel who have insect allergies are instructed to inform the SSHO prior to field activities. In addition, all personnel with potentially life-threatening insect allergies are required to bring their epi pens or rescue medicines to the field with them for use in the event of a sting.*

Poisonous Spiders – Common examples include the Brown Recluse, Mouse, and Black House spiders. Venom toxicity of spiders varies by species, gender and age, so all spiders should be avoided. Long sleeves and long pants will offer some protection against inadvertent contact.

Poisonous & Toxic Plants – Examples include poison ivy, oak and sumac; and hog weed. Avoid contact whenever possible. Reactions typically occur 2-3 days after exposure. Long sleeves and long pants will offer some protection against inadvertent contact.

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Physical Hazards

Heavy Equipment

Equipment, including earth-moving equipment, drill rigs, or other heavy machinery, will be operated in compliance with the manufacturer's instructions and limitations and well as any applicable regulations. The operator is responsible for inspecting the equipment daily to verify that it is functioning properly and safely.

Operation of equipment at the Site poses potential physical hazards. The following precautions should be observed whenever heavy equipment is in use:

- PPE, including steel-toed boots, safety glasses, reflective vests and hard hats must be worn.
- Personnel must be aware of the location and operation of heavy equipment and take precautions to avoid getting in the way of its operation.
- Workers must never assume that the equipment operator sees them; eye contact and hand signals should be used to inform the operator of intent. Personnel should not walk directly in back of, or to the side of heavy equipment without the operator's knowledge. Always make heavy equipment operator aware of your presence.
- High visibility traffic safety vests are required to be worn when working in high traffic zones or where heavy equipment is being operated.
- The heavy equipment operation work area must be coned off to distinctly mark the boundaries.
- All non-essential personnel and pedestrians must be kept out of the work area.

Cold Stress

Cold stress can pose a significant health hazard on site. Systemic cold exposure is referred to as hypothermia. Hypothermia is a life-threatening condition in which the core body temperature falls below 95°F. Symptoms of hypothermia include sluggishness, slurred speech, disorientation and in extreme cases, unconsciousness. Frostbite most commonly affects exposed parts of the body such as the nose,

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earlobes, hands and feet. To prevent cold related illnesses, ensure the availability for enclosed, heated environments within vehicles, dry clothes, attention to temperatures in the workspace and warm beverages.

Noise Protection

Workers will wear appropriate hearing protection when operating or working near heavy equipment such as drill rigs, system operations, or other mechanical equipment including generators. The use of heavy equipment may generate noise above the OSHA permissible exposure limit for noise of 90 dB(A) for an 8-hour time weighted average. If loud noise is present or normal conversation becomes difficult, hearing protection in the form of earplugs or equivalent is required.

Electrical Equipment Shock Hazards

Electrical equipment to be used during field activities will be suitably grounded and insulated. Ground fault circuit interrupters (GFCI), or equivalent, will be used with electrical equipment to reduce the potential for electric shock hazards. VHB employees will typically come into contact with electricity when operating mechanical equipment or breaker panels associated with a remediation system. Lock out/tag out procedures in accordance with 29 CFR 1910.147 will be conducted before activities begin. Workers conducting the operation will positively isolate the piece of equipment, lock out/tag out the energy source, and verify the effectiveness of the isolation. Only employees who perform the lock out/tag out procedure may remove their own tags/locks. Employees will be thoroughly trained before initiating these activities.

Underground and Overhead Utilities

The locations of underground pipes, fuel lines, electrical conductors, water, sewer, telecom, and natural gas lines must be determined prior to any intrusive activities such as drilling or excavations using mechanical equipment. Hand-operated equipment shall not be used in areas with known electrical hazards. If equipment with upright booms or masts is to be used such as a drill rig, a minimum distance of 20 feet from overhead utilities such as power lines is required.

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VHB personnel are required to contact DIGSAFE for a permit to perform ground-intrusive work. Rhode Island and Massachusetts State Law requires anyone conducting ground-intrusive activities to notify DIGSAFE in order to obtain a permit number. DIGSAFE will inform the applicant of utilities present in the area of proposed work. DIGSAFE will also notify the utility companies in the area who will then mark out the locations of any underground lines in the area where the applicant is planning to work. Applicants are required to pre-mark the locations of all subsurface advancements prior to calling DIGSAFE or be subjected to a fine. Municipal water and sewer lines may or may not be listed by DIGSAFE. It is the responsibility of the applicant to contact the municipality's water and sewer departments to have any lines marked out. In addition, DIGSAFE will not locate utilities located within the interior of private property. [Note – procedure as listed is specific to Rhode Island and Massachusetts, other states have similar requirements that would need to be called out specifically for the state the Site is located in].

DigSafe may be contacted by calling 1-888-DIGSAFE or online at www.digsafe.com

NOTE: Dig Safe permits are valid 72 hours *AFTER* notification

If an underground utility is damaged during site operations, mechanical equipment will immediately shut down until the damage can be assessed. Depending on the type of utility involved (e.g., water, electrical, natural gas) the appropriate local utility entity will be notified.

Elevated Work Platforms

When working at heights that expose employees to falls greater than 4 feet, the requirements of 29 CFR 1926.502 shall be observed. In such instances, a safety harness shall be worn and the lanyard secured at a level not lower than the employee's waist, limiting the fall distance to a maximum of 4 feet.

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Fire/Explosion Hazards

Site workers should have an increased awareness concerning fire and explosion hazards whenever working near flammable materials. Petroleum hydrocarbons, as an example, may present an explosion hazard when they come into contact with an ignition source. All flammable materials must be kept away from ignition sources. Proper precautions shall be taken to reduce fire hazards when dispensing flammable materials through bonding and grounding of drums and containers. All sources of ignition such as metal cutting and welding; hot surfaces; frictional heat; static, electrical and mechanical sparks will be eliminated.

Because of the possibility for fire or explosion, open flames or other sources of ignition will not be allowed in contaminated zones. In addition, personnel working on site will **not** be allowed to smoke under any circumstances. In the event of a fire, work will cease and the area will be evacuated. Local fire responders will be notified immediately. Site workers should not attempt to put out fires that have progressed beyond the incipient stage unless they are properly trained and equipped with the right equipment to do so. A fully charged ABC dry chemical fire extinguisher will be readily available for use during all scheduled activities on the Site. To reduce the possibility of an explosion, open flames and smoking will not be permitted on the site. Adequate precautions will be taken to prevent the ignition of flammable vapors. All site personnel will be familiar with the location and availability of fire alarm pull boxes and fire suppression equipment.

High Traffic Area Hazards

Vehicular traffic represents one of the most common hazards that cause serious injury or death when working at Sites. Risk from vehicular traffic may be minimized by safe operating practices by the employee during Site work.

Site personnel will wear highly visibility orange safety vests in areas of heavy traffic. Employees should make an effort to be aware of their surroundings and potentially dangerous traffic areas at all times. If work is being done that will in any way inhibit the employees' ability to continuously be aware of their surroundings, such as crouching down to sample a monitoring well or taking notes, tall orange cones should

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be placed around the employee to make motorists aware of their presence. Tall orange traffic cones should also be placed in work areas considered to be highly dangerous traffic areas. Any work performed in a road or on the shoulder of the road should require a police detail to monitor worker safety in vehicular traffic in addition to the use of orange vests and orange traffic cones.

Confined Spaces

VHB personnel are prohibited from entering confined spaces including but not limited to tanks, pits, sumps, trenches, vessels, drainage structures, utility vaults, catch basins and pipe tunnels.

Confined spaces may be described as having, but not being limited to, the following characteristics:

- Is large enough to permit an employee to enter and perform work
- Has limited or restricted means of entry and exit
- Is not equipped, designed, or intended for continuous human occupancy

In addition, one or more of the following conditions may be present in a permit-required confined space:

- Contains or has the potential to contain a hazardous atmosphere
- Contains or has the potential to contain a material with the potential to engulf or entrap an employee
- Is so configured that an employee may become trapped, disoriented, or asphyxiated by wall configurations or smaller cross sections.
- Contains any other established safety or health hazards such as electrical equipment or moving parts

This site has been carefully evaluated with regard to the presence of confined spaces as defined in 29 CFR 1910.146. It has been determined that confined spaces are:

Present: __

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Not Present: X____

V. PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. Level of Protection

The purpose of PPE is to protect employees from hazards and potential hazards they are likely to encounter during site activities. VHB personnel will be provided with the appropriate safety equipment and protective clothing. It is the responsibility of the SSHO to inform every worker about the required level of protection and must provide proper training in the use of the safety equipment. *VHB personnel are not authorized to wear Self Contained Breathing Apparatus (SCBA). If site conditions require SCBA (e.g., Level B or Level A) operations will immediately cease.*

The required levels of PPE to be worn are described below:

The level of protection assigned for the task covered by this plan is level: D-Modified

Level D - Modified (Minimum Level of Protection)

1. Gloves; Nitrile.
2. High visibility vest/jacket;
3. Boots/shoes, chemical-resistant steel toe and shank;
4. Safety glasses or chemical splash goggles;
5. Hard hat, optional; depending on work activity and SSHO requirements.

Guidelines for Respiratory Protection

For sites which have not been fully characterized, air monitoring will be conducted during field activities because significant levels of contamination could be present in the breathing zone. A photoionization detector, detector tubes, and other measuring devices will be used to detect contaminants and determine if action levels have been exceeded.

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If levels exceed the "Action Level" in the ambient air, all work at the site will cease and the proper respiratory protective equipment (RPE) will be donned before activities resume.

VHB field personnel will not be assigned to tasks requiring the use of RPE without consulting with, and having received authorization from the Health and Safety Manager. VHB personnel are required to receive medical surveillance; training in the use, inspection, and maintenance of respirators; fit testing; and proper selection techniques prior to the use of any RPE.

For specific requirements on the RPE refer to the VHB Respirator Protective Equipment Program. Companies, sub-contractors, and organizations other than VHB with on-site workers will be required to supply and train their employees with RPE, as necessary. All other on-site personnel will be held strictly liable and responsible for the proper use of RPE, and the health and safety of their personnel while on-site.

VI. ESTABLISHMENT OF WORK ZONES AND DECONTAMINATION PROCEDURES

Establishment of Work Zones

Typical Work Zones may include:

- Exclusion Zone ("Hot Zone"): The area where work activities are conducted and when applicable, where contamination is found. The exclusion zone must be clearly defined as such by the use of traffic cones, caution tape, site figures, etc., so that it is clearly indicated that unauthorized personnel are prohibited from access.
- Contamination Reduction Zone: A designated transitional area where employees' clothing and equipment are decontaminated. Typically, outer protective suits and equipment are washed using Alconox, rinsed and then removed. Hands and face should also be washed in this area.
- Support Zone: An area designated as contamination-free that is considered a base for workers to plan and manage field operations.

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Throughout the project, personnel will be performing a variety of tasks. Decontamination will be accomplished in a number of ways, depending on the equipment used and the tasks performed. In some cases, only a boot rinse may be necessary, while in other situations, a complete decontamination of personnel and equipment (including heavy machinery) may be required. The objective of decontamination is not only to properly clean workers and equipment, but also to prevent contaminated soil or water from leaving the site in an uncontrolled manner (i.e., bottom of boots or tires) and posing a potential threat to the surrounding community.

Under certain conditions steam cleaning of heavy machinery and other equipment may be necessary. Both subcontractors and client personnel should be prepared to perform steam cleaning operations.

A. Personnel

All on-site personal equipment will be decontaminated using an Alconox wash and water rinse. Scrub brushes will be used to clean the bottom of boots and gloves. Any personal equipment and/or clothing which cannot be cleaned thoroughly will be disposed of properly.

Decontamination Procedure

1. Separate field equipment on plastic sheets.
2. Wash and rinse protective clothing, over-boots, and outer gloves, to clean off visible contaminants.
3. Remove sealants (tape), if applicable.
4. Remove over-boots and outer gloves.
5. Remove suit or other protective clothing.
6. Remove respirator, if applicable.
7. Remove inner gloves.
8. Place all disposable PPE into an appropriate waste container.

B. Equipment

Equipment used during the site assessment must be decontaminated in the best manner possible before it leaves the decon area. Throughout the project most

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equipment will be decontaminated with Alconox and a water rinse. However, heavy equipment, such as a backhoe, may require decontamination by steam cleaning.

C. Emergency Decontamination

In the event of direct contact of contaminated media with a worker's skin, hair, eyes, etc., where decontamination of the affected area must be conducted immediately, the affected worker(s) will be escorted to previously identified facilities by the Site Safety Officer and/or client personnel. Facilities should include emergency showers, eyewashes and lavatories. If these facilities are not available at the site, then a portable emergency eyewash will be kept in the field vehicle. For emergency decontamination of on-site workers, the following facilities are on-site and available for use: **No facilities are available. Call 911 and utilize emergency equipment within field vehicle if applicable.**

VII. CONTINGENCY PROCEDURES

A. Hazardous Chemical Spill Procedures

In the event of a hazardous material spill, identify the source of the spill and, if it can be performed safely, contain from a distance in order to protect employees and the environment. Other actions to consider include: Realigning the container to stop the flow, utilizing available spill control materials, use available materials, soil, etc. to contain the flow. Access to the spill area by unauthorized personnel must be prohibited to minimize exposure and the spread of contamination. The TM should be notified immediately so that any required notifications and further actions can be taken. In the event of a significant spill an emergency cleanup contractor will be notified and, as may be required, notification be made to appropriate local, state and Federal officials.

B. Emergency Medical Care

All local emergency contact information is outlined in the Health and Safety Briefing Form located on the first page of this HASP. This form should be posted at several prominent locations throughout the jobsite. In case of a medical emergency notify an

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Ambulance/EMS. A first aid kit, eyewash and/or shower should be accessible at the jobsite to treat injuries. Personnel should be decontaminated in the field to the extent possible prior to transport to a medical facility. Report all accidents to the SSHO, TM and Health and Safety Manager.

C. Evacuation Procedures

Should the necessity arise for the evacuation of personnel from the site, due either to chemical exposure or physical danger (i.e. fire, explosion or lightning), the evacuation signal will be sounded and all personnel involved in the on-site work will meet at a location designated as specified on the HASP Briefing Form. The SSHO or designee will notify the appropriate officials. The work area will not be reoccupied until it has been determined that the danger no longer exists. In addition, reentry into the site will not be allowed without proper PPE.

Authorities and the fire department shall be alerted and all personnel moved to a safe distance from the involved area. Site workers shall stay upwind from vapors or smoke and upgradient from spills. If workers are in the Exclusion Zone, then they should exit through the established decontamination area whenever possible.

D. Adverse Weather Conditions

In the event of adverse weather conditions such as thunderstorms, tornado warnings, etc. personnel should halt operations and seek appropriate shelter.

VIII. PERIODIC REVIEW OF HASP AND SITE INSPECTIONS

Site inspections shall be conducted by the SSHO or designee to ensure that health and safety controls are adequate and properly implemented at the work-site. Changes to the HASP will be made based on annual reviews of the written program; the discovery of new conditions or concerns; or to reflect regulatory or company-implemented changes.

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APPENDIX A

PERSONAL EXPOSURE RECORD, AIR MONITORING RECORD, AND CALIBRATION/MAINTENANCE RECORD

APPENDIX A

PERSONAL EXPOSURE RECORD

Name:

Date:

Time:

Symptoms:

Medical Attention Required: ☐ Yes ☐ No

Treatment:

Prognosis:

Date Returned to work:

Date:

PPE Issued: ☐ Yes ☐ No

Type:

Signature of Site Safety and Health Officer:

_____

Date: _____

Signature of Health and Safety Manager:_____

Date: _____

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AIR MONITORING RECORD

Date:

Time:

Location:

Method: _____ Photoionization Detector _____ Detector Tubes _____Other

Type of Device: Serial No.:

Level of Contamination:

Contaminant:

"Action Level":

Action Taken (e.g., cease work; continue work; none):

_____

AIR MONITORING RECORD

Date:

Time:

Location:

Method: _____ Photoionization Detector _____ Detector Tubes _____ Other

Type of Device: Serial No.:

Level of Contamination:

Contaminant:

"Action Level":

Action Taken (e.g., cease work; continue work; none):
12815

_____

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CALIBRATION/MAINTENANCE RECORD

Calibration

Date:								
Time:								
Method:								
Standard (ppm):								
Response (ppm):								
Span Setting:								

Maintenance

Date:								
Time:								
Problem:								
Remedy:								

Each unit should be calibrated at the start of each day and again at midday to monitor for drift.

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APPENDIX B

TEAM MEMBERS SIGN-OFF PAGE

APPENDIX B

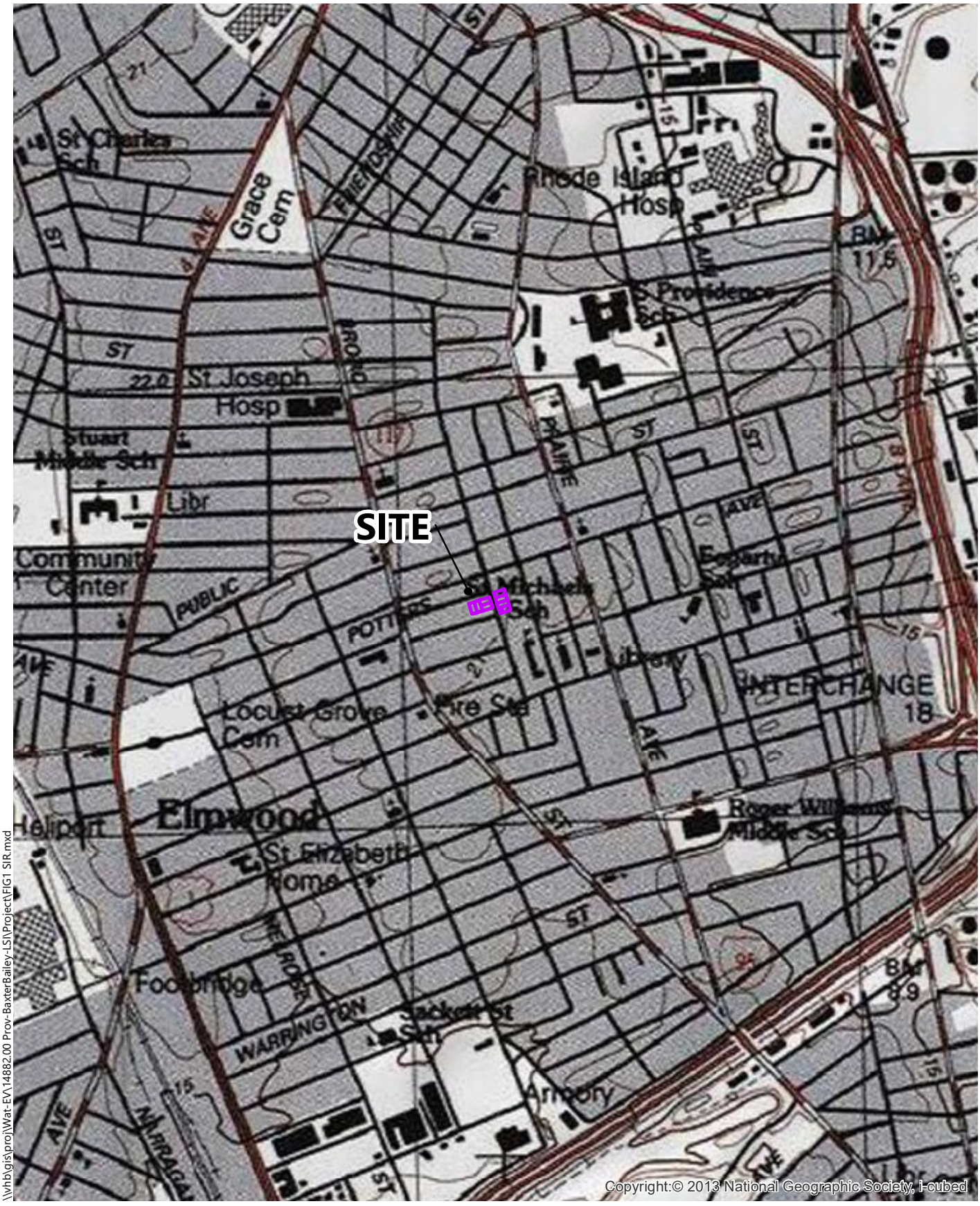
TEAM MEMBERS SIGN-OFF PAGE

Prior to going on-site all team members must read and understand the HASP.

I have read and understand the HASP.

Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date
Name	Signature	Date

APPENDIX C
SITE & LOCUS MAPS



\\vhb\gis\proj\Wat-EV\14882.00 Prov-BaxterBailey-LS\Project\FIG1 SIR.mxd

0 250 500 1000 Feet

Legend

Parcel Outline

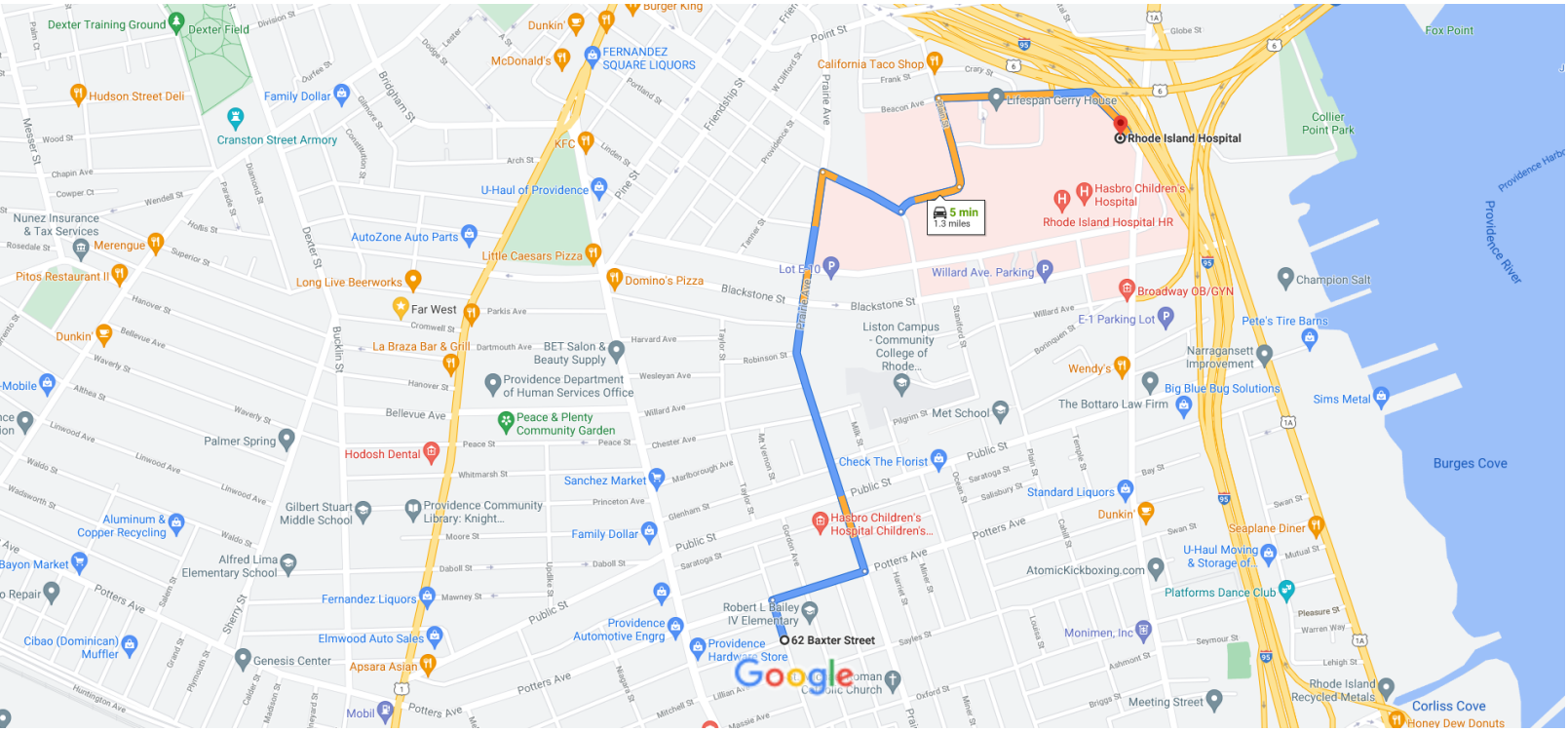
Baxter Bailey Playground | Providence, RI

Site Locus Map
RAWP

Providence Tax Assessor GIS

APPENDIX D
HOSPITAL ROUTE

Google Maps 62 Baxter St, Providence, RI 02905 to Rhode Island Hospital Drive 1.3 miles, 5 min



Map data ©2021 500 ft

62 Baxter St

Providence, RI 02905

1. Head north on Baxter St toward Gladstone St
   295 ft
2. Turn right onto Potters Ave
   0.1 mi
3. Turn left onto Prairie Ave
   0.6 mi
4. Turn right onto Pearl St
   0.1 mi
5. Turn left at Gay St
   466 ft
6. Continue onto Plain St
   0.1 mi
7. Turn right onto Borden St
   Destination will be on the right
   0.3 mi

Rhode Island Hospital

593 Eddy St # 124, Providence, RI 02903

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Appendix D: Operating Log

Baxter Street and Bailey School Playground
Providence, Rhode Island
DAILY OPERATING LOG SUMMARY
Remedial Action Work Plan

NAME:	**WEATHER:**
DATE & TIME:	**WIND:**

GENERAL CONSTRUCTION ACTIVITY:

EARTHWORK ACTIVITY:

SOIL AND EROSION MONITORING:

DUST MONITORING:

HEALTH AND SAFETY MONITORING:

CONVERSATION NOTES:

September 10, 2021

Ref: 14882.00/.01

Stephanie Cappelli, Environmental Engineer I
Rhode Island Department of Environmental Management
Office of Land Revitalization & Sustainable Materials Management
235 Promenade Street
Providence, RI 02903

Re: Response to RIDEM Comments and RAWP Addendum
Bailey School & Baxter St. Playground
Baxter Street and Norwich Avenue
Providence, Rhode Island
SR-28-0548 B

Ms. Cappelli,

On behalf of the City of Providence (the City), Vanasse Hangen Brustlin, Inc. (VHB) is providing this letter to serve as (1) a response to your Remedial Action Work Plan (RAWP) comment letter for the above-referenced Site, dated June 11, 2021; (2) an addendum to VHB's RAWP dated June 4, 2021; and (3) a summary of the Limited Design Investigations (LDIs) completed to further characterize contamination identified at the above-referenced Site.

It should also be noted that, per VHB request, the RIDEM extended the deadline for the City's response to comments to October 11, 2021.

Response to RIDEM Comments

Comments from RIDEM's above-referenced letter have been included in the sections outlined below, followed by VHB's responses to each. These responses are intended to fulfill the obligations of the RAWP which had not been adequately addressed in the previous submittal.

1. ***Section 4.1.1****:*

a. *Please provide additional details on the handling and disposal of the hazardous waste materials once the LDI is completed. Additional details shall include safety measures that may be required, handling procedures for the waste, disposal location of the waste, and additional disposal approvals that may be required to transport the waste.*

1 Cedar Street
Suite 400
Providence, RI 02903
P 401.272.8100
F 401.277.8400

Response: The "hazardous waste materials" are expected to be limited to lead-contaminated soils with exceedances of the USEPA MCCTC. No other hazardous wastes are known to exist or are expected to be generated based on data collected to date. The health risks associated with management of these soils are primarily related to exposure via direct contact, ingestion, and/or inhalation during excavation and loading of the soil onto trucks for off-Site disposal. The goals of the LDI included determining the horizontal extent and volume of the hazardous soil area and to obtain pre-approval from the soil disposal facility to facilitate live loading during implementation of the RAWP. The results of the LDI indicate the volume of hazardous lead soil to be roughly 40 cubic yards (or approximately 60 tons) based on endpoint samples associated with no exceedances of the EPA MCCTC. Preliminary-approval for disposal of the hazardous soil at Stablex Canada located at 760 Industrial Boulevard in Blainville (Quebec) J7C 3V4 has been received. Live loading and transportation off-Site immediately after excavation will minimize the potential for exposure to construction workers and other potential receptors. Other safety precautions outlined in the RAWP include establishing Site security measures (e.g., fencing) to prohibit Site access by unauthorized personnel, the use of water for dust controls, and a requirement that personnel performing the work are 40-hour OSHA trained, and adhere to a Health & Safety Plan. VHB personnel will be on-Site throughout the hazardous soil excavation and loading process and will ensure that these safety practices are implemented.

b. *Please confirm that hazardous soils (soils with exceedances of the USEPA MCCTC) will not be reinterred and placed beneath a cap on-site. In the case that hazardous soils are intended to be reinterred on-site, treatment of said soils and issuance of a Temporary Remedial Action Permit (TRAP) would be required. Please note that the TRAP would require a 30-day public comment period for abutters to comment on the technical feasibility of any proposed treatment.*

Response: No hazardous soils are to be reinterred beneath a cap on-Site.

2. ***Section 4.2****:*

a. *Please note, the proposed remedy includes the limited excavation work.*

Response: VHB, on behalf of the City of Providence, acknowledges that the proposed remedy includes limited soil excavation and off-Site disposal as well as capping of jurisdictional soils that are left on-Site and implementation of an Environmental Land Usage Restriction (ELUR).

b. *It is stated that: "Deviations to the capping plans, if any, will be documented in the Closure Report." Please clarify that the deviation refers to the geotextile fabric in areas capped with 2-feet of clean fill due to this being more protective than Department requirements. Further deviations from the RAWP shall be communicated to the Department for review and approval.*

Response: If any capped areas deviate from the approved capping plans, VHB will notify RIDEM of the proposed changes and request approval in advance of implementing any such deviations with the exception of instances where an area of the Site is capped with a more protective engineered barrier. Furthermore, deviations from the approved capping plans, if any, are expected to conform to one of the other approved RIDEM caps (e.g., 2-feet of certified clean fill, 1-foot of certified clean fill over a geotextile fabric, 6-inches of certified clean fill beneath 4-inches of pavement, etc.). Any such RIDEM-approved deviations will be documented in the Remedial Action Closure Report (RACR).

3. ***Section 4.3****: VHB shall be on site for the duration of work excavating and disposing of the hazardous soils.*

   Response: VHB confirms that although our Site monitoring visits will not be full time for the duration of the project, a VHB representative will be on-Site throughout the duration of the hazardous soil excavation and loading portion of the remedial action.

4. ***Section 4.4****: Please include the LDI and soil excavation in the proposed schedule.*

   Response: The field portion of the LDI was implemented on Monday, June 28, 2021 and August 11, 2021. A Disposal Profile and a soil disposal application will be submitted to RIRRC within 2 weeks of receipt of a Remedial Approval Letter (RAL). The RAWP is expected to be implemented concurrently with construction activities for the new playscape project. The City originally anticipated the Project to be advertised and awarded to a Contractor in the Fall of 2021. However, the playscape project has been delayed, and therefore construction and the majority of the soil disposal and Site capping is now expected to occur in late spring of 2022. However, if logistics, municipal budgeting, and contracting can be facilitated sooner, there is a possibility that the hazardous lead soil excavation and disposal may occur in Fall 2021.

5. ***Section 4.5****: Contractor details and contact information shall be provided to the Department once selected.*

   Response: VHB and the City acknowledge that a list of Contractors and subcontractors, once known, with appropriate contact information will be provided to RIDEM in advance of initiation of the work.

6. ***Section 4.6****: Please also sample clean fill for PCBs.*

   Response: VHB will include PCBs in the list of laboratory analyses for clean fill.

7. ***Section 4.7****: Please confirm that only contaminated (non-hazardous) soils are discussed in this section. Hazardous soils shall be contained via drums, lined roll-off, live loading procedures, or similar.*

   Response: VHB confirms that only non-hazardous soils are discussed in Section 4.7. All hazardous soils are scheduled to be live-loaded for disposal.

8. ***Section 4.8****: It is stated that: "RIDOT or their designee will conduct periodic Site visits to ensure dust control measures are being implemented if necessary." Please clarify who will be conducting periodic site visits to ensure dust control measures are implemented.*

   Response: VHB acknowledges that a typographical error was included in the RAWP. RIDOT is not involved in this project and will not conduct any Site visits during implementation. The City's Project Bid Specifications and contract with the selected Contractor will include a requirement to have a water source on-Site and to apply water as necessary during the hazardous soil excavation and off-Site disposal work and at any other time there is evidence of or the potential for nuisance dust generation. VHB will be on-Site during all soil excavation and disposal associated with the hazardous soil remediation activities and will be primarily responsible for reminding the Contractor to comply with the dust control provisions if needed. During the remainder of the project, VHB will make periodic Site visits. While on-Site, VHB personnel will be visually monitoring the level of dust generation and will direct the contractor to apply dust controls as needed. On days when VHB does not have an on-Site presence, the City Parks Department will be responsible for ensuring that the contractor adheres to the dust control provisions of their contract.

Limited Design Investigations

VHB completed two rounds of a LDI at the Site on June 28, 2021 and August 11, 2021. The June LDI was intended to further define the horizontal extent of two exceedances of the EPA Maximum Concentration of Contaminants Toxicity Characteristic (MCCTC) for lead via Toxicity Leachability Procedure (TCLP), and to also collect additional disposal pre-characterization data for the Site. The purpose of the August LDI was to confirm the presence and further characterize polychlorinated biphenyls (PCBs) in soil identified in one of the disposal pre-characterization composite samples collected from a portion of the Site during the June LDI. Each of the two LDIs are detailed below.

Lead-Impacted Area

As described in VHB's Site Investigation Report dated September 9, 2020, lead via TCLP was reported in exceedance of the EPA MCCTC (5.0 mg/L) at SB-10 and SB-12 from 0 – 5 feet below grade at 6.1 and 11.5 milligrams per liter (mg/L), respectively. Samples collected from the same location at 5 – 10 feet below grade (identified as SB-10A and SB-12A) contained total lead at 1.28 and 1.06 milligrams per kilogram (mg/kg), respectively, which does not pose a risk for leachability in accordance with the 20-times rule. Additional samples were also collected approximately 10-feet away (or more in some locations) in all four directions surrounding SB-10 and SB-12 from 0 – 5-feet below grade (identified as SB-10B through 10D and SB-12B through 12D). These samples were associated with total lead concentrations which did not pose a risk for leachability (i.e., less than 20-times rule) or reported TCLP concentrations which were below the EPA MCCTC.

On June 28, 2021 VHB collected a total of eighteen (18) additional soil samples for total lead at and surrounding the two (2) exceedances of the EPA MCCTC at SB-10 and SB-12 from 0 – 5 feet below grade. Samples were collected at the original locations of the exceedance and approximately 5-feet and 8-feet away from the locations in north, south, east, and west directions to more tightly delineate the potential hot-spots and to facilitate disposal cost estimating for the City.

Of the eighteen (18) samples collected, total lead concentrations ranged from 1.96 mg/kg to 2,140 mg/kg, seven (7) of which warranted further analysis via TCLP based on the 20-times rule. Of the seven (7) samples run for TCLP, none were associated with exceedances of the MCCTC, and the concentrations reported by the laboratory ranged from 0.265 mg/L (SB-12) to 1.81 mg/L (SB-12W5). The soil analytical laboratory report associated with the June 2021 LDI is included as **Attachment A**, the analytical results are summarized on **Table 1,** and the LDI soil boring locations and the associated TCLP concentrations are shown on **Figure 1**.

Based upon the initial site investigations in 2020 and the June 2021 LDI associated with the lead impacted area of concern, no TCLP lead concentrations greater than the EPA MCCTC have been identified at depths beyond 5-feet below grade or at 5-foot lateral distances to the north, south, east, and west of SB-10 and SB-12. Therefore, the remedial action will conservatively include excavation of an approximate 10-foot long, 10-foot wide and 5-foot deep area centered at each of the two (2) previously identified soil hot spots, SB-10 and SB-12. The sidewall limits and depth of each of the two (2) excavations will coincide with and will be defined by soil sample locations where the total lead concentration was either less than the 20-times rule (i.e., < 100 mg/kg), or in those instances where the total lead concentration was greater than the 20 times rule, the TCLP concentration was less than the MCCTC.

Since the lead soil excavations will conservatively extend laterally and to depths already defined by laboratory data indicating that no soil defined as hazardous or with risk of leachability will remain at the Site, no additional excavation endpoint sampling for lead is necessary and therefore will not be completed during implementation of the RAWP.

PCB-Impacted Area

On June 28, 2021 VHB collected three (3) composite samples identified as Disposal-1, 2 and 3 to pre-characterize surficial soils at the Site for disposal purposes. Samples were collected from 0 – 2 feet below grade for expected disposal during project construction to allow for the completion of a cap across the Site. Each composite sample consisted of four (4) to six (6) discrete sample locations.

According to the results of the laboratory analysis, the composite sample identified as Disposal-3 was associated with an exceedance of the Residential and Industrial/Commercial Direct Exposure Criteria (RDEC and I/CDEC) as well as the GB Leachability Criteria (GBLC) for total PCBs (10 mg/kg). This sample was collected from the westernmost parcels within the Site (Lots 782 and 783), which were previously used for residential purposes prior to demolition of the residential structures. Aroclor-1254 was reported at 18.3 mg/kg and all other aroclors were reported as non-detect (ND). VHB

communicated with the RIDEM Office of Land Revitalization and Sustainable Materials Management (LRSMM) regarding the exceedance. The exact source of the PCBs is not known, however illegal dumping of trash and other debris at Lots 782 and 783 could be a contributing factor. Since the elevated PCB concentration was the result of a composite of four (4) discrete samples collected from 0-2 feet below grade, the precise area and depth of the PCB exceedance was not known. The Office of LRSMM indicated that all soils with PCB concentrations greater than 10 mg/kg would have to be removed and suggested collecting post-excavation samples to ensure PCB-impacted soils had been removed. However, the Office of LRSMM agreed with VHB's recommendation that additional investigations be completed to confirm the presence of the elevated PCBs in soil and to define the horizontal and vertical extent of the PCBs at concentrations greater than 10 mg/kg.

Therefore, VHB initiated a LDI in the PCB area of concern in August 2021 to resample and characterize the horizontal and vertical extent of the PCB exceedance prior to the construction activities. On August 11, 2021, VHB collected and submitted forty (40) soil samples to the laboratory, ten (10) at each of the four (4) discrete sample locations and thirty (30) surrounding the discrete locations as shown on the attached **Figure 2**. Samples were collected and submitted for lab analysis from 0 – 3 inches below grade and from 3 inches – 2 feet below grade.

Additional samples from 2 – 4 feet below grade and 4 – 6 feet below grade were also collected, and additional borings across Lots 782 and 783 were completed and samples collected at similar depth intervals. However, the additional samples were "held" in accordance with laboratory protocols until the initial round of data from the top 2 feet of soil was received from the lab. The purpose of the additional soil sampling was to facilitate further delineation in the event that the initial round of data still indicated PCB concentrations greater than 10 mg/kg.

The laboratory analytical report indicated that the concentration of PCBs were below the RDEC, I/CDEC and GBLC in all forty (40) samples submitted for analysis, with concentrations ranging from ND (< 0.06 mg/kg) to 7.8 mg/kg at SB-16 from 3 inches to 2 feet below grade. Therefore, analysis of the additional samples collected was not warranted since vertical and horizontal delineation was achieved with the initial sample set. The laboratory report associated with the PCB analysis from August 2021 is included as **Attachment B**, the analytical results are summarized on **Table 2** and soil boring locations and the associated TCLP concentrations are shown on **Figure 2**

Based upon the findings of the PCB area LDI, it is VHB's opinion that the elevated PCB concentration reported by the lab for the composite disposal pre-characterization soil sample collected from Lots 782 and 783 was an anomaly/error and that could not be reproduced via implementation of the extensive additional LDI as described above, and that the additional LDI more accurately represents existing Site conditions via discrete sampling. Based upon the results of the LDI, Site soils have been adequately characterized and do not contain any PCB concentrations greater than applicable RIDEM RDEC I/CDEC or GBLC. Therefore, VHB does not propose any change to the existing RAWP with respect to PCBs in Site soil (i.e., excess soil generated form the Site which is not re-interred beneath a RIDEM-approved engineered barrier, will be disposed at an appropriately licensed disposal facility, and an ELUR will be recorded for the Site).

Conclusion

VHB trusts that these responses to RIDEM's comments and the LDI summaries sufficiently answers or clarifies any questions the Office of LRSMM has and fulfills the requirements of a RAWP Addendum. Therefore, on behalf of the City, VHB respectfully requests that a Remedial Approval Letter be issued at this time. If there are still any questions or if additional clarification is needed, please contact the undersigned at your convenience. Thank you in advance for your timely response.

Sincerely,

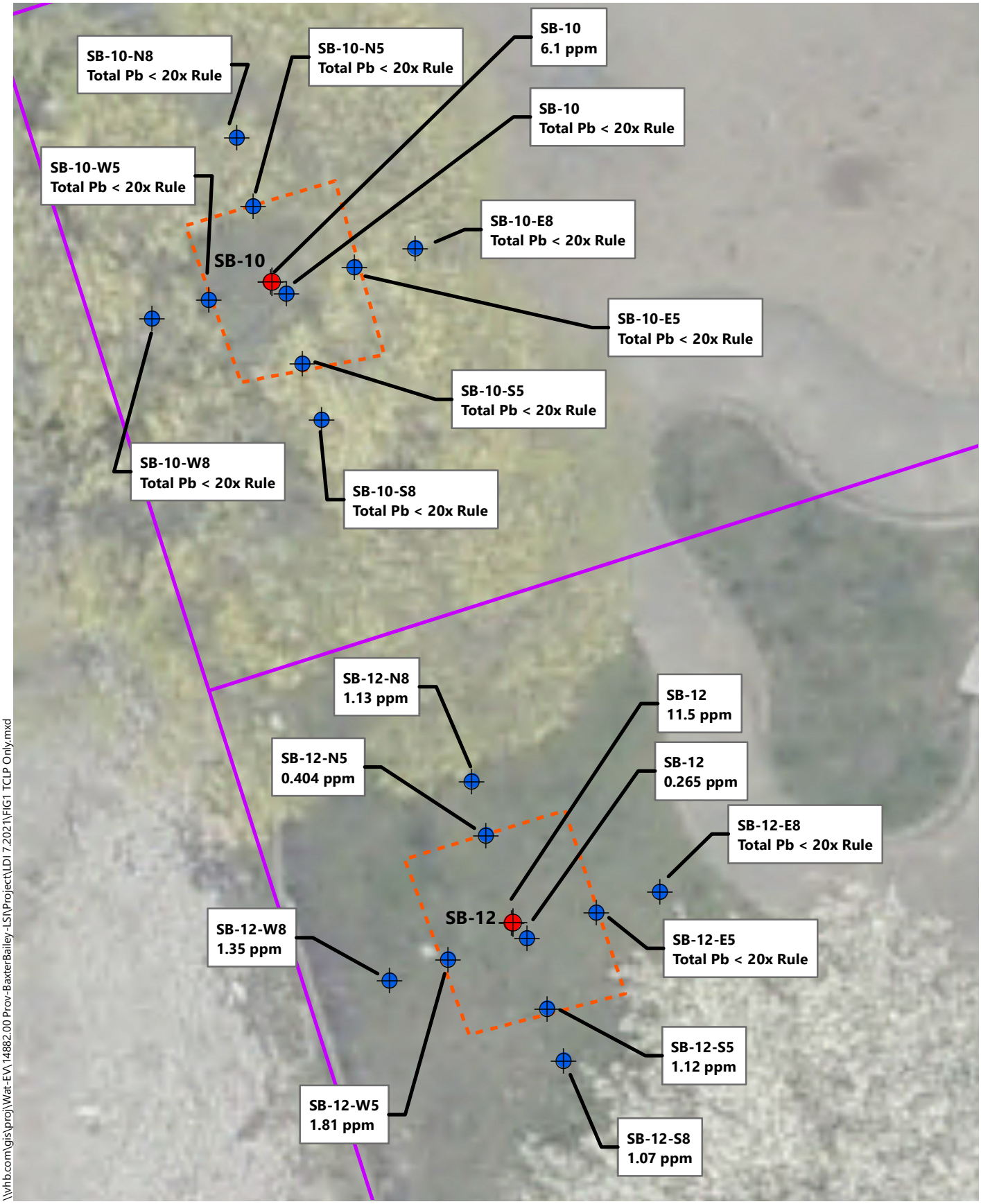
Fred T. Bevans

Environmental Scientist
fbevans@vhb.com

Attachments:
Figure 1 – Lead Area
Figure 2 – PCB Area
Table 1 – Lead Data Summary
Table 2 – PCB Data Summary
Attachment A – Laboratory Report (Total Lead and TCLP)
Attachment B – Laboratory Reports (PCBs)

cc:
Emily Freedman, City of Providence

Figure 1 – Lead Area



\\vhb.com\gis\proj\Wat-EVA\14882.00 Prov-BaxterBailey-LSI\Project\LDI 7.2021\FIG1 TCLP Only.mxd

0 2.5 5 10 Feet

Legend

- Soil Borings - March 2020
- Soil Borings - July 2021
- Proposed Lead Excavation Area
- Site Parcel Boundaries

Baxter Bailey Playground

Norwich Ave. and Baxter St.
Providence, Rhode Island

Limited Design Investigation
TCLP Lead Concentration Map

RIDEM Environmental Resource Map
Providence Tax Assessor GIS

Figure 2 – PCB Area



\\vhb.com\gis\proj\Wat-EV\14882.00 Prov-BaxterBailey-LSI\Project\LDI 7.2021\FIG2 PCB Investigations Only EDITED.mxd

0 12.5 25 50 Feet

Legend

- PCB Investigation Borings
- Soil Borings - March 2020
- Pre-Char. Sample Locations
- Parcel Outline

Baxter Bailey Playground | Norwhich Ave. and Baxter St.
Providence, Rhode Island

Limited Design Investigation
Disposal Pre-characterization

RIDEM Environmental Resource Map
Providence Tax Assessor GIS

Table 1 – Lead Data Summary

Table 1 - Soil Lead Data
Bailey School and Baxter St. Playground
Providence, RI

Sample ID:					SB-10		SB-10-N5		SB-10-N8		SB-10-E5		SB-10-E8		SB-10-S5		SB-10-S8		SB-10-W5		SB-10-W8		SB-12	
Lab Sample Number:					**1F28057-03**		**1F28057-04**		**1F28057-05**		**1F28057-08**		**1F28057-09**		**1F28057-02**		**1F28057-01**		**1F28057-07**		**1F28057-06**		**1F28057-12**	
Date Sampled:					6/28/2021 8:46		6/28/2021 8:48		6/28/2021 8:52		6/28/2021 9:00		6/28/2021 9:03		6/28/2021 8:42		6/28/2021 8:39		6/28/2021 8:58		6/28/2021 8:55		6/28/2021 9:43	
Date Received:					6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02	
Parameter	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	EPA Maximum Concentration of Contaminants for Toxicity Characteristic	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit
Total Metals																								
Lead	mg/kg	150	500		**3.95**	0.26	**55.7**	0.33	**69.1**	0.21	**3.76**	0.23	**3.36**	0.18	**2.22**	0.27	**21.6**	0.22	**1.96**	0.27	**6.2**	0.22	**190**	0.3
TCLP Metals																								
Lead	mg/L			**5**																			**0.265**	0.025

Notes:
1. All bolded results are values greater than the laboratory's detection limits.
2. All reults highlighted in blue are values greater than RIDEM's RDEC.
3. All resilts higlighted in purple are values greater than RIDEM's I/CDEC
4. "ND" = non-detect
5. "ug/kg" = microgram per kilogram or parts per billion.
6. "mg/kg" - milligram per kilogram or parts per million.
7. Cells that are left blank were not tested for that parameter.
9. All results with a bold border indicate exceedances of the USEPA MCCTC.

Table 1 - Soil Lead Data
Bailey School and Baxter St. Playground
Providence, RI

Sample ID:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	EPA Maximum Concentration of Contaminants for Toxicity Characteristic	**SB-12-N5**		**SB-12-N8**		**SB-12-E5**		**SB-12-E8**	
Lab Sample Number:					**1F28057-13**		**1F28057-14**		**1F28057-17**		**1F28057-18**	
Date Sampled:					6/28/2021 9:45		6/28/2021 9:50		6/28/2021 10:15		6/28/2021 10:23	
Date Received:					6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02	
Parameter					Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit
Total Metals												
Lead	mg/kg	150	500		**2140**	0.3	**164**	0.28	**9.51**	0.29	**7.8**	0.26
TCLP Metals												
Lead	mg/L			**5**	**0.404**	0.025	**1.13**	0.025				

Notes:
1. All bolded results are values greater than the laboratory's detection limits.
2. All reults highlighted in blue are values greater than RIDEM's RDEC.
3. All resilts higlighted in purple are values greater than RIDEM's I/CDEC
4. "ND" = non-detect
5. "ug/kg" = microgram per kilogram or parts per billion.
6. "mg/kg" - milligram per kilogram or parts per million.
7. Cells that are left blank were not tested for that parameter.
9. All results with a bold border indicate exceedances of the USEPA MCCTC.

Table 1 - Soil Lead Data
Bailey School and Baxter St. Playground
Providence, RI

Sample ID:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	EPA Maximum Concentration of Contaminants for Toxicity Characteristic	**SB-12-S5**		**SB-12-S8**		**SB-12-W5**		**SB-12-W8**	
Lab Sample Number:					**1F28057-11**		**1F28057-10**		**1F28057-16**		**1F28057-15**	
Date Sampled:					6/28/2021 9:40		6/28/2021 9:35		6/28/2021 10:09		6/28/2021 9:53	
Date Received:					6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02		6/28/2021 17:02	
Parameter					Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit
Total Metals												
Lead	mg/kg	150	500		**614**	0.35	**489**	0.3	**831**	0.29	**1760**	0.32
TCLP Metals												
Lead	mg/L			**5**	**1.12**	0.025	**1.07**	0.025	**1.81**	0.025	**1.35**	0.025

Notes:
1. All bolded results are values greater than the laboratory's detection limits.
2. All reults highlighted in blue are values greater than RIDEM's RDEC.
3. All resilts higlighted in purple are values greater than RIDEM's I/CDEC
4. "ND" = non-detect
5. "ug/kg" = microgram per kilogram or parts per billion.
6. "mg/kg" - milligram per kilogram or parts per million.
7. Cells that are left blank were not tested for that parameter.
9. All results with a bold border indicate exceedances of the USEPA MCCTC.

Table 2 – PCB Data Summary

Table 2 - Soil PCB Data
Bailey School and Baxter St. Playground
Providence, RI

Sample ID:				SB-13 0-3in		SB-13 3in-2ft		SB-13N 0-3in		SB-13N 3in-2ft		SB-13W 0-3in		SB-13W 3in-2ft		SB-13E 0-3in		SB-13E 3in-2ft		SB-13S 0-3in		SB-13S 3in-2ft		SB-14N 0-3in		SB-14N
Lab Sample Number:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	21H0366-11		21H0366-12		21H0366-13		21H0366-14		21H0366-15		21H0366-16		21H0366-17		21H0366-18		21H0366-19		21H0366-20		21H0367-11		21H03
Date Sampled:				08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11
Parameter				Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result
PCBs																										
Aroclor 1016		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1221		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1232		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1242		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1248	mg/kg	10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1254		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1260		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06
Aroclor 1262		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	**0.08**	-	0.06
Aroclor 1268		10	10	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06	U	0.05	U	0.06

Sample ID:				SB-15S 0-3in		SB-15S 3in-2ft		SB-15 0-3in		SB-15 3in-2ft		SB-15N 0-3in		SB-15N 3in-2ft		SB-15W 0-3in		SB-15W 3in-2ft		SB-15E 3in-2ft		SB-15E 0-3in		SB-16 0-3in		SB-16
Lab Sample Number:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	21H0366-01		21H0366-02		21H0366-03		21H0366-04		21H0366-05		21H0366-06		21H0366-07		21H0366-08		21H0366-09		21H0366-10		21H0367-01		21H03
Date Sampled:				08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11
Parameter				Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result
PCBs																										
Aroclor 1016		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06
Aroclor 1221		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06
Aroclor 1232		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06
Aroclor 1242		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06
Aroclor 1248	mg/kg	10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06
Aroclor 1254		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	**0.2**	-	**0.2**	-	0.06	U	**0.3**
Aroclor 1260		10	10	0.06	U	0.06	U	0.06	U	0.06	U	**0.08**	-	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	**0.2**	-	0.06
Aroclor 1262		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	**0.3**	-	**0.3**	-	0.06	U	**0.2**
Aroclor 1268		10	10	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U	0.06	U	0.06

Notes:
1. All bolded results are values greater than the laboratory's detection limits.
2. All reults highlighted in blue are values greater than RIDEM's RDEC.
3. All resilts higlighted in purple are values greater than RIDEM's I/CDEC
4. "ND" = non-detect
5. "ug/kg" = microgram per kilogram or parts per billion.
6. "mg/kg" - milligram per kilogram or parts per million.
7. Cells that are left blank were not tested for that parameter.

Table 2 - Soil PCB Data
Bailey School and Baxter St. Playground
Providence, RI

Sample ID:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	3in-2ft	SB-14 3in-2ft		SB-14 0-3in		SB-14E 0-3in		SB-14E 3in-2ft		SB-14W 0-3in		SB-14W 3in-2ft		SB-14S 3in-2ft		SB-14S 0-3in	
Lab Sample Number:				67-12	21H0367-13		21H0367-14		21H0367-15		21H0367-16		21H0367-17		21H0367-18		21H0367-19		21H0367-20	
Date Sampled:				/2021	08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021	
Parameter				Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit
PCBs																				
Aroclor 1016	mg/kg	10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1221		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1232		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1242		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1248		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1254		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	**0.1**	-	0.06	U	0.06	U	0.06	U
Aroclor 1260		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1262		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	**0.2**	-	0.06	U	0.06	U	0.06	U
Aroclor 1268		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U

Sample ID:	Units	Residential Direct Exposure Criteria	Industrial/Commerial Direct Exposure Criteria	3in-2ft	SB-16W 0-3in		SB-16W 3in-2ft		SB-16S 0-3in		SB-16S 3in-2ft		SB-16N 0-3in		SB-16N 3in-2ft		SB-16E 0-3in		SB-16E 3in-2ft	
Lab Sample Number:				67-02	21H0367-03		21H0367-04		21H0367-05		21H0367-06		21H0367-07		21H0367-08		21H0367-09		21H0367-10	
Date Sampled:				/2021	08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021		08/11/2021	
Parameter				Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit
PCBs																				
Aroclor 1016	mg/kg	10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1221		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1232		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1242		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1248		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1254		10	10	-	**7.8**	D	**0.2**	-	0.06	U	**0.2**	-	0.05	U	**0.2**	-	0.06	U	0.06	U
Aroclor 1260		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U
Aroclor 1262		10	10	-	0.06	U	**0.3**	-	**0.2**	-	**0.3**	-	**0.6**	-	**0.3**	-	0.06	U	0.06	U
Aroclor 1268		10	10	U	0.06	U	0.06	U	0.06	U	0.06	U	0.05	U	0.06	U	0.06	U	0.06	U

Notes:
1. All bolded results are values greater than the laboratory's detection limits.
2. All reults highlighted in blue are values greater than RIDEM's RDEC.
3. All resilts higlighted in purple are values greater than RIDEM's I/CDEC
4. "ND" = non-detect
5. "ug/kg" = microgram per kilogram or parts per billion.
6. "mg/kg" - milligram per kilogram or parts per million.
7. Cells that are left blank were not tested for that parameter.

Attachment A – Laboratory Report (Total Lead and TCLP)

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 1F28057
Client Project: 14882.00 - Bailey School, Baxter St

Report Date: 07-July-2021

Prepared for:

Tyler Phillips
VHB
1 Cedar Street
Providence, RI 02903



Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 06/28/21. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 1F28057. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
1F28057-01	SB-10-S8	Soil	06/28/2021	06/28/2021
1F28057-02	SB-10-S5	Soil	06/28/2021	06/28/2021
1F28057-03	SB-10	Soil	06/28/2021	06/28/2021
1F28057-04	SB-10-N5	Soil	06/28/2021	06/28/2021
1F28057-05	SB-10-N8	Soil	06/28/2021	06/28/2021
1F28057-06	SB-10-W8	Soil	06/28/2021	06/28/2021
1F28057-07	SB-10-W5	Soil	06/28/2021	06/28/2021
1F28057-08	SB-10-E5	Soil	06/28/2021	06/28/2021
1F28057-09	SB-10-E8	Soil	06/28/2021	06/28/2021
1F28057-10	SB-12-S8	Soil	06/28/2021	06/28/2021
1F28057-11	SB-12-S5	Soil	06/28/2021	06/28/2021
1F28057-12	SB-12	Soil	06/28/2021	06/28/2021
1F28057-13	SB-12-N5	Soil	06/28/2021	06/28/2021
1F28057-14	SB-12-N8	Soil	06/28/2021	06/28/2021
1F28057-15	SB-12-W8	Soil	06/28/2021	06/28/2021
1F28057-16	SB-12-W5	Soil	06/28/2021	06/28/2021
1F28057-17	SB-12-E5	Soil	06/28/2021	06/28/2021
1F28057-18	SB-12-E8	Soil	06/28/2021	06/28/2021

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SB-10 (Lab Number: 1F28057-03)

Analysis	Method
Lead	EPA 6010C

SB-10-E5 (Lab Number: 1F28057-08)

Analysis	Method
Lead	EPA 6010C

SB-10-E8 (Lab Number: 1F28057-09)

Analysis	Method
Lead	EPA 6010C

SB-10-N5 (Lab Number: 1F28057-04)

Analysis	Method
Lead	EPA 6010C

SB-10-N8 (Lab Number: 1F28057-05)

Analysis	Method
Lead	EPA 6010C

SB-10-S5 (Lab Number: 1F28057-02)

Analysis	Method
Lead	EPA 6010C

SB-10-S8 (Lab Number: 1F28057-01)

Analysis	Method
Lead	EPA 6010C

SB-10-W5 (Lab Number: 1F28057-07)

Analysis	Method
Lead	EPA 6010C

SB-10-W8 (Lab Number: 1F28057-06)

Analysis	Method
Lead	EPA 6010C

SB-12 (Lab Number: 1F28057-12)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-E5 (Lab Number: 1F28057-17)

Analysis	Method
Lead	EPA 6010C

SB-12-E8 (Lab Number: 1F28057-18)

Analysis	Method

Request for Analysis (continued)

SB-12-E8 (Lab Number: 1F28057-18) (continued)

Analysis	Method
Lead	EPA 6010C

SB-12-N5 (Lab Number: 1F28057-13)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-N8 (Lab Number: 1F28057-14)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-S5 (Lab Number: 1F28057-11)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-S8 (Lab Number: 1F28057-10)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-W5 (Lab Number: 1F28057-16)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

SB-12-W8 (Lab Number: 1F28057-15)

Analysis	Method
Lead	EPA 6010C
TCLP Lead	EPA 6010C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

Results: Total Metals

Sample: SB-10-S8

Lab Number: 1F28057-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**21.6**		0.22	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-S5

Lab Number: 1F28057-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**2.22**		0.27	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10

Lab Number: 1F28057-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**3.95**		0.26	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-N5

Lab Number: 1F28057-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**55.7**		0.33	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-N8

Lab Number: 1F28057-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**69.1**		0.21	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-W8

Lab Number: 1F28057-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**6.20**		0.22	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-W5

Lab Number: 1F28057-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.96**		0.27	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-E5

Lab Number: 1F28057-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**3.76**		0.23	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-10-E8

Lab Number: 1F28057-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**3.36**		0.18	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-S8

Lab Number: 1F28057-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**489**		0.30	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-S5

Lab Number: 1F28057-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**614**		0.35	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12

Lab Number: 1F28057-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**190**		0.30	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-N5

Lab Number: 1F28057-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**2140**		0.30	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-N8

Lab Number: 1F28057-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**164**		0.28	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-W8

Lab Number: 1F28057-15 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1760**		0.32	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-W5

Lab Number: 1F28057-16 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**831**		0.29	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-E5

Lab Number: 1F28057-17 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**9.51**		0.29	mg/kg	06/29/21	07/06/21

Results: Total Metals

Sample: SB-12-E8

Lab Number: 1F28057-18 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**7.80**		0.26	mg/kg	06/29/21	07/06/21

Results: TCLP Metals

Sample: SB-12-S8

Lab Number: 1F28057-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.07**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12-S5

Lab Number: 1F28057-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.12**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12

Lab Number: 1F28057-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**0.265**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12-N5

Lab Number: 1F28057-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**0.404**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12-N8

Lab Number: 1F28057-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.13**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12-W8

Lab Number: 1F28057-15 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.35**		0.025	mg/L	07/07/21	07/07/21

Results: TCLP Metals

Sample: SB-12-W5

Lab Number: 1F28057-16 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Lead	**1.81**		0.025	mg/L	07/07/21	07/07/21

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1F1411 - Metals Digestion Soils										
Blank (B1F1411-BLK1)					Prepared: 06/29/21 Analyzed: 07/02/21					
Lead	ND		0.33	mg/kg						
LCS (B1F1411-BS1)					Prepared: 06/29/21 Analyzed: 07/02/21					
Lead	100		0.33	mg/kg	100		100	85-115		

Quality Control
(Continued)

TCLP Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B1G0227 - Metals Digestion Waters										
LCS (B1G0227-BS1)					Prepared & Analyzed: 07/07/21					
Lead	4.58		0.025	mg/L	5.00		91.7	85-115		
Leach Fluid Blank (B1G0227-LBK1)					Prepared & Analyzed: 07/07/21					
Lead	ND		0.025	mg/L						

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

1 F 2 8057 R

1 of 2

CHAIN OF CUSTODY RE(

PROJ. NO.: 14882.01
PROJECT NAME/LOCATION: Baxter Bailey
CLIENT: VHB
REPORT TO: Tyler Phillips, Peter G
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** Total Lead	REMARKS
								18			
6/28/21	0839		X	SB-10-S8		X		1	N/A	X	
	0842		X	SB-10-S5		X		1		X	
	0846		X	SB-10		X		1		X	
	0848		X	SB-10-N5		X		1		X	
	0852		X	SB-10-N8		X		1		X	
	0855		X	SB-10-W8		X		1		X	
	0858		X	SB-10-W5		X		1		X	
	0900		X	SB-10-E5		X		1		X	
	0903		X	SB-10-E8		X		1		X	
	0935		X	SB-12-S8		X		1		X	
	0940		X	SB-12-S5		X		1		X	
	0943		X	SB-12		X		1		X	
	0945		X	SB-12-N5		X		1		X	
	0950		X	SB-12-N8		X		1		X	

Sampled by: (Signature)	Date/Time: 6/28/21 1245	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time: 6/28/21 1531	Received by: (Signature)	Date/Time: 6/25/21 3:30
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time

Laboratory Remarks:
Temp. received: _____
Cooled ☐

Special Instructions: Please compare to RIDEM RDEC - ICDEC
Please run TCLP For samples over 60x rule

Turnaround (Business Days): 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

New England Testing Laboratory
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

Chain of Custody Record

Project No.	Project Name/Location:
14882.01	Baxter - Bailey
Client:	VHB
Report To:	Tyler Phillips, Peter G
Invoice To:	

Date	Time	Comp	Grab	Sample I.D.	Aqueous	Soil	Other	No. of Containers	Preservative	Tests** Total Lead
6/28/21	0953		X	SB-12-W8		X		1	N/A	X
"	1009		X	SB-12-W5		X		1	"	X
"	1015		X	SB-12-E5		X		1	"	X
"	1023		X	SB-12-E8		X		1	"	X

Sampled By:	Date/Time	Received By:	Date/Time	Laboratory Remarks:	Special Instructions:
	6/28/21 1247				IP over 20x rule, run TCLP Please compare to RIDEM RDEC + ICDEC
Relinquished By:	**Date/Time**	**Received By:**	**Date/Time**	Temp. Received:	
	6/28/21 1531		6/28/21 3:30		

**Netlab Subcontracts the following tests: Radiologicals, Radon, TOC, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates

Turnaround Time [Business Days]: **5 Days**

Attachment B – Laboratory Reports (PCBs)

CERTIFICATE OF ANALYSIS

Peter Grivers
Vanasse Hangen Brustlin, Inc.
1 Cedar Street Suite 400
Providence, RI 02903

RE: Baxter Balley LSI (14882.01)
ESS Laboratory Work Order Number: 21H0366

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:40 pm, Aug 18, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

SAMPLE RECEIPT

The following samples were received on August 11, 2021 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
21H0366-01	SB-15S 0-3in	Soil	8082A
21H0366-02	SB-15S 3in-2ft	Soil	8082A
21H0366-03	SB-15 0-3in	Soil	8082A
21H0366-04	SB-15 3in-2ft	Soil	8082A
21H0366-05	SB-15N 0-3in	Soil	8082A
21H0366-06	SB-15N 3in-2ft	Soil	8082A
21H0366-07	SB-15W 0-3in	Soil	8082A
21H0366-08	SB-15W 3in-2ft	Soil	8082A
21H0366-09	SB-15E 3in-2ft	Soil	8082A
21H0366-10	SB-15E 0-3in	Soil	8082A
21H0366-11	SB-13 0-3in	Soil	8082A
21H0366-12	SB-13 3in-2ft	Soil	8082A
21H0366-13	SB-13N 0-3in	Soil	8082A
21H0366-14	SB-13N 3in-2ft	Soil	8082A
21H0366-15	SB-13W 0-3in	Soil	8082A
21H0366-16	SB-13W 3in-2ft	Soil	8082A
21H0366-17	SB-13E 0-3in	Soil	8082A
21H0366-18	SB-13E 3in-2ft	Soil	8082A
21H0366-19	SB-13S 0-3in	Soil	8082A
21H0366-20	SB-13S 3in-2ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15S 0-3in
Date Sampled: 08/11/21 10:23
Percent Solids: 92
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 20:03		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 20:03		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15S 3in-2ft
Date Sampled: 08/11/21 10:29
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 20:22		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 20:22		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*61 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*62 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*57 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*78 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15 0-3in
Date Sampled: 08/11/21 10:30
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 20:42		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 20:42		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*52 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15 3in-2ft
Date Sampled: 08/11/21 10:31
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 21:01		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 21:01		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15N 0-3in
Date Sampled: 08/11/21 10:38
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1260	**0.08** (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 21:20		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 21:20		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*78 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*62 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15N 3in-2ft
Date Sampled: 08/11/21 10:39
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 15:55

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 21:39		DH11107
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 21:39		DH11107

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*77 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15W 0-3in
Date Sampled: 08/11/21 10:54
Percent Solids: 96
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1260	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/12/21 23:55		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/12/21 23:55		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15W 3in-2ft
Date Sampled: 08/11/21 10:55
Percent Solids: 85
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 0:14		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 0:14		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15E 3in-2ft
Date Sampled: 08/11/21 11:35
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1262 [2C]	**0.3** (0.06)		8082A		1	08/13/21 0:33		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 0:33		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*63 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-15E 0-3in
Date Sampled: 08/11/21 11:34
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1262 [2C]	**0.3** (0.06)		8082A		1	08/13/21 0:53		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 0:53		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*62 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*96 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13 0-3in
Date Sampled: 08/11/21 11:58
Percent Solids: 95
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1260 [2C]	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/13/21 1:12		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/13/21 1:12		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*64 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13 3in-2ft
Date Sampled: 08/11/21 11:59
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 1:31		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 1:31		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13N 0-3in
Date Sampled: 08/11/21 12:00
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1260	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/13/21 1:50		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/13/21 1:50		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*57 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*58 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13N 3in-2ft
Date Sampled: 08/11/21 12:07
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 2:10		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 2:10		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*70 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13W 0-3in
Date Sampled: 08/11/21 12:29
Percent Solids: 98
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1260	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/13/21 2:29		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/13/21 2:29		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*58 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*58 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13W 3in-2ft
Date Sampled: 08/11/21 12:30
Percent Solids: 89
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 2:48		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 2:48		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13E 0-3in
Date Sampled: 08/11/21 12:37
Percent Solids: 93
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1260	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/13/21 3:07		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/13/21 3:07		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*57 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13E 3in-2ft
Date Sampled: 08/11/21 12:38
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 3:27		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 3:27		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*62 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*60 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13S 0-3in
Date Sampled: 08/11/21 12:48
Percent Solids: 98
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1221	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1232	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1242	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1248	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1254	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1260	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1262	ND (0.05)		8082A		1	08/13/21 3:46		DH11108
Aroclor 1268	ND (0.05)		8082A		1	08/13/21 3:46		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*57 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*57 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-13S 3in-2ft
Date Sampled: 08/11/21 12:49
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0366
ESS Laboratory Sample ID: 21H0366-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 4:05		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 4:05		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*66 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DH11107 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0204*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0252*		mg/kg wet	*0.02500*		*101*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Surrogate: Decachlorobiphenyl	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140	0.3	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		90	40-140	0.2	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		89	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Batch DH11108 - 3540C										

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

Quality Control Data

8082A Polychlorinated Biphenyls (PCB)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch DH11108 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0241*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0366

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: VHB - Vanasse Hangen Brustlin, Inc - KPB

Shipped/Delivered Via: Client

ESS Project ID: 21H0366
Date Received: 8/11/2021
Project Due Date: 8/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / (NA)
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received?
    a. Air bubbles in aqueous VOAs? Yes / (No)
    b. Does methanol cover soil completely? Yes / No
    Yes / No / NA
13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	194875	Yes	N/A	Yes	4 oz. Jar	NP	
2	194876	Yes	N/A	Yes	4 oz. Jar	NP	
3	194877	Yes	N/A	Yes	4 oz. Jar	NP	
4	194878	Yes	N/A	Yes	4 oz. Jar	NP	
5	194879	Yes	N/A	Yes	4 oz. Jar	NP	
6	194880	Yes	N/A	Yes	4 oz. Jar	NP	
7	194881	Yes	N/A	Yes	4 oz. Jar	NP	
8	194882	Yes	N/A	Yes	4 oz. Jar	NP	
9	194883	Yes	N/A	Yes	4 oz. Jar	NP	
10	194884	Yes	N/A	Yes	4 oz. Jar	NP	
11	194885	Yes	N/A	Yes	4 oz. Jar	NP	
12	194886	Yes	N/A	Yes	4 oz. Jar	NP	
13	194887	Yes	N/A	Yes	4 oz. Jar	NP	
14	194888	Yes	N/A	Yes	4 oz. Jar	NP	
15	194889	Yes	N/A	Yes	4 oz. Jar	NP	
16	194890	Yes	N/A	Yes	4 oz. Jar	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: VHB - Vanasse Hangen Brustlin, Inc - KPB

ESS Project ID: 21H0366
Date Received: 8/11/2021

17	194893	Yes	N/A	Yes	Driller Jar	NP
18	194894	Yes	N/A	Yes	Driller Jar	NP
19	194891	Yes	N/A	Yes	4 oz. Jar	NP
20	194892	Yes	N/A	Yes	4 oz. Jar	NP

2nd Review

Were all containers scanned into storage/lab? Initials TD

Are barcode labels on correct containers? (Yes) / No

Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA

Are all Hex Chrome stickers attached? Yes / No / NA

Are all QC stickers attached? Yes / No / NA

Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [signature] Date & Time: 8.11.21 15:28

Reviewed By: [signature] Date & Time: 8/11/21 1534

185 Frances Avenue
Cranston, RI 02921
Phone: 401-461-7181
Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21H0326 | Page 1 of

Turn Time: ☐ >5 ☒ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day

Regulatory State: RI **Criteria:** RDEC - I/CDEC

Is this project for any of the following?: ☐ CT RCP ☐ MA MCP ☐ RGP ☐ Permit ☐ 401 WQ

ELECTRONIC DELIVERABLES (Final Reports are PDF)

☒ Limit Checker ☐ State Forms ☐ EQuIS
☒ Excel ☐ Hard Copy ☐ Enviro Data
☐ CLP-Like Package ☐ Other (Specify) →

CLIENT INFORMATION

Client: VHB
Address: 1 CEDAR STREET
PROVIDENCE, RI
Phone: 401.935.9035
Email Distribution List: tylerphillips@vhb.com
Pbevans@vhb.com

PROJECT INFORMATION

Project Name: BAXTER BAILEY LSI
Project Location: PROVIDENCE, RI
Project Number: 14882.01
Project Manager: Peter Grivers
Bill to:
PO#: 14882.01
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	2CB via Sorbet																		
1	8/11/21	1023	GRAB	SOIL	SB-15S (0-3")	8																		
2		1029			SB-15S (3"-2')	8																		
3		1030			SB-15 (0-3")	8																		
4		1031			SB-15 (3"-2')	8																		
5		1038			SB-15N (0-3")	8																		
6		1039			SB-15N (3"-2')	8																		
7		1054			SB-15W (0-3")	8																		
8		1055			SB-15W (3"-2')	8																		
9		1135			SB-15E (3"-2')	8																		
10		1134			SB-15E (0-3")	8																		

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — AG

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other* — 1

Sampled by: WP, EAG

Chain needs to be filled out neatly and completely for on time delivery.

Laboratory Use Only

Cooler Temperature (°C): 2.6 ice

Comments: * Please specify "Other" preservative and containers types in this space

Please use specific pricing
Please compare to regulations

Thanks!

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration

☐ Lab Filter

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	8/11	1440					
Relinquished by (Signature)	**Date**	**Time**	**Received by (Signature)**	**Relinquished by (Signature)**	**Date**	**Time**	**Received by (Signature)**

185 Frances Avenue
Cranston, RI 02921
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Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21A03666 | Page 2 of

Turn Time ☐ >5 ☑ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day

Regulatory State: RI **Criteria:** RDEC - I/CDEC

Is this project for any of the following?: ☐ CT RCP ☐ MA MCP ☐ RGP ☐ Permit ☐ 401 WQ

ELECTRONIC DELIVERABLES (Final Reports are PDF)

☒ Limit Checker ☐ State Forms ☐ EQuIS
☑ Excel ☐ Hard Copy ☐ Enviro Data
☐ CLP-Like Package ☐ Other (Specify) →

CLIENT INFORMATION

Client: VHB
Address: 1 Cedar St. Suite 400
Providence, RI
Phone: 401.935.9035
Email Distribution List: see pg. 1

PROJECT INFORMATION

Project Name: Baxter - Bailey
Project Location: Providence, RI
Project Number: 14882.01
Project Manager: Peter Grimes
Bill to:
PO#: 14882.01
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

| ESS Lab ID | Collection Date | Collection Time | Sample Type | Sample Matrix | Sample ID | 7D3 via Soxhlet | | |

CERTIFICATE OF ANALYSIS

Peter Grivers
Vanasse Hangen Brustlin, Inc.
1 Cedar Street Suite 400
Providence, RI 02903

RE: Baxter Balley LSI (14882.01)
ESS Laboratory Work Order Number: 21H0367

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:43 pm, Aug 18, 2021

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

SAMPLE RECEIPT

The following samples were received on August 11, 2021 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
21H0367-01	SB-16 0-3in	Soil	8082A
21H0367-02	SB-16 3in-2ft	Soil	8082A
21H0367-03	SB-16W 0-3in	Soil	8082A
21H0367-04	SB-16W 3in-2ft	Soil	8082A
21H0367-05	SB-16S 0-3in	Soil	8082A
21H0367-06	SB-16S 3in-2ft	Soil	8082A
21H0367-07	SB-16N 0-3in	Soil	8082A
21H0367-08	SB-16N 3in-2ft	Soil	8082A
21H0367-09	SB-16E 0-3in	Soil	8082A
21H0367-10	SB-16E 3in-2ft	Soil	8082A
21H0367-11	SB-14N 0-3in	Soil	8082A
21H0367-12	SB-14N 3in-2ft	Soil	8082A
21H0367-13	SB-14 3in-2ft	Soil	8082A
21H0367-14	SB-14 0-3in	Soil	8082A
21H0367-15	SB-14E 0-3in	Soil	8082A
21H0367-16	SB-14E 3in-2ft	Soil	8082A
21H0367-17	SB-14W 0-3in	Soil	8082A
21H0367-18	SB-14W 3in-2ft	Soil	8082A
21H0367-19	SB-14S 3in-2ft	Soil	8082A
21H0367-20	SB-14S 0-3in	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16 0-3in
Date Sampled: 08/11/21 09:26
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1260 [2C]	**0.2** (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 4:25		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 4:25		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*58 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*61 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16 3in-2ft
Date Sampled: 08/11/21 09:27
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1254 [2C]	**0.3** (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1262 [2C]	**0.2** (0.06)		8082A		1	08/13/21 4:44		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 4:44		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*58 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*59 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16W 0-3in
Date Sampled: 08/11/21 09:36
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1254 [2C]	**7.8** (0.6)		8082A		10	08/16/21 15:06		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1262	ND (0.06)		8082A		1	08/13/21 5:03		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 5:03		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*116 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*106 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16W 3in-2ft
Date Sampled: 08/11/21 09:37
Percent Solids: 90
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1262	**0.3** (0.06)		8082A		1	08/13/21 5:22		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 5:22		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*56 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*57 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16S 0-3in
Date Sampled: 08/11/21 09:53
Percent Solids: 94
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1254	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1262	**0.2** (0.06)		8082A		1	08/13/21 5:42		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 5:42		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*55 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*58 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16S 3in-2ft
Date Sampled: 08/11/21 09:54
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1221	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1232	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1242	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1248	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1260	ND (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1262 [2C]	**0.3** (0.06)		8082A		1	08/13/21 6:01		DH11108
Aroclor 1268	ND (0.06)		8082A		1	08/13/21 6:01		DH11108

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*57 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*59 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16N 0-3in
Date Sampled: 08/11/21 10:08
Percent Solids: 93
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1221	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1232	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1242	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1248	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1254	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1260	ND (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1262 [2C]	**0.6** (0.05)		8082A		1	08/12/21 14:54		DH11109
Aroclor 1268	ND (0.05)		8082A		1	08/12/21 14:54		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16N 3in-2ft
Date Sampled: 08/11/21 10:09
Percent Solids: 91
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1262 [2C]	**0.3** (0.06)		8082A		1	08/12/21 15:14		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 15:14		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*95 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16E 0-3in
Date Sampled: 08/11/21 11:11
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 15:34		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 15:34		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-16E 3in-2ft
Date Sampled: 08/11/21 11:12
Percent Solids: 84
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 15:54		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 15:54		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14N 0-3in
Date Sampled: 08/11/21 12:57
Percent Solids: 90
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1221	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1232	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1242	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1248	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1254	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1260	ND (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1262	**0.08** (0.05)		8082A		1	08/12/21 16:14		DH11109
Aroclor 1268	ND (0.05)		8082A		1	08/12/21 16:14		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*113 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14N 3in-2ft
Date Sampled: 08/11/21 12:58
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 16:34		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 16:34		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14 3in-2ft
Date Sampled: 08/11/21 13:07
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 16:54		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 16:54		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*82 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*108 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14 0-3in
Date Sampled: 08/11/21 13:06
Percent Solids: 88
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 17:14		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 17:14		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*78 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*110 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14E 0-3in
Date Sampled: 08/11/21 12:11
Percent Solids: 87
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 17:34		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 17:34		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*77 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*109 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14E 3in-2ft
Date Sampled: 08/11/21 13:12
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 17:54		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 17:54		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14W 0-3in
Date Sampled: 08/11/21 13:20
Percent Solids: 97
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1221	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1232	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1242	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1248	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1254 [2C]	**0.1** (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1260	ND (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1262 [2C]	**0.2** (0.05)		8082A		1	08/12/21 18:14		DH11109
Aroclor 1268	ND (0.05)		8082A		1	08/12/21 18:14		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14W 3in-2ft
Date Sampled: 08/11/21 13:21
Percent Solids: 85
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 18:34		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 18:34		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*66 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14S 3in-2ft
Date Sampled: 08/11/21 13:25
Percent Solids: 86
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 18:54		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 18:54		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI
Client Sample ID: SB-14S 0-3in
Date Sampled: 08/11/21 13:24
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 21H0367
ESS Laboratory Sample ID: 21H0367-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/11/21 16:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1221	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1232	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1242	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1248	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1254	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1260	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1262	ND (0.06)		8082A		1	08/12/21 19:14		DH11109
Aroclor 1268	ND (0.06)		8082A		1	08/12/21 19:14		DH11109

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*106 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DH11108 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0241*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Batch DH11109 - 3540C										

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

Quality Control Data

8082A Polychlorinated Biphenyls (PCB)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch DH11109 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0198*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
LCS										
Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		89	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		88	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0256*		mg/kg wet	*0.02500*		*103*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140	1	30	
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		88	40-140	3	30	
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		87	40-140	1	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		88	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Vanasse Hangen Brustlin, Inc.
Client Project ID: Baxter Balley LSI

ESS Laboratory Work Order: 21H0367

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: VHB - Vanasse Hangen Brustlin, Inc - KPB

Shipped/Delivered Via: Client

ESS Project ID: 21H0367
Date Received: 8/11/2021
Project Due Date: 8/18/2021
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / (NA)
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

Recieved an extra driller jar labeled PB-8 (3"-2') - not on the COC's. COC = (3"-2'); Labels = 2"-2' samples 2,4,8,10
COC = 0"-3"; Label = 0-2" sample 9

14. Was there a need to contact Project Manager? (Yes) / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	194903	Yes	N/A	Yes	4 oz. Jar	NP	
2	194904	Yes	N/A	Yes	4 oz. Jar	NP	
3	194905	Yes	N/A	Yes	4 oz. Jar	NP	
4	194906	Yes	N/A	Yes	4 oz. Jar	NP	
5	194907	Yes	N/A	Yes	4 oz. Jar	NP	
6	194908	Yes	N/A	Yes	4 oz. Jar	NP	
7	194909	Yes	N/A	Yes	4 oz. Jar	NP	
8	194910	Yes	N/A	Yes	4 oz. Jar	NP	
9	194911	Yes	N/A	Yes	4 oz. Jar	NP	
10	194912	Yes	N/A	Yes	4 oz. Jar	NP	
11	194895	Yes	N/A	Yes	Driller Jar	NP	
12	194896	Yes	N/A	Yes	Driller Jar	NP	
13	194897	Yes	N/A	Yes	Driller Jar	NP	
14	194898	Yes	N/A	Yes	Driller Jar	NP	
15	194899	Yes	N/A	Yes	Driller Jar	NP	
16	194900	Yes	N/A	Yes	Driller Jar	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: VHB - Vanasse Hangen Brustlin, Inc - KPB

ESS Project ID: 21H0367
Date Received: 8/11/2021

17	194913	Yes	N/A	Yes	4 oz. Jar	NP
18	194914	Yes	N/A	Yes	4 oz. Jar	NP
19	194901	Yes	N/A	Yes	Driller Jar	NP
20	194902	Yes	N/A	Yes	Driller Jar	NP

2nd Review

Were all containers scanned into storage/lab? Initials TD

Are barcode labels on correct containers? Yes / No

Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA

Are all Hex Chrome stickers attached? Yes / No / NA

Are all QC stickers attached? Yes / No / NA

Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [signature] Date & Time: 8.11.21 15:38

Reviewed By: [signature] Date & Time: 8/11/21 1545

185 Frances Avenue
Cranston, RI 02921
Phone: 401-461-7181
Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21H0367 | Page 3 of 4

Turn Time: ☐ >5 ☒ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day

Regulatory State: RI **Criteria:** RDEC + ITDEC

Is this project for any of the following?: ☐ CT RCP ☐ MA MCP ☐ RGP ☐ Permit ☐ 401 WQ

ELECTRONIC DELIVERABLES (Final Reports are PDF)

☒ Limit Checker ☐ State Forms ☐ EQuIS
☒ Excel ☐ Hard Copy ☐ Enviro Data
☐ CLP-Like Package ☐ Other (Specify) →

CLIENT INFORMATION

Client: VHB
Address: 1 Cedar St Suite 400
Providence, RI
Phone: 401. 935. 9035
Email Distribution List: see Pg. 1

PROJECT INFORMATION

Project Name: Baxter Bailey
Project Location: Providence RI
Project Number: 14882.01
Project Manager: Peter Grimes
Bill to:
PO#: 14882.01
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCB via Soxhlet	Total Number of Bottles
1	8/11/21	0926	Grab	Soil	SB-16 (0-3")	x	1
2		0927			SB-16 (3"-2')	x	
3		0936			SB-16W (0-3")	x	
4		0937			SB-16W (3"-2')	x	
5		0953			SB-16S (0-3")	x	
6		0954			SB-16S (3"-2')	x	
7		1008			SB-16N (0-3")	x	
8		1009			SB-16N (3"-2')	x	
9		1111			SB-16E (0-3")	x	
10		1112			SB-16E (3"-2')	x	
						26	
						9	
						1	

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

Sampled by: ISP + EAG

Chain needs to be filled out neatly and completely for on time delivery.

Laboratory Use Only
Cooler Temperature (°C): 2.8 / 1.2

Comments: * Please specify "Other" preservative and containers types in this space
see Pg. 1

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration
☐ Lab Filter

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	8/11	1440					

185 Frances Avenue
Cranston, RI 02921
Phone: 401-461-7181
Fax: 401-461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 21H0307 | Page 4 of 4

Turn Time: ☐ >5 ☒ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ Same Day

Regulatory State: RI Criteria: RDEC & I/CDEC

Is this project for any of the following?: ☐ CT RCP ☐ MA MCP ☐ RGP ☐ Permit ☐ 401 WQ

ELECTRONIC DELIVERABLES (Final Reports are PDF)
☒ Limit Checker ☐ State Forms ☐ EQuIS
☒ Excel ☐ Hard Copy ☐ Enviro Data
☐ CLP-Like Package ☐ Other (Specify) →

CLIENT INFORMATION

Client: VHB
Address: 1 CEDAR STREET
PROVIDENCE, RI
Phone: 401.935.9035
Email Distribution List: see pg. 1

PROJECT INFORMATION

Project Name: Baxter Bailey
Project Location: Providence RI
Project Number: 14882.01
Project Manager: Peter Goivers
Bill to:
PO#: 14882.01
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs

REQUESTED ANALYSES

PCB via Soxhlet

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	AG																		
			COMPOSITE / GRAB																					
11	8/11/21	1257	GRAB	SOIL	SB-14N (0-3")																			
12		1258			SB-14N (3"-2')																			
13		1307			SB-14 (3"-2')																			
14		1306			SB-14 (0-3")																			
15		1311			SB-14E (0-3")																			
16		1312			SB-14E (3"-2')																			
17		1320			SB-14W (0-3")																			
18		1321			SB-14W (3"-2')																			
19		1325			SB-14S (3"-2')																			
20		1324			SB-14S (0-3")																			

Container Type:	AC-Air Cassette	AG-Amber Glass	B-BOD Bottle	C-Cubitainer	J-Jar	O-Other	P-Poly	S-Sterile	V-Vial
Container Volume:	1-100 mL	2-2.5 gal	3-250 mL	4-300 mL	5-500 mL	6-1L	7-VOA	8-2 oz	9-4 oz	10-8 oz	11-Other*
Preservation Code:	1-Non Preserved	2-HCl	3-H2SO4	4-HNO3	5-NaOH	6-Methanol	7-Na2S2O3	8-ZnAce, NaOH	9-NH4Cl	10-DI H2O	11-Other*

Sampled by :

Chain needs to be filled out neatly and completely for on time delivery.

Laboratory Use Only
Cooler Temperature (°C): 2.8 IC

Comments: * Please specify "Other" preservative and containers types in this space
see pg. 1

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration
☐ Lab Filter

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	8/11/21	1440					
Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND REVITALIZATION & SUSTAINABLE MATERIALS MANAGEMENT
235 Promenade Street, Providence, Rhode Island 02908

REMEDIAL APPROVAL LETTER September 17, 2021
File No. SR-28-0548 B

Emily Freedman, Director of Community Development
City of Providence
Department of Planning & Development
444 Westminster Street
Providence, RI 02903

RE: Bailey School & Baxter St Playground
57, 58, 61, 62, & 66 Baxter Street and 5 & 9 Norwich Avenue
Providence, Rhode Island
Plat Map 48 / Lots 767, 768, 769, 770, 780, 781, 782, and 783

Dear Ms. Freedman:

Effective April 22, 2020, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management has changed the office name to the Office of Land Revitalization and Sustainable Materials Management (LRSMM), as reflected in the re-codified 250-RICR-140-30-1, Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations) consistent with the RI Administrative Procedures Act. The purpose of these regulations is to create an integrated program requiring reporting, investigation, and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Remedial Approval Letter (RAL) is a document used by the Department to approve remedial actions at contaminated sites that do not involve the use of complex engineered systems or techniques (e.g. groundwater pump and treat systems, soil vapor extraction systems, etc.).

In the matter of the above-referenced property (the Site), the Department's Office of LRSMM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Release Notification Form and Limited Subsurface Investigation (LSI), received by the Department via E-mail on April 9, 2020, and prepared by Vanasse Hangen Brustlin, Inc. (VHB);

2. Final Pre-Site Investigation Public Notice Summary Letter, received by the Department via E-mail on August 28, 2020, and prepared by VHB;

3. Site Investigation Report (SIR) and SIR Checklist, received by the Department via E-mail on September 14, 2020, and prepared by VHB;

4. Post-Site Investigation Public Notice, received by the Department on February 22, 2021, and prepared by VHB;

5. Remedial Action Work Plan (RAWP), received by the Department on June 4, 2021, and prepared by VHB; and

6. Response to RIDEM Comments and RAWP Addendum, received by the Department on September 10, 2021, and prepared by VHB.

Together these documents fulfill the requirements of Section 1.9 (Risk Management) and Section 1.10 (Remedial Action Work Plan (RAWP)) of the Remediation Regulations.

The preferred remedial alternative involves:

- Selective soil removal and off-site disposal of Soils in the vicinity of SB-10 and SB-12 with exceedances of lead above the EPA Maximum Concentration of Contaminants for Toxicity Characteristics. Confirmatory sampling shall be conducted to ensure the full removal of all soils containing concentrations of lead above this standard are removed from the Site.

- Any soils which remain on the Site with exceedances above the Method 1 Direct Exposure Criteria shall be encapsulated by a Department-approved engineered barrier which may consist of a minimum two (2) feet of clean fill or an equivalent level of protection i.e. building foundations, one (1) foot of clean fill over a geotextile fabric, and/or four (4) inches of hardscape (asphalt or concrete) over six (6) inches of clean fill. Existing pavements are acceptable engineered controls. Cracked or damaged areas (if any) in the existing pavements shall be repaired and sealed as part of the remediation.

- An Environmental Land Usage Restriction (ELUR) shall be recorded on the deed for the entire property (Plat Map 48 / Lots 767, 768, 769, 770, 780, 781, 782, and 783). The ELUR shall require the performance of annual inspections to document the status of the ELUR and the condition of the engineered controls. The ELUR shall also include a Department-approved post-remediation Soil Management Plan (SMP) which will address any future activities that may disturb on-Site soils. The ELUR shall be recorded for the entire property in the Land Evidence Records for the City of Providence, and a recorded copy forwarded back to the Department within fifteen (15) days of recording.

Based upon review and consideration of the above referenced documents, the Department approves the Remedial Action Work Plan (RAWP) through this RAL provided that:

1. All work must be performed in accordance with all applicable regulations and the Department approved RAWP.

2. Start of the work described in the Department approved RAWP must be initiated within sixty (60) days of issuance of this RAL.

3. Prior to initiating any remedial activities, the Department shall be provided with a list of all contractors, and their respective contact information, that will be used on Site to complete the remedial work described in the Department approved RAWP. The Department shall be notified, when feasible, a minimum of five (5) working days in advance of any changes in contractors and/or consultants involved with the remedial work on this Site. The notification must be promptly supplied in writing with complete contact information for each new contractor or consultant (including but not limited to company name and address, contact name and address, contact telephone number and e-mail address).

4. All excavated regulated soil, if not approved for encapsulation onsite, shall be disposed of off-site at an appropriately licensed disposal facility in accordance with all local, State, and Federal laws. Copies of the material shipping records and manifests associated with the disposal of the material shall be included along with the Closure Report.

5. Areas of the site where contaminated soils are to be excavated must be staged and temporarily stored in a designated area, as proposed in the RAWP, of the site with proper polyethylene covers. Any stockpiled materials, including clean fill, must be underlain and covered with polyethylene sheeting and be secured at the end of each day with all appropriate erosion and sediment controls to limit the loss of the cover and protect against storm-water and wind erosion (i.e. hay bales, rocks, silt fencing). These appropriate sedimentation and erosion controls must be in place and in proper working order at all times until all disturbed areas are stabilized and capped as proposed. Within reason, the storage location will be selected to limit the unauthorized access to the materials (i.e. away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than thirty (30) days. In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e. drum or lined roll-off) or secondary containment will be required and utilized.

6. The Office of LRSMM no longer requires the submittal of analytical data prior to clean fill being brought to a Site. It is the sole responsibility of the Performing Party and their consultant to analyze the material, certify that the material meets the Department's Residential Direct Exposure Criteria (RDEC), as defined by the Remediation Regulations, for all constituents, and is suitable for use on the Site. The Office of LRSMM strongly suggests that enough representative samples of the clean fill are collected prior to moving the material to the Site to satisfy the Performing Party and their consultant that the material meets the RDEC. Please note that the Office of LRSMM reserves its rights to sample the fill, if suspect, to confirm compliance with the RDEC.

7. All regulated soil remaining onsite shall be encapsulated by an engineered control consistent with those described in the Department approved RAWP.

8. Dust suppression techniques (i.e. watering) must be employed at all times during all soil disturbing/handling activities at the site in order to minimize the generation of fugitive dust.

9. Compliance sampling for the excavation in the location of SB-10 and SB-12 shall be laboratory analyzed for leachable lead via TCLP. Please note that if soil exceeding the Department's Residential Direct Exposure Criteria (RDEC) is to remain onsite then a draft Environmental Land Usage Restriction (ELUR) and Soil Management Plan (SMP) must be submitted to the Office of

LRSMM for review and approval prior to recording.

10. Within sixty (60) days of completion of the work described in the Department approved RAWP, a Closure Report detailing the remedial action and including any disposal documentation shall be submitted to the Office of LRSMM.

11. Within sixty (60) days of completion of the work described in the Department approved RAWP, the final Department approved ELUR shall be recorded in the City of Providence Land Evidence Records for the property and a stamped, certified copy returned to the Department within fifteen (15) days of recording. Upon receipt of a copy of the recorded (stamped) ELUR, the Office of LRSMM will issue a Letter of Compliance.

12. Following recording of the ELUR, the site shall be maintained and annually inspected to evaluate the compliance status of the site with the ELUR. Within thirty (30) days of each annual inspection, an evaluation report shall be prepared and submitted to the Office of LRSMM detailing the findings of the inspection and noting any compliance violations at the site.

13. Any changes in the activities detailed in the RAWP shall be reported to the Office of LRSMM by telephone within one (1) working day and in writing within five (5) business days.

14. The Office of LRSMM shall be notified forty-eight (48) hours prior to initiating the remedial activities at the site associated with the Department approved RAWP.

15. The Office of LRSMM shall be immediately notified of any site or operation condition that results in non-compliance with this RAL.

At this time, the Office of LRSMM offers its concurrence with the proposed remedial action for the property. The Department approves the RAWP provided that all activities and procedures detailed in the RAWP and RAWP Addendum are strictly adhered to. Furthermore, this letter continues to place primary responsibility for the construction, operation, maintenance, and monitoring of the approved RAWP and its associated implementation on City of Providence. As the Responsible Party and Performing Party, City of Providence is expected to implement the RAWP in an expeditious and professional manner that prevents non-compliance with this RAL and said RAWP and is protective of human health and the environment.

Please note that at this time the Department does not approve the ELUR for recording in the Land Evidence Records with the City of Providence. Please forward an electronic version of the draft ELUR and the post-construction SMP in red line / strikeout format for Department review and approval. The draft ELUR and SMP shall be reviewed and approved by the Department, followed by recording of the approved ELUR, at the completion of all remedial work.

This RAL does not remove your obligation to obtain any other necessary permits from other local, State, or Federal agencies.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 2772030, or by E-

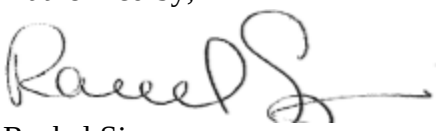
mail at Stephanie.Cappelli@dem.ri.gov.

Sincerely,



Stephanie Cappelli
Environmental Engineer I
Office of Land Revitalization &
Sustainable Materials Management

Authorized by,



Rachel Simpson
Senior Environmental Scientist
Office of Land Revitalization &
Sustainable Materials Management

cc: Kelly Owens, RIDEM/LRSMM
Peter Grivers, VHB
Tyler Phillips, VHB
Fred Bevans, VHB

BOARD OF CONTRACT AND SUPPLY

CITY OF PROVIDENCE, RHODE ISLAND

Appendix C:

RI Department of Environmental Management Approved Soil Removal Application

BOARD OF CONTRACT AND SUPPLY

CITY OF PROVIDENCE, RHODE ISLAND

Appendix D:
RI Housing Supplementary General Conditions

Section 4. Appendix

A. RIHousing Supplementary General Conditions

The following are to be incorporated into the Architect's specifications:

1. The Owner and Contractor acknowledge and understand that the work to be performed under this contract is to be financed by a construction loan to be secured by a mortgage. The terms of said loan are set forth in a Construction Loan Agreement between the Owner as a Borrower and RIHousing or another Construction Lender.
2. Changes in the Drawings and Specifications or any terms of the Contract Documents, or orders for extra work that add or delete from the work which will result in any construction cost change, or will change design, may be effectuated only with the prior written approval of the Owner and RIHousing and under such conditions as RIHousing may establish. RIHousing will allow the following combined overhead and profit for additional work resulting from approved change orders:

   To the General Contractor, for work performed by its own forces..... 12%

   To any Subcontractor, for work performed by its own forces..... 12%

   To any General Contractor, for work performed by its Subcontractor..... 8%

   Note: All Change order requests must be submitted with itemized labor, materials, equipment and contract mark-ups for proper analysis.
3. The date of substantial completion shall be the date RIHousing endorses the final Development Inspection Report (RIHousing Form HF-30 "Permission to Occupy").
4. The Contractor shall attach to each request for payment its acknowledgment of payment and all subcontractor's and suppliers' acknowledgments of payment for work done and materials, equipment and fixtures furnished through the date covered by the previous payment. Concurrent with the final payment, the contractor shall execute a waiver or release of lien for all work performed and materials furnished thereunder, and the Contractor shall obtain similar waivers or releases from all subcontractors and suppliers.
5. Upon completion of construction, the Contractor shall furnish to the Owner an "as-built" survey showing the location of all improvements constructed thereon, and showing the location of all water, sewer, gas, electrical, and telephone lines and mains, storm sewers, and of all existing utility easements. Such survey shall be prepared by a licensed surveyor who shall certify that the work is installed and erected entirely upon the land covered by the Mortgage and within any building restriction lines on said land and does not overhang or otherwise encroach upon any easement or right-of-way of others.

6. The Contractor shall furnish and pay the premium for Performance and Payment Bonds equal to 100% of the contract price. Said bonds shall be in Dual Obligee form to the Owner and RIHousing. In lieu of said bonds, a letter of credit equal to 25% of the total construction cost may be provided by a bank approved by RIHousing.
7. RIHousing and its agents or assigns, at all times during construction, have the right of entry and free access to the development and the right to inspect all work done and materials, equipment and fixtures furnished, installed or stored in and about the development.
8. RIHousing reserves the right to request one (1) copy of all approved shop drawings, catalog cuts, samples, etc.
9. RIHousing will be furnished one (1) copy of all change orders. The Owner and Contractor acknowledge and understand that funding of approved change orders during construction are the responsibility of the Owner and must be obtained from sources outside of the Mortgage Loan. RIHousing will have the exclusive right of determination.
10. The Architect will perform field inspection services of a nature and frequency determined by construction progress and sound professional judgment. Field inspections will encompass all disciplines; e.g. architectural, mechanical, electrical, site, etc.
11. Field and laboratory testing service requirements to be paid for by the Contractor shall be incorporated into the technical specifications. These shall include, but not necessarily be limited to, soil compaction and analysis, concrete design, mix, concrete compression, pile load test. RIHousing shall be provided with copies of all test reports as these reports are available.
12. AIA Forms G702 and G703 (latest editions) will be utilized for Contractor requisitions.
13. Notwithstanding any agreements to the contrary between the Owner and the Contractor, the Lender will advance for construction monthly from mortgage proceeds 95% of the value of work in place and material stored on the development site. With the concurrence of the Owner, and upon written request, the Lender will consider a reduction of the retainage percentage from 5% to 2.5% upon Substantial Completion of the work included in the contract. Retainage can be further lowered to 1% at Occupancy. Developments with multiple buildings shall be allowed to use these retainage provisions on a building by building and contractual basis.
14. Notwithstanding any agreement to the contrary between the Owner and the Architect, the Lender will advance requisitions for architectural services during the construction administration/ supervision phase in increments proportional to the Contractor's progress billings. In no event will the Supervising Architect be paid in full prior to development final completion and project close-out.
15. Construction Completion – Mortgagors of all developments must assume financial responsibility for the completion of construction. Any cost overruns shall be the sole responsibility of the mortgagor.

16. Cost Certification – Cost certification for the developer and general contractor must be submitted at the completion of the construction period prior to the final advance of funds.

17. In-state Subcontractor Requirements – A minimum of seventy five percent (75%) of the value of the construction contract shall be awarded to Rhode Island construction firms. A Rhode Island construction firm shall be defined as a contractor/subcontractor whose place of business is located in the State of Rhode Island and is registered and/or licensed in the State of Rhode Island.

18. Non-Resident (Out of State) Contractor Tax Compliance – Notwithstanding anything herein to the contrary provided, in the event that any contractor or subcontractor is a "non-resident contractor" as that term is used in Section 44-1-6 of the General Laws of Rhode Island, as amended, Lender shall withhold 3% of the cumulative value of these contracts until such time as the Borrower has complied with the provisions of this Section. All non-resident (out of state) contractors or subcontractors shall be required to furnish a "No Tax Due" affidavit issued by the R.I. Division of Taxation as evidence of compliance with this law.

B. Equal Opportunity and Affirmative Action Rules and Regulations

Section 1. Purposes of Procedures: RIHousing has determined that a need exists to ensure that recipients of its funds under the Rental Housing Production Program do not discriminate in their hiring or contract practices on the basis of race, sex, national origin, age, religion, sexual orientation, handicap or status as a veteran. RIHousing has also determined that it is necessary to take affirmative action to eliminate the vestiges of past societal discrimination and to ensure equal employment opportunities and social advancements for minorities and women. These Rules and Regulations set forth requirements established by RIHousing to ensure non-discrimination and affirmative action by Developers, Contractors, and Subcontractors, and shall be construed and applied so as to accomplish the objective stated above.

Section 2. Construction of Rules and Regulations and Definitions:

Unless otherwise defined herein or unless a different meaning is required from the context in which they are used herein, all words and terms used in these Rules and Regulations are as defined in the Act.

1. "Act" means the Housing and Mortgage Finance Corporation Act more particularly set forth in R.I.G.L. 42-55 as amended.
2. "Affirmative Action Officer" (AAO) means the individual(s) appointed by the Executive Director to serve as AAO under these Rules and Regulations.
3. "Board of Commissioners" means the Board of Commissioners of the RIHousing and Mortgage Finance Corporation.
4. "Contractor" means an individual, corporation or partnership retained by a Developer to serve as a general contractor or construction manager in the construction of a development.
5. "Corporate Office" means 44 Washington Street, Providence, Rhode Island 02903.

6. "Development" means a multi-family residential housing complex developed under the Program.
7. "Executive Director" means the Executive Director of RIHousing.
8. "Hearing Officer" means the individual or individuals appointed by the Executive Director to serve as a Hearing Officer under these Rules and Regulations.
9. "Minorities" or "Minority" means person or persons who is included in any of the following racial and ethnic categories:
    a. African American/Black – A person having origins in any of the black racial groups of Africa.
    b. American Indian or Alaskan Native – A person having origins in any of the original peoples of North America and who maintains cultural identification through tribal affiliation or community recognition.
    c. Asian or Pacific Islander – A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands.
    d. Hispanic/Latino – A person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
10. "Minority and Female Owned" means businesses in which at least fifty-one percent (51%) of the ownership interest is held by, and which are managed and controlled by minorities and/or women, and which have obtained written certification thereof from the state in which their principal office is located or from such other governmental or non-governmental office, board, commission, department, agency or entity satisfactory to RIHousing.
11. "Mortgage Loan" means a loan made to a Developer for the purpose of providing construction or permanent financing, or both, for a Development.
12. "Program" means the RIHousing Rental Housing Production Program.
13. "Proposal" means a written proposal for the construction, development and/or rehabilitation of a development.
14. RIHousing means RIHousing and Mortgage Finance Corporation, a public corporation organized and existing under the Act.
15. "Developer" means corporations, individuals, joint ventures, partnerships, limited partnerships, trusts, firms, associations, or other legal entities or any combination thereof, whether organized for profit or not, qualified either to own, construct, acquire, develop or rehabilitate a Development.
16. "Subcontractor" means individuals, corporations, joint ventures, partnerships, limited partnerships, associations, or other legal entities retained by a Developer or Contractor to

render services, or services and material in connection with the construction or rehabilitation of a Development.

17. "Suspension" means disqualification of a Developer from participation in RIHousing's programs and suspension of Developer's rights to disbursements from Mortgage Loan.
18. "Total Construction Cost" means the total funds expended on the construction or rehabilitation of the Development.
19. "Total Work Force Hours" means the total number of worker-hours expended on the construction or rehabilitation of the Development.

Section 3. Affirmative Action Obligations:

3.1 Generally – Through affirmative action activities provided for herein, the developer and or contractor shall use all reasonable efforts to ensure that ten percent (10 %) of the Total Work Force Hours are provided by Minorities and women. The Developer and or Contractor shall utilize Minorities and females, and Minority and Female Owned businesses, as Contractors and Subcontractors to the greatest extent practicable in the construction of the Development. The Developer and or Contractor shall include a statement regarding its non-discriminatory and affirmative action policies in all solicitations for Contractors and Subcontractors issued in connection with the Development. The Developer and or Contractor shall maintain records relating to all such solicitations, all responses received to solicitations (specifically identifying responses received from Minority and Female Owned businesses), and all awards made based on such solicitations and the reasons therefore. The Developer and or Contractor shall use its best efforts to ensure that at least ten percent (10%) of the Total Construction Costs shall be paid to Minority and/or females Contractors and Subcontractors, or Minority and/or Female Owned Contractors and Subcontractors. The Developer and or Contractor shall provide RIHousing with a schedule of anticipated awards to be made to Minority and Female Owned Contractors and Subcontractors prior to the initial closing of the Mortgage Loan.

3.2 Contractual Obligations – All contracts with a contract price of $50,000.00 or more executed in connection with the Rental Housing Production Program development shall:

1. post a written notice of at least 8 inches by 11 inches in size in a conspicuous place in its principal office stating that it is an equal opportunity employer and does not discriminate on the basis of race, sex, national origin, age, religion, sexual orientation, handicap or status as a veteran;
2. abstain from harassment, intimidation and coercion of employees based on race, sex, national origin, age, religion, sexual orientation, handicap or status as a veteran;

3. establish and maintain a current list of recruitment sources for Minority and female employees, provide written notification to such sources of employment opportunities, and maintain a record of each organization's response to each such notification;
4. maintain a record of the name, address and telephone number of each Minority and female applicant for employment, which record shall contain a statement regarding the action taken with respect to the application;
5. to the extent feasible, participate in area-based training programs for Minorities and women;
6. provide notice of its obligations under these Rules and Regulations to any union(s) with which it has entered a collective bargaining agreement, and to entities regularly conducting training programs within the area of its principal place of business, and request the assistance of such unions and entities in its compliance with these Rules and Regulations;
7. include a statement of its non-discriminatory practices in any company manuals, collective bargaining agreements it enters, and company newspapers or newsletters it produces;
8. notify the Developer in writing when signatory unions and bargaining agreements it has entered prohibit or deter its equal employment and affirmative action recruiting activities;
9. ensure that all facilities and activities under its control are non-segregated, except for the segregation by sex of toilet and changing facilities;
10. where feasible, employ Minority and female workers in summer employment and on-the-job training programs;
11. take such other steps as necessary to ensure that equal employment policies are implemented, and that recruitment job classifications and other employment procedures do not have a direct, or indirect discriminatory effect on Minority or female employees or applicants.

Section 4. Preliminary Information: Once funds have been reserved for a Rental Housing Production Program development, the AAO shall provide the Developer with a summary of the equal opportunity and affirmative action requirements contained in these Rules and Regulations, and a list of Minority and female contractors. Said list was compiled by the State of Rhode Island and amended by RIHousing.

Section 5. Pre-Construction Conference: At the Pre-Construction Meeting, RIHousing shall discuss the requirements of these Rules and Regulations and the Developer's affirmative action goals for the Rental Housing Production Program development with the Developer and all contractors chosen as of that date.

Section 6. Utilization Reports: The Developer shall submit to RIHousing monthly, a report of the total construction cost as of the date of said report, and shall specify therein, the total amount paid to

Minority and female contractors and subcontractors or Minority and Female Owned contractors and subcontractors.

Section 7. Review Conference and On-Site Inspections: RIHousing may, anytime during construction or rehabilitation of a development, conduct such on-site inspection(s), reviews of the Developer's records and all contracts relating to the development, and conferences with Developer, contractors and subcontractors as it deems necessary to ensure compliance with these Rules and Regulations.

Section 8. Report of Discrimination Charges Filed: The Developer shall promptly notify RIHousing, in writing, of any charges it becomes aware of which have been filed with the Rhode Island Commission of Human Rights, the United States Equal Employment Opportunity Commission or any other agency alleging discrimination by the Developer, or any Contractor or Subcontractor in connection with the development**.**

Section 9. Suspension of Developers and/or Contractors:

9.1 Generally – Suspension is a measure which may be invoked by RIHousing either to exclude or to disqualify a Developer and/or a Contractor from participation in any of the RIHousing's programs. Suspension shall be used to ensure compliance with these Rules and Regulations and not for punitive purposes. The exclusion or disqualification of a Developer and/or a Contractor from participation in RIHousing's programs, and the reconsideration of such measures, shall be based upon all available evidence and facts. Investigations required to accumulate such facts and evidence shall be conducted by the AAO or by such other individuals as may be designated by the Executive Director from time to time.

9.2 Notice of Violation – In the event that it is determined that a Developer and/or a Contractor is in violation of these Rules and Regulations, the AAO shall notify the Developer and/or a Contractor of such violation(s) in writing by certified or registered mail. Said notice shall: specify the violation(s); request the developer and/or contractor to correct the violation(s) within fifteen (15) business days from receipt of said notice; and, inform the Developer and/or Contractor of possible suspension for failure to rectify the violation(s) within said period. The Developer and/or Contractor shall, within the allotted time, rectify the violation(s) and provide evidence of compliance satisfactory and acceptable to the AAO. In the event the Developer and/or Contractor fails to rectify the violations and produce sufficient evidence of compliance, the AAO may recommend to the Executive Director that the Developer and/or Contractor be suspended.

9.3 Suspensions – The Executive Director shall review all findings and recommendations of the AAO and may suspend any developer and/or contractor who fails to comply with these Rules and Regulations. Said suspension shall be in full force and effect until the Developer and/or Contractor can demonstrate, to the satisfaction of the Executive Director, that the violation(s) has been

corrected and that steps have been taken to insure future compliance with these Rules and Regulations.

1. Effects of Suspension – The Developer and/or Contractor may not obtain any advances or payments due under any existing loan agreement with RIHousing nor participate in any RIHousing programs. The Executive Director may waive these limitations if it is determined that the limitations will adversely affect the community to be served, the development/proposal has some unique value or that the limitations are not in the best interest of the public.

2. Notice of Suspension – The Developer and/or Contractor shall be served by certified mail, return receipt requested, with a written notice of suspension within five (5) days prior to the effective date of the suspension. The notice shall state: the basis for the suspension; that the suspension is effective until compliance has been documented; that the Developer and/or Contractor may not participate in any program of RIHousing during the term of the suspension; that all rights of the Developer and/or Contractor under all loan agreements with RIHousing shall be suspended until reinstatement of the Developer and/or Contractor; and, that the Developer and/or Contractor may request a hearing and be represented by counsel at the hearing.

Section 10. Hearings:

10.1 Requests for Hearings – The Developer and/or Contractor may request a hearing on the suspension and may be represented by counsel at the hearing. The hearing request shall be made in writing, addressed to RIHousing at the Corporate Office and to the attention of AAO. The Developer and/or Contractor shall have ten (10) days from receipt of notification of suspension to request a hearing. If no request is received by RIHousing within the time period, the Developer and/or Contractor shall be deemed to have waived its right to be heard, and final action on the proposed suspension may be taken.

10.2 Notice and Procedures – Upon receipt of a request for a hearing, the AAO shall arrange a prompt and timely hearing. Notice of the time and place of such hearing shall be in writing, and delivered to all interested parties by certified mail, return receipt requested, together with a statement indicating the nature of the proceedings. All hearings shall be conducted in accordance with Section 42-35 of the General Laws of the State of Rhode Island of 1956, as amended, by a Hearing Officer. All witnesses shall testify under oath or affirmation and shall be subject to cross-examination.

10.3 Determination by Hearing Officer in Suspension Hearings – The Hearing Officer shall make a written determination and recommendation to the Executive Director based on all evidence presented at the hearing. All interested parties shall be notified of said determination by certified mail, return receipt requested. The Executive Director shall review the findings of the Hearing Officer and issue a final determination on suspension of the Developer and/or Contractor within

thirty (30) days from the date of the hearing. Notice of the Executive Director's determination shall be given to all interested parties in writing, signed by the Executive Director and transmitted by registered mail, return receipt requested.

10.4 Powers of Hearing Officer – While conducting hearings, the Hearing Officer shall have all powers necessary to conduct hearings in an expeditious and fair manner. The powers of the Hearing Officer shall include, but not be limited to, the power to:

1. Hold conferences to settle, simplify, or fix the issues in a proceeding, or to consider other matters that may aid in the expeditious disposition of the proceeding by consent of the parties or upon his own motion;
2. Require parties to state their position with respect to the various issues in the proceeding;
3. Require parties to produce for examination those relevant witnesses and documents under their control;
4. Rule on motions and other procedural items on matters pending before him/her;
5. Regulate the course of the hearing and conduct of the participants therein;
6. Receive, rule on, exclude, or limit evidence, and limit lines of questioning of testimony which are irrelevant, immaterial or unduly repetitious;
7. Fix time limits for submission of written documents in matters before him/her;
8. Impose appropriate sanctions against any party or person failing or refusing to follow or to obey an order under these procedures which sanctions may include;
    a. Refusing to allow the party to support or oppose designated claims or defenses, or prohibiting him/her from introducing designated matters in evidence,
    b. Excluding all testimony of an unresponsive or evasive witness,
    c. Expelling any party or person from further participation in the hearing.
9. Take official notice of any material fact not appearing in evidence in the record, which is among the traditional matters of judicial notice.

Section 11. Rescission and Reinstatement: The Developer and/or Contractor against which a suspension has been invoked may request reinstatement in writing. Reinstatement proceedings shall be conducted by the AAO. All recommendations of the AAO for reinstatement shall be submitted to the Executive Director for final approval. Reinstatements may only be granted upon the determination that the matter or matters resulting in suspension have been rectified, and that the suspended party shall comply with all requirements of these Rules and Regulations in the future. When a suspension

has been rescinded, the Executive Director shall forward notice of reinstatement to the Developer and/or Contractor by certified mail, return receipt requested.

Section 12. Substitute Policies or Procedures: A Developer and/or Contractor subject to other equal employment and affirmative action laws, regulations, procedures or policies ("Substitute Regulations") of any federal or state agency, board or commission may request that RIHousing accept compliance with such Substitute Regulations in lieu of compliance with these Rules and Regulations if such Substitute Regulations are substantially similar to the requirements of these Rules and Regulations. All such requests shall be made in writing to the Executive Director of RIHousing and shall set forth the requirements of such Substitute Regulations. All decisions of the Executive Director regarding such Substitute Regulations shall be final and binding on the parties.

NOTE: Projects with Federal Funding will require additional supplementary conditions pertaining to Section 3 Reporting and may require Davis Bacon reporting requirements.

"General Decision Number: RI20210001 11/05/2021

Superseded General Decision Number: RI20200001

State: Rhode Island

Construction Types: Building, Heavy (Heavy and Marine) and Highway

Counties: Rhode Island Statewide.

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) HEAVY, HIGHWAY AND MARINE CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	01/22/2021
2	03/05/2021
3	04/09/2021
4	04/23/2021
5	06/18/2021
6	07/30/2021
7	09/10/2021
8	09/17/2021
9	10/15/2021
10	11/05/2021

ASBE0006-006 12/01/2019

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal scrapping, vacuuming, bagging		

& disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....$ 36.60 22.40

ASBE0006-008 09/01/2021

	Rates	Fringes
Asbestos Worker/Insulator Includes application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems.	$ 45.00	32.89

BOIL0029-001 01/01/2021

	Rates	Fringes
BOILERMAKER	$ 45.87	29.02

BRRI0003-001 06/01/2020

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner	$ 42.55	28.02

BRRI0003-002 03/01/2020

	Rates	Fringes
Marble Setter, Terrazzo Worker & Tile Setter	$ 40.78	28.92

BRRI0003-003 03/01/2020

	Rates	Fringes
Marble, Tile & Terrazzo Finisher	$ 34.10	27.88

CARP0330-001 01/01/2021

	Rates	Fringes
CARPENTER (Includes Soft Floor Layer)	$ 39.72	28.66
Diver Tender	$ 40.72	28.66
DIVER	$ 51.47	28.66
Piledriver	$ 39.72	28.66
WELDER	$ 40.72	28.66

FOOTNOTES:

When not diving or tending the diver, the diver and diver tender shall receive the piledriver rate. Diver tenders shall receive $1.00 per hour above the pile driver rate when tending the diver.

Work on free-standing stacks, concrete silos & public utility electrical power houses, which are over 35 ft. in height when constructed: $.50 per hour additional.

Work on exterior concrete shear wall gang forms, 45 ft. or more above ground elevation or on setback: $.50 per hour additional.

The designated piledriver, known as the ""monkey"": $1.00 per hour additional.

CARP1121-002 01/06/2020

	Rates	Fringes
MILLWRIGHT	$ 39.07	29.15

ELEC0099-002 06/02/2021

	Rates	Fringes
ELECTRICIAN	$ 43.61	54.71%
Teledata System Installer	$ 32.71	12.57%+14.93

FOOTNOTES:

Work of a hazardous nature, or where the work height is 30 ft. or more from the floor, except when working OSHA-approved lifts: 20% per hour additional.

Work in tunnels below ground level in combined sewer outfall: 20% per hour additional.

ELEV0039-001 01/01/2021

	Rates	Fringes
ELEVATOR MECHANIC	$ 55.03	35.825+A+B

FOOTNOTES:

A. PAID HOLIDAYS: New Years Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

B. Employer contributes 8% basic hourly rate for 5 years or more of service of 6% basic hourly rate for 6 months to 5 years of service as vacation pay credit.

ENGI0057-001 12/01/2020

	Rates	Fringes
Operating Engineer: (power plants, sewer treatment plants, pumping stations, tunnels, caissons, piers, docks, bridges, wind turbines, subterranean & other marine and heavy construction work)		
GROUP 1	$ 42.55	27.70+a
GROUP 2	$ 40.55	27.70+a
GROUP 3	$ 36.17	27.70+a
GROUP 4	$ 33.32	27.70+a
GROUP 5	$ 39.60	27.70+a

GROUP 6.....$ 30.40 27.70+a
GROUP 7.....$ 24.40 27.70+a
GROUP 8.....$ 36.25 27.70+a
GROUP 9.....$ 40.17 27.70+a

a. BOOM LENGTHS, INCLUDING JIBS:

150 feet and over + $ 2.00
180 feet and over + $ 3.00
210 feet and over + $ 4.00
240 feet and over + $ 5.00
270 feet and over + $ 7.00
300 feet and over + $ 8.00
350 feet and over + $ 9.00
400 feet and over + $10.00

a. PAID HOLIDAYS:
New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

a. FOOTNOTES:
Hazmat work: $2.00 per hour additional.
Tunnel/Shaft work: $5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks

GROUP 2: Digging machine, Ross Carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, graders, front end loader (3 yds. and over), vibratory hammer & vacuum truck, roadheaders, forklifts, economobile type equipment, tunnel boring machines, concrete pump and on site concrete plants.

GROUP 3: Oilers on cranes.

GROUP 4: Oiler on crawler backhoe.

GROUP 5: Bulldozer, bobcats, skid steer loader, tractor, scraper, combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile-powered sweeper (3-yd. capacity), 8-ft. sweeper minimum 65 HP).

GROUP 6: Well-point installation crew.

GROUP 7: Utility Engineers and Signal Persons

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator and light plant, gas and electric driven pump and air compressor.

GROUP 9: Boat & tug operator.

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* ENGI0057-002 11/01/2021

	Rates	Fringes
Power Equipment Operator (highway construction		

projects; water and sewerline
projects which are incidental
to highway construction
projects; and bridge projects
that do not span water)

GROUP 1	$ 36.70	28.25+a
GROUP 2	$ 31.40	28.25+a
GROUP 3	$ 25.40	28.25+a
GROUP 4	$ 31.98	28.25+a
GROUP 5	$ 35.68	28.25+a
GROUP 6	$ 35.30	28.25+a
GROUP 7	$ 30.95	28.25+a
GROUP 8	$ 32.33	28.25+a
GROUP 9	$ 34.28	28.25+a

a. FOOTNOTE: a. Any employee who works three days in the week in which a holiday falls shall be paid for the holiday.

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Digging machine, crane, piledriver, lighter, locomotive, derrick, hoist, boom truck, John Henry's, directional drilling machine, cold planer, reclaimer, paver, spreader, grader, front end loader (3 yds. and over), vacuum truck, test boring machine operator, veemere saw, water blaster, hydro-demolition robot, forklift, economobile, Ross Carrier, concrete pump operator and boats

GROUP 2: Well point installation crew

GROUP 3: Utlity engineers and signal persons

GROUP 4: Oiler on cranes

GROUP 5: Combination loader backhoe, front end loader (less than 3 yds.), forklift, bulldozers & scrapers and boats

GROUP 6: Roller,skid steer loaders, street sweeper

GROUP 7: Gas and electric drive heater, concrete mixer, light plant, welding machine, pump & compressor

GROUP 8: Stone crusher

GROUP 9: Mechanic & welder

ENGI0057-003 12/01/2020

BUILDING CONSTRUCTION

	Rates	Fringes
Power Equipment Operator		
GROUP 1	$ 41.82	27.70+a
GROUP 2	$ 39.82	27.70+a
GROUP 3	$ 39.60	27.70+a
GROUP 4	$ 35.60	27.70+a
GROUP 5	$ 32.75	27.70+a
GROUP 6	$ 38.90	27.70+a
GROUP 7	$ 38.47	27.70+a

GROUP 8.....$ 35.79 27.70+a

a.BOOM LENTHS, INCLUDING JIBS:

150 ft. and over: + $ 2.00
180 ft. and over: + $ 3.00
210 ft. and over: + $ 4.00
240 ft. and over: + $ 5.00
270 ft. and over: + $ 7.00
300 ft. and over: + $ 8.00
350 ft. and over: + $ 9.00
400 ft. and over: + $10.00

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

a. FOOTNOTE: Hazmat work: $2.00 per hour additional.
Tunnel/Shaft work: $5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks.

GROUP 2: Digging machine, Ross carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, front end loader (3 yds. and over), vibratory hammer and vacuum truck

GROUP 3: Telehandler equipment, forklift, concrete pump & on-site concrete plant

GROUP 4: Fireman & oiler on cranes

GROUP 5: Oiler on crawler backhoe

GROUP 6: Bulldozer,skid steer loaders,bobcats, tractor, grader, scraper,combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile powered sweeper (3 yds. capacity), 8-ft. sweeper (minimum 65 hp)

GROUP 7: Well point installation crew

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator for light plant, gas and electric driven pump & air compressor

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IRON0037-001 09/16/2021

	Rates	Fringes
IRONWORKER	$ 38.21	30.58

LABO0271-001 05/30/2021

BUILDING CONSTRUCTION

	Rates	Fringes
LABORER		
GROUP 1	$ 33.55	26.15

GROUP 2.....$ 33.80 26.15
GROUP 3.....$ 34.30 26.15
GROUP 4.....$ 34.55 26.15
GROUP 5.....$ 35.55 26.15

LABORERS CLASSIFICATIONS

GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems]

GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator

GROUP 3: Pre-Cast Floor & Roof Plank Erectors

GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster

GROUP 5: Toxic Waste Remover

LABO0271-002 05/30/2021

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
LABORER		
COMPRESSED AIR		
Group 1	$ 53.45	24.15
Group 2	$ 50.98	24.15
Group 3	$ 40.50	24.15
FREE AIR		
Group 1	$ 44.05	24.15
Group 2	$ 43.05	24.15
Group 3	$ 40.50	24.15
LABORER		
Group 1	$ 33.55	24.15
Group 2	$ 33.80	24.15
Group 3	$ 34.55	24.15
Group 4	$ 27.05	24.15
Group 5	$ 35.55	24.15
OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW		
Bottom Man	$ 39.55	24.15
Top Man & Laborer	$ 38.60	24.15
TEST BORING		
Driller	$ 40.00	24.15
Laborer	$ 38.60	24.15

LABORER CLASSIFICATIONS

GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries

GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy

operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator; Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer

GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster

GROUP 4: Flagger & signaler

GROUP 5: Toxic waste remover

LABORER - COMPRESSED AIR CLASSIFICATIONS

GROUP 1: Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air

GROUP 2: Change house attendant, powder watchperson, top person on iron

GROUP 3: Hazardous waste work within the ""HOT"" zone

LABORER - FREE AIR CLASSIFICATIONS

GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator

GROUP 2: Change house attendant, powder watchperson

GROUP 3: Hazardous waste work within the ""HOT"" zone

PAIN0011-005 06/01/2021

	Rates	Fringes
PAINTER		
Brush and Roller	$ 36.42	22.90
Epoxy, Tanks, Towers, Swing Stage & Structural Steel	$ 38.42	22.90
Spray, Sand & Water Blasting	$ 39.42	22.90
Taper	$ 37.17	22.90
Wall Coverer	$ 36.92	22.90

PAIN0011-006 06/01/2021

	Rates	Fringes

GLAZIER.....$ 39.98 22.90

FOOTNOTES:

SWING STAGE: $1.00 per hour additional.

PAID HOLIDAYS: Labor Day & Christmas Day.

PAIN0011-011 06/01/2021

	Rates	Fringes
Painter (Bridge Work).....	$ 54.00	22.90

PAIN0035-008 06/01/2011

	Rates	Fringes
Sign Painter.....	$ 24.79	13.72

PLAS0040-001 06/03/2019

BUILDING CONSTRUCTION

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	$ 36.00	27.15

FOOTNOTE: Cement Mason: Work on free swinging scaffolds under 3 planks width and which is 20 or more feet above ground and any offset structure: $.30 per hour additional.

PLAS0040-002 07/01/2019

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	$ 32.85	22.20

PLAS0040-003 07/01/2019

	Rates	Fringes
PLASTERER.....	$ 37.55	27.50

PLUM0051-002 08/30/2021

	Rates	Fringes
Plumbers and Pipefitters.....	$ 46.49	31.40

ROOF0033-004 06/01/2021

	Rates	Fringes
ROOFER.....	$ 39.40	29.06

SFRI0669-001 04/01/2021

	Rates	Fringes
SPRINKLER FITTER.....	$ 47.55	26.60

SHEE0017-002 12/01/2020

	Rates	Fringes
Sheet Metal Worker	$ 38.58	36.73

TEAM0251-001 05/01/2019

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
TRUCK DRIVER		
GROUP 1	$ 27.96	26.8525+A+B+C
GROUP 2	$ 27.61	26.8525+A+B+C
GROUP 3	$ 27.66	26.8525+A+B+C
GROUP 4	$ 27.71	26.8525+A+B+C
GROUP 5	$ 27.81	26.8525+A+B+C
GROUP 6	$ 28.21	26.8525+A+B+C
GROUP 7	$ 28.41	26.8525+A+B+C
GROUP 8	$ 27.91	26.8525+A+B+C
GROUP 9	$ 28.16	26.8525+A+B+C
GROUP 10	$ 27.96	26.8525+A+B+C

FOOTNOTES:

A. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, plus Presidents' Day, Columbus Day, Veteran's Day & V-J Day, providing the employee has worked at least one day in the calendar week in which the holiday falls.

B. Employee who has been on the payroll for 1 year or more but less than 5 years and has worked 150 Days during the last year of employment shall receive 1 week's paid vacation; 5 to 10 years - 2 weeks' paid vacation; 10 or more years - 3 week's paid vacation.

C. Employees on the seniority list shall be paid a one hundred dollar ($100.00) bonus for every four hundred (400) hours worked, up to a maximum of five hundred dollars ($500.00)

All drivers working on a defined hazard material job site shall be paid a premium of $2.00 per hour over applicable rate.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Pick-up trucks, station wagons, & panel trucks

GROUP 2: Two-axle on low beds

GROUP 3: Two-axle dump truck

GROUP 4: Three-axle dump truck

GROUP 5: Four- and five-axle equipment

GROUP 6: Low-bed or boom trailer.

GROUP 7: Trailers when used on a double hook up (pulling 2 trailers)

GROUP 8: Special earth-moving equipment, under 35 tons

GROUP 9: Special earth-moving equipment, 35 tons or over

GROUP 10: Tractor trailer

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal

process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

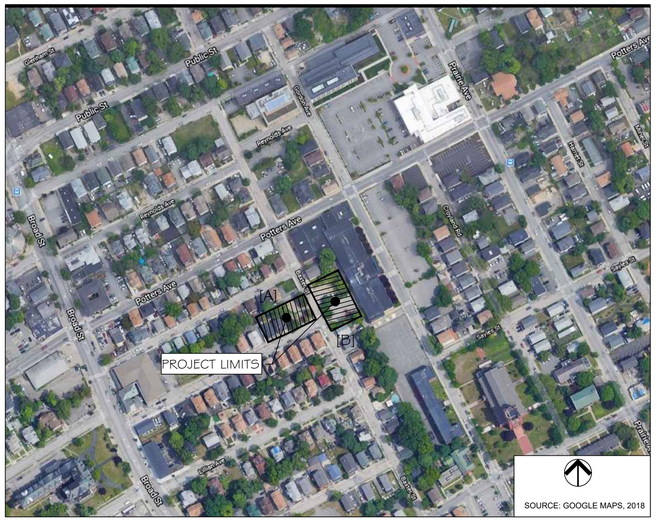
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END OF GENERAL DECISION"

PROVIDENCE, RI

BAILEY BAXTER PLAY SPACE

VICINITY MAP



HONORABLE
JORGE O. ELORZA,
MAYOR

WENDY NILSSON,
SUPERINTENDENT OF PARKS

FOR BID 12/6/2021

SHEET SCHEDULE

SHEET #	NAME
L-1	COVER SHEET
L-2	NOTES
L-3	EXISTING CONDITIONS
L-4	DEMOLITION PLAN
	CAPPING PLAN
L-5	GRADING PLAN
L-6	LAYOUT PLAN
L-7	MATERIALS PLAN
L-8	PLANTING PLAN
L-9	CONSTRUCTION DETAILS
L-10	CONSTRUCTION DETAILS
L-11	CONSTRUCTION DETAILS
L-12	CONSTRUCTION DETAILS
L-13	CONSTRUCTION DETAILS

LEGEND

PROPERTY LINE (APPROXIMATE)
WATER LINE (APPROXIMATE)
ELECTRICAL LINE (APPROXIMATE)
GAS LINE (APPROXIMATE)
SEWER LINE (APPROXIMATE)
LIMIT OF WORK
CHAINLINK FENCE (HEIGHT VARIES) AND FENCE GATES
CATCH BASIN
ELECTRICAL POLE
DRAINS
TRASH RECEPTACLE
BENCHES (MATERIAL AND MOUNT VARIES)
TREE
AREA [A]
AREA [B]
TREE PROTECTION
TREE TO BE REMOVED
SAWCUT

GENERAL CONSTRUCTION NOTES

1. BASE INFORMATION WAS OBTAINED FROM GOOGLE EARTH, GIS AND PROVIDENCE PARKS DEPARTMENT SITE INVESTIGATION. THE EXISTING CONDITIONS PLAN WAS PRODUCED FROM A CLASS I LIMITED CONTENT BOUNDARY SURVEY AND CLASS III DATA ACCUMULATION SURVEY PERFORMED BY OCEAN STATE PLANNERS, INC., PREPARED ON FEBRUARY 6, 2020 FOR THE NATURE CONSERVANCY.
2. ANY ERRORS OR DISCREPANCIES ON THE DRAWINGS, SHOP DRAWINGS, AND DETAILS ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE LANDSCAPE ARCHITECT BEFORE THE WORK HAS COMMENCED.
3. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL LOCATIONS AND DIMENSIONS. DISCREPANCIES BETWEEN LAYOUT DIMENSIONS ON PLANS AND ACTUAL MEASUREMENTS IN FIELD ARE TO BE REPORTED TO THE LANDSCAPE ARCHITECT BEFORE CONSTRUCTION BEGINS.
4. THE CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT PRIOR TO DEMOLITION OR INSTALLATION OF ANY PORTION OF THE SITE WORK .
5. THE CONTRACTOR SHALL STAKE OUT ALL LAYOUTS OF PROPOSED WORK FOR APPROVAL BY THE OWNER AND LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS SHALL BE COORDINATED WITH THE LANDSCAPE ARCHITECT.
7. UNLESS OTHERWISE SPECIFIED ON THE PLANS AND DETAILS/SPECIFICATIONS, ALL SITE CONSTRUCTION MATERIALS AND METHODOLOGIES ARE TO CONFORM TO THE MOST RECENT VERSION OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2015 EDITION).
8. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAINMENT, AND TRENCH WORK.
9. THE CONTRACTOR SHALL RESTORE ALL SURFACES EQUAL TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE. AREAS NOT DISTURBED BY CONSTRUCTION SHALL BE LEFT NATURAL. THE CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO SHRUBS, TREES, AND OTHER LANDSCAPING OR NATURAL FEATURES, WHEREAS THE PLANS DO NOT SHOW ALL LANDSCAPING FEATURES. EXISTING CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK.
10. ALL UNPAVED AREAS DISTURBED BY THE WORK SHALL HAVE A MINIMUM OF 4-INCHES OF LOAM INSTALLED AND SEEDED WITH GRASS SEED AS SHOWN ON THE PLAN AND/OR DIRECTED BY THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING ANY LOAM AND SEEDED AREAS UNTIL LAWN GROWTH IS ESTABLISHED AND APPROVED BY THE LANDSCAPE ARCHITECT AND/OR OWNER.
11. THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE ANY LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. ALL DEMOLITION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE SITE TO AN APPROVED DUMP SITE. ALL TRUCKS LEAVING THE SITE SHALL BE COVERED.
12. CONCRETE TRUCKS SHALL NOT BE WASHED ONSITE. ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA SHALL BE REMOVED BY HAND AT THE CONTRACTOR'S EXPENSE.
13. IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED, THE CONTRACTOR IS TO IMMEDIATELY CONTACT AND COORDINATE WITH THE LANDSCAPE ARCHITECT AND THE OWNER.
14. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIAL FROM THE SITE. A THOROUGH INSPECTION OF THE WORK PERIMETER IS TO BE MADE AND ALL DISCARDED MATERIALS, BLOWN OR WATER CARRIED DEBRIS, SHALL BE COLLECTED AND REMOVED FROM THE SITE.
15. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SITE FOR THE SAFETY OF THE GENERAL PUBLIC AND TO PROTECT PROPERTY AGAINST VANDALISM AND THEFT.
16. THE CONTRACTOR MUST OBTAIN ALL REQUIRED CITY, STATE AND FEDERAL PERMITS.
17. THE PROVIDENCE PARKS DEPARTMENT ASSUMES NO RESPONSIBILITY IF THE WORK IS NOT INSTALLED AS PER THE PLANS OR IF FIELD CHANGES ARE MADE WITHOUT THE KNOWLEDGE AND APPROVAL OF THE LANDSCAPE ARCHITECT AND OWNER.
18. THE SITE IS REGULATED BY THE RIDEM OFFICE OF LAND REVITALIZATION AND SUSTAINABLE MATERIALS MANAGEMENT UNDER FILE NO. SR-28-0548B; THE CONTRACTOR IS RESPONSIBLE TO REVIEW AND TO COMPLY WITH ALL APPLICABLE PROVISIONS OF THE RIDEM-APPROVED REMEDIAL ACTION WORK PLAN AND ASSOCIATED SOIL MANAGEMENT AND FIELD DOCUMENTATION REQUIREMENTS. THE CITY'S ENVIRONMENTAL CONSULTANT SHALL PROVIDE GUIDANCE AND LIMITED FIELD VERIFICATION SITE VISITS DURING CONSTRUCTION.

ISSUED FOR CONSTRUCTION

PROVIDENCE
PARKS DEPARTMENT
DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

COVER SHEET

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-CV_211004.dwg

DATE: 12/06/21
SCALE: N/A
DRAWN BY: LL, II
CHECKED/ APPROVED: MG
SHEET NO. L-1

DEMOLITION PLAN NOTES

1. ALL SITE PREPARATION NECESSARY TO COMPLETE THIS PROJECT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH PROVIDENCE PARKS DEPARTMENT AND PROVIDENCE PUBLIC SCHOOL STAFF TO DEVELOP A SUITABLE DEMOLITION PLAN AND COORDINATE OPERATIONS TO MINIMIZE DISTURBANCE DURING THE ENTIRETY OF CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, THE CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION, DEMOLITION, REMOVAL AND DISPOSAL, IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL EXISTING SITE ELEMENTS AND STRUCTURES INCLUDING BUT NOT LIMITED TO BITUMINOUS CONCRETE, CEMENT CONCRETE, GRAVEL, CURBS, WALKWAYS, SIDEWALKS, BERMS, FENCES, BOLLARDS, POSTS, PLANTING BEDS, TREES, SHRUBS, UTILITIES, DRAINAGE STRUCTURES AND ALL OTHER STRUCTURES SHOWN WITHIN THE LIMITS, AND WHERE NEEDED, TO ALLOW FOR NEW CONSTRUCTION. ALL ELEMENTS TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER SPECIFICATIONS.
4. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING OF THE DEBRIS IN A PROPER AND LEGAL MANNER.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND.OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES, AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY IN THE CITY, AND "DIGSAFE" (1-800-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNALTERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RESOLVE CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD-LOCATED UTILITIES AND SHALL REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT IMMEDIATELY. THE OWNER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION FOR THE PREPARATION OF THE AS-BUILT PLAN.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EXISTING UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE ENTIRE DURATION OF THE PROJECT. ALL COST RELATED TO THE REPAIR OF UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINE OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
7. THE CONTRACTOR SHALL MAINTAIN CONTINUOUS ACCESS AND OPERATION FOR SURROUNDING FACILITIES, AS DEEMED BY THE OWNER, AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
8. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES AND TREE PROTECTIVE MEASURES ARE TO BE INSTALLED.
9. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING NUISANCE DUSTS AT ALL TIMES THROUGHOUT THE PROJECT.
10. ALL SITE SOIL IS REGULATED BY RIDEM AND IS ASSUMED TO BE CONTAMINATED IN ACCORDANCE WITH THE RIDEM-APPROVED RAWP AND SOIL MANAGEMENT PROVISIONS. ALL SITE SOIL MUST EITHER BE CAPPED OR TRANSPORTED OFF-SITE TO A LICENSED DISPOSAL FACILITY.

EROSION AND SEDIMENT CONTROL (ESC)

1. THE SITE CONSTRUCTION FOREMAN SHALL BE DESIGNATED AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL ESC MEASURES AND SHALL IMPLEMENT ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.
2. THE CONTRACTOR SHALL INSTALL ALL ESC MEASURES AS SHOWN ON THE DESIGN PLANS AND AS DETERMINED NECESSARY IN THE FIELD BY OWNER'S REPRESENTATIVE BEFORE ANY CONSTRUCTION ACTIVITIES ARE TO BEGIN. THESE MEASURES SHALL BE CHECKED, MAINTAINED/REPLACED AS NECESSARY DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. SUCH MEASURES SHALL REPRESENT THE LIMIT OF WORK. WORKERS SHALL BE INFORMED THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGH THE CONSTRUCTION PERIOD.
3. A MINIMUM SURPLUS OF 100 FEET OF EROSION CONTROL BARRIER (SILT FENCE#/OR SILT SOCK) SHALL BE STOCKPILED ONSITE AT ALL TIMES.
4. THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM SEDIMENTATION DURING PROJECT CONSTRUCTION OPERATIONS.
5. A CONSTRUCTION EXIT SHALL BE CONSTRUCTED TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. THE CONSTRUCTION EXIT SHALL BE REPLACED/CLEANED AS NEEDED TO MAINTAIN ITS EFFECTIVENESS.
6. THE LIMIT OF ALL CLEARING, GRADING AND DISTURBANCES SHALL BE KEPT TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. THE CONTRACTOR SHALL PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH WILL LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, THE CONTRACTOR SHALL USE THEIR BEST PROFESSIONAL JUDGEMENT AND SHALL BE RESPONSIBLE FOR ENSURING THAT NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY IMPENDING WEATHER EVENTS.
8. SOIL ESC MEASURES SHALL BE INSPECTED AND MAINTAINED ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF 0.25 INCH OR GREATER DURING CONSTRUCTION TO ENSURE THAT THE ESC MEASURES ARE INTACT AND FUNCTIONING PROPERLY. IDENTIFIED DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY NO LATER THAN 24 HOURS AFTER IDENTIFICATION.
9. SOIL STOCKPILES LEFT OVERNIGHT SHALL BE SURROUNDED ON THEIR PERIMETERS WITH SILT SOCK.
10. DISTURBED AREAS AND SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. THE CONTRACTOR SHOULD PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY AREAS HAVING A SLOPE GREATER THAN 3:1 SHALL BE REINFORCED WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SWALES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY OWNER'S REPRESENTATIVE.
11. THE CONTRACTOR SHALL CONTAIN ALL SEDIMENT ONSITE. ALL EXITS FROM THE SITE WILL BE SWEPT AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. PAVED AREAS SHALL BE SWEPT AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS WHICH MAY ACCUMULATE DURING SITE WORK.
12. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM ALL ESC MEASURES AND DISPOSED OF IN A PRE-APPROVED LOCATION BY THE CONTRACTOR.
13. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS AS NECESSARY.

PLANTING PLAN NOTES

1. ALL NEW PLANT MATERIALS SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN ADDITION, ALL NEW PLANT MATERIAL FOR THE PROJECT SHALL BE OF SPECIMEN QUALITY.
2. ALL NEW PLANTS TO BE BALLED AND BURLAPPED OR CONTAINER GROWN, UNLESS OTHERWISE NOTED ON THE PLANT LIST.
3. THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
4. ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE, AND ONLY AFTER WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
5. ALL NEW PLANTS SHALL BE TAGGED AND APPROVED BY THE LANDSCAPE ARCHITECT AT THE NURSERY PRIOR TO DIGGING OR DELIVERY TO THE SITE.
6. CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND SHALL REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT.
7. STAKE LOCATIONS OF ALL PROPOSED PLANTING FOR APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCEMENT OF PLANTING. INDIVIDUAL STAKES SHALL BE PLACED FOR TREES AND SHRUBS. EDGE OF PLANTING BEDS SHALL BE PAINTED. NOTIFY LANDSCAPE ARCHITECT 24 HOURS PRIOR TO DESIRED APPROVAL.
8. ALL NEW PLANTS SHALL BE SUPPLIED AND INSTALLED DURING THE PERIODS OF APRIL 1 - JUNE 15 AND/OR SEPTEMBER 1 - NOVEMBER 15 PER SPECIFICATIONS.
9. PREPARE ALL INDIVIDUAL TREE PITS AND SHRUB PLANTING BEDS TO A MINIMUM DEPTH OF EIGHTEEN INCHES (18") WITH SPECIFIED PLANTING MIX: 50% SCREENED TOPSOIL, 40% EXISTING SOIL AND 10% COMPOST. BLEND COMPOST INTO TOP 4" OF SOIL. PLANTING MIX SHALL BE FREE OF LUMPS, STONES, PLANTS, ROOTS, AND OTHER FOREIGN MATTER.
10. ALL SHRUB BEDS AND INDIVIDUAL TREE PITS SHALL RECEIVE THREE (3) INCHES OF BARK MULCH PER SPECIFICATIONS. PERENNIAL AND GROUNDCOVER BEDS SHALL RECEIVE TWO INCHES (2"). PROVIDE LANDSCAPE ARCHITECT WITH SAMPLE FOR APPROVAL.
11. ALL BURLAP, TWINE AND WIRE SHALL BE COMPLETELY REMOVED OR CUT AWAY AT TIME OF INSTALLATION.
12. PRUNE TREES IN ACCORDANCE WITH THE SPECIFICATIONS.
13. PLANT WARRANTY SHALL BE FOR ONE FULL GROWING SEASON FROM THE TIME OF INSTALL.
14. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGED, STOLEN, DEAD, DECLINING OR LOST MATERIAL UNTIL COMPLETION OF MAINTENANCE PERIODS OR GUARANTEE PERIODS.
15. ALL VEGETATION AND DEBRIS SHALL BE REMOVED FROM PROPOSED PLANTING AREAS PRIOR TO PLANTING AND BACKFILLING. CONTRACTOR SHALL REMOVE ALL WEEDS AND DEBRIS FROM SITE AS WORK PROGRESSES AND UNTIL COMPLETION OF PLANT MAINTENANCE PERIODS OR WARRANTY PERIODS.
16. ALL AREAS TO BE SEEDED OR SODDED SHALL RECEIVE 12 INCHES (12") OF CERTIFIED CLEAN LOAM, MEASURED AFTER INSTALLATION, PRIOR TO SEEDING.
17. ALL EXISTING LAWN AREAS DESIGNED TO REMAIN SHALL BE AERATED, FERTILIZED AND OVERSEEDED, AS DIRECTED BY THE LANDSCAPE ARCHITECT.
18. IN ADDITION TO LOCATIONS DEFINED FOR SEED ON THE PLANTING PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDING ANY DISTURBED AREAS.
19. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CLOSE COORDINATION WITH OWNER, GENERAL CONTRACTOR, RELATED SUBCONTRACTORS, LANDSCAPE ARCHITECT, AND ALL SITE WORK RELATED ITEMS.

LAYOUT PLAN NOTES

1. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
2. STORAGE AREAS FOR CONTRACTOR'S EQUIPMENT AND MATERIALS SHALL BE ON AND WITHIN LIMITS OF WORK AS SHOWN ON THE PLANS AND AS APPROVED BY THE OWNER'S REPRESENTATIVE.
3. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IN THE PLAN TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
4. ALL LAYOUTS FOR WALKS AND PATHS SHALL BE ADEQUATELY STAKED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. BOULDERS LOCATION TO BE APPROVED BY LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION
6. LOG STUMPS LOCATION TO BE APPROVED BY LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION
7. PLAYGROUND EQUIPMENT FOOTINGS LOCATION TO BE APPROVED BY LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION.

MATERIALS PLAN NOTES

1. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
2. STORAGE AREAS FOR CONTRACTOR'S EQUIPMENT AND MATERIALS SHALL BE ON AND WITHIN LIMITS OF WORK AS SHOWN ON THE PLANS AND AS APPROVED BY THE OWNER'S REPRESENTATIVE.
3. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IN THE PLAN TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
4. ALL LAYOUTS FOR WALKS AND PATHS SHALL BE ADEQUATELY STAKED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. GRANITE BLOCKS, BOULDERS, LOGS, STUMPS, AND PLAY EQUIPMENT TO BE LOCATED AND APPROVED BY LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION.

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

NOTES

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-CV_211004.dwg

DATE: 12/06/21

SCALE: N/A

DRAWN BY: LL, II

CHECKED/APPROVED: MG

SHEET NO. L-2

BAXTER STREET

NORWICH AVENUE

ROBERT L. BAILEY, IV ELEMENTARY SCHOOL

CONCRETE

PLAY STRUCTURE

BM ELEV. 99.70

EXISTING CONDITIONS LEGEND

- CHAINLINK FENCE (HEIGHT VARIES) AND FENCE GATE
- PROPERTY LINE
- EXISTING CONTOURS
- LOW — LOW — LIMIT OF WORK
- W — W — W — EXISTING WATER LINE
- GAS — GAS — GAS — EXISTING GAS LINE
- SS — SS — SS — EXISTING SANITARY SEWER LINE
- BENCHES (MATERIAL AND MOUNT VARIES)
- BIKE RACK
- EXISTING RETAINING WALL
- TREE
- LIGHT POLE
- MH — MAN HOLE
- S — SEWER
- CB — CATCH BASIN

0 5' 10' 20'

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NO.	REVISION	DATE

EXISTING CONDITIONS PLAN

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DM_211004.dwg

DATE: 12/06/21

SCALE: 1" = 10'

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-3

AREA [A]

AREA [B]

BAXTER STREET

LIMIT OF CURB RESETTING

NORWICH AVENUE

ROBERT L. BAILEY, IV ELEMENTARY SCHOOL

CONCRETE

LIMIT OF CURB RESETTING

PLAY STRUCTURE

TP 1

TP 2

CB

MH

DEMOLITION PLAN LEGEND

- LOW — LIMIT OF WORK
- TP X QTY. — PROVIDE TREE PROTECTION — 36 L-12
- TREE TO BE REMOVED
- SAWCUT — 1 L-9
- REMOVE & DISPOSE RUBBER SURFACE & BASE
- REMOVE & DISPOSE BITUMINOUS CONCRETE & GRAVEL BASE
- REMOVE & DISPOSE SOIL DEPTH VARIES (SEE CAPPING PLAN)

DEMOLITION ITEMS

1. REMOVE & DISPOSE CHAIN LINK FENCE, POSTS, FOOTINGS & GATE
2. REMOVE & DISPOSE CHAIN LINK FENCE, POSTS & FOOTINGS
3. REMOVE & DISPOSE TREES & STUMPS (11 TOTAL)
4. REMOVE & STOCKPILE CONCRETE CURB
5. POWER WASH CONCRETE BLOCKS
6. REMOVE & DISPOSE RUBBER SURFACE & BASE
7. CLEAR & GRUB ALL VEGETATION & STUMPS
8. REMOVE & DISPOSE BITUMINOUS CONCRETE & GRAVEL BASE
9. REMOVE & STOCKPILE BENCHES, RETURN TO PROVIDENCE PUBLIC SCHOOL DEPT.
10. REMOVE & DISPOSE PLAY STRUCTURE & SURFACING
11. REMOVE & STOCKPILE GRANITE CURB
12. ADD/ALT #2 - FURNISH & INSTALL CABLE IN TREE PER CITY FORESTER.

N

0 5' 10' 20'

ISSUED FOR CONSTRUCTION

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NO.	REVISION	DATE

DEMOLITION PLAN

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DM_211004.dwg

DATE: 12/06/21

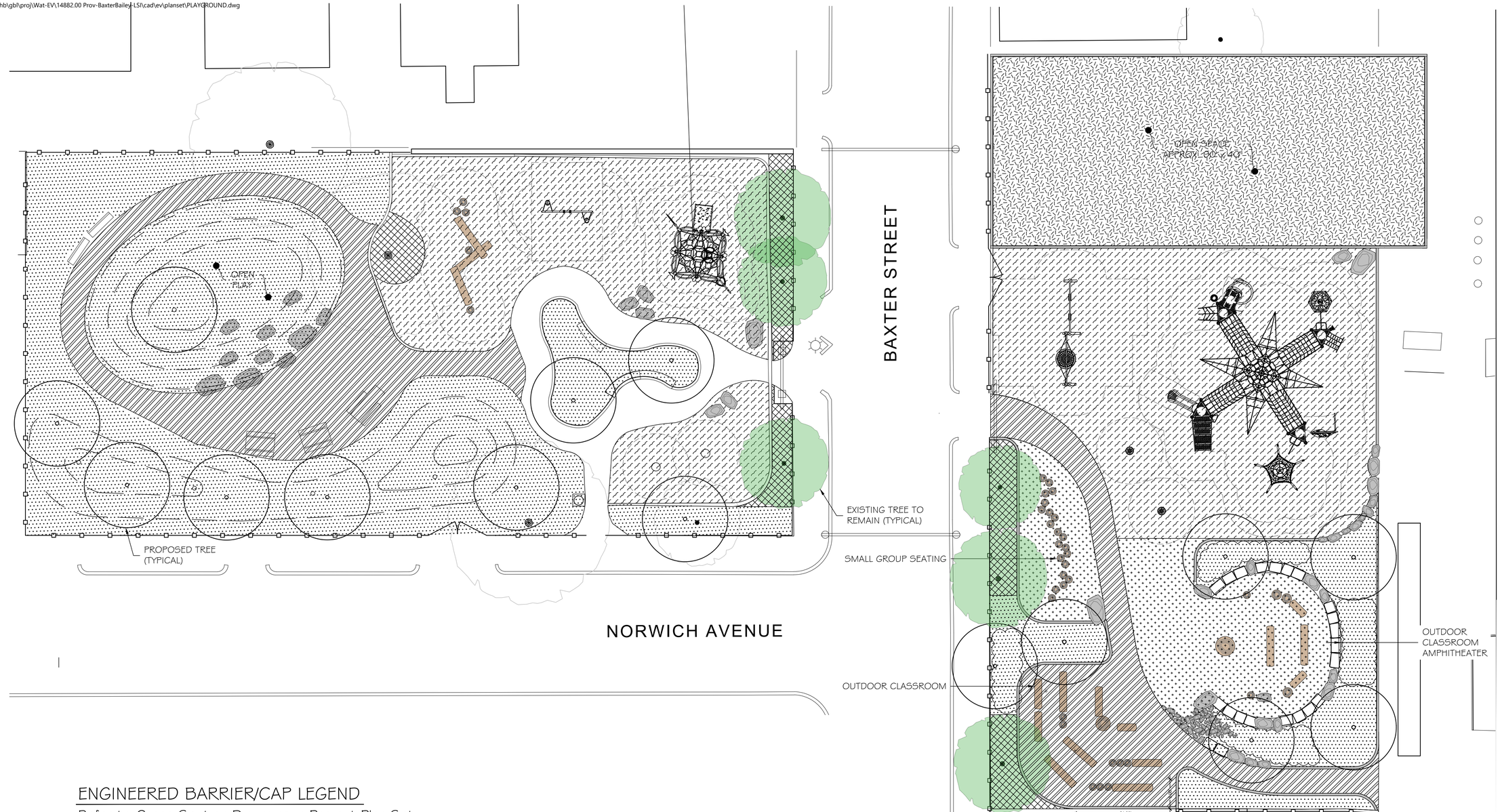
SCALE: 1" = 10'

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-4

\\vhb\gbl\proj\Wat-EV\14882.00 Prov-BaxterBailey-LSI\cad\ev\planset\PLAYGROUND.dwg



ENGINEERED BARRIER/CAP LEGEND

Refer to Cross Section Diagrams in Project Plan Set for Details of Engineered Barriers

Stabilized Stone Dust Path
4 inches of decomposed granite (stone dust) underlain with minimum of 8 inches of a clean, imported fill subbase material underlain with a geotextile fabric

Engineered Wood Fiber Mulch
Minimum of 12 inches of clean, imported fill or engineered wood fiber mulch underlain with a geotextile fabric or minimum of 4 inches of clean, imported fill subbase material

Artificial Turf
Synthetic turf underlain with a 1 inch foam pad underlain with a minimum 11 inches of stone base underlain with a geotextile fabric

Grass/Landscaping
2-feet of clean fill or 1-foot of clean fill underlain with a geotextile fabric

Existing Mature Tree Zone
a minimum of 4 inches of clean, imported fill, or engineered wood fiber mulch underlain with a geotextile fabric

High Intensity Play Zone
18 inches of engineered wood fiber mulch underlain with a minimum of 6 inches of clean, imported fill underlain with a geotextile fabric

Pavement to Remain as Cap-in-Place
Existing pavement to remain as cap

vhb.com

vhb

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

PLAN REFERENCE:

EXISTING AND PROPOSED INFORMATION FROM PLAN ENTITLED "MATERIALS PLAN, BAILEY BAXTER PLAY SPACE, SHEET L-8" DATED 10-5-2021 BY PROVIDENCE PARKS DEPARTMENT.

ROBERT L. BAILEY, IV ELEMENTARY SCHOOL

Bailey Baxter Play Space

61 Baxter Street
Providence, Rhode Island

No.	Revision	Date	Appvd.

Designed by | Checked by

Issued for | Date

Nov. 22, 2021

Issued for Construction

Drawing Title

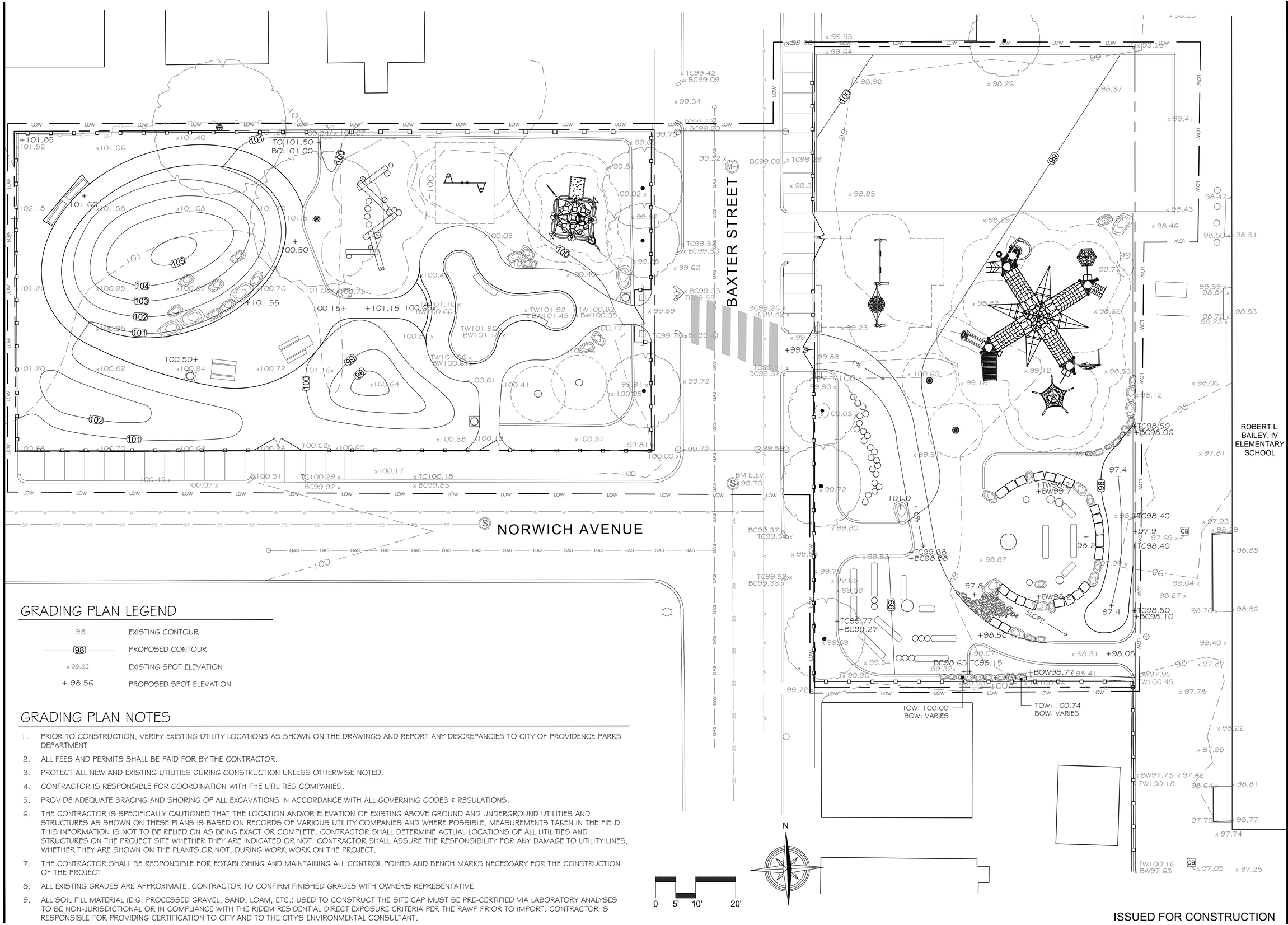
Capping Plan

Drawing Number

Sheet 1 of 1

Project Number

Saved Monday, November 22, 2021 2:10:35 PM DWHITE Plotted Monday, November 22, 2021 3:15:33 PM David White



GRADING PLAN LEGEND

— — 98 — —	EXISTING CONTOUR
——(98)——	PROPOSED CONTOUR
x 98.23	EXISTING SPOT ELEVATION
+ 98.56	PROPOSED SPOT ELEVATION

GRADING PLAN NOTES

1. PRIOR TO CONSTRUCTION, VERIFY EXISTING UTILITY LOCATIONS AS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANCIES TO CITY OF PROVIDENCE PARKS DEPARTMENT
2. ALL FEES AND PERMITS SHALL BE PAID FOR BY THE CONTRACTOR.
3. PROTECT ALL NEW AND EXISTING UTILITIES DURING CONSTRUCTION UNLESS OTHERWISE NOTED.
4. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE UTILITIES COMPANIES.
5. PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH ALL GOVERNING CODES & REGULATIONS.
6. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING ABOVE GROUND AND UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. CONTRACTOR SHALL DETERMINE ACTUAL LOCATIONS OF ALL UTILITIES AND STRUCTURES ON THE PROJECT SITE WHETHER THEY ARE INDICATED OR NOT. CONTRACTOR SHALL ASSURE THE RESPONSIBILITY FOR ANY DAMAGE TO UTILITY LINES, WHETHER THEY ARE SHOWN ON THE PLANTS OR NOT, DURING WORK WORK ON THE PROJECT.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT.
8. ALL EXISTING GRADES ARE APPROXIMATE. CONTRACTOR TO CONFIRM FINISHED GRADES WITH OWNER'S REPRESENTATIVE.
9. ALL SOIL FILL MATERIAL (E.G. PROCESSED GRAVEL, SAND, LOAM, ETC.) USED TO CONSTRUCT THE SITE CAP MUST BE PRE-CERTIFIED VIA LABORATORY ANALYSES TO BE NON-JURISDICTIONAL OR IN COMPLIANCE WITH THE RIDEM RESIDENTIAL DIRECT EXPOSURE CRITERIA PER THE RAWP PRIOR TO IMPORT. CONTRACTOR IS RESPONSIBLE FOR PROVIDING CERTIFICATION TO CITY AND TO THE CITY'S ENVIRONMENTAL CONSULTANT.

ISSUED FOR CONSTRUCTION

PROVIDENCE
PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

GRADING & UTILITIES PLAN

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-GR-R.dwg

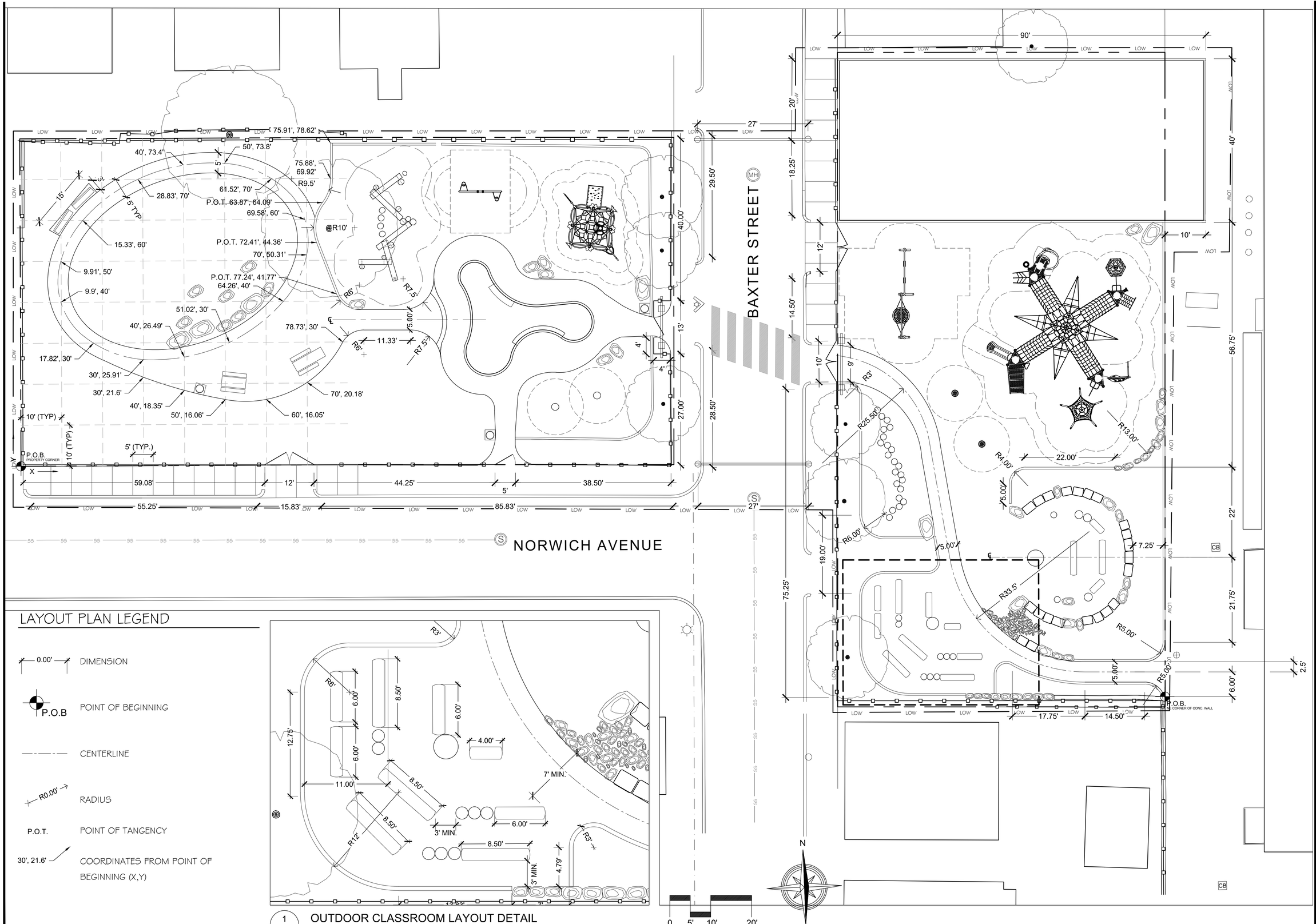
DATE: 12/06/21

SCALE: 1" = 10'

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-5



LAYOUT PLAN LEGEND

- 0.00' — DIMENSION
- P.O.B — POINT OF BEGINNING
- CENTERLINE
- R0.00' — RADIUS
- P.O.T. — POINT OF TANGENCY
- 30', 21.6' — COORDINATES FROM POINT OF BEGINNING (X,Y)

1 / L-6 OUTDOOR CLASSROOM LAYOUT DETAIL

1" = 5'-0"

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

LAYOUT PLAN

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-SC_211005.dwg

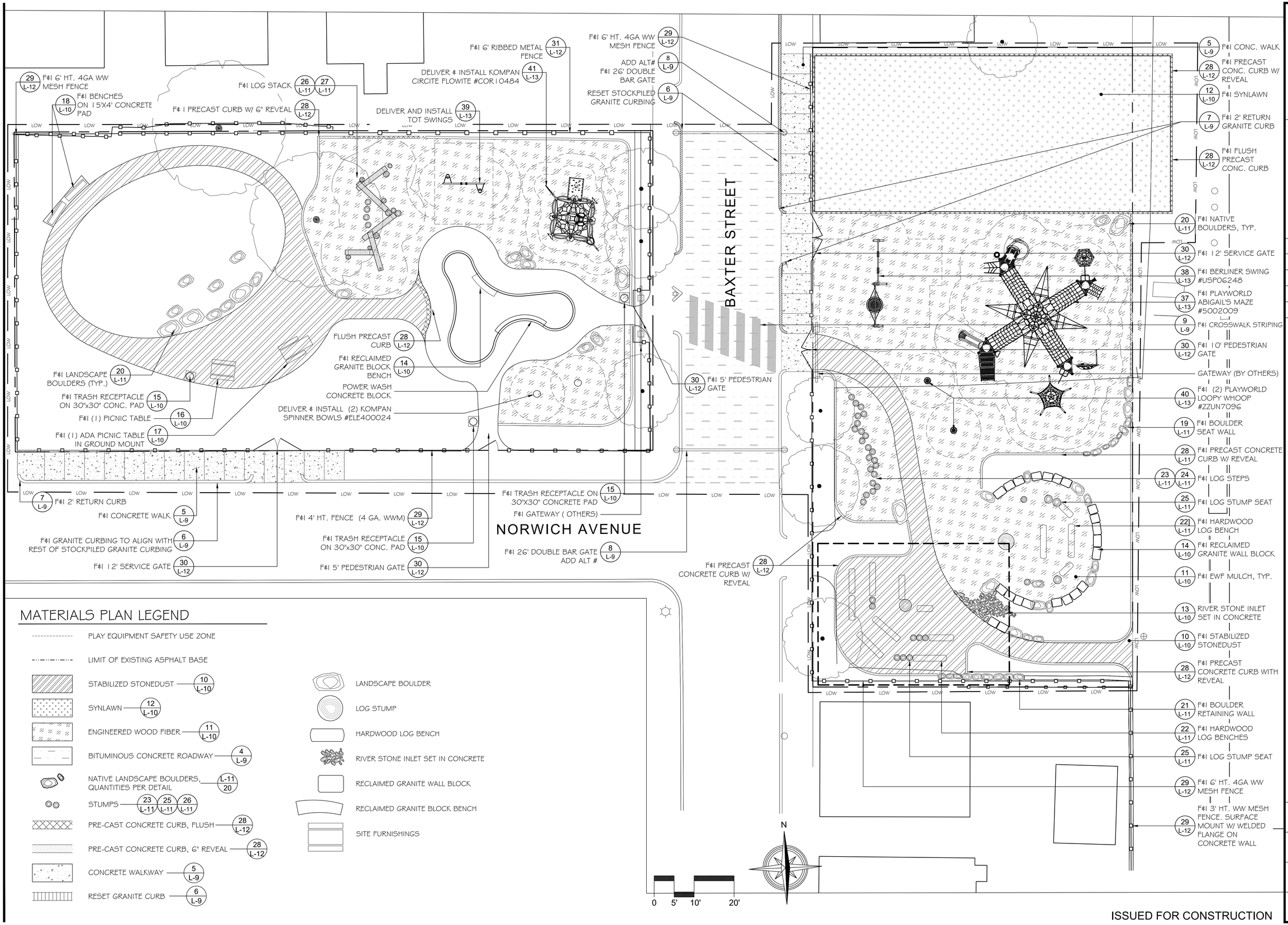
DATE: 12/06/21

SCALE: 1" = 10'

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-6



MATERIALS PLAN LEGEND

- PLAY EQUIPMENT SAFETY USE ZONE
- LIMIT OF EXISTING ASPHALT BASE
- STABILIZED STONEDUST — 10 L-10
- SYNLAWN — 12 L-10
- ENGINEERED WOOD FIBER — 11 L-10
- BITUMINOUS CONCRETE ROADWAY — 4 L-9
- NATIVE LANDSCAPE BOULDERS, QUANTITIES PER DETAIL — L-11 20
- STUMPS — 23 L-11, 25 L-11, 26 L-11
- PRE-CAST CONCRETE CURB, FLUSH — 28 L-12
- PRE-CAST CONCRETE CURB, 6" REVEAL — 28 L-12
- CONCRETE WALKWAY — 5 L-9
- RESET GRANITE CURB — 6 L-9
- LANDSCAPE BOULDER
- LOG STUMP
- HARDWOOD LOG BENCH
- RIVER STONE INLET SET IN CONCRETE
- RECLAIMED GRANITE WALL BLOCK
- RECLAIMED GRANITE BLOCK BENCH
- SITE FURNISHINGS

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

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NO.	REVISION	DATE

MATERIALS PLAN

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-SC_211005_recover.dwg

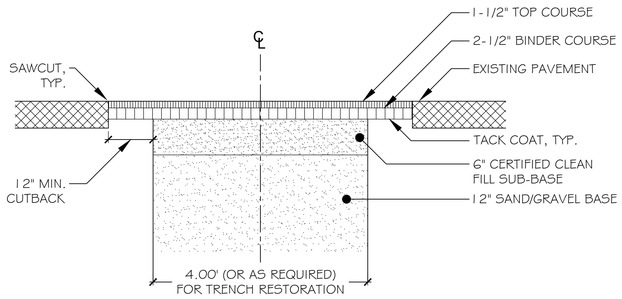
DATE: 12/06/21

SCALE: 1" = 10'

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-7

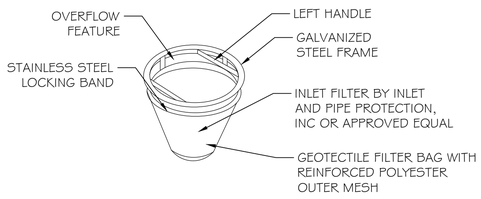


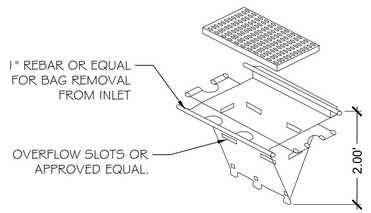
NOTES:

1. DISTURBED AREAS SHALL NOT EXTEND BEYOND THE SAWCUT.
2. ALL BITUMINOUS CONCRETE SHALL BE MHD TYPE 1-1.
3. THIS DETAIL SHALL BE USED FOR PAVEMENT RESTORATION AT ALL TRENCHES WITH BITUMINOUS PAVEMENT.

1 ASPHALT SAWCUT & REPAIR

3/4" = 1'-0"





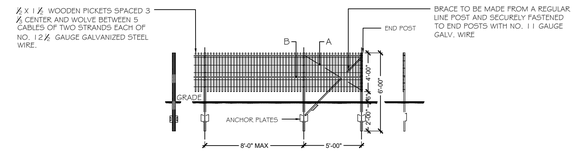
NOTES:

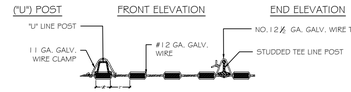
1. SEDIMENT CONTROL INSERTS SHALL BE INSTALLED OVER ALL CATCHBASIN/INLETS THAT WILL RECEIVE RUNOFF FROM THE PROJECT SITE.
2. TEMPORARY INLET PROTECTION TO BE REMOVED AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED.
3. DEPTH (D) SHALL BE A MINIMUM OF 16-INCHES.
4. MANUFACTURER SHALL BE SILT SACK, INLET AND PIPE PROTECTION.

2 CATCH BASIN SILT SOCK

NOT TO SCALE

FENCE TO BE SECURELY BRACED AT EACH END PANEL WITH A REGULAR LINE POST AND 1 DIAGONAL CABLE CONSISTING OF 2 STRANDS OF TWISTED WIRE. EACH STRAND TO CONSIST OF TWO 12½ GAUGE GALVANIZED WIRES. (A) TWO HORIZONTAL WIRES (B) SHALL BE STRUNG BEHIND THE PICKETS FOR THE FULL LENGTH OF THE FENCE. EACH HORIZONTAL WIRE IS TO BE FASTENED SECURELY TO EACH FENCE POST BY MEANS OF 11 GAUGE WIRE CLAMPS OR WITH 12½ GAUGE WIRE TIES.





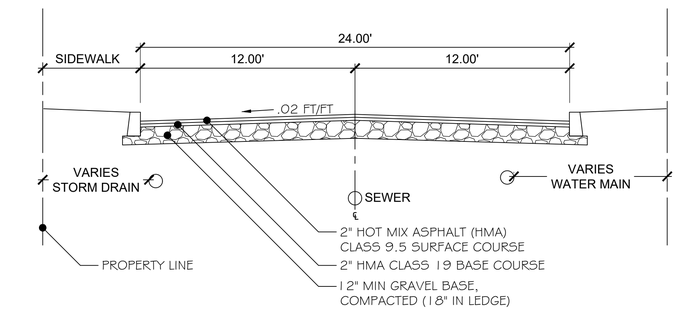
TYPICAL SECTION THROUGH POST AND PICKETS

NOTES:

1. THIS DRAWING IS FOR INFORMATION PURPOSES ONLY.
2. DO NOT SCALE DRAWINGS.
3. WIRE-BOUND PICKET FENCE, CONFORMING TO ASTM F 537, IS TO BE STRETCHED TIGHT AND SECURELY FASTENED TO ALL POST WITH 11 GA. GALVANIZED STEEL WIRE CLAMPS OR 12 GA. GALVANIZED WIRE TIES.
4. ALL FENCE POST, COMPLETE WITH ANCHOR PLATE, SHALL BE HOT DIPPED GALVANIZED, ALL CONFORMING TO REQUIREMENTS OF ASSHTO M 281. LINE POSTS (WITHOUT ANCHOR) SHALL WEIGH NOT LESS THAN 1.33 LBS PER LINEAR FT (RAW). SUITABLE ANCHOR PLATES SHALL BE SECURELY FASTENED TO EACH LINE POST AND SHALL WEIGH 0.067 LB NOMINAL.
5. SNOW FENCE MAY BE PLACED IMMEDIATELY IN FRONT OF RIGHT-OF-WAY FENCE WHEN SUCH LOCATION IS SUITABLE. THE SNOW FENCE IS NOT TO BE TIED OR FASTENED TO RIGHT-OF-WAY FENCE.
6. IN GENERAL, SNOW FENCE IS TO BE PLACED WITHIN LIMIT OF WORK. HOWEVER, SPECIFIED LOCATION ON EACH PROJECT IS TO BE VERIFIED BY PROJECT MANAGER.
7. OTHER SECTIONS OF STEEL POST HAVING EQUAL WEIGHT AND EQUIVALENT STRENGTH MAY BE USE IN LIEU OF SHOWN POSTS.

3 CONSTRUCTION FENCE

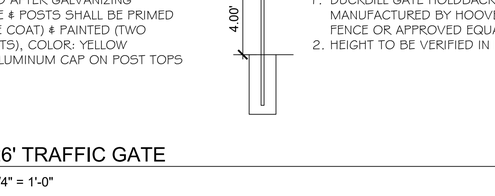
NOT TO SCALE



NOTE: COMPLY WITH MATERIALS, WORKMANSHIP, AND OTHER APPLICABLE REQUIREMENTS OF THE STATE OF RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION FOR ASPHALT AND PAVING WORK.

4 BITUMINOUS CONCRETE PAVING

NOT TO SCALE

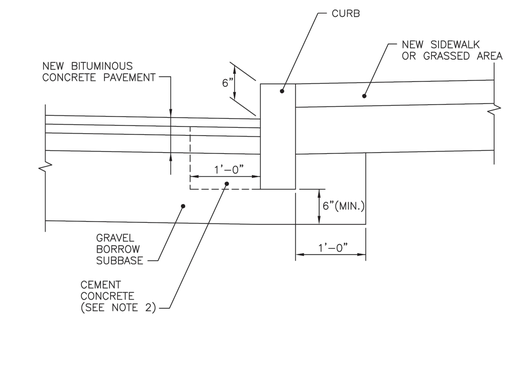


NOTES

1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. FOR CURB SETTING DETAIL REFERENCE STD. 7.6.0.

5 CONCRETE WALKWAY - RI STANDARD 43.1.0

1" = 1'-0"

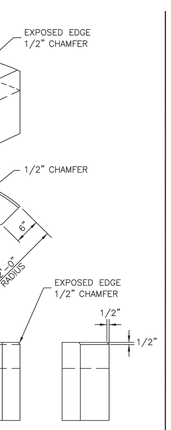


NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 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.

6 CURB SETTING - RIDOT STD 7.6.0

NTS

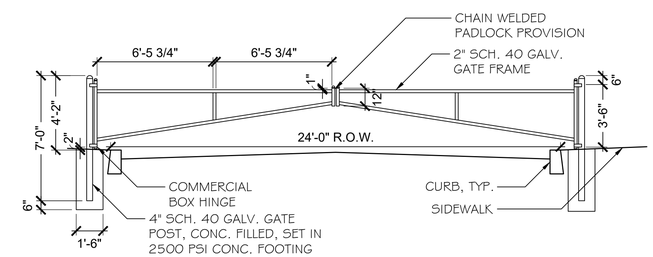


NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER MAY BE QUARRY SPLIT.

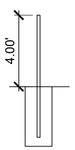
7 GRANITE 2' RADIUS CURB - RIDOT STD 7.3.4

NTS



26' DOUBLE SWING GATE NOTES:

1. WELD AFTER GALVANIZING
2. GATE & POSTS SHALL BE PRIMED (ONE COAT) & PAINTED (TWO COATS), COLOR: YELLOW
3. 4" ALUMINUM CAP ON POST TOPS

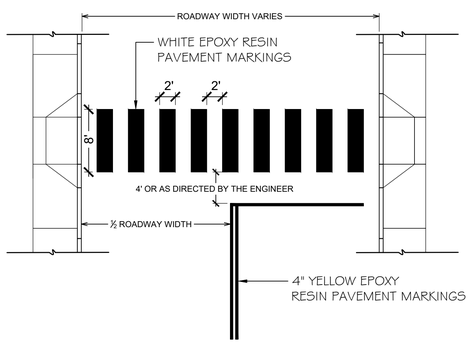


GATE HOLD BACK NOTES:

1. DUCKBILL GATE HOLDBACK AS MANUFACTURED BY HOOVER FENCE OR APPROVED EQUAL
2. HEIGHT TO BE VERIFIED IN FIELD

8 26' TRAFFIC GATE

1/4" = 1'-0"



9 CROSSWALK STRIPING

NTS

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 1

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DOT-SG11.18.21.dwg

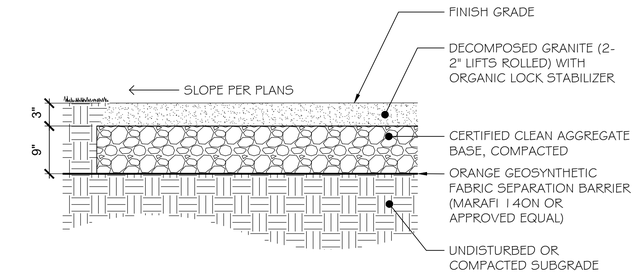
DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-9

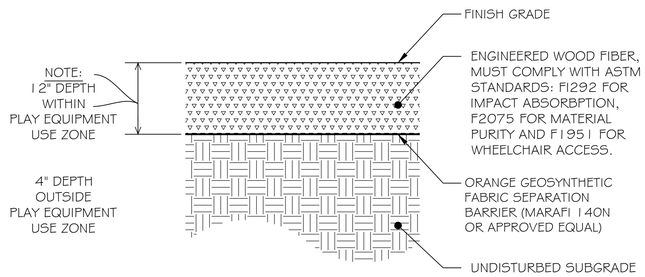


1. NOTE GRADATION COLOR.
2. PROCESSED AGGREGATE SHALL BE COMPACTED TO A 98% MAXIMUM DENSITY.
3. BASE MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF DIVISION III PART m SECTION M.01.01 COMMON BORROW OF THE RI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.

10 STABILIZED STONE DUST PATH

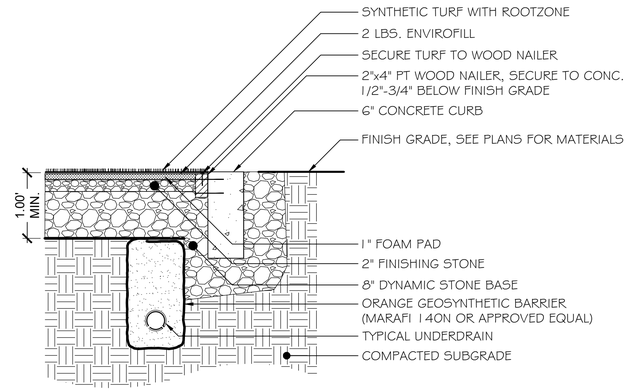
N.T.S.

NOT TO SCALE



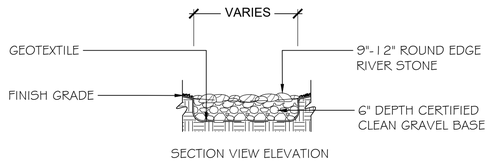
11 ENGINEERED WOOD FIBER MULCH

1" = 1'-0"

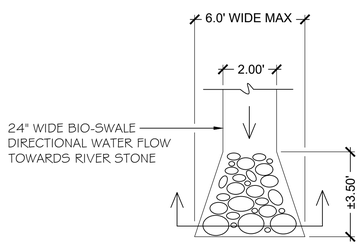


12 SYNTHETIC TURF SURFACING

1" = 1'-0"



SECTION VIEW ELEVATION

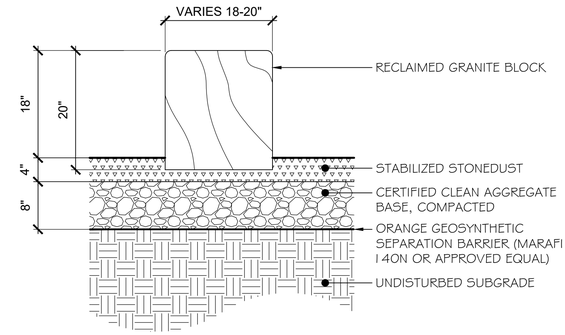


PLAN VIEW

NOTE:
RINSE RIVER STONE PRIOR TO ON-SITE DELIVERY. STONE SHALL BE FREE FROM FOREIGN DEBRIS. RIVER STONE SHALL BE CAREFULLY PLACED NOT DUMP.

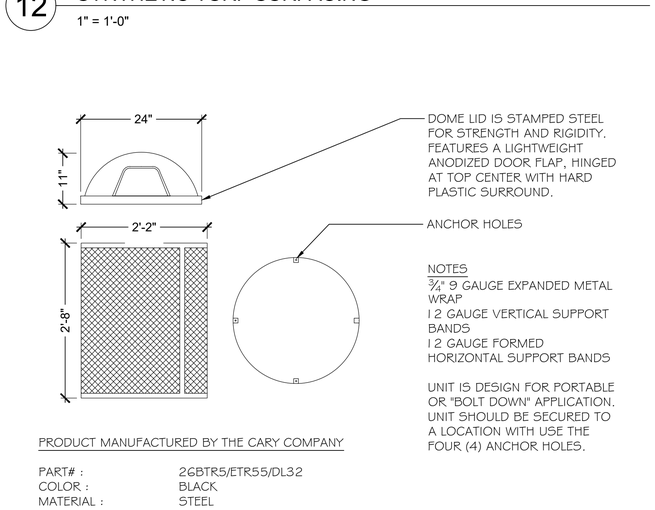
13 RIVER STONE INLET

NOT TO SCALE



14 20" SEAT WALL, RECLAIMED GRANITE BLOCK

1" = 1'-0"

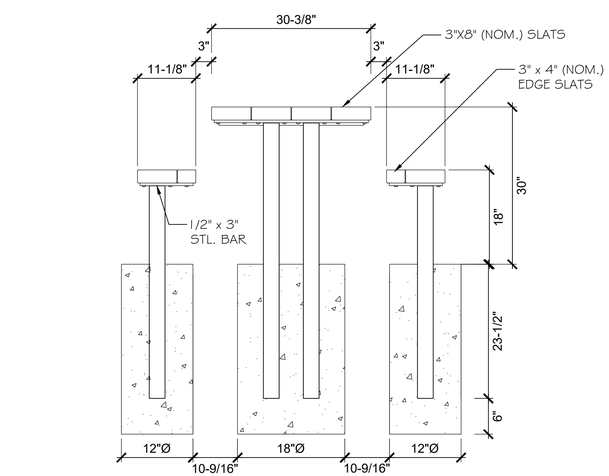


PRODUCT MANUFACTURED BY THE CARY COMPANY

PART# :	2GBTR5/ETR55/DL32
COLOR :	BLACK
MATERIAL :	STEEL

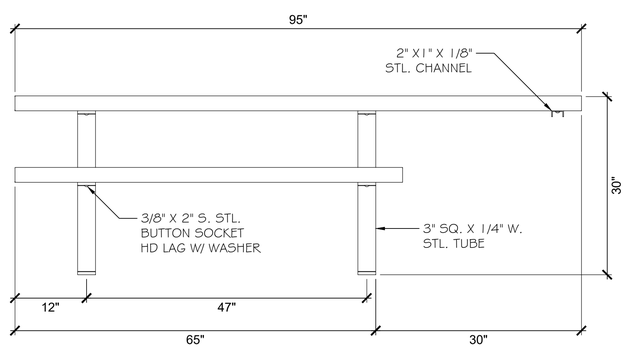
15 55 GAL. TRASH RECEPTACLE & DOME LID

NOT TO SCALE



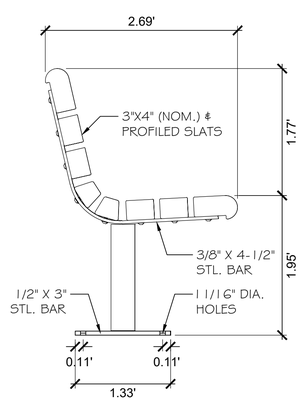
16 DUMOR INGROUND MOUNT PICNIC TABLE #75-60I

1" = 1'-0"



17 DUMOR INGROUND MOUNT ADA PICNIC TABLE #75-68-60I

1" = 1'-0"



18 SURFACE MOUNT BENCH, #88-60-I

NTS

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

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PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 2

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DT-SG11.18.21.dwg

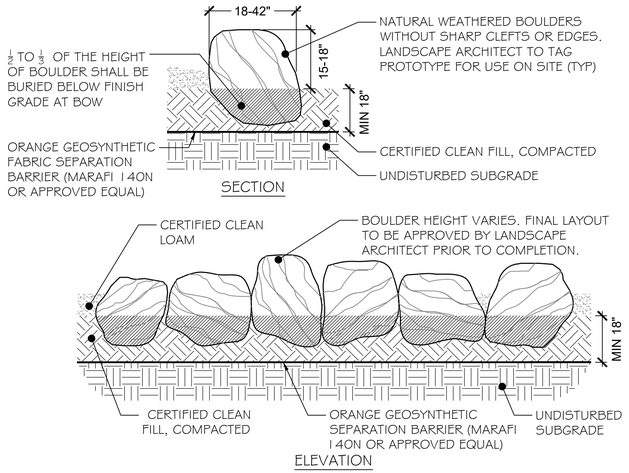
DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

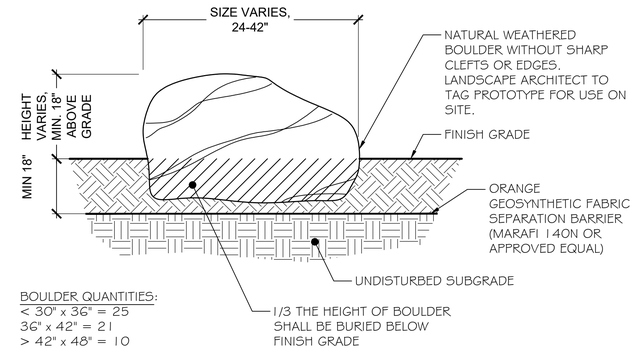
CHECKED/ APPROVED: MG

SHEET NO. L-10



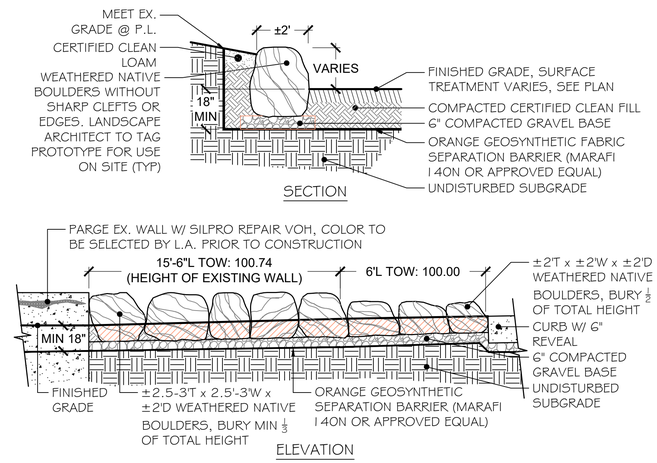
19 18" BOULDER SEAT WALL

1" = 2'-0"



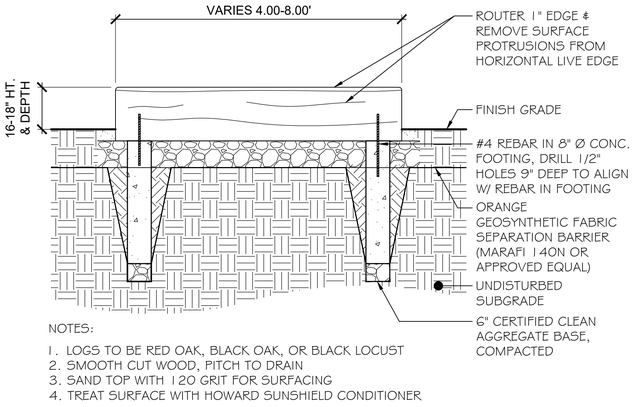
20 NATIVE BOULDERS

NOT TO SCALE



21 BOULDER RETAINING WALL

NOT TO SCALE

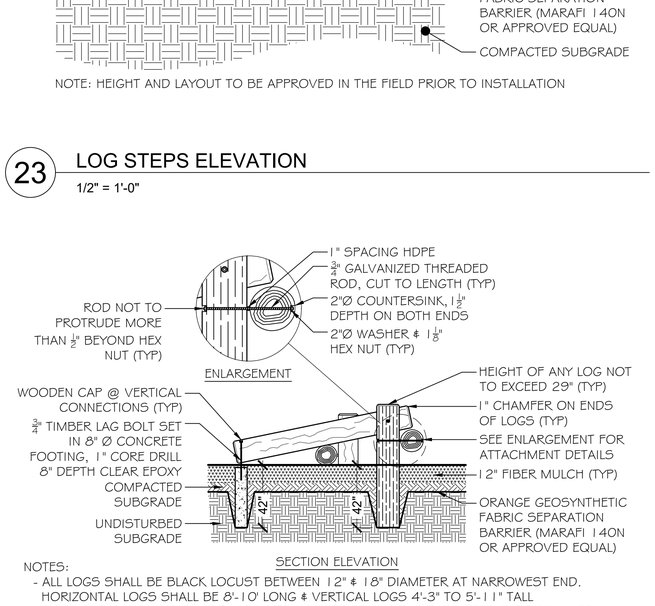


NOTES:

1. LOGS TO BE RED OAK, BLACK OAK, OR BLACK LOCUST
2. SMOOTH CUT WOOD, PITCH TO DRAIN
3. SAND TOP WITH 120 GRIT FOR SURFACING
4. TREAT SURFACE WITH HOWARD SUNSHIELD CONDITIONER

22 HARDWOOD LOG BENCH

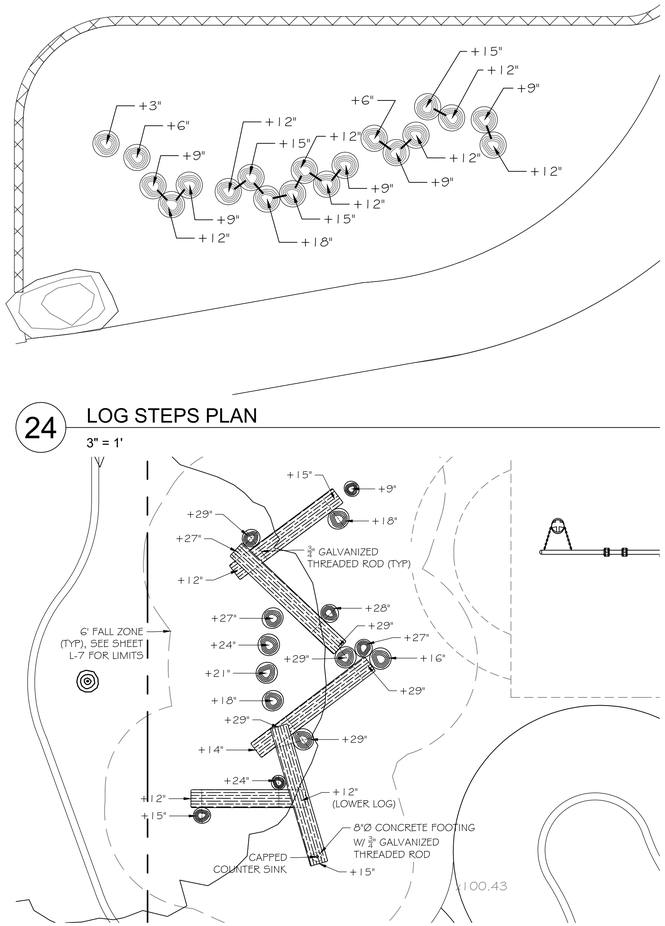
1/2" = 1'-0"



NOTE: HEIGHT AND LAYOUT TO BE APPROVED IN THE FIELD PRIOR TO INSTALLATION

23 LOG STEPS ELEVATION

1/2" = 1'-0"



24 LOG STEPS PLAN

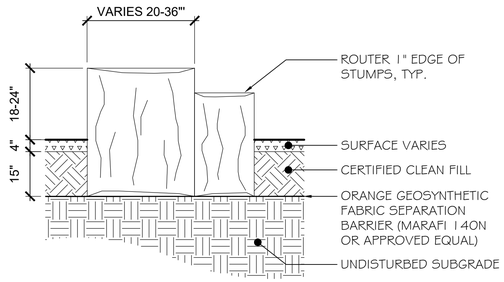
3" = 1'

NOTES:

- ALL LOGS SHALL BE BLACK LOCUST BETWEEN 12" & 18" DIAMETER AT NARROWEST END. HORIZONTAL LOGS SHALL BE 8'-10' LONG & VERTICAL LOGS 4'-3" TO 5'-11" TALL (INCLUDES 42" BELOW GRADE). LOGS TO BE FREE OF BARK AND ALL BRANCHES SHALL BE CUT FLUSH TO LOG AND SANDED.
- 1" SPACER SHALL BE 1" BLACK HDPE PIPE CUT TO LENGTH
- 1 1/2" COUNTERSINK ALL TIMBER BOLT CONNECTIONS (BOTH ENDS)
- 3/4" x 24"-36" GALVANIZED TIMBER BOLTS W/ ASSOCIATED GALV. NUT& LOCK WASHER
- ALL BOLTS & NUTS MUST BE COUNTERSUNK WITHIN WOOD, NO EXPOSED METAL

25 LOG STUMP SEATS

1/2" = 1'-0"



NOTE: HARDWOOD STEPS TO BE RED OAK, BLACK OAK, OR BLACK LOCUST.

26 LOG SCRAMBLE SECTION

NOT TO SCALE

NOTE: HEIGHTS AT LOG INTERSECTIONS MAY VARY ±3" DUE TO LOG DIAMETER, BUT CANNOT EXCEED 29". COORDINATE W/ LANDSCAPE ARCHITECT FOR FINAL LAYOUT ONCE LOG MATERIALS HAVE BEEN SELECTED

27 LOG SCRAMBLE PLAN

1"=5'

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT
DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 3

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DT-SG11.18.21.dwg

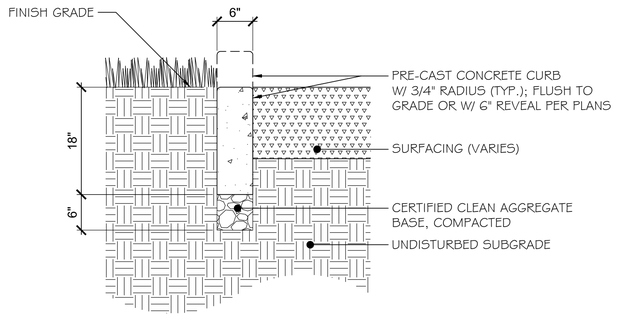
DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

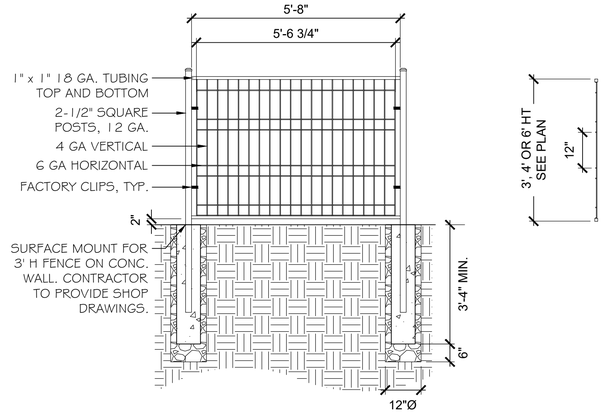
CHECKED/ APPROVED: MG

SHEET NO. L-11



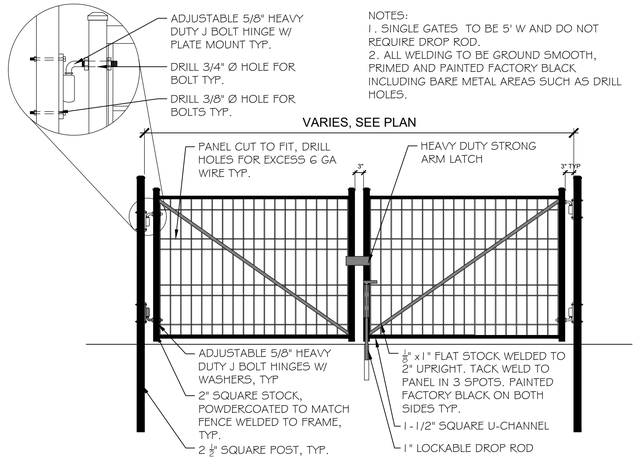
28 PRECAST CONCRETE CURB

1" = 1'-0"



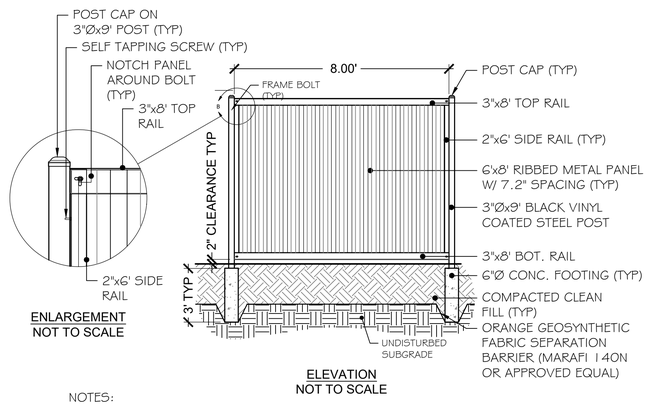
29 WELDED WIRE FENCE

1/2" = 1'-0"



30 WELDED WIRE GATE

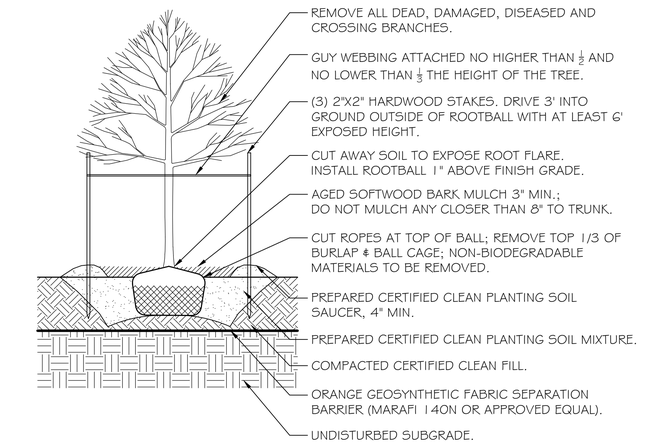
NOT TO SCALE



NOTES:
1. FRAMING KIT TO BE SUPPLIED BY FENCETRAC OR APPROVED EQUAL AND SHALL BE BLACK POWDER COATED FINISH.
2. COLOR OF RIBBED METAL PANEL TO BE SELECTED BY LANDSCAPE ARCHITECT. CONTRACTOR TO PROVIDE SAMPLE OF PANEL & COLOR PRIOR TO CONSTRUCTION.
3. FENCE POSTS AND CAPS TO BE BLACK VINYL COATED 12 GA. STEEL

31 6' HT. RIBBED METAL FENCE

NTS



32 TREE PLANTING

1/4" = 1'-0"

33 SHRUB PLANTING

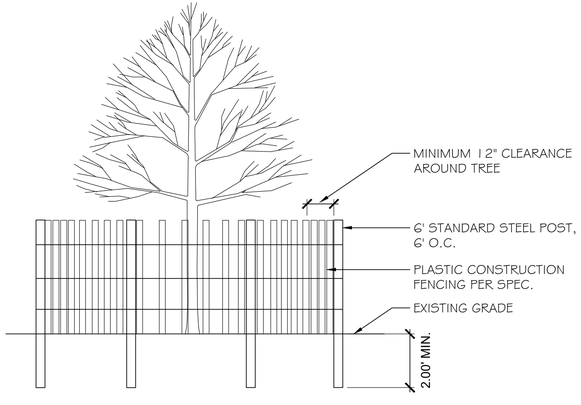
NOT TO SCALE

34 GROUNDCOVER PLANTING

1" = 1'-0"

35 LOAM & SEED

3" = 1'-0"



36 TREE PROTECTION

3/8" = 1'-0"

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 4

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DT-SG11-18.2.1.dwg

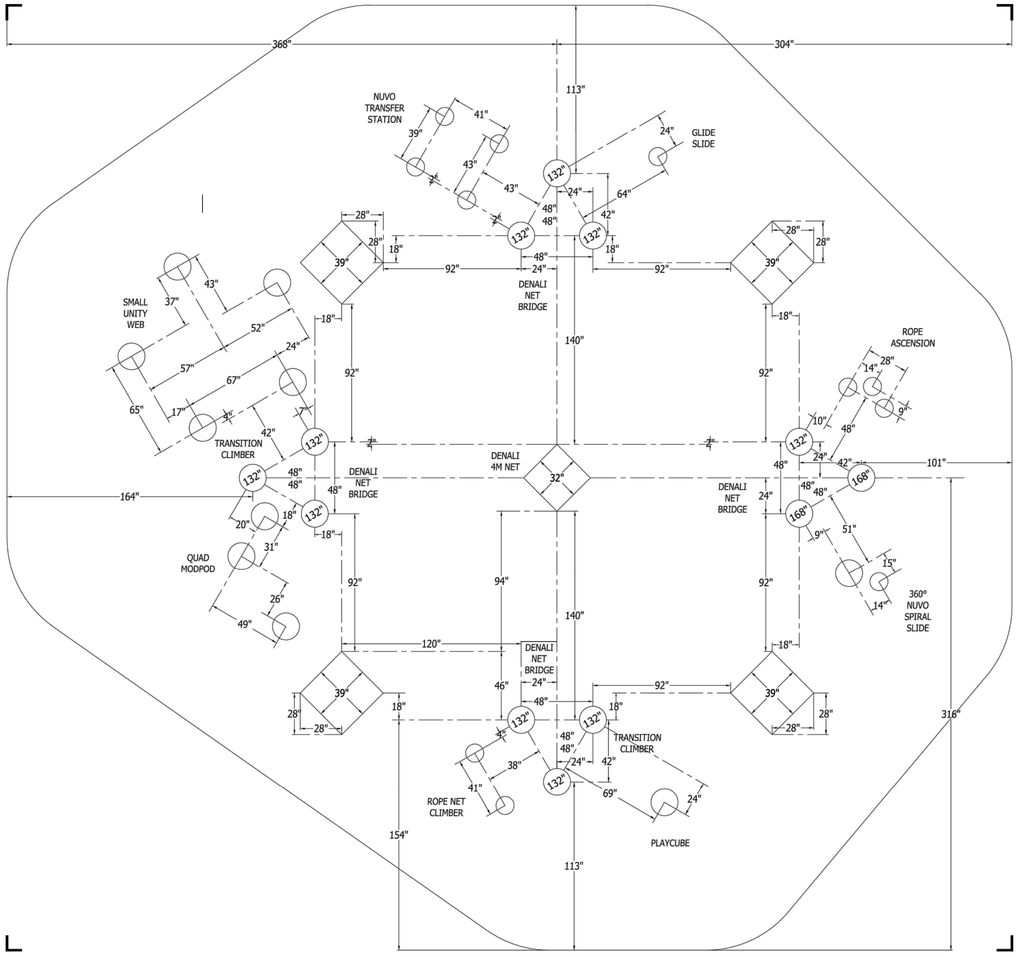
DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

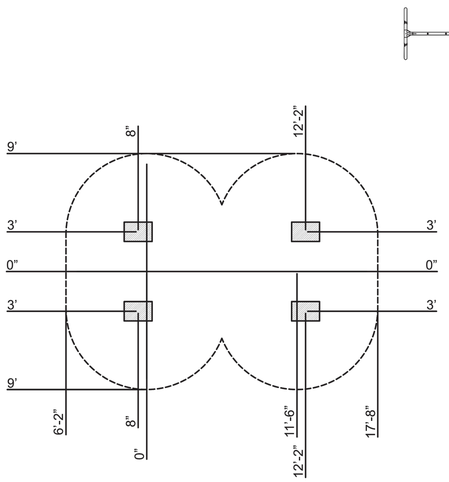
CHECKED/ APPROVED: MG

SHEET NO. L-12



37 FOOTING PLAN - ABIGAIL'S MAZE #5002009

1/4" = 1'-0"



KOMPAN

KSW922

ID ----

JIRPET

2021-06-16

Scale: 1/4" = 1'-0"

Foundation: 90 cm

All Unspecified Holes = 16A

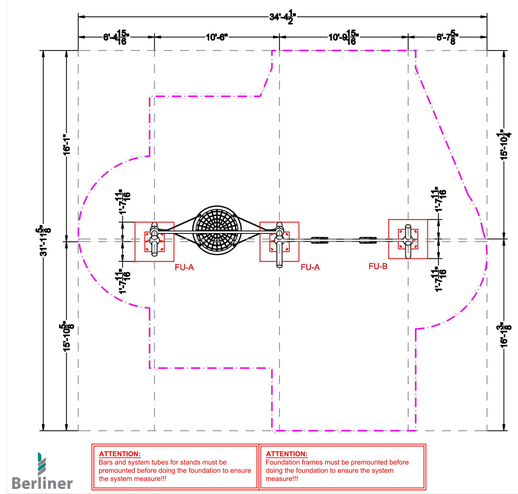
Beton
Beton
Concrete
Hormigón
Béton
Cemento
Beton
Betong

0 m³ 0 cu.ft.

Safety Zone
Perimeter: 80 ft
Area: 372,2 ft²

39 FOOTING PLAN - KOMPAN TOT SWINGS KSW922

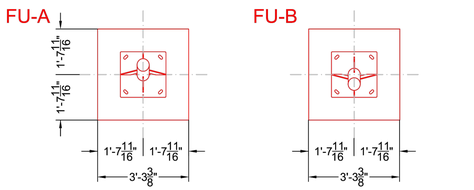
NOT TO SCALE

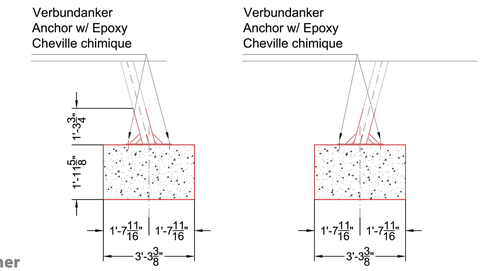


Berliner

ATTENTION: Bars and system tubes for stands must be premounted before doing the foundation to ensure the system measure!!!

ATTENTION: Foundation frames must be premounted before doing the foundation to ensure the system measure!!!

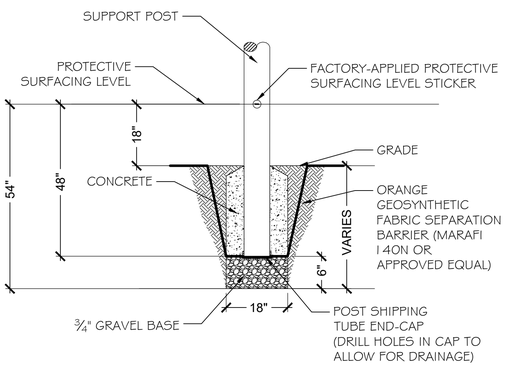




Berliner

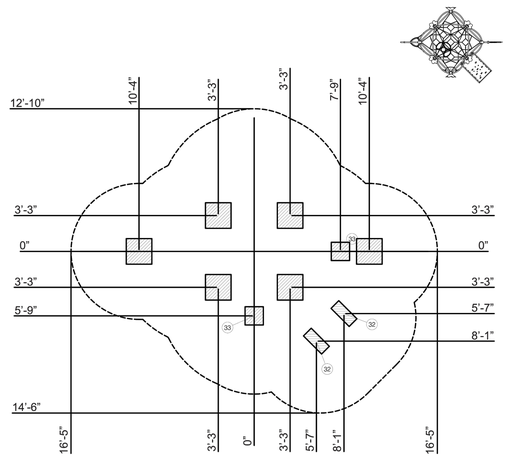
38 FOOTING PLAN - TWO BAY SWINGS #USPO6248

(SOURCE OR NOT TO SCALE)



40 FOOTING DETAIL - LOOPY WHOOP #ZZUN7096

NOT TO SCALE



KOMPAN

COR104841

ID ----

LUKCER

2021-01-26

Scale: 1/4" = 1'-0"

Foundation: 40 CM

All Unspecified Holes = 27

Beton
Beton
Concrete
Hormigón
Béton
Cemento
Beton
Betong

1,914 m³ 67,592 cu.ft.

Safety Zone
Perimeter: 94 ft
Area: 593,1 ft²

41 FOOTING PLAN - KOMPAN CIRCITE FLOWITE #COR10484

NOT TO SCALE

ISSUED FOR CONSTRUCTION

PROVIDENCE
PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 5

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DT-SD11-18.2-1.dwg

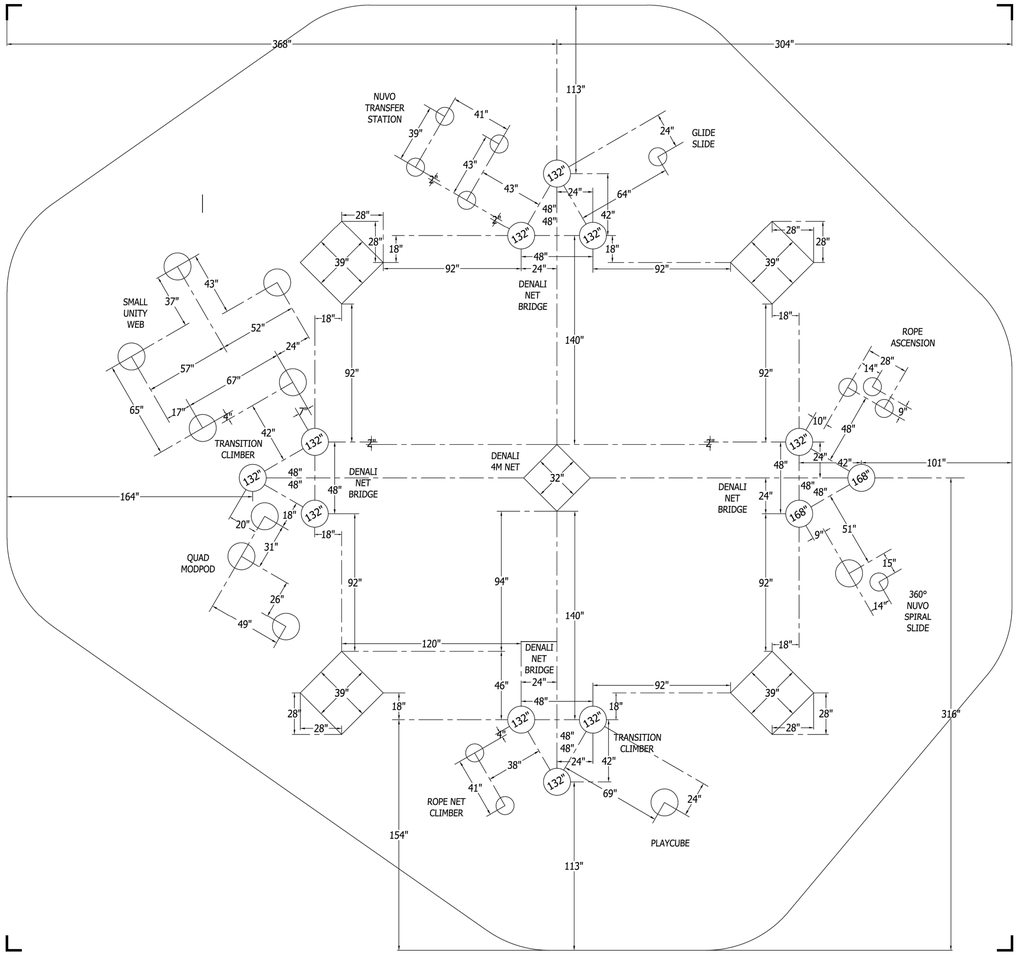
DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

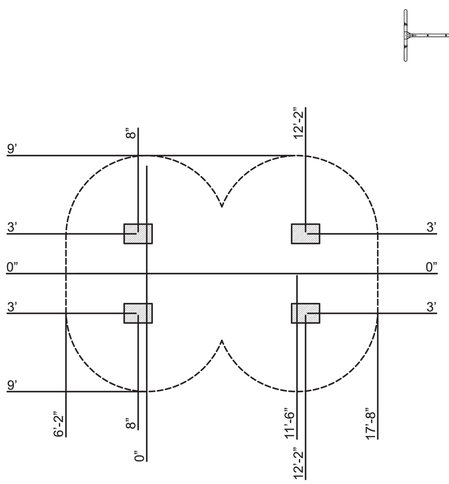
CHECKED/ APPROVED: MG

SHEET NO. L-13



37 FOOTING PLAN - ABIGAIL'S MAZE #5002009

1/4" = 1'-0"





KOMPAN

KSW922

ID ----

JIRPET

2021-06-16

Scale: 1/4" = 1'-0"

Foundation: 90 cm

All Unspecified Holes = 16A

Beton
Beton
Concrete
Hormigón
Béton
Cemento
Beton
Betong

0 m³ 0 cu.ft.

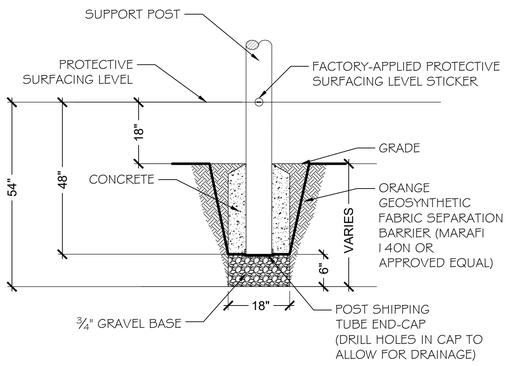
Safety Zone

Perimeter: 80 ft

Area: 372,2 ft²

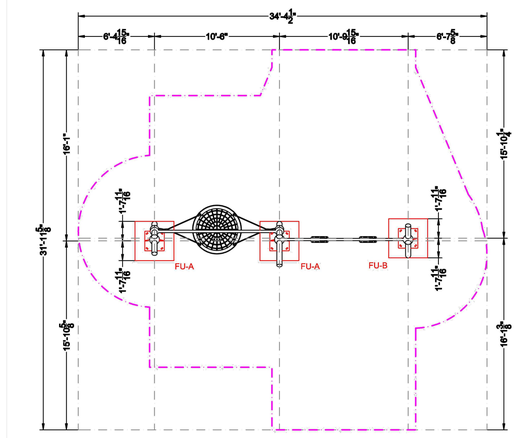
39 FOOTING PLAN - KOMPAN TOT SWINGS KSW922

NOT TO SCALE



40 FOOTING DETAIL - LOOPY WHOOP #ZZUN7096

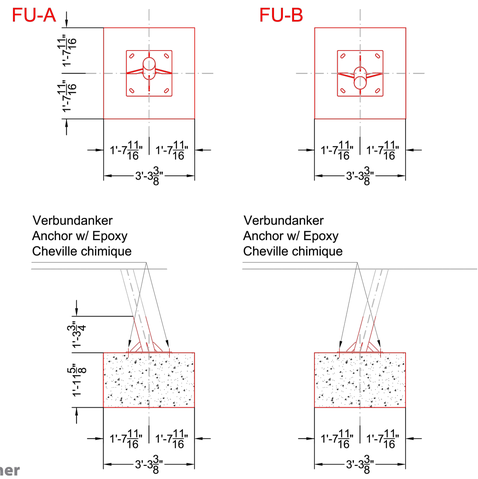
NOT TO SCALE



Berliner

ATTENTION: Bars and system tubes for stands must be premounted before doing the foundation to ensure the system measure!!!

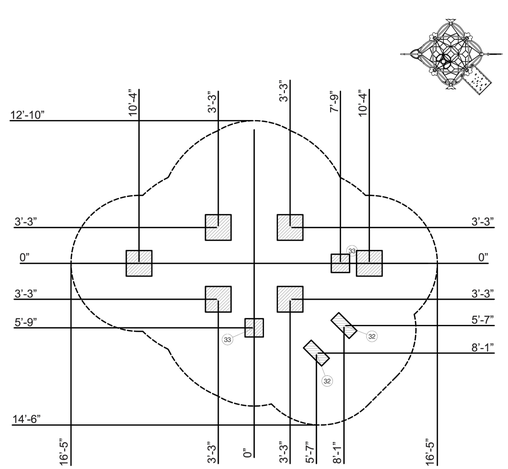
ATTENTION: Foundation frames must be premounted before doing the foundation to ensure the system measure!!!



Berliner

38 FOOTING PLAN - TWO BAY SWINGS #USPO6248

(SOURCE OR NOT TO SCALE)



KOMPAN

COR104841

ID ----

LUKCER

2021-01-26

Scale: 1/4" = 1'-0"

Foundation: 40 CM

All Unspecified Holes = 27

Beton
Beton
Concrete
Hormigón
Béton
Cemento
Beton
Betong

1,914 m³ 67,592 cu.ft.

Safety Zone

Perimeter: 94 ft

Area: 593,1 ft²

41 FOOTING PLAN - KOMPAN CIRCITE FLOWITE #COR10484

NOT TO SCALE

ISSUED FOR CONSTRUCTION

PROVIDENCE PARKS DEPARTMENT

DALRYMPLE BOATHOUSE
ROGER WILLIAMS PARK
PROVIDENCE, RI 02907

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NO.	REVISION	DATE

CONSTRUCTION DETAILS 5

BAILEY BAXTER PLAY SPACE
61 BAXTER STREET, PROVIDENCE, RI 02905

FILE: Baxter-2020-DT-SG11.18.21.dwg

DATE: 12/06/21

SCALE: AS SHOWN

DRAWN BY: LL, II

CHECKED/ APPROVED: MG

SHEET NO. L-13