

PROJECT MANUAL

PARCEL A/B MAJOR HUB DEVELOPMENT

NAUGATUCK, CONNECTICUT

APRIL 2024

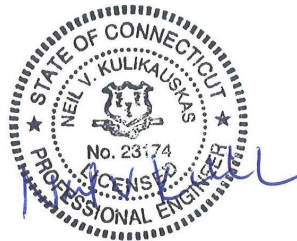
**BOROUGH OF NAUGATUCK
CONNECTICUT**

Contract No. FY24-B094



**Designer:
Kleinfelder
400 Capital Blvd, Suite 104
Rocky Hill, CT, 06067**

**Landscape Architect:
Richter & Cegan
Avon Park North
8B Canal Court
Avon, CT, 06001**



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Borough of Naugatuck

LEGAL NOTICE

REQUEST FOR BIDS

Sealed bids for the construction of the following project will be received by the Purchasing Agent for the Borough of Naugatuck, Accounting Dept. Town Hall Basement, 229 Church Street, Connecticut, 06770 until May 16, 2024 at 11:00 AM local time after which no additional bids will be accepted. No exceptions.

**Contract No. FY24-B094
PARCEL A/B MAJOR HUB DEVELOPMENT**

Immediately following the above time and date sealed bids will be publicly opened and read aloud in the Commissioner's Corner, located on the 4th floor of Town Hall at the Borough of Naugatuck, 229 Church Street, Naugatuck, CT 06770 and read aloud via Zoom.

Please follow link below to access scheduled bid opening.

Join Zoom Meeting

<https://us06web.zoom.us/j/6782404415>

Meeting ID: 678 240 4415

Passcode: 5fY9TT

One tap mobile

+19292056099,,6782404415#,,,,*486183# US (New York)

+16465189805,,6782404415#,,,,*486183# US (New York)

Dial by your location

+1 929 205 6099 US (New York)

+1 646 518 9805 US (New York)

Find your local number: <https://us06web.zoom.us/j/6782404415>

The project consists of construction of approximately 800 feet of municipal roadway, demolition of a stormwater pumping station, major drainage and sidewalk reconstruction on Old Firehouse Road, construction of a pedestrian corridor between Church Street and Old Firehouse Road, installation of sidewalk pavers, fencing, curbing, lighting, street trees, and other amenities within the Borough's downtown. Construction shall be in accordance with the Borough of Naugatuck's Design and Construction Standards, Form 818 (2020), all supplements thereto and special provisions provided herein. All proposals must be on the form furnished with the Contract Documents

Per CONN. GEN. STAT. §§4b-91, all bidders for this State Funded project must be prequalified through the Department of Administrative Services (DAS) Construction Contractor Prequalification Program for the Contractor Classification: SITEWORK.

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract be set aside for award to subcontractors holding current certification from the

Connecticut Department of Administrative Services (“DAS”) under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the total state-funded value with DAS-certified Small Businesses and 6.25% of the total state-funded value with DAS-certified Minority-, Women-, and/or Disabled-owned Businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

The minimum rates to be paid labor of the various classifications shall be in accordance with the current schedule of wages established by the State Labor Commissioner as provided in the General Statutes of Connecticut, as revised. The Contract Wage Certification Form is to be submitted to the Labor Commissioner before the award of the contract.

The bid document may be examined and obtained at no cost from the Borough of Naugatuck web site <http://www.naugatuck-ct.gov>. All bidders must check the Borough web site within two (2) days of the scheduled bid opening to check for addenda. No hard copies shall be provided.

Bids must be accompanied by a certified check or Bid Bond in writing on forms provided by the Borough of Naugatuck in the amount of at least one tenth (10%) of the amount of the Bid and payable to the order of the Borough of Naugatuck. The successful Bidder will be required to furnish and pay for a Performance Bond and a Payment Bond in the amount of one hundred percent (100%) of the Contract price.

The right is reserved by the Borough of Naugatuck to reject any or all Bids, to waive any informalities or defects in Bids, and to make such time extensions as may be necessary in order to review and compare Bids, to obtain such supplemental information as may be necessary to review Bids and to accept Bid(s) that, in the judgment of the Borough of Naugatuck, will be in the Borough's best interest.

No Bidder may withdraw their bid within (90) days after the actual date of the opening thereof.

AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER. MINORITY/WOMEN'S BUSINESS ENTERPRISES ARE ENCOURAGED TO APPLY. THIS CONTRACT IS SUBJECT TO STATE SET-ASIDE AND CONTRACT COMPLIANCE REQUIREMENTS.

INFORMATION FOR BIDDERS

Borough of Naugatuck

PARCEL A/B MAJOR HUB DEVELOPMENT NAUGATUCK, CT

1. Proposals Received

Sealed bids for the construction of the following project will be received by the Purchasing Agent for the Borough of Naugatuck, Accounting Dept. Lobby, Town Hall, 229 Church Street, Connecticut, 06770 until the date and time on the request for bids after which no additional bids will be accepted.

Immediately following the above time and date sealed bids will be publicly opened and read aloud in the Hall of Burgesses, located on the 4th floor of Town Hall at the Borough of Naugatuck, 229 Church Street, Naugatuck, CT 06770.

2. Location and Description of Work

The project consists of demolition of a stormwater pumping station, construction of approximately 800 feet of municipal roadway, major drainage and sidewalk reconstruction on Old Firehouse Road, Rubber Avenue, and Water Street, construction of a pedestrian corridor between Church Street and Old Firehouse Road, installation of sidewalk pavers, fencing, curbing, lighting, street trees, and other amenities within the Borough's downtown. Construction shall be in accordance with the Borough of Naugatuck's Design and Construction Standards, Form 818 (2020), all supplements thereto and special provisions provided herein. All proposals must be on the form furnished with the Contract Documents.

3. Schedule of Construction and Time of Completion

The attention of the Bidder is called to the provisions of the General Requirements, Section 6 of the General Conditions, and the schedule of operations requirements.

The attention of the Bidder is called to the requirements of Time for Completion, Section 3 of the Supplemental Conditions for initiation and completion of the work and NTC Section 1.08 Prosecution and Progress.

The Bidder's attention is especially directed to Liquidated Damages, Section 4 of the Supplement Conditions for information about failure to complete the project on time.

4. Plans and Project Manuals

The bid document may be examined and obtained at no cost from the Borough of Naugatuck web site <http://www.naugatuck-ct.gov>. All bidders must check the Borough

web site within two (2) days of the scheduled bid opening to check for addenda.

The construction contract will be entered into by the successful bidder and the Borough of Naugatuck. The State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 818, along with the specifications and contract drawings, contained herein will detail the general requirements for materials, methods of installation, measurement, and basis of payment to be required in this project. Any references to the State of Connecticut, the Department, the commissioner, Engineer, or other terms indicating the State of Connecticut and her agents as party to the contract shall for this project mean the Borough of Naugatuck and her designated agents or employees unless listing both parties.

All requirements for material testing, certificates of the compliance or material certifications shall be done as if this were a contract being entered into with the State of Connecticut, shall be in accordance with Form 818. It is the intent of this contract to maintain all standard requirements of Form 818 without attempting to redefine every term within the 818 to the "Borough of Naugatuck".

The bidder shall, therefore, be aware that the Borough of Naugatuck and its agents shall inspect and administrate this contract, make contract interpretations, determine the acceptability of the work and approve requests for payments. The Contractor shall be responsible for the requirements stated in Form 818, supplemental specifications, special provisions and construction drawings.

5. Addenda and Interpretations

No interpretations of the meaning of the contract documents will be made to any Bidder orally. Every request for such interpretation shall be in writing, addressed to James Stewart, Borough of Naugatuck Department of Public Works, 246 Rubber Avenue, Naugatuck, CT 06770 or emailed to JStewart@naugatuck-ct.gov. To be given consideration, such requests must be received at least seven (7) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the contract documents, which, if issued, will be posted to the Borough's internet page for all prospective Bidders, no later than four (4) days prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such addendum or interpretations shall not relieve such Bidder from any obligation under the bid as submitted. All addenda so issued shall become part of the Contract Documents.

6. Familiarity of the Work

Each Bidder shall fully inform him/herself prior to bidding as to existing conditions and limitations under which the work is to be performed and shall include in their bid a sum to cover the cost of items necessary to perform the work as set forth in the Contract Documents. No allowance will be made to a Bidder because of lack of such examination or knowledge. The submission of a bid will be considered as conclusive evidence that

the Bidder has made such examination.

Where borings or other exploration data are shown on the Plans or made available to the Bidder, it is understood that such data were obtained in the usual manner, and with reasonable care, and are to be interpreted and used as the Bidder sees fit. There is no expressed or implied agreement that the depths or the character of the material and water levels have been correctly indicated, and the Bidder is cautioned to take into account that condition affecting the work may differ from those indicated.

The Owner assumes no responsibility whatsoever with respect to ascertaining for the Contractor such facts concerning physical characteristics at the site of the project.

The Contractor agrees that they shall make no claim for and have no right to additional payment or extension of time for completion of the work, or any other concessions, because of any interpretations or misunderstanding on their part of this Contract, or because of any failure on their part to fully acquaint themselves with all conditions relating to the work. Permission for making borings, test pits, or other investigations of subsurface conditions will be arranged for by the Owner upon receipt of a written request thereof.

7. Existing Conditions

In bidding on this Contract, each Bidder acknowledges that they have made whatever investigation of the project site they deemed necessary for the purpose of bidding.

8. Estimate of Work

For bidding purposes, the work has been subdivided into unit price items. The quantities shown below are to be considered as approximate only. The Owner does not expressly or by implication agree that the actual quantities will correspond therewith, but reserves the right to increase or decrease the amount of any Item or portion of the work as may be deemed necessary.

9. Qualification of Bidders

A Bidder shall be a contractor who is experienced in the construction of the projects of this type. The Proposal shall contain adequate proof of the qualifications of the Bidder to perform, in a satisfactory manner and within the time specified, all the work covered by the Plans and Project Manual. This proof shall be fully recorded on the pages titled "References", which shall become part of the Proposal.

A Bidder must be able to comply with the CHRO requirements for construction of this project. Refer to Section 32 of the Information for Bidders. Bids not complying with these requirements will be considered incomplete and rejected.

10. Disqualification of Bidders

More than one proposal from an individual, firm, partnership, corporation, or an association under the same, or different, names will not be considered. Reasonable grounds for believing that any Bidder is interested in more than one proposal for the work contemplated will cause the rejection of all proposals in which such Bidder is interested. Any or all proposals in which such Bidder is interested will be rejected if there is reason for believing that collusion exists among the Bidders; and all participants in such collusion will not be considered in future proposals for the same work. Proposals in which the prices are obviously unbalanced may be rejected. No Contract will be awarded except to competent Bidders capable of performing the class or work contemplated.

11. Preparation of Proposals

The Proposal must be made upon the forms contained herein. The blank spaces in the Proposals must be filled in correctly where indicated. The Bidder must state, both in words and in numerals, written or printed in ink, the prices for which they propose to do each Item of the work contemplated. In case of discrepancy between the words and the numerals, the words shall govern. Ditto marks are not considered writing, or printing, and shall not be used. The Bidder shall sign the Proposal correctly. If an individual makes the Proposal, name and post office address must be shown. If made by a firm, partnership, or corporation, the Proposal must be signed by an official of the firm, partnership, or corporation authorized to sign contracts, and must show the post office address of the firm, partnership, or corporation.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, this address, and name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed to: Purchasing Office, Borough of Naugatuck, City Hall, 229 Church Street, Naugatuck, CT 06770.

12. Irregular Proposals

The Borough of Naugatuck reserves the right to reject any proposals if they show any omission, alteration of form, additions not called for, conditional bids, or irregularities of any kind.

13. Proposal Guarantee

No proposal will be considered unless accompanied by a certified check in U.S. dollars or f using an insurance company licensed to do business in the State of Connecticut in an amount equal to at least ten percent (10%) of the amount of the bid and payable to the order of the Borough of Naugatuck, said check or bid bond to be returned to the Bidder unless forfeited as hereinafter stipulated. Such checks or bid bonds will be returned to all bidders within five (5) days after the execution of the Contract and the furnishing of the required security by the successful Bidder.

14. Withdrawal of Proposals

If a Bidder wishes to withdraw their Proposal, they may do so before the time fixed for the opening of bids by communicating their purpose to the office of the Mayor. Upon such notice, the Proposal will be handed to the Bidder unopened.

15. Execution of Contract

The party to whom the Contract is awarded, or their authorized representative, will be required to attend at the office of the Mayor, Borough of Naugatuck, with the sureties offered by them, and a current certificate of Corporate good standing issued by the Office of the Secretary of State in which the corporation is incorporated, and execute the Contract within ten (10) days from the date of the award. If the party entering into this contract is a corporation, a Corporate Resolution duly executed by the president and Secretary of the Corporation authorizing the Corporation to enter into this Contract shall be provided. In case of the failure or neglect to do so, the Owner may, at its opinion, determine that the Bidder has abandoned the Contract and thereupon the Proposal and acceptance shall be null and void, and bid security accompanying the Proposal shall be forfeited as liquidated damages to the Owner. If the party entering into this contract is a partnership, a partnership resolution duly executed by a majority of the general partners authorizing the partnership to enter into this contract shall be provided.

16. Bonds

The successful Bidder, at the time of the execution of the Contract, shall furnish a Performance Bond in an amount at least equal to one hundred percent (100%) of the Contract prices as security for the faithful performance of this Contract and also a Payment bond in an amount not less than one hundred percent (100%) for the Contract prices as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract. All Bonds shall be in the forms prescribed by Law or Regulation and be acceptable to the Owner. Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Connecticut. Bidder shall provide evidence that Surety Company is licensed to conduct business in the State of Connecticut. All sureties shall be in full force throughout the guarantee period and until the retainage is released.

In lieu of a performance, bid, labor and materials or other required bond, a contractor or subcontractor awarded a contract may provide a letter of credit. Any such letter of credit shall be in an amount equal to ten per cent of the contract for any contract that is less than one hundred thousand dollars and, in an amount, equal to twenty-five per cent of the contract for any contract that exceeds one hundred thousand dollars per Conn. Gen. Stat. § 4a-60g(i).

17. Responsibility of the Contractor

Attention is hereby particularly directed to the provisions of the Contract and Specifications whereby the Contractor shall be responsible for any loss or damage that may happen in the work, or any part thereof, during its progress and also whereby the Contractor shall make good any defects for faults that may occur within one (1) year after date of final estimate. The Contractor shall indemnify and save harmless the Owner and Engineer from any damages or costs to which they may be put by reason of injury to the person or property of another resulting from negligence or carelessness in the performance of the work under this Contract.

18. Insurance

Before execution of the Contract, the Bidder will be required to file with the Borough of Naugatuck a certificate of insurance. The certificate, executed by an insurance company satisfactory to the Borough of Naugatuck shall name the Borough of Naugatuck and the Borough's Authorized Representatives as additional insured parties on the form furnished with these Contract Documents. The ACORD Certificate of Liability Insurance form is the industry accepted evidence of insurance and shall state that at a minimum, with respect to the contract, the bidder carries insurance in accordance with the requirements and stipulations listed below.

'The Contractor' shall indemnify, defend and hold harmless the Borough of Naugatuck, the State of Connecticut, their officials, officers, employees, and designees caused in whole or in part to the fullest extent permitted by law from and against any and all claims, suits, actions, obligations, liabilities, damages, losses or injury (including the resulting death of a person), penalties, and expenses (including reasonable attorneys' fees) to the extent arising out of the performance of this Agreement or due to the Contractor's negligence or willful misconduct or omissions of the Contractor or its employees, agents, subcontractors or representatives.

Prior to the commencement of the work, and until final completion and acceptance of the work, the Contractor shall procure and maintain the following types of insurance and maintain all insurance coverage for the life of the contract, from an insurance company or companies with an A.M. Best Rating of A- (IX) or better. Such insurance will protect and indemnify the Borough of Naugatuck from all claims which may arise out of or result from the Contractor's obligations under this agreement, whether caused by the contractor or by a subcontractor or any person or entity directly or indirectly employed by the Contractor or by anyone for whose acts said Contractor may be liable.

Refer to Borough of Naugatuck: Insurance Agreement within the Contract Forms section for insurance coverage amounts.

Prior to the issuing of any notice to proceed by the Borough of Naugatuck, the Contractor shall furnish the Borough of Naugatuck with Certificates of Insurance evidencing such insurance as set forth above. Said policies shall not be cancelled or permitted to lapse until final completion and approval of the performance of the work until ten (10) days

after the Borough of Naugatuck has received written notice, by certified or registered mail, that the cancellation or change of such policy is contemplated.

The Contractor shall advise their insurers or agent of the contract provisions regarding insurance. The failure of the Contractor to notify insurers or agent of the contract provision shall not relieve the Contractor from its insurance obligations under the Agreement. Non-fulfillment of the insurance provisions shall constitute a breach of this agreement and the Borough of Naugatuck retains the right to stop work until proper evidence of insurance is provided.

19. Care and Protection of Property

The Contractor shall take particular care to avoid damages to all private property and to private improvements within the Boroughs' right of way. The Contractor shall make good any damages to the satisfaction of the Borough. There shall be no additional compensation for the repair or restoration of private property, or private improvements within the Boroughs' right of way.

20. Sales Tax

Certain materials and supplies incorporated in the work of this project are exempt from Connecticut Sales Tax. The Bidder shall familiarize themselves with current regulations of the State Tax Department. The tax on materials or supplies exempted by such regulations shall not be included as part of the bid. The Owner will furnish the successful Bidder a sales tax exemption number.

21. Compliance with Federal and State Regulations

The Contractor shall be responsible for full compliance with any Federal and/or State laws, regulations and standards, as applicable to any project fully or partially funded by State and/or Federal funding agency. This project is funded, in part, by the State and Federal government.

22. Permits

All licenses and permits for complying with any applicable Federal, State, and Municipal laws, codes and regulations in connection with the prosecution of the work shall be obtained by the Contractor, at no additional cost to the Owner.

23. Sedimentation and Erosion Control Plan

The Contractor shall prepare and submit a sedimentation and erosion control plan.

24. Subcontractors

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must:

- A. Be acceptable to the Owner, and;
- B. Submit form entitled “Contractors Wage Certification Form”
- C. Submit form entitled “Non-Collusion Affidavit of Subcontractor”
- D. Submit form “Certificate of Compliance with Connecticut General Statute Section 31 – 57b”
- E. Submit form entitled “Nondiscrimination Certification”
- F. Comply with the Federal Requirements pertaining to “Sole Proprietor/Working Owners”
- G. Submit documents required by the State of Connecticut as described in Section 32 of the Information for Bidders.

Approval of the proposed subcontract award cannot be given by the Owner unless and until the proposed Contractor has submitted the certification forms and/or other evidence showing that it has fully complied with any reporting and compliance requirements to which it is or was subject.

25. Contractor’s Right to Terminate Work

If the work should be stopped under an order of any court or other public authority, for a consecutive period of not less than thirty (30) days, through no act or fault of the Contractor or of anyone employed by them, then the Contractor may terminate this Contract and recover from the Owner payment for all work executed.

26. Wage Rates

The Bidder’s attention is directed to Section 40 of the General Requirements in connection with wage rates.

27. Power of Attorney

Attorneys-in-fact who sign contract bonds must file, with each bond, a certified and effectively dated copy of their power of attorney.

28. Right to Reject

The Owner reserves the right to reject any or all proposals or to accept any bid, should it deem it to be in the best interest of the Owner.

29. Local Bidders

Local bidders shall be given no special preference.

30. Purchasing

All goods and services pertaining to work in this bid document shall commence with the vendors receipt of a Purchase Order from the Borough of Naugatuck.

Invoices must include the purchase order number and the charges listed in accordance with the purchase order. Invoices are to be delivered via email to accountspayable@naugatuck-ct.gov or as follows:

Borough of Naugatuck, Accounts Payable, 229 Church Street, Naugatuck, CT 06770

31. Equal Opportunity Clause

(a) Government contracts. Except as otherwise provided, each contracting agency shall include the following equal opportunity clause contained in section 202 of the order in each of its Government contracts (and modifications thereof if not included in the original contract): During the performance of this contract, the contractor agrees as follows: (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which they have a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to their books, records, and accounts

by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Refer to the attached Non-Discrimination and Affirmative Action Provisions for Municipal Public Works.

32. State of Connecticut Requirements

The contractor who is selected to perform this State project must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract be set aside for award to subcontractors holding current certification from the Connecticut Department of Administrative Services (“DAS”) under the provisions of CONN. GEN. STAT. § 4a-60g. (25% of the total state-funded value with DAS-certified Small Businesses and 6.25% of the total state-funded value with DAS-certified Minority-, Women-, and/or Disabled-owned Businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

The Bidder must complete a fully executed Contract Compliance Monitoring Report. Note - this form is not a substitute for the Contractor’s Set-Aside Plan or Affirmative Action Plan. See attached Commission on Human Rights and Opportunities Contract Compliance Regulations Notification to Bidders.

PROPOSAL FORMS/BID FORMS

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PROPOSAL/BID FORM

Borough of Naugatuck

PARCEL A/B MAJOR HUB DEVELOPMENT NAUGATUCK, CT

The undersigned, as Bidder, declares that no person or persons, other than those named herein, are interested in this Proposal; that this Proposal is made without collusion with any person, firm or corporation; that they have carefully examined the location of the proposed work, the proposed Form of Contract, and the Contract Drawings therein referred to; that no person or persons acting in any official capacity for the Owner is directly or indirectly interested therein or in any portion of the profit thereof; and that they propose and agree, if this Proposal is accepted, to execute the Form of Contract with the Owner; to provide all necessary equipment, tools, and other means of construction, and to do all work and furnish all materials specified in the Contract, in the manner and time therein prescribed, and according to the requirements of the Borough of Naugatuck as therein set forth, and that they will take in full payment therefore, the following unit prices and lump sums, to wit:

The Bidder acknowledges receipt of the following addenda:

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

The undersigned agrees that they shall execute the Contract within the ten (10) days after the date of award and shall commence work within the ten (10) days after date of the Notice to Proceed and shall progress therewith to its entire completion within the time stipulated in the Contract.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) days after the scheduled closing time for receiving bids.

If this Proposal shall be accepted by the Owner and the undersigned fails to contract as aforesaid, and to give bonds in a sum equal to one hundred percent (100%) of the Contract price, as determined by the canvass of bids, and with surety or sureties satisfactory to the Owner within

ten (10) days from the date of the award, then the Owner may, at its option, determine that the Bidder has abandoned the Contract: thereupon, the Proposal and acceptance shall be null and void, and the bid security, for not less than one-tenth (10%) of the amount of the bid, accompanying this Proposal, shall become the property of the said Owner as liquidated damages for the delay and additional expense to the Owner caused thereby if said Proposal shall be rejected, or if said Proposal shall be accepted and the Bidder shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Proposal) and shall furnish a Bond for the faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Proposal, the accompanying bid security shall be returned to the undersigned making bid.

Seal
(if bid is by a Corporation)

Firm or Corporation _____

By: _____
(Duly Authorized)

Street Address _____

City _____ State _____ Zip _____

Telephone _____

Email _____

Date

Fax _____

**PROPOSAL FORM - BID SCHEDULE
 PARCEL A & B MAJOR HUB DEVELOPMENT
 CONTRACT NO. FY24-B094
 BOROUGH OF NAUGATUCK, CONNECTICUT**

BIDDER'S NAME: _____

GENERAL ITEMS

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|---|-----------|-------|---|--------------|--------------|
| 0970006 | 1 | EST. | TRAFFICPERSON (MUNICIPAL POLICE OFFICER) (ESTIMATED COST) | | |
| | | | Two-hundred fifty-thousand dollars and No cents per lump sum | \$250,000.00 | \$250,000.00 |
| 0970006 | 1 | L.S. | MAINTENANCE AND PROTECTION OF TRAFFIC | | |
| | | | dollars and cents per L.S. | \$ | \$ |
| 0975004 | 1 | L.S. | MOBILIZATION AND PROJECT CLOSEOUT | | |
| | | | dollars and cents per L.S. | \$ | \$ |
| 0980020 | 1 | L.S. | CONSTRUCTION SURVEYING | | |
| | | | dollars and cents per L.S. | \$ | \$ |
| GENERAL PROJECT ITEMS TOTAL (in words) | | | | | |
| | | | | dollars and | \$ |
| | | | | \$ | \$ |

ROADWAY AND STREETScape ITEMS

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|-------------------------------------|------------|--------|
| 0101157A | 1 | L.S. | CONTAMINATED SOIL MANAGEMENT | | |
| | | | dollars and cents per lump sum | \$ | \$ |
| 0140361A | 1 | L.S. | ABANDON UNDERGROUND TUNNEL | | |
| | | | dollars and cents per lump sum | \$ | \$ |
| 0201001 | 1 | L.S. | CLEARING AND GRUBBING | | |
| | | | dollars and cents per lump sum | \$ | \$ |
| 0202000 | 1325 | C.Y. | EARTH EXCAVATION | | |
| | | | dollars and cents per cubic yard | \$ | \$ |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|------------|-----------|-------|---|------------|--------|
| 0202310.1A | 365 | TON | TRANSPORTATION AND DISPOSAL FOR SOIL AND FILL - CLASS A | | |
| | | | dollars and | \$ | \$ |
| | | | cents per ton | | |
| 0202310.2A | 460 | TON | TRANSPORTATION AND DISPOSAL FOR SOIL AND FILL - CLASS B | | |
| | | | dollars and | \$ | \$ |
| | | | cents per ton | | |
| 0202310.3A | 90 | TON | TRANSPORTATION AND DISPOSAL FOR SOIL AND FILL - CLASS C | | |
| | | | dollars and | \$ | \$ |
| | | | cents per ton | | |
| 0202452A | 10 | EA. | TEST PIT | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0216012A | 100 | C.Y. | CONTROLLED LOW STRENGTH MATERIAL | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0202529 | 6020 | L.F. | CUT BITUMINOUS CONCRETE PAVEMENT | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0207000 | 480 | C.Y. | BORROW | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0209001 | 4250 | S.Y. | FORMATION OF SUBGRADE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0212000 | 100 | C.Y. | SUBBASE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0219011A | 41 | EA. | SEDIMENTATION CONTROL AT CATCH BASIN | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0286001.10 | 40 | C.Y. | ROCK IN DRAINAGE TRENCH EXCAVATION 0'-10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0304002 | 570 | C.Y. | PROCESSED AGGREGATE BASE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0401000A | 2880 | S.F. | HD CONCRETE PAVEMENT | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0402800A | 680 | S.F. | CLEAN EXISTING SIDEWALK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|-----------|-----------|-------|--|-------------|-------------|
| 0406002 | 1430 | S.Y. | TEMPORARY PAVEMENT (TRENCH WIDTH AND TEMPORARY RAMPS) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0406170 | 610 | TON | HMA S1 | | |
| | | | dollars and | \$ | \$ |
| | | | cents per ton | | |
| 0406171 | 1260 | TON | HMA S0.5 | | |
| | | | dollars and | \$ | \$ |
| | | | cents per ton | | |
| 0406236 | 540 | GAL. | MATERIAL FOR TACK COAT | | |
| | | | dollars and | \$ | \$ |
| | | | cents per gallon | | |
| 0406999A | 1 | ALL. | ASPHALT ADJUSTMENT COST | | |
| | | | ten-thousand dollars and | \$10,000.00 | \$10,000.00 |
| | | | no cents per allowance | | |
| 0409001 | 4880 | S.Y. | FINE MILLING OF BITUMINOUS CONCRETE (0" TO 4") | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0507022 | 9 | EA. | TYPE 'C' DBL CATCH BASIN TYPE II | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0507105 | 3 | EA. | CONNECTION TO EXISTING MANHOLE AND/OR CATCH BASIN | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0507119A | 6 | EA. | GRANITE CURB CATCH BASIN INLET (SINGLE) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0507120A | 9 | EA. | GRANITE CURB CATCH BASIN INLET (DOUBLE) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0507602A | 1 | EA. | DOGHOUSE MANHOLE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0519003A | 1 | L.S. | WATERPROOF AT BUILDING WALL AND PAVEMENT INTERFACE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| 0586001.1 | 6 | EA. | TYPE 'C' CATCH BASIN - 0'-10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0586044.1 | 1 | EA. | TYPE 'C-L' CATCH BASIN DOUBLE GRATE TYPE 2 - 0' - 10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|------------|-----------|-------|--|------------|--------|
| 0586086A | 8 | EA. | ABANDON DRAINAGE STRUCTURE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0586500.10 | 5 | EA. | STORM MANHOLE - 4' DIAMETER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0586501.05 | 4 | EA. | STORM MANHOLE - 5' DIAMETER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0586790A | 20 | EA. | REMOVE DRAINAGE STRUCTURE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0686000.15 | 390 | L.F. | 15" R.C. PIPE - 0' - 10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0686000.18 | 440 | L.F. | 18" R.C. PIPE - 0' - 10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0686000.24 | 770 | L.F. | 24" R.C. PIPE - 0' - 10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0686230.18 | 160 | L.F. | 18" HIGH DENSITY POLYETHYLENE PIPE - 0' - 10' DEEP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0813012A | 3370 | L.F. | 5" X 18" GRANITE STONE CURBING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0813013A | 860 | L.F. | 5" X 18" GRANITE CURVED STONE CURBING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0815001 | 440 | L.F. | BITUMINOUS CONCRETE LIP CURBING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0901003A | 5 | EA. | STEEL PIPE BOLLARD | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0901005A | 24 | EA. | DECORATIVE METAL PIPE BOLLARD 36" | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0901006A | 5 | EA. | DECORATIVE METAL PIPE BOLLARD 52" | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|---|------------|--------|
| 0912700A | 110 | L.F. | TIMBER GUIDE RAIL | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0913984 | 440 | L.F. | TEMPORARY PROTECTIVE FENCING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0914013A | 100 | L.F. | 3'-6" HIGH BOROUGH STANDARD ORNAMENTAL METAL FENCE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0914017A | 52 | L.F. | 8' HIGH MESH INSERT FOR DECORATIVE ORNAMENTAL METAL FENCE SCREENING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0914018A | 216 | L.F. | 4' HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0914019A | 63 | L.F. | 8' HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0914020A | 1 | EA. | 8' HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING DBL GATES | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0914021A | 1 | EA. | DECORATIVE ORNAMENTAL METAL FENCE SCREENING TRELIS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0914022A | 2 | EA. | PEDESTRIAN GATEWAY ARCH | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0915000A | 1 | L.S. | TREE PROTECTION, PRUNING AND TRIMMING - STREETScape | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| 0921001A | 13990 | S.F. | CONCRETE SIDEWALK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921003A | 70 | S.F. | CONCRETE SIDEWALK REPAIR | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921005A | 330 | S.F. | CONCRETE SIDEWALK RAMP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921007A | 250 | S.F. | BRICK SIDEWALK RAMP | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|--|------------|--------|
| 0921008A | 1580 | S.F. | BRICK SIDEWALK - BANDING PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921009A | 6060 | S.F. | BRICK SIDEWALK FIELD PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921010A | 250 | EA. | BRICK SIDEWALK INSET PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921013A | 1290 | S.F. | CONCRETE DRIVEWAY APRONS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921015A | 130 | S.F. | BRICK SIDEWALK REPAIR | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921017A | 2240 | S.F. | BRICK PAVER ROADWAY - FIELD PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921018A | 70 | EA. | BRICK PAVER ROADWAY - INSET PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921023A | 170 | S.F. | CRUSHED GRANITE AGGREGATE SURFACING - 6" DEPTH | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921024A | 7 | EA. | PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921025A | 1 | EA. | PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK - NOTCHED | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921026A | 32 | EA. | PEDESTRIAN GATEWAY GRANITE COLUMN BLOCK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921027A | 4 | EA. | PEDESTRIAN GATEWAY GRANITE COLUMN COPING BLOCK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921031A | 16 | L.F. | GRANITE SEAT WALL - STRAIGHT - TYPE 1 | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0921032A | 2 | EA. | GRANITE SEAT WALL - STRAIGHT - TYPE 1 - CORNER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|--|------------|--------|
| 0921037A | 16 | L.F. | GRANITE SEAT WALL - COPING - STRAIGHT - TYPE 1 | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 0921038A | 2 | EA. | GRANITE SEAT WALL - COPING - TYPE 1 - CORNER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0921042A | 28 | S.F. | GRANITE PAVER BANDING - TYPE C | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921043A | 280 | S.F. | GRANITE PAVER BANDING - TYPE R | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921050A | 250 | S.F. | DETECTABLE WARNING CAST IRON PAVER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0921098A | 700 | EA. | FLEXIBLE PERMEABLE PAVEMENT AT NEW TREE W/ STRUCTURAL SOIL | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0922001 | 250 | S.Y. | BITUMINOUS CONCRETE SIDEWALK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0922050A | 1400 | S.F. | DECORATIVE CROSSWALK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 0922498 | 120 | S.Y. | TEMPORARY GRAVEL DRIVEWAY AND PARKING AREA | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0922500 | 230 | S.Y. | BITUMINOUS CONCRETE DRIVEWAY (COMMERCIAL) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0944000A | 530 | C.Y. | FURNISHING AND PLACING TOPSOIL | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0944104A | 40 | C.Y. | STRUCTURAL SOIL FOR TREE PLANTING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per cubic yard | | |
| 0947207A | 6 | EA. | BICYCLE RACK | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0947303A | 2 | EA. | BUS SHELTER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|--|------------|--------|
| 0949003A | 1 | L.S. | FURNISHING, PLANTING AND MULCHING TREES, SHBS, VINES & GRNDS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| 0950040A | 220 | S.Y. | NE CONSERVATION SEED MIX | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0950005A | 3180 | S.Y. | TURF ESTABLISHMENT | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0950013 | 2372 | S.Y. | EROSION CONTROL MATTING | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square yard | | |
| 0992090A | 6 | EA. | BENCH (METAL) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0992103A | 4 | EA. | TRASH RECEPTACLE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 0992104A | 4 | EA. | RECYCLE RECEPTACLE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1002110A | 38 | EA. | DECORATIVE LIGHT POLE FOUNDATION | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003595A | 38 | EA. | DECORATIVE LIGHT POLE AND LUMINARIE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003675A | 7 | EA. | CATENARY LIGHTING POLE - 16' H | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003677A | 13 | EA. | CATENARY LIGHTING POLE FOUNDATION (16' H POLE) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003678A | 730 | L.F. | CATENARY LIGHTING AND SUPPORT CABLE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1003679A | 6 | EA. | DECORATIVE STRING LIGHTING IN EXISTING TREES | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003680A | 4 | EA. | CATENARY LIGHTING POLE - 16' H WITH GFI | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|---|------------|--------|
| 1003681A | 2 | EA. | CATENARY LIGHT POLE 16' H WITH GFI & BRACKET ARM | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003906A | 12 | EA. | REMOVE LIGHT STANDARD | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1003912A | 12 | EA. | REMOVE CONCRETE LIGHT STANDARD BASE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1014908A | 6 | EA. | OUTDOOR GROUND BOX WITH RECESSED QUAD DUPLEX RECEPTACLE | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1008127 | 2000 | L.F. | 2" PVC CONDUIT IN TRENCH | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1008215 | 250 | L.F. | 2" RIGID CONDUIT UNDER ROADWAY | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1206022A | 1 | EA. | DECD PROJECT SIGN | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1206023A | 1 | L.S. | REMOVAL AND RELOCATION OF EXISTING SIGNS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| 1208931 | 130 | S.F. | SIGN FACE - SHEET ALUMINUM (TYPE IV RETROREFLECTIVE SHEETING) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 1210101 | 4160 | L.F. | 4" WHITE EPOXY-RESIN PAVEMENT MARKINGS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1210102 | 3840 | L.F. | 4" YELLOW EPOXY-RESIN PAVEMENT MARKINGS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1210105 | 370 | S.F. | EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGEND | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |
| 1210106 | 400 | L.F. | 12" WHITE EPOXY-RESIN PAVEMENT MARKINGS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per linear foot | | |
| 1211001 | 131 | S.F. | REMOVAL OF PAVEMENT MARKINGS | | |
| | | | dollars and | \$ | \$ |
| | | | cents per square foot | | |

| ITEM | EST. QTY. | UNITS | DESCRIPTION AND WRITTEN UNIT PRICE | UNIT PRICE | AMOUNT |
|----------|-----------|-------|--|------------|--------|
| 1302047A | 40 | EA. | RESET GATE BOXES | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1401036A | 1 | L.S. | ABANDON SANITARY SEWER | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| 1403501 | 4 | EA. | RESET MANHOLE (SANITARY SEWER) | | |
| | | | dollars and | \$ | \$ |
| | | | cents per each | | |
| 1403610A | 1 | L.S. | PUMP STATION DEMOLITION | | |
| | | | dollars and | \$ | \$ |
| | | | cents per lump sum | | |
| | | | ROADWAY AND STREETScape ITEMS TOTAL (EXCLUDE GENERAL ITEMS) | | |
| | | | dollars and | \$ | \$ |
| | | | cents | | |

| | |
|---|----------|
| Base Bid Total (in words) <hr/> <hr/> | \$ <hr/> |
|---|----------|

Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepancy between "Unit Price" and "Total Amount", the unit price will govern.

The award of the Contract will be made to the lowest responsible bidder. By submission of the Bid, each bidder certifies that his bid has been arrived at independently, without consultation, communication, or agreement as to any matter related to this Bid and with any other Bidder or competitor.

Signature _____

Date _____

Print Name _____

Tel _____

Corporation Name _____

Fax _____

Address _____

E-mail _____

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REFERENCES

The Bidder is required to fill out the following form to enable the Owner to make inquiries and judge as to the Bidder's experience, skill, available financial resources, credit, and business standing.

1. Number of years the bidder has been in business as a General Contractor: _____

2. List three (3) projects of similar nature to the project described herein that the Bidder has completed within the past 10 years, with name, address, and telephone number of a reference for each project. Include approximate construction cost:

3. List projects presently under construction by the Bidder, dollar amount of the contract, and percent completed:

4. Has the Bidder ever failed to complete work awarded; and if so, state where and why:

5. Does the Bidder plan to sublet any part of this work; and if so, give details:

6. List equipment Bidder owns that is available for this project:

7. List equipment the Bidder plans to rent or purchase for this project:

8. If the Bidder has worked under the direction of the Borough of Naugatuck or its Consulting Engineer, list recent projects with the name, address, and telephone number of the Consultant:

9. List name, address, and telephone number for the following:

Surety: _____

Bank: _____

Major Material Supplier: _____

Bidder

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BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto _____ as OWNER in the penal sum of

_____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 2024.

The Condition of the above obligation is such that whereas the Principal has submitted to _____ a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the Parcel A/B Major Hub Development.

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for the faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

(L.S.)

Principal

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

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CONTRACT FORMS

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CONTRACT AND AGREEMENT

THIS AGREEMENT, for PARCEL A/B MAJOR HUB DEVELOPMENT, Naugatuck, CT made this _____ day of _____ in the year 20____, between the Borough of Naugatuck, with its principal office and place of business at 229 Church Street, Connecticut 06770, acting herein through its Mayor and _____, a _____, with an office and place of business at _____, hereinafter called the contractor.

WITNESSETH: That the parties to this agreement in consideration of the undertakings, promises, and agreements on the part of the other herein contained, hereby undertake, promise, and agree as follows:

I Definitions

The word "Owner" as used herein shall mean the Borough of Naugatuck, acting through its properly authorized representatives.

The words "as directed", "as required", "as permitted", "as allowed", or phrases of like effect or import, used herein shall mean that the direction, requirement, permission, or allowance of the Owner is intended and similarly the words "approved", "reasonable", "suitable", "proper", "satisfactory", or words of like effect or import, unless otherwise particular specified herein, shall mean approved, reasonable, suitable, proper, or satisfactory in the judgment of the Owner.

The word "Contractor" shall mean _____ or its duly authorized agents.

II Contract Includes

The indices, headings and subheadings are for convenience only and do not form a part of the Contract Documents.

The Contractor shall, at their own sole cost and expense, furnish all labor, materials, and other services necessary for the completion of this Contract and shall complete and finish the same in the most thorough, workmanlike, and substantial manner, in every respect, to the satisfaction and approval of the Borough of Naugatuck, in the manner and within the time hereinafter limited, and in strict accordance with the Advertisement, Information for Bidders, Proposal, Contract Forms, General Requirements, Supplemental Specifications, Standard Specifications, Special Provisions and Addenda hereto attached, and the Contract Drawings herein referred to, (collectively the "contract documents"), which contract documents are hereby made a part of this Contract as fully as if the same were repeated at length herein.

| | | | |
|-------------------|--------------|-------------------|--------------|
| Addendum No. ____ | Dated: _____ | Addendum No. ____ | Dated: _____ |
| Addendum No. ____ | Dated: _____ | Addendum No. ____ | Dated: _____ |
| Addendum No. ____ | Dated: _____ | Addendum No. ____ | Dated: _____ |

III Specifications and Contract Drawings Supplementary

The said standard and supplemental specifications, special provisions and Contract Drawings are intended to supplement each other, and together constitute one complete set of Contract Documents, so that any work exhibited in the one and not in the other shall be executed just as if it had been set forth in both, in order that the work shall be completed in every respect according to the complete design or designs as decided and determined by the Borough of Naugatuck (or designated agent). Should anything be omitted from the Specifications and Contract Drawings, the Contractor shall promptly notify the Borough of Naugatuck. From time to time during the progress of the work, the Borough of Naugatuck will furnish such supplementary or working drawings as are necessary to show changes or define the work in more detail, and these also shall be considered as Contract Drawings.

IV Modifications

The Contractor, in entering into this Contract, understands that the Owner reserves the right to modify, to the extent herein provided, the arrangement, character, grade, or size of the work or appurtenances whenever, in the Owner's opinion, it shall be deemed necessary or advisable to do so. Minor changes in the work, not involving extra cost and consistent with the purposes of the work, may be made by verbal order, but no modifications involving extra work or material changes shall be made unless ordered in writing by the Borough of Naugatuck; and if the modification requires additional cost, a purchase order must be issued prior to work commencing. The Contractor shall and will accept such modifications when ordered in writing by the Owner through the Borough of Naugatuck, and the same shall not vitiate or void this Contract.

Any such modifications so made shall not, however, subject the Contractor to increased expense without equitable compensation, which shall be determined by the Borough of Naugatuck. If such modifications result in a decrease in the cost of work involved, and equitable deduction from the Contract price, to be determined by the Borough of Naugatuck, shall be made. The Borough of Naugatuck's determination of such additional compensation, or of any such deduction, shall be based upon the unit prices in the Contractor's bid, unless the modification involves work not included in such bids and then in the event, the modification shall be as set forth in Section XXVIII prior to the commencement of additional work. In no event shall any modification in the work shown on the Plans and Specifications be made unless the nature and extent thereof has first been certified by the Borough of Naugatuck in writing and sent to the Contractor.

V Correction of Errors and Omissions

The Plans, Standards and Specifications and Special Provisions forming part of this Contract are intended to be explanatory of each other, but should any discrepancy appear, or misunderstanding arise, as to the import of anything contained in either, the explanation and decision of the Borough of Naugatuck shall be final and binding on the Contractor; and all directions and explanations required, to complete and make effective any of the provisions of the

Contract and Specifications, shall be given by the Borough of Naugatuck. Corrections of errors and omissions in the Drawings, Standard or Special Provisions may be made by the Borough of Naugatuck when such corrections are necessary for the proper fulfillment of the Contract Documents as construed by the Borough of Naugatuck. The effect of such corrections shall date from the time that the Borough of Naugatuck gives due notice thereof to the Contractor.

VI Borough of Naugatuck's Decision

All work under this Contract shall be done to the satisfaction of the Borough of Naugatuck, who shall determine the amount, quality, acceptability, and fitness of the several items of work and materials which are to be paid for hereunder. The Owner shall also decide all questions which may arise as to the fulfillment of the terms of the Contract Documents. The determination of the Borough of Naugatuck in all such matters shall be final and binding upon the parties thereto.

VII Inspection of Work

It is agreed that the Owner may, at its pleasure, appoint and employ, at its own expense, such persons as may be necessary, who are to act as Borough of Naugatuck, inspections, or agents, for the purpose of determining, in the Borough's interest, that the materials furnished and the work done, as the work progresses, conforms to the requirements of the Contract Documents. Such persons shall have unrestricted access to all parts of the work and to other places at and where the preparation of the materials and other parts of the work to be done under this Contract are carried on and conducted. They shall be given, by the Contractor, all facilities and assistance required to carry out their work of inspection.

It is not the function of the Borough of Naugatuck to supervise or direct the manner in which the work to be done under this Contract is carried on or conducted. The Borough of Naugatuck is not responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work and will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.

The Borough of Naugatuck shall have authority to reject and shall reject any work or material, or any part thereof, which does not, in their opinion, conform to the Contract Drawings, working drawings, Standard Specifications, Special Provisions and Contract, and it shall be permissible for them to do so at any time during the progress of the work.

No work shall be done except in the presence of the Borough of Naugatuck or Owner's assistants. No material of any kind shall be used upon the work until it has been inspected and accepted by the Borough of Naugatuck. Any materials or workmanship found at any time to be defective, or not of the quality or character required by the Contract Drawings, Standard Specifications and Special Provisions shall be remedied at once regardless of previous inspection.

Such inspection shall not relieve the Contractor from any obligation to perform said work strictly in accordance with the Contract Drawings and Project Manual and work not so constructed shall be removed and made good by the Contractor at this own expense and free of all expense to the

Owner, whenever so ordered by the Owner, without reference to any previous oversight or error in inspection.

VIII Address of Contractor

The address in the Proposal, upon which this Contract is based, shall be the Contractor's place of business as set forth in this agreement. The delivering at the above-named place any such notice, letter, or other communication to the Contractor shall be deemed proper service to the Contractor. The notice letter or other communication may be mailed or delivered, from the Borough to the Contractor. The date of said service shall be the date of such delivery. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon the Contractor or their representative personally.

IX Obligation of the Contractor

The Contractor shall, at their own expense, provide any and all manner of supervisor, insurance, taxes, labor, materials, apparatus, scaffolding, appliances, tools, machinery, power, transportation, and whatever else may be required of every description necessary to do and complete the work and shall be solely answerable for the same and for the safe, proper, and lawful construction, maintenance, and use thereof. The Contractor shall cover and protect the work from damage and shall make good all injury to the same occurring before completion of this Contract. The Contractor shall employ only competent workmen and shall provide experienced superintendents and foremen on each part of the work.

The Contractor shall, at their own expense, wherever necessary or required, maintain fences, provide watchmen, maintain lights, place additional timber and braces, and take such other precautions as may be necessary to protect life, property, and structures, vehicles and pedestrians and shall be liable for all damages, occasioned in any way by their act or neglect or that of this agent, employees, or workmen. The Contractor shall provide access at all times to private property.

X Occupational Safety and Health Act

The applicable sections of the Occupational Safety and Health Act of 1970 (Williams-Steiger Act) shall apply and be made a part of this Contract. The Contractor's attention is particularly directed to the record keeping requirements of this Act.

XI Nondiscrimination in Employment

The Contractor agrees and warrants that, in the performance of this Contract, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, sex, religion, or national origin in any manner prohibited by State, Federal, County or Municipal law.

XII Personal Attention and Competent Workers

The Contractor shall give their personal attention constantly to the faithful prosecution of the work and shall be present, either in person or by a duly authorized representative, on the site of the work continually during its progress to receive directions or instructions from the Borough of Naugatuck. The Contractor shall employ at the site, during the performance of the work, a competent superintendent or foreman who shall be satisfactory to the Borough of Naugatuck and who shall not be changed, except with the consent of the Borough of Naugatuck, unless they cease to be an employee of the Contractor. Such superintendent or foreman shall represent and have full authority to act for the Contractor in their absence, and all directions and instructions given such superintendent or foreman shall be as binding as if given to the Contractor.

The Contractor shall employ only competent, skillful persons to do the work, and whenever the Borough of Naugatuck shall notify the Contractor in writing that any person on the work is, in their opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such person shall be discharged from the work and shall not again be employed on it, except with the consent of the Borough of Naugatuck.

XIII Public Safeguards

The Contractor agrees to conduct the work at all times in such a manner that public travel shall not be inconvenienced needlessly, nor shall it be wholly obstructed at any point.

XIV Materials and Workmanship

It is the intent of the Specifications to describe fully and definitely the character of materials and workmanship furnished regarding all ordinary features and to require first-class work and materials in all particulars. For any unexpected features arising during the progress of the work and not fully covered herein, the Specifications shall be interpreted by the Borough of Naugatuck to require first class work and materials in all respects, and such interpretation shall be accepted by the Contractor.

XV Materials and Manufactured Articles

All materials and workmanship shall be subject to the approval of the Borough of Naugatuck and shall be in conformity with approved modern practice.

Unless otherwise specifically provided for in the Project Manual, all materials incorporated in the work shall be new, of standard and first-class quality, and of the best workmanship and design. No inferior or low grade, material will be either approved or accepted, and all work of assembly and construction must be done in a neat, first-class, and workmanlike manner.

XVI Unnoticed Defects

The inspection of the work and materials by the Borough of Naugatuck shall not relieve the Contractor of any of their obligations to fulfill this Contract, as herein described, and defective work shall be made good and unsuitable materials shall be rejected, notwithstanding that such work and materials had been previously overlooked by the Borough of Naugatuck and accepted or estimated for payment. If the work, or any part thereof, shall be found defective at any time before final acceptance of the whole work, the Contractor shall forthwith make good such defects, in a manner satisfactory to the Borough of Naugatuck.

XVII Care and Protection of Work

From the commencement of the work until the completion of the same, the Contractor shall be solely responsible for the care of the work covered by the Contract and for the materials delivered at the site intended to be used in the work; and all injury, damage, or loss of the same, from whatever cause, shall be made good at their expense before the final estimate is made. The Contractor shall provide suitable means of protection for all materials intended to be used in the work and for all work in progress as well as for completed work. The Contractor shall take all necessary precautions to prevent injury or damage to the work under construction by flood, freezing or inclement weather at any and all times. The methods used for this purpose shall be subject to the approval of the Borough of Naugatuck but shall not relieve the Contractor from liability for inadequate protection of the work or materials.

XVIII Assignment of Contract

The Contractor shall have no right or power to assign this Contract, in whole or in part, nor to assign any right arising, or moneys due or to grow due thereunder, without prior written approval of the Owner.

XIX Subcontracting

The Contractor may utilize the services of specialty subcontractors on those parts of the work which, under normal contracting practices, are performed by specialty subcontractors. The Contractor shall not award the work to a subcontractor(s) without prior written approval of the Owner. The Contractor shall be fully responsible to the Owner for the acts and omissions of their subcontractors, and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by them.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of these Contract Documents, insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provisions of these Contract Documents.

Nothing contained in this contract shall create any contractual relation between any subcontractor and the Owner.

XX Liability of Contractor for Employees

Each and every employee of the Contractor and each and every of their subcontractors engaged in the said work shall, for all purposes, be deemed and taken to be the exclusive servants of the Contractor and not for any purpose or in any manner in the employment of the Owner. The Contractor shall, in no manner, be relieved from responsibility or liability on account of any fault or delay in the execution of the said work, or any part thereof, by any such employee, or any such subcontractor, or any material men, whatsoever.

XXI Coordination With Other Contractors and Utilities

The Contractor shall notify utility companies in the project area within seven (7) calendars days of Notice to Proceed and identify a point-of-contact for coordination throughout construction. It is anticipated that existing utilities may be found to be in close proximity to or in conflict with the work being installed. The Contractor shall make every effort to identify and locate these utilities before working in the area. If it is known or found that these utilities exist the Contractor shall contact the appropriate utility and alert them to the situation. Should an existing utility be found to be in close proximity to the work the Contractor shall take all the necessary precautions to protect the utilities and their work. Should existing utilities be found to conflict with the work the Contractor shall arrange with the utility company for their adjustment. No additional compensation will be made for delays, inconvenience or damage sustained by the Contractor due to interference from the above-noted utility appurtenances or the operation of locating, installing, or moving them or the inability of others to perform their work in a timely manner.

XXII Permits, Laws, Codes, Ordinances and Insurance

The Contractor shall keep themselves fully informed of all existing and current codes, ordinances, and regulations and Municipal, County, State or National laws in any way limiting or controlling the actions or operations of those engaged upon the work or affecting the materials supplied to or by them. The Contractor shall, at all times, observe and comply with all such valid and legally binding ordinances, laws, and regulations and shall protect and indemnify the Owner and its representatives and agents against any claim or liability arising from, or based on, any violation of the same. The Contractor shall obtain and pay for all necessary permits and pay all fees required in connection with the Contract. Contractor shall provide the types and amounts of insurance as set forth in Section 18, Information of Bidders and maintain in effect. The Contractor shall take out and carry appropriate employer's liability insurance and public liability insurance.

XXIII Patent Rights

The Contractor shall indemnify and save harmless the Owner and its officers, agents, and representatives from all claims for damages arising from the infringements, or alleged infringements, of any Letters Patent or patent rights covering any material, appliance, or device used in or upon the work or any part thereof.

All royalties for patents or patent infringement claims, that might be involved in the construction or use of the work, shall be included in the Contract amount; and the Contractor shall satisfy all demands that may be made at any time for such and shall be liable for any damage or claims for patent infringements; and the Contractor shall, at their own expense, defend any and all suits or proceedings that may be instituted against the Owner for infringement, or alleged infringement, of any patent or patents involved, or alleged to be involved, in the work; and in case of any award for damages, the said Contractor shall pay such award.

XXIV Defense of Suits

The Contractor shall indemnify and hold harmless the State of Connecticut, the Owner and its consultants, agents and employees from and against all claims, damages, losses, and expenses, including, but not limited to, attorney fees, ("indemnification expense") arising out of or resulting from the performance of the work or arising out of or resulting from the Contract Documents, including, without limitation, all indemnification expense regarding personal injury or death and/or damage to real or personal property or motor vehicles.

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

XXV Claims for Labor and Materials

The Contractor shall indemnify and save harmless the Owner from all claims expenses and for judgments regarding labor done or materials furnished under this Contract, or any alterations or modifications thereof, including without limitation, reasonable Attorney's fees. Contractor shall furnish the Owner with a Mechanic's Lien Waiver from all persons who have done work, or furnished materials under this Contract. In case such waiver is not furnished, an amount necessary or sufficient, within the discretion of the Owner, to meet the claims of the persons aforesaid, shall be retained, as herein specified, from the money due the Contractor under this Contract until the liabilities aforesaid shall be fully discharged or satisfactorily secured.

XXVI Completion of Work by Owner

If the work to be done under this Contract shall be abandoned by the Contractor; or if this Contract shall be assigned, or the work sublet by them, otherwise than as herein specified; or if at any time the Owner shall be of the opinion that the performance of the Contract is unnecessarily or unreasonably delayed; or if the Contractor is willfully violating any of the conditions or covenants of this Contract, or of the Specifications, or is executing the same in bad faith or not in accordance with the terms thereof; or if the work be not fully completed within the time named in this Contract for its completion, or within the time to which the completion of the Contract may be extended by the Owner, the Owner may notify the Contractor to discontinue all work, or

any part thereof under the Contract, by a written notice to be served upon the Contractor as herein provided.

The Contractor shall, within five (5) days of the service of said written notice, discontinue the work, or such part thereof, and the Owner shall thereupon have the power to contract for the completion of the Contract, in the manner prescribed by law; or to place such and so many persons as it may be deemed advisable, by contract or otherwise, to work, and complete the work herein described, or such part thereof; or to take possession of and use any of the materials, plant, tools, equipment, supplies, and property of every kind provided by the Contractor for the purpose of their work; and to procure other materials and equipment for the completion of the same; and to charge the expense of said labor, materials and equipment to the Contractor.

The expense so charged shall be deducted and paid by the Owner out of such moneys as may be due, or may at any time thereafter grow due to the Contractor under and by virtue of this Contract, or any art thereof; and in case such expense shall exceed the amount which would have been payable under the Contract, if the same had been completed by the Contractor, the Contractor or the surety shall pay the amount of such excess to the Owner within five (5) days of written demand therefore; and in case such expense shall be less than the amount which would have been payable under this Contract, if the same had been completed by the Contractor, the owner shall pay such difference to the Contractor within five (5) days of written demand.

XXVII Partial and Final Estimates

On, or about, the last day of the month, the Borough of Naugatuck shall make an approximate estimate of the value of the work done and of the materials incorporated into the work.

The Owner will pay the Contractor, within 30 days of receipt of an estimate, ninety-five percent (95%) of the total estimated value of the work done, as estimated by the Borough of Naugatuck less previous payments. Partial payments will not be made whenever the amounts of the estimate or estimates of work done since the last previous estimate are less than \$2,000.00.

The Borough of Naugatuck shall, as soon as practicable after the completion of work, make a final certificate of the entire amount of the work done under this Contract, and the value thereof, and the Owner shall, within thirty (30) days after such final estimate is approved, pay the entire sum so found to be due hereunder, after deducting there from all previous payments and also all percentages and deductions to be retained under any of the provisions of this Contract.

Before payment of each estimate, the Contractor shall provide the Owner with a mechanic's lien waiver from the Contractor and all persons who have done work or furnished materials under this Contract.

XXVIII Payment

The Owner, in consideration of the faithful performance by the Contractor of all and singular covenants, promises, and agreements contained herein, agrees to pay the Contractor for the full completion of the work embraced in this Contract, in the manner and within the time herein specified and limited, and to the satisfaction and approval of the Borough of Naugatuck, the prices stipulated in the said Proposal hereto attached, such payment to be made at the times and in the manner and upon the conditions herein expressly provided. The Owner also agrees to pay in addition such amounts as may be agreed upon for modifications and for extra work.

XXIX Guarantee

The Contractor guarantees that the work done under this Contract and the materials furnished by them and used in the construction of the same are free from defects or flaws. The guarantee is for a term of one (1) year from, and after, the date upon which the final estimate of the Borough of Naugatuck is formally approved by the Owner. It is hereby agreed and understood that this guarantee shall not include making any repairs made necessary by any cause or causes other than defective materials furnished by, or defective work done by, the Contractor.

XXX Rate of Progress and Time of Completion

The Contractor shall commence work within ten (10) calendar days of the date of the Notice to Proceed. The rate of progress shall be such that the whole work, inclusive of any add alternates, shall be performed and the grounds cleaned-up in accordance with Time for Completion, Section 3 of the supplemental conditions, unless extensions of time shall be made for the reasons, and in the manner, stated under Article XXXIII, "Extension of Time".

The allotted calendar days includes time for the Contractor to obtain approval of an Erosion and Sediment Control Plan, as applicable.

XXXI Extension of Time

The Contractor expressly covenants and agrees that, in undertaking to complete the work within the time mentioned, they have taken into consideration, and made allowance for, all of the ordinary delays and hindrances incidental to such work, whether growing out of delays in securing materials or workmen or otherwise. Should the Contractor, however, be substantially delayed in the prosecution and completion of the work by any changes, additions, or omissions therein ordered in writing by the Borough of Naugatuck, or by fire, lightning, earthquake, tornado, cyclone, riot, insurrection, or war, or by the abandonment of the work by the workman engaged therein through no fault of the Contractor, or by the discharge of all or any material number of workmen in consequence of difficulties arising between the Contractor and such workmen, or by the neglect, delay, or default of any other contractor of the Owner, then the Contractor may, within five (5) days after the occurrence of the delay for which they claim allowance, notify the Borough of Naugatuck thereof in writing, and thereupon, and not otherwise, the Contractor shall be allowed such additional time for the completion of the work as the Borough of Naugatuck, in their discretion, shall award in writing, and their decision shall be

final and conclusive upon the parties.

XXXII Damages for Failure to Complete on Time

The Contractor shall pay to the Owner for each and every calendar day (including Saturdays, Sundays, and holidays) that they shall be in default in completing the entire work in the time stipulated in Article XXX, or within the extension of time they may be granted as provided in Article XXXIII, the sum of Two Thousand Dollars (\$2,000) per day. This sum is hereby agreed upon not as a penalty but as liquidated damages which Owner will suffer by reason of such default, time being of the essence of the Contract and a material consideration thereof. The Owner shall have the right to deduct the amount of any such damages from any monies due the Contractor under this Contract.

XXXIII No Waiver of Rights

No certificate given or payment made under this Contract, except the final certificate or final payment, shall be evidence of the performance of the Contract either wholly or in part, and no payment shall be construed to be an acceptance of defective work or improper materials. No act of the Owner or of the Borough of Naugatuck, or of any representatives of either of them in inspecting the work, nor any extension of time for the completion of the work, shall be regarded or taken as an acceptance of such work, or any part thereof, or materials used therein or thereof, either wholly or in part; but such acceptance shall be evidenced only by the final certificate of the Borough of Naugatuck.

Before any final certification shall be allowed, the Contractor shall be required, and hereby agrees, to sign and attest on said certificate a statement that they accept the same in full payment and settlement of all claims on account of work done and material furnished under this Contract, and furthermore, that all claims for materials provided or labor performed have been paid and satisfied in full. No waiver of any breach of this Contract by the Owner or anyone acting for it, or on its behalf, shall be held as a waiver of any other or subsequent breach thereof.

XXXIV Mandatory Negotiation

Contractor and the Owner agree that they will attempt to negotiate in good faith any dispute of any nature arising under this contract. The parties shall negotiate in good faith at not less than two negotiation sessions prior to seeking any resolution of any dispute under the provisions of arbitration paragraph of this contract. Each party shall have the right to legal representation at any such negotiation session.

XXXV Dispute Resolution

Any dispute or question arising under the provisions of this contract which has not been resolved under the mandatory negotiation paragraph of this contract shall be solely and exclusively initiated and maintained in the courts of the State or Federal District Court for the State. The Company and the Borough each irrevocably consents to the jurisdiction of such courts in any such actions or proceedings, waives any objection it may have to the laying of the jurisdiction of

any such action or proceeding, and waives its right to a trial by jury. Each party shall bear its own costs and expenses in any Legal Proceeding where it is the named defendant in such lawsuit.

XXXVI Owner's Right to Use

The Owner reserves the right to use or occupy any portion of the work considered by the Borough of Naugatuck as ready for use or occupancy. Such use or occupancy shall not be held, in any way, as final acceptance of the work or any portion thereof, or as a waiver of any portion of this Contract.

XXXVII Verification of Data

The quantities of work to be done and the materials to be furnished under this Contract, as given in the accompanying "Information for Bidders" and on the Proposal form, are approximate estimates for the purpose of comparing bids on a uniform basis. Neither the Owner nor the Borough of Naugatuck are to be held responsible for the data or information given relative to said quantities or that given on the Plans relative to existing conditions. The Contractor has judged for themselves as to such quantities and as to other circumstances affecting the cost of the performance of this Contract, and they shall not at any time assert that there was any misunderstanding in regard to the character or amount of work to be done and materials and labor to be furnished.

XXXVIII Contractor's Wage Certification Form

If applicable the Contractor or their authorized agent will be required to sign the Contractor's Wage Certification Form at the time of Contract execution.

XXXIX Verbal Statements Not Binding

It is understood and agreed that the written terms and provisions of this Agreement shall supersede all prior verbal statements of the Borough of Naugatuck or other representatives of the Owner, and such statements shall not be effective or be construed as entering into or forming a part of, or altering in anyway whatsoever, the written Agreement.

XXXX Final Estimate Constitutes Release

It is agreed that acceptance by the Contractor of the last payment made, under the provisions of Article XXVII, shall operate as and shall be a release to the Owner, and every agent thereof, from all claims and liability to Contractor for anything done or furnished for, or relating to, the work or for any act or neglect of the Owner or any agent thereof.,

No payment, however, final or otherwise, shall operate to release the Contractor or their sureties from any obligations under this Contract.

XXXXI Delays or Termination by Governmental Authorities

Notwithstanding any other provision(s) of this contract, the parties agree that in the event of a stop work order from the State Department of Transportation, Department of Environmental Protection, or any other State or Federal agency, no additional compensation will be made by Owner to Contractor for delays, inconvenience or damage sustained by Contractor due to such order, including, without limitation, damages for loss of use of equipment or idle equipment. Similarly, in the event of a termination of the project by the State DOT, DEP or any other State or Federal agency, no additional compensation will be made by Owner to Contractor for the termination, or for any delay, inconvenience or damage sustained by Contractor due to such termination, including, without limitation, damages for loss of use of equipment or idle equipment. In the event of such termination, the Borough of Naugatuck shall prepare a final certificate for the entire amount of work done up to the effective date of termination. The provisions of Sections XXIX (Guarantee) shall apply to all work completed as of the effective date of any stop Work order, as if the effective date was the date upon which the final estimate of the Borough of Naugatuck is formally approved by the Borough.

XXXXII Validity of Agreement

The provision of this Agreement shall be binding upon the Parties and their respective successor or assigns.

IN WITNESS WHEREOF, the said parties hereto have caused this instrument to be signed by their respective duly constituted officers, attested, and sealed pursuant to proper resolutions.

Signed and sealed
in the presence of

Borough of Naugatuck
Mayor

(Duly Authorized)
Contractor

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BOROUGH OF NAUGATUCK: INSURANCE AGREEMENT

1. Indemnification and Insurance

_____ ('The Contractor') shall indemnify, defend and hold harmless the State of Connecticut and Borough of Naugatuck, its officials, officers, employees and designees caused in whole or in part to the fullest extent permitted by law from and against any and all claims, suits, actions, obligations, liabilities, damages, losses or injury (including the resulting death of a person), penalties, and expenses (including reasonable attorneys' fees) to the extent arising out of the performance of this Agreement or due to the Contractor's negligence or willful misconduct or omissions of the Contractor or its employees, agents, subcontractors or representatives.

Prior to the commencement of the work, and until final completion and acceptance of the work, the Contractor shall procure and maintain the following types of insurance and maintain all insurance coverage for the life of the contract, from an insurance company or companies with an A.M. Best Rating of A- (IX) or better. Such insurance will protect and indemnify the Borough of Naugatuck from all claims which may arise out of or result from the Contractor's obligations under this agreement, whether caused by the contractor or by a subcontractor or any person or entity directly or indirectly employed by the Contractor or by anyone for whose acts said Contractor may be liable.

- A. *Workers Compensation*: The Contractor shall provide workers compensation and employer's liability insurance that complies with the regulations of the State of Connecticut with limits no less than \$100,000 each accident by bodily injury; \$100,000 each accident by disease and a policy limit of \$500,000. Such policy shall contain a 'waiver of our right to recover from other endorsement'.
- B. *Commercial General Liability Insurance*: The Contractor shall provide commercial general liability insurance policy that includes products, operations and completed operations as follows: Bodily injury & property damage with an occurrence limit of \$1,000,000: Personal & advertising injury limit of \$1,000,000 per occurrence: General aggregate limit of \$2,000,000 (other than products and completed operations): Products and completed operations aggregate limit of \$2,000,000. The policy shall name the Borough of Naugatuck as an additional insured on an ongoing basis. In addition,
- Such policy will be provided on an occurrence basis and will be primary and shall not contribute in any way to any insurance or self-insured retention carried by the additional insured.
 - Such policy shall contain a broad form contractual liability endorsement or similar wording within the policy form.
 - Such policy shall contain a waiver of subrogation in favor to the Borough of Naugatuck.
 - Such policy shall include coverage for the Contractor's sub-contractors, or any person or entity directly or indirectly employed by said Contractor or by anyone for whose acts said Contractor may be liable.
- C. *Commercial Automobile Insurance*: The Contractor shall provide commercial automobile insurance for any owned autos (symbol 1 or equivalent) in the amount of \$1,000,000 each accident covering bodily injury and property damage on a combined single limit. Such coverage shall also include hired and non-owned automobile coverage.
- D. *Umbrella Liability Insurance*: The Contractor shall provide commercial umbrella liability with limits no less than \$5,000,000 each occurrence and \$5,000,000 in the aggregate which shall be following form, without restriction or limitation, providing coverage over items (A), (B), (C), as noted above on a primary and non-contributory basis.

Prior to the issuing of any notice to proceed by the Borough of Naugatuck, the Contractor shall furnish the Borough of Naugatuck with Certificates of Insurance evidencing such insurance as set forth above. Said policies shall not be cancelled or permitted to lapse until final completion and approval of the performance of the work until ten (10) days after the Borough of Naugatuck has received written notice, by certified or registered mail, that the cancellation or change of such policy is contemplated.

The Contractor shall advise their insurers or agent of the contract provisions regarding insurance. The failure of the Contractor to notify insurers or agent of the contract provision shall not relieve the Contractor from its insurance obligations under the Agreement. Non-fulfillment of the insurance provisions shall constitute a breach of this agreement and the Borough of Naugatuck retains the right to stop work until proper evidence of insurance is provided.

This document must be signed by an owner or officer of the company.

Signed by Contractor: _____ Date: _____

Printed Name of Contractor: _____ Title: _____

Address of Contractor: _____

Signed by Borough of Naugatuck: _____ Date: _____

Printed Name of Borough of Naugatuck: _____ Title: _____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars,
\$(_____) in lawful money of the United States, for the payment of which sum well and truly to
be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain
contract with the OWNER, dated the _____ day of _____, 20__, a copy of which is
hereto attached and made a part hereof for the construction of: Parcel A/B Major Hub Development,
Naugatuck, CT.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the
undertakings, covenants, terms, conditions, and agreements of said contract during the original term
thereof, an any extensions thereof which may be granted by the OWNER, with or without notice to
the Surety and during the one year guaranty period, and if they shall satisfy all claims and demands
incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs
and damages which may suffer by reason of failure to do so, and shall reimburse and repay the
OWNER all outlay and expense which the OWNER may incur in making good any default, then this
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in anyway affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts each one of Which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

(Principal) Secretary

By _____(s)
Principal

(SEAL)

(Witness as to Principal)

(Address)

(Address)

Surety

ATTEST:

(Surety) Secretary

(SEAL)

Witness as to Surety

By _____
Attorney-in-Fact

(Address)

(Address)

NOTES: Date of BOND must not be prior to date of Contract.
 If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: that _____
(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____ Dollars, \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, 201__, a copy of which is hereto attached and made a part hereof for the construction of: Parcel A/B Major Hub Development, Naugatuck, CT.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, an any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if they shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

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

Notary Public

Return to:
Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

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Form AU-766 Guarantee Bond



Purpose: A nonresident contractor working in Connecticut and a surety company licensed to do business in Connecticut use **Form AU-766** to post a guarantee bond with the Department of Revenue Services (DRS) for a specific project in the state. The guarantee bond ensures all taxes due to the State of Connecticut from the contractor are paid to DRS. Read the instructions on the reverse side before you complete this form. If you need help, call **860-541-7538**, Monday through Friday, during business hours.

| | | |
|---|--|--|
| Part I: Nonresident Contractor Information | | |
| Name | Connecticut Tax Registration No. | |
| Address (Street or PO Box, City, State, and ZIP Code) | | |
| Part II: Person Doing Business With a Nonresident Contractor Information | | |
| Name | Connecticut Tax Registration No., Federal ID No., or SSN | |
| Address (Street or PO Box, City, State, and ZIP Code) | | |
| Part III: Surety Company Information | | |
| Name | Bond No. | Amount of Bond |
| Address (Street or PO Box, City, State, and ZIP Code) | | |
| Part IV: Project Information <input type="checkbox"/> Check the box if this bond is for a change order. | | |
| Physical Location of Project (Street, City or Town) | | Name of Project |
| Commencement Date | Completion Date for Nonresident Contractor | Total Contract Price or Amount of Change Order |
| Conditions of the obligation for the project detailed above: <ul style="list-style-type: none"> • The nonresident contractor has entered into a contract related to real property at a Connecticut location. • The nonresident contractor and the surety company are posting a bond of 5% of the total contract price, including any change orders and add-ons, with DRS to ensure that all taxes that become due and owing during the period of the contract will be paid. • A bond must be posted within 120 days of the commencement of the contract or 30 days after the completion of the contract, whichever is earlier. • If the nonresident contractor pays all taxes, interest, and penalties within three years from the last day of the month succeeding the reporting period in which the contractor posted the bond, the bond expires; otherwise the obligation remains in full force. • This bond jointly and severally binds the nonresident contractor and the surety company, their heirs, executors, administrators, successors, and assigns for payment of this obligation. | | |
| Nonresident Contractor Declaration: I, the nonresident contractor named above or its authorized agent, declare under the penalty of law that I have examined Form AU-766 and, to the best of my knowledge and belief it is true, complete, and correct. I understand the penalty for willfully delivering a false document or return to DRS is a fine of not more than \$5,000, or imprisonment for not more than five years, or both. | | |
| Print Name | | Title |
| Authorized Signature | | Date |
| Surety Company Declaration: I, an authorized agent of the surety company named above, declare under the penalty of law that I have examined this Form AU-766 and, to the best of my knowledge and belief it is true, complete, and correct. I understand the penalty for willfully delivering a false document or return to DRS is a fine of not more than \$5,000, or imprisonment for not more than five years, or both. | | |
| _____ | | Seal: |
| Print Name | | Title |
| _____ | | |
| Authorized Signature | | Date |

General Instructions

A nonresident contractor and a surety company licensed to do business in Connecticut must execute **Form AU-766, Guarantee Bond**, to post a guarantee bond with the Department of Revenue Services (DRS) for a specific project in Connecticut. A power of attorney for the person signing the bond on behalf of the surety company **must** be attached to the bond, carry the corporate seal of the surety company, and bear the same date as the execution date of the bond.

A nonresident contractor has the option of filing a guarantee bond or a cash bond instead of the customer making a deposit with DRS under Conn. Gen. Stat. §12-430(7)(B). Under this option, the nonresident contractor has 120 days from the commencement of the contract or 30 days after the completion of the contract, whichever is earlier, to file a guarantee bond or a cash bond (Form AU-72) with DRS.

Return Form AU-766 to: Department of Revenue Services
Discovery Unit
25 Sigourney Street
Hartford CT 06106-5032

See **Special Notice 2005(12), Nonresident Contractor Bonds and Deposits**, for more information.

Nonresident contractor means a contractor who does not maintain a regular place of business in Connecticut.

Regular place of business means:

- Any bona fide office, factory, warehouse, or other space in Connecticut at which a contractor is doing business in its own name in a regular and systematic manner; **and**
- Which place is continuously maintained, occupied, and used by the contractor in carrying on its business through its employees regularly in attendance to carry on the contractor's business in the contractor's own name.

A regular place of business **does not include**:

- A place of business for a statutory agent for service of process or a temporary office whether or not it is located at the site of construction;
- Locations used by the contractor only for the duration of the contract, such as short-term leased offices, warehouses, storage facilities, or facilities that do not have full time staff with regular business hours; **or**
- An office maintained, occupied, and used by a person affiliated with a contractor.

Contract price means the total contract price, including deposits, amounts held as retainage, costs for any change orders, or charges for add-ons.

Person doing business with a nonresident contractor means any person who makes payments of the contract price to a nonresident contractor, and includes, but is not limited to property owners, governmental, charitable or religious entities, and resident or nonresident general contractors or subcontractors. An owner or tenant of residential real property is not a person doing business with a nonresident contractor and is not required to comply with the provisions of Conn. Gen. Stat. §12-430(7). However, the nonresident contractor doing business with such an owner or tenant must comply with the bond requirements under Conn. Gen. Stat. §12-430(7)(F).

Commencement of the contract means the time when the nonresident contractor signs the contract, but, in any event, occurs no later than when the work under the contract actually starts. If a change order is made after the commencement of the original contract, the change order commences when it is signed by the nonresident contractor, but, in any event, occurs no later than when the work under the change order actually starts.

Completion of the contract means the time when the nonresident contractor makes the final periodic billing for the contract. The final periodic billing may be due before payment of any retainage becomes due. If a change order is made after the final periodic billing for the original contract, the change order is complete when the nonresident contractor bills for the change order.

Residential real property means real property used exclusively for residential purposes and consisting of three or fewer dwelling units in one of which the owner or tenant resides.

Any bond that bears an erasure or alteration, regardless of its nature, must have the change authenticated by a notation in the margin. The notation should describe the correction and be signed in the name of the surety company by the officer who executed the bond and must bear the corporate seal of the surety company.

Specific Instructions

Part I: Enter the name and complete address of the nonresident contractor furnishing the bond. Include the nonresident contractor's Connecticut tax registration number. The name and address of the nonresident contractor appearing on the bond must agree with the name and address on **Form REG-1, Business Taxes Registration Application**, filed with DRS. (If the information originally provided on Form REG-1 is now incorrect, you must notify the DRS Registration Unit in writing of the correct information.) If the nonresident contractor is a corporation, the corporate name appearing on the bond must be the same shown in the records of the Office of the Secretary of State, or similar agency of another state if the nonresident contractor is not a Connecticut corporation.

Part II: Enter the name and complete address of the person doing business with the nonresident contractor. If the nonresident contractor is the general contractor, enter the name and address of the owner or tenant of the property who has entered the contract. If the nonresident contractor is a subcontractor, enter the name and address of the general contractor.

Enter the Connecticut tax registration number of the person doing business with the nonresident contractor. If the person doing business with the nonresident contractor does not have a Connecticut tax registration number, enter that person's Federal Employer Identification Number or Social Security Number.

Part III: Enter the name and complete address of the surety company that guarantees this bond. Include the bond number.

Part IV: Check the box if the deposit is for a change order occurring after the bond for the initial contract was furnished to DRS.

Enter the name of the project and the complete address including the street address and the city or town where the project is physically located.

Enter the commencement date of this project or change order.

Enter the date by which the nonresident contractor is expected to complete work on this project or change order.

Enter, in words and figures, the total amount to be paid to the nonresident contractor under the contract. Indicate if this amount is an estimate.

Declarations: An authorized representative for the nonresident contractor and the surety company must sign and date the declaration on Form AU-766. The name of the nonresident contractor and the surety company must be exactly as it appears on the bond. The corporate seal of the surety company must be affixed by its signature on Form AU-766.

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that:

1. I am _____ of _____ herein referred to as the Bidder that has submitted the attached Bid;
2. I am fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or, to fix any overhead, profit or cost element in the bid price or the bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Borough of Naugatuck or any person interested in the proposed Contract; and
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

(Signed) _____

Title

Subscribed and sworn before me

This _____ day of _____, 20__

(Notary Public)

My Commission expires _____

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- (e) The Contractor shall be fully responsible to the Borough of Naugatuck for the acts and omissions of their subcontractors, and of persons either directly or indirectly employed by them, as they are for the acts and omissions of persons directly employed by the Contractor.
- (f) The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of this Contract for: Parcel A/B Major Hub Development, Naugatuck, CT.
- (g) Nothing contained in this Contract shall create any contractual relationship between any subcontractor and the Borough of Naugatuck.

OTHER CONTRACTS

The Borough of Naugatuck may award, or may have awarded, other Contracts for additional work, and the Contractor shall cooperate fully with such other Contractors, by scheduling their own work with that to be performed under other Contracts as may be directed by the Borough of Naugatuck. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

(Signed) _____

Title

Subscribed and sworn before me

This _____ day of _____, 20__

(Notary Public)

My commission expires _____

STATE OF CONNECTICUT
Certificate of Compliance with
Connecticut General Statute Section 31 - 57b

I hereby certify that all of the statements herein contained below have been examined by me, and to the best of my knowledge and belief are true and correct.

The _____ **HAS / HAS NOT**
Company Name (Cross out Non-applicable)

been cited for three (3) or more willful or serious or serious violations of any Occupational Safety and Health Act (OSHA) or of any standard, order or regulation promulgated pursuant to such act, during the three year period preceding the bid, provided such violations were cited in accordance with the provisions of any State Occupational Safety and Health Act of 1970, and not abated within the time fixed by the citation and such citation has not been set aside following appeal to the appropriate agency of court having jurisdiction or **HAS / HAS NOT** (Cross out Non-applicable) received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the bid.

The list of violations (if applicable) is attached.

(Name of Firm, Organization or Corporation)

Signed:

Written Signature:

Name Typed:

(Corporation Seal)

Title:

(Title of Above Person, typed)

Dated:

State of _____)

County of _____) *ss:* *A.D., 20* _____

)

Sworn to and personally appeared before me for the above, _____,
(Name of Firm, Organization, Corporation)

Signer and Sealer of the foregoing instrument of and acknowledged the same to be the free act and deed of

_____, and his/her free act and deed as
(Name of Person appearing in front of Notary or Clerk)

(Title of Person appearing in front of Notary or Clerk)

My Commission Expires:

(Notary Public)

(Seal)

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STATE OF CONNECTICUT
NONDISCRIMINATION CERTIFICATION – Affidavit
By Entity
For Contracts Valued at \$50,000 or More

Documentation in the form of an affidavit signed under penalty of false statement by a chief executive officer, president, chairperson, member, or other corporate officer duly authorized to adopt corporate, company, or partnership policy that certifies the contractor complies with the nondiscrimination agreements and warranties under Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended

INSTRUCTIONS:

For use by an entity (corporation, limited liability company, or partnership) when entering into any contract type with the State of Connecticut or Connecticut Public Entity valued at \$50,000 or more for any year of the contract. Complete all sections of the form. Sign form in the presence of a Commissioner of Superior Court or Notary Public. Submit to the awarding agency prior to contract execution.

AFFIDAVIT:

I, the undersigned, am over the age of eighteen (18) and understand and appreciate the obligations of an oath. I am _____ of _____, an entity

Signatory's Title

Name of Entity

duly formed and existing under the laws of _____.
Name of State or Commonwealth

I certify that I am authorized to execute and deliver this affidavit on behalf of

_____ and that _____
Name of Entity Name of Entity

has a policy in place that complies with the nondiscrimination agreements and warranties of Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended.

Authorized Signatory

Printed Name

Sworn and subscribed to before me on this _____ day of _____, 20_____.

**Commissioner of the Superior Court/
Notary Public**

Commission Expiration Date

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**Construction Contracts - Required Contract Provisions
(State Funded Only Contracts)**

Index

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements
2. Contractor Work Force Utilization / Specific Equal Employment Opportunity
3. Contract Wage Rates
4. Americans with Disabilities Act of 1990, as Amended
5. Connecticut Statutory Labor Requirements
 - a. Construction, Alteration or Repair of Public Works Projects; Wage Rates
 - b. Debarment List - Limitation on Awarding Contracts
 - c. Construction Safety and Health Course
 - d. Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited
 - e. Residents Preference in Work on Other Public Facilities (Not Applicable to Federal Aid Contracts)
6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)
7. Executive Orders (State of CT)
8. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised)
9. Whistleblower Provision
10. Connecticut Freedom of Information Act
 - a. Disclosure of Records
 - b. Confidential Information
11. Service of Process
12. Substitution of Securities for Retainages on State Contracts and Subcontracts
13. Health Insurance Portability and Accountability Act of 1996 (HIPAA)
14. Forum and Choice of Law
15. Summary of State Ethics Laws
16. Audit and Inspection of Plants, Places of Business and Records
17. Campaign Contribution Restriction

18. Tangible Personal Property
19. Bid Rigging and/or Fraud – Notice to Contractor
20. Consulting Agreement Affidavit

Index of Exhibits

- EXHIBIT A – Title VI Contractor Assurances (page 13)
- EXHIBIT B – Contractor Work Force Utilization / Equal Employment Opportunity (page 14)
- EXHIBIT C – Health Insurance Portability and Accountability Act of 1996 (HIPAA) (page 17)
- EXHIBIT D - Campaign Contribution Restriction (page 25)
- EXHIBIT E - State Wage Rates (Attached at the end)

1. Title VI of the Civil Rights Act of 1964 / Nondiscrimination Requirements

The Contractor shall comply with Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000 et seq.), all requirements imposed by the regulations of the United States Department of Transportation (49 CFR Part 21) issued in implementation thereof, and the Title VI Contractor Assurances attached hereto at Exhibit A, all of which are hereby made a part of this Contract.

2. Contractor Work Force Utilization / Equal Employment Opportunity

- (a) The Contractor shall comply with the Contractor Work Force Utilization / Equal Employment Opportunity requirements attached at Exhibit B and hereby made part of this Contract, whenever a contractor or subcontractor at any tier performs construction work in excess of \$10,000. These goals shall be included in each contract and subcontract. Goal achievement is calculated for each trade using the hours worked under each trade.
- (b) Companies with contracts, agreements or purchase orders valued at \$10,000 or more will develop and implement an Affirmative Action Plan utilizing the ConnDOT Affirmative Action Plan Guideline. This Plan shall be designed to further the provision of equal employment opportunity to all persons without regard to their race, color, religion, sex or national origin, and to promote the full realization of equal employment opportunity through a positive continuation program. Plans shall be updated as required by ConnDOT.

3. Contract Wage Rates

The Contractor shall comply with:

The State wage rate requirements indicated in Exhibit E hereof are hereby made part of this Contract.

Prevailing Wages for Work on State Highways; Annual Adjustments. With respect to contracts for work on state highways and bridges on state highways, the Contractor shall comply with the provisions of Section 31-54 and 31-55a of the Connecticut General Statutes, as revised.

As required by section 1.05.12 (Payrolls) of the State of Connecticut, Department of Transportation's Standard Specification for Roads, Bridges and Incidental Construction (FORM 816), as may be revised, every Contractor or subcontractor performing project work on a federal aid project is required to post the relevant prevailing wage rates as determined by the United States Secretary of Labor. The wage rate determinations shall be posted in prominent and easily accessible places at the work site.

4. Americans with Disabilities Act of 1990, as Amended

This provision applies to those Contractors who are or will be responsible for compliance with the terms of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. 12101 et seq.), (Act), during the term of the Contract. The Contractor represents that it is familiar with the terms of this Act and that it is in compliance with the Act. Failure of the Contractor to satisfy this standard as the same applies to performance under this Contract, either now or during the term of the Contract as it may be amended, will render the Contract voidable at the option of the State upon notice to the contractor. The Contractor warrants that it will hold the State harmless and indemnify the State from any liability which may be imposed upon the State as a result of any failure of the Contractor to be in compliance with this Act, as the same applies to performance under this Contract.

5. Connecticut Statutory Labor Requirements

(a) Construction, Alteration or Repair of Public Works Projects; Wage Rates. The Contractor shall comply with Section 31-53 of the Connecticut General Statutes, as revised. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

(b) Debarment List. Limitation on Awarding Contracts. The Contractor shall comply with Section 31-53a of the Connecticut General Statutes, as revised.

(c) Construction Safety and Health Course. The Contractor shall comply with section 31-53b of the Connecticut General Statutes, as revised. The contractor shall furnish proof to the Labor Commissioner with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 of the Connecticut General Statutes, as revised, on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

Any employee required to complete a construction safety and health course as required that has not completed the course, shall have a maximum of fourteen (14) days to complete the course. If the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the contractor for compliance with this notice. The contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims".

(d) Awarding of Contracts to Occupational Safety and Health Law Violators Prohibited. The Contract is subject to Section 31-57b of the Connecticut General Statutes, as revised.

(e) Residents Preference in Work on Other Public Facilities. NOT APPLICABLE TO FEDERAL AID CONTRACTS. Pursuant to Section 31-52a of the Connecticut General Statutes, as revised, in the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available, then to residents of other states

6. Tax Liability - Contractor's Exempt Purchase Certificate (CERT – 141)

The Contractor shall comply with Chapter 219 of the Connecticut General Statutes pertaining to tangible personal property or services rendered that is/are subject to sales tax. The Contractor is responsible for determining its tax liability. If the Contractor purchases materials or supplies pursuant to the Connecticut Department of Revenue Services' "Contractor's Exempt Purchase Certificate (CERT-141)," as may be revised, the Contractor acknowledges and agrees that title to such materials and supplies installed or placed in the project will vest in the State simultaneously with passage of title from the retailers or vendors thereof, and the Contractor will have no property rights in the materials and supplies purchased.

Forms and instructions are available anytime by:

Internet: Visit the DRS website at www.ct.gov/DRS to download and print Connecticut tax forms; or Telephone: Call 1-800-382-9463 (Connecticut calls outside the Greater Hartford calling area only) and select Option 2 or call 860-297-4753 (from anywhere).

7. Executive Orders

This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill, promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services and to Executive Order No. 49 of Governor Dannel P. Malloy, promulgated May 22, 2015, mandating disclosure of certain gifts to public employees and contributions to certain candidates for office. If Executive Order No. 14 and/or Executive Order No. 49 are applicable, they are deemed to be incorporated into and are made a part of the contract as if they had been fully set forth in it. At the Contractor's request, the Department shall provide a copy of these orders to the Contractor.

8. Non Discrimination Requirement (pursuant to section 4a-60 and 4a-60a of the Connecticut General Statutes, as revised): References to "minority business enterprises" in this Section are not applicable to Federal-aid projects/contracts. Federal-aid projects/contracts are instead subject to the Federal Disadvantaged Business Enterprise Program.

(a) For purposes of this Section, the following terms are defined as follows:

- (1) "Commission" means the Commission on Human Rights and Opportunities;
- (2) "Contract" and "contract" include any extension or modification of the Contract or contract;
- (3) "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- (4) "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose.
- (5) "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;

- (6) "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- (7) "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced;
- (8) "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- (9) "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes § 32-9n; and
- (10) "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the State of Connecticut, including, but not limited to municipalities, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state of the United States, including but not limited to, the District of Columbia, Puerto Rico, U.S. territories and possessions, and federally recognized Indian tribal governments, as defined in Connecticut General Statutes § 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3), or (4) of this subsection.

- (b) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor

agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

- (c) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.
- (d) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.
- (e) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.
- (f) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.
- (g) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes § 46a-56.
- (h) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such

provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

Please be aware the Nondiscrimination Certifications can be found at the Office of Policy and Management website:

<https://portal.ct.gov/OPM/Fin-PSA/Forms/Nondiscrimination-Certification>

9. Whistleblower Provision

The following clause is applicable if the Contract has a value of Five Million Dollars (\$5,000,000) or more.

Whistleblowing. This Contract may be subject to the provisions of Section 4-61dd of the Connecticut General Statutes. In accordance with this statute, if an officer, employee or appointing authority of the Contractor takes or threatens to take any personnel action against any employee of the Contractor in retaliation for such employee's disclosure of information to any employee of the contracting state or quasi-public agency or the Auditors of Public Accounts or the Attorney General under the provisions of subsection (a) of such statute, the Contractor shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of this Contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation, each calendar day's continuance of the violation shall be deemed to be a separate and distinct offense. The State may request that the Attorney General bring a civil action in the Superior Court for the Judicial District of Hartford to seek imposition and recovery of such civil penalty. In accordance with subsection (f) of such statute, each large state contractor, as defined in the statute, shall post a notice of the provisions of the statute relating to large state contractors in a conspicuous place which is readily available for viewing by the employees of the Contractor.

10. Connecticut Freedom of Information Act

- (a) **Disclosure of Records.** This Contract may be subject to the provisions of section 1-218 of the Connecticut General Statutes. In accordance with this statute, each contract in excess of two million five hundred thousand dollars between a public agency and a person for the performance of a governmental function shall (a) provide that the public agency is entitled to receive a copy of records and files related to the performance of the governmental function, and (b) indicate that such records and files are subject to FOIA and may be disclosed by the public agency pursuant to FOIA. No request to inspect or copy such records or files shall be valid unless the request is made to the public agency in accordance with FOIA. Any complaint by a person who is denied the right to inspect or copy such records or files shall be brought to the Freedom of Information Commission in accordance with the provisions of sections 1-205 and 1-206 of the Connecticut General Statutes.
- (b) **Confidential Information.** The State will afford due regard to the Contractor's request for the protection of proprietary or confidential information which the State receives from the Contractor. However, all materials associated with the Contract are subject to the terms of the FOIA and all corresponding rules, regulations and interpretations. In making such a request, the Contractor may not merely state generally that the materials are proprietary or confidential in nature and not, therefore, subject to release to third parties. Those particular sentences, paragraphs, pages or sections that the Contractor believes are exempt from disclosure under the FOIA must be specifically identified as such. Convincing explanation and rationale sufficient to justify each exemption consistent with the FOIA must

accompany the request. The rationale and explanation must be stated in terms of the prospective harm to the competitive position of the Contractor that would result if the identified material were to be released and the reasons why the materials are legally exempt from release pursuant to the FOIA. To the extent that any other provision or part of the Contract conflicts or is in any way inconsistent with this section, this section controls and shall apply and the conflicting provision or part shall not be given effect. If the Contractor indicates that certain documentation is submitted in confidence, by specifically and clearly marking the documentation as "CONFIDENTIAL," DOT will first review the Contractor's claim for consistency with the FOIA (that is, review that the documentation is actually a trade secret or commercial or financial information and not required by statute), and if determined to be consistent, will endeavor to keep such information confidential to the extent permitted by law. See, *e.g.*, Conn. Gen. Stat. §1-210(b)(5)(A-B). The State, however, has no obligation to initiate, prosecute or defend any legal proceeding or to seek a protective order or other similar relief to prevent disclosure of any information that is sought pursuant to a FOIA request. Should the State withhold such documentation from a Freedom of Information requester and a complaint be brought to the Freedom of Information Commission, the Contractor shall have the burden of cooperating with DOT in defense of that action and in terms of establishing the availability of any FOIA exemption in any proceeding where it is an issue. In no event shall the State have any liability for the disclosure of any documents or information in its possession which the State believes are required to be disclosed pursuant to the FOIA or other law.

11. Service of Process

The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoints the Secretary of State of the State of Connecticut, and his successors in office, as agent for service of process for any action arising out of or as a result of this Contract; such appointment to be in effect throughout the life of this Contract and six (6) years thereafter.

12. Substitution of Securities for Retainages on State Contracts and Subcontracts

This Contract is subject to the provisions of Section 3-112a of the General Statutes of the State of Connecticut, as revised.

13. Health Insurance Portability and Accountability Act of 1996 (HIPAA)

The Contractor shall comply, if applicable, with the Health Insurance Portability and Accountability Act of 1996 and, pursuant thereto, the provisions attached at Exhibit C, and hereby made part of this Contract.

14. Forum and Choice of Law

Forum and Choice of Law. The parties deem the Contract to have been made in the City of Hartford, State of Connecticut. Both parties agree that it is fair and reasonable for the validity and construction of the Contract to be, and it shall be, governed by the laws and court decisions of the State of Connecticut, without giving effect to its principles of conflicts of laws. To the extent that any immunities provided by Federal law or the laws of the State of Connecticut do not bar an action against the State, and to the extent that these courts are courts of competent jurisdiction, for the purpose of venue, the complaint shall be made returnable to the Judicial District of Hartford only or shall be brought in the United States District Court for the District of Connecticut only, and shall not be

transferred to any other court, provided, however, that nothing here constitutes a waiver or compromise of the sovereign immunity of the State of Connecticut. The Contractor waives any objection which it may now have or will have to the laying of venue of any Claims in any forum and further irrevocably submits to such jurisdiction in any suit, action or proceeding.

15. Summary of State Ethics Laws

Pursuant to the requirements of section 1-101qq of the Connecticut General Statutes, the summary of State ethics laws developed by the State Ethics Commission pursuant to section 1-81b of the Connecticut General Statutes is incorporated by reference into and made a part of the Contract as if the summary had been fully set forth in the Contract.

16. Audit and Inspection of Plants, Places of Business and Records

- (a) The State and its agents, including, but not limited to, the Connecticut Auditors of Public Accounts, Attorney General and State's Attorney and their respective agents, may, at reasonable hours, inspect and examine all of the parts of the Contractor's and Contractor Parties' plants and places of business which, in any way, are related to, or involved in, the performance of this Contract. For the purposes of this Section, "Contractor Parties" means the Contractor's members, directors, officers, shareholders, partners, managers, principal officers, representatives, agents, servants, consultants, employees or any one of them or any other person or entity with whom the Contractor is in privity of oral or written contract and the Contractor intends for such other person or entity to Perform under the Contract in any capacity.
- (b) The Contractor shall maintain, and shall require each of the Contractor Parties to maintain, accurate and complete Records. The Contractor shall make all of its and the Contractor Parties' Records available at all reasonable hours for audit and inspection by the State and its agents.
- (c) The State shall make all requests for any audit or inspection in writing and shall provide the Contractor with at least twenty-four (24) hours' notice prior to the requested audit and inspection date. If the State suspects fraud or other abuse, or in the event of an emergency, the State is not obligated to provide any prior notice.
- (d) The Contractor shall keep and preserve or cause to be kept and preserved all of its and Contractor Parties' Records until three (3) years after the latter of (i) final payment under this Agreement, or (ii) the expiration or earlier termination of this Agreement, as the same may be modified for any reason. The State may request an audit or inspection at any time during this period. If any Claim or audit is started before the expiration of this period, the Contractor shall retain or cause to be retained all Records until all Claims or audit findings have been resolved.
- (e) The Contractor shall cooperate fully with the State and its agents in connection with an audit or inspection. Following any audit or inspection, the State may conduct and the Contractor shall cooperate with an exit conference.
- (f) The Contractor shall incorporate this entire Section verbatim into any contract or other agreement that it enters into with any Contractor Party.

17. Campaign Contribution Restriction

For all State contracts, defined in Conn. Gen. Stat. §9-612(f)(1) as having a value in a calendar year of \$50,000 or more, or a combination or series of such agreements or contracts having a value of \$100,000 or more, the authorized signatory to this contract expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice, as set forth in "Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations," a copy of which is attached hereto and hereby made a part of this contract, attached as Exhibit D.

18. Tangible Personal Property

- (a) The Contractor on its behalf and on behalf of its Affiliates, as defined below, shall comply with the provisions of Conn. Gen. Stat. §12-411b, as follows:
- (1) For the term of the Contract, the Contractor and its Affiliates shall collect and remit to the State of Connecticut, Department of Revenue Services, any Connecticut use tax due under the provisions of Chapter 219 of the Connecticut General Statutes for items of tangible personal property sold by the Contractor or by any of its Affiliates in the same manner as if the Contractor and such Affiliates were engaged in the business of selling tangible personal property for use in Connecticut and had sufficient nexus under the provisions of Chapter 219 to be required to collect Connecticut use tax;
 - (2) A customer's payment of a use tax to the Contractor or its Affiliates relieves the customer of liability for the use tax;
 - (3) The Contractor and its Affiliates shall remit all use taxes they collect from customers on or before the due date specified in the Contract, which may not be later than the last day of the month next succeeding the end of a calendar quarter or other tax collection period during which the tax was collected;
 - (4) The Contractor and its Affiliates are not liable for use tax billed by them but not paid to them by a customer; and
 - (5) Any Contractor or Affiliate who fails to remit use taxes collected on behalf of its customers by the due date specified in the Contract shall be subject to the interest and penalties provided for persons required to collect sales tax under chapter 219 of the general statutes.
- (b) For purposes of this section of the Contract, the word "Affiliate" means any person, as defined in section 12-1 of the general statutes, that controls, is controlled by, or is under common control with another person. A person controls another person if the person owns, directly or indirectly, more than ten per cent of the voting securities of the other person. The word "voting security" means a security that confers upon the holder the right to vote for the election of members of the board of directors or similar governing body of the business, or that is convertible into, or entitles the holder to receive, upon its exercise, a security that confers such a right to vote. "Voting security" includes a general partnership interest.
- (c) The Contractor represents and warrants that each of its Affiliates has vested in the Contractor plenary authority to so bind the Affiliates in any agreement with the State of Connecticut. The Contractor on its own behalf and on behalf of its Affiliates shall also provide, no later than 30 days after receiving a request by the State's contracting authority, such information as the State may require to ensure, in the State's sole determination, compliance with the provisions of Chapter 219 of the Connecticut General Statutes, including, but not limited to, §12-411b.

19. Bid Rigging and/or Fraud – Notice to Contractor

The Connecticut Department of Transportation is cooperating with the U.S. Department of Transportation and the Justice Department in their investigation into highway construction contract bid rigging and/or fraud.

A toll-free "HOT LINE" telephone number 800-424-9071 has been established to receive information from contractors, subcontractors, manufacturers, suppliers or anyone with knowledge of bid rigging and/or fraud, either past or current. The "HOT LINE" telephone number will be available during normal working hours (8:00 am – 5:00 pm EST). Information will be treated confidentially and anonymity respected.

20. Consulting Agreement Affidavit

The Contractor shall comply with Connecticut General Statutes Section 4a-81(a) and 4a-81(b), as revised. Pursuant to Public Act 11-229, after the initial submission of the form, if there is a change in

the information contained in the form, a contractor shall submit the updated form, as applicable, either (i) not later than thirty (30) days after the effective date of such change or (ii) prior to execution of any new contract, whichever is earlier.

The Affidavit/Form may be submitted in written format or electronic format through the Department of Administrative Services (DAS) website.

EXHIBIT A**TITLE VI CONTRACTOR ASSURANCES**

During the performance of this Contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor shall comply with the regulations relative to nondiscrimination in federally assisted programs of the United States Department of Transportation (hereinafter, "USDOT"), Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the "Regulations"), which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the Contract, shall not discriminate on the grounds of race, color, national origin, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by Subsection 5 of the Regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:**

In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, or disability.

4. **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Connecticut Department of Transportation (ConnDOT) or the Funding Agency (FHWA, FTA and FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to ConnDOT or the Funding Agency, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the ConnDOT shall impose such sanctions as it or the Funding Agency may determine to be appropriate, including, but not limited to:

- A. Withholding contract payments until the Contractor is in-compliance; and/or
- B. Cancellation, termination, or suspension of the Contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Contractor shall take such action with respect to any subcontract or procurement as the ConnDOT or the Funding Agency may -direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the ConnDOT to enter into such litigation to protect the interests of the Funding Agency, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States

EXHIBIT B

CONTRACTOR WORKFORCE UTILIZATION / EQUAL EMPLOYMENT OPPORTUNITY

1. Project Workforce Utilization Goals:

These goals are applicable to all the Contractor’s construction work (whether or not it is Federal or Federally assisted or funded) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where the work is actually performed.

Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications which contain the applicable goals for minority and female participation.

The goals for minority and female utilization are expressed in percentage terms for the contractor’s aggregate work-force in each trade on all construction work in the covered area, are referenced in the Appendix A below.

STATE FUNDED PROJECTS (only)
APPENDIX A
(Labor Market Goals)

LABOR MARKET AREA GOAL
Female

Minority

| | | | | |
|-------------------|---------------|-------------|-------------|--------------|
| Bridgeport | | | | 22.7% |
| 1.4% | | | | |
| Ansonia | Beacon Falls | Bridgeport | Derby | |
| Easton | Fairfield | Milford | Monroe | |
| Oxford | Seymour | Shelton | Stratford | |
| Trumbull | | | | |
| Danbury | | | | 10.7% |
| 3.8% | | | | |
| Bethel | Bridgewater | Brookfield | Danbury | |
| Kent | New Fairfield | New Milford | Newtown | |
| Redding | Ridgefield | Roxbury | Sherman | |
| Washington | | | | |
| Danielson | | | | 4.3% |
| 1.8% | | | | |
| Brooklyn | Eastford | Hampton | Killingly | |
| Pomfret | Putnam | Scotland | Sterling | |
| Thompson | Voluntown | Union | Woodstock | |
| Hartford | | | | 13.7% |
| 2.1% | | | | |
| Andover | Ashford | Avon | Barkhamsted | |

| | | | |
|--------------|---------------|--------------|---------------|
| Belin | Bloomfield | Bolton | Bristol |
| Burlington | Canton | Chaplin | Colchester |
| Columbia | Coventry | Cromwell | Durham |
| East Granby | East Haddam | East Hampton | East Hartford |
| East Windsor | Ellington | Enfield | Farmington |
| Glastonbury | Granby | Haddam | Hartford |
| Harwinton | Hebron | Lebanon | Manchester |
| Mansfield | Marlborough | Middlefield | Middletown |
| Newington | Plainville | Plymouth | Portland |
| Rocky Hill | Simsbury | Somers | South Windsor |
| Southington | Stafford | Suffield | Tolland |
| Vernon | West Hartford | Wethersfield | Willington |
| Winchester | Windham | Windsor | Windsor Locks |

| | | | | |
|--------------------|--|--|--|-------------|
| Lower River | | | | 4.3% |
| 1.8% | | | | |

| | | | |
|-----------|------------|-------|----------|
| Chester | Deep River | Essex | Old Lyme |
| Westbrook | | | |

LABOR MARKET AREA GOAL

Minority

Female

| | | | | |
|------------------|--|--|--|--------------|
| New Haven | | | | 17.9% |
| 3.1% | | | | |

| | | | |
|-------------|----------|-------------|----------------|
| Bethany | Branford | Cheshire | Clinton |
| East Haven | Guilford | Hamden | Killingworth |
| Madison | Meriden | New Haven | North Branford |
| North Haven | Orange | Wallingford | West Haven |
| Woodbridge | | | |

| | | | | |
|-------------------|--|--|--|-------------|
| New London | | | | 7.4% |
| 3.1% | | | | |

| | | | |
|-----------|----------------------------|------------------|-----------|
| Bozrah | Canterbury | East Lyme | Franklin |
| Griswold | Groton | Ledyard | Lisbon |
| Montville | New London | North Stonington | Norwich |
| Old Lyme | Old Saybrook | Plainfield | Preston |
| Salem | Sprague | Stonington | Waterford |
| Hopkinton | RI – Westerly Rhode Island | | |

| | | | | |
|-----------------|--|--|--|--------------|
| Stamford | | | | 33.2% |
| 2.1% | | | | |

| | | | |
|----------|-----------|------------|---------|
| Darien | Greenwich | New Canaan | Norwalk |
| Stamford | Weston | Westport | Wilton |

| | | | | |
|-------------------|--|--|--|-------------|
| Torrington | | | | 4.3% |
| 1.8% | | | | |

| | | | |
|----------|--------------|------------|--------|
| Canaan | Colebrook | Cornwall | Goshen |
| Hartland | Kent | Litchfield | Morris |
| Norfolk | North Canaan | Salisbury | Sharon |

Torrington

Warren

| | | | | |
|------------------|------------|-----------|-----------|--------------|
| Waterbury | | | | 12.4% |
| 1.6% | | | | |
| Bethlehem | Middlebury | Naugatuck | Prospect | |
| Southbury | Thomaston | Waterbury | Watertown | |
| Wolcott | Woodbury | | | |

Rev. 4/24/2019

EXHIBIT C**Health Insurance Portability and Accountability Act of 1996 (“HIPAA”).**

- (a) If the Contactor is a Business Associate under the requirements of the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), the Contractor must comply with all terms and conditions of this Section of the Contract. If the Contractor is not a Business Associate under HIPAA, this Section of the Contract does not apply to the Contractor for this Contract.
- (b) The Contractor is required to safeguard the use, publication and disclosure of information on all applicants for, and all clients who receive, services under the Contract in accordance with all applicable federal and state law regarding confidentiality, which includes but is not limited to HIPAA, more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E; and
- (c) The State of Connecticut Agency named on page 1 of this Contract (hereinafter the “Department”) is a “covered entity” as that term is defined in 45 C.F.R. § 160.103; and
- (d) The Contractor, on behalf of the Department, performs functions that involve the use or disclosure of “individually identifiable health information,” as that term is defined in 45 C.F.R. § 160.103; and
- (e) The Contractor is a “business associate” of the Department, as that term is defined in 45 C.F.R. § 160.103; and
- (f) The Contractor and the Department agree to the following in order to secure compliance with the HIPAA, the requirements of Subtitle D of the Health Information Technology for Economic and Clinical Health Act (hereinafter the HITECH Act), (Pub. L. 111-5, sections 13400 to 13423), and more specifically with the Privacy and Security Rules at 45 C.F.R. Part 160 and Part 164, subparts A, C, and E.
- (g) Definitions
 - (1) “Breach shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(1))
 - (2) “Business Associate” shall mean the Contractor.
 - (3) “Covered Entity” shall mean the Department of the State of Connecticut named on page 1 of this Contract.
 - (4) “Designated Record Set” shall have the same meaning as the term “designated record set” in 45 C.F.R. § 164.501.
 - (5) “Electronic Health Record” shall have the same meaning as the term is defined in section 13400 of the HITECH Act (42 U.S.C. §17921(5))

- (6) "Individual" shall have the same meaning as the term "individual" in 45 C.F.R. § 160.103 and shall include a person who qualifies as a personal representative as defined in 45 C.F.R. § 164.502(g).
 - (7) "Privacy Rule" shall mean the Standards for Privacy of Individually Identifiable Health Information at 45 C.F.R. part 160 and parts 164, subparts A and E.
 - (8) "Protected Health Information" or "PHI" shall have the same meaning as the term "protected health information" in 45 C.F.R. § 160.103, limited to information created or received by the Business Associate from or on behalf of the Covered Entity.
 - (9) "Required by Law" shall have the same meaning as the term "required by law" in 45 C.F.R. § 164.103.
 - (10) "Secretary" shall mean the Secretary of the Department of Health and Human Services or his designee.
 - (11) "More stringent" shall have the same meaning as the term "more stringent" in 45 C.F.R. § 160.202.
 - (12) "This Section of the Contract" refers to the HIPAA Provisions stated herein, in their entirety.
 - (13) "Security Incident" shall have the same meaning as the term "security incident" in 45 C.F.R. § 164.304.
 - (14) "Security Rule" shall mean the Security Standards for the Protection of Electronic Protected Health Information at 45 C.F.R. part 160 and parts 164, subpart A and C.
 - (15) "Unsecured protected health information" shall have the same meaning as the term as defined in section 13402(h)(1)(A) of HITECH. Act. (42 U.S.C. §17932(h)(1)(A)).
- (h) Obligations and Activities of Business Associates.
- (1) Business Associate agrees not to use or disclose PHI other than as permitted or required by this Section of the Contract or as Required by Law.
 - (2) Business Associate agrees to use appropriate safeguards to prevent use or disclosure of PHI other than as provided for in this Section of the Contract.
 - (3) Business Associate agrees to use administrative, physical and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of electronic protected health information that it creates, receives, maintains, or transmits on behalf of the Covered Entity.
 - (4) Business Associate agrees to mitigate, to the extent practicable, any harmful effect that is known to the Business Associate of a use or disclosure of PHI by Business Associate in violation of this Section of the Contract.

- (5) Business Associate agrees to report to Covered Entity any use or disclosure of PHI not provided for by this Section of the Contract or any security incident of which it becomes aware.
- (6) Business Associate agrees to insure that any agent, including a subcontractor, to whom it provides PHI received from, or created or received by Business Associate, on behalf of the Covered Entity, agrees to the same restrictions and conditions that apply through this Section of the Contract to Business Associate with respect to such information.
- (7) Business Associate agrees to provide access, at the request of the Covered Entity, and in the time and manner agreed to by the parties, to PHI in a Designated Record Set, to Covered Entity or, as directed by Covered Entity, to an Individual in order to meet the requirements under 45 C.F.R. § 164.524.
- (8) Business Associate agrees to make any amendments to PHI in a Designated Record Set that the Covered Entity directs or agrees to pursuant to 45 C.F.R. § 164.526 at the request of the Covered Entity, and in the time and manner agreed to by the parties.
- (9) Business Associate agrees to make internal practices, books, and records, including policies and procedures and PHI, relating to the use and disclosure of PHI received from, or created or received by, Business Associate on behalf of Covered Entity, available to Covered Entity or to the Secretary in a time and manner agreed to by the parties or designated by the Secretary, for purposes of the Secretary determining Covered Entity's compliance with the Privacy Rule.
- (10) Business Associate agrees to document such disclosures of PHI and information related to such disclosures as would be required for Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (11) Business Associate agrees to provide to Covered Entity, in a time and manner agreed to by the parties, information collected in accordance with clause h. (10) of this Section of the Contract, to permit Covered Entity to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder. Business Associate agrees at the Covered Entity's direction to provide an accounting of disclosures of PHI directly to an individual in accordance with 45 C.F.R. § 164.528 and section 13405 of the HITECH Act (42 U.S.C. § 17935) and any regulations promulgated thereunder.
- (12) Business Associate agrees to comply with any state or federal law that is more stringent than the Privacy Rule.
- (13) Business Associate agrees to comply with the requirements of the HITECH Act relating to privacy and security that are applicable to the Covered Entity and with the requirements of 45 C.F.R. sections 164.504(e), 164.308, 164.310, 164.312, and 164.316.

- (14) In the event that an individual requests that the Business Associate (a) restrict disclosures of PHI; (b) provide an accounting of disclosures of the individual's PHI; or (c) provide a copy of the individual's PHI in an electronic health record, the Business Associate agrees to notify the covered entity, in writing, within two business days of the request.
- (15) Business Associate agrees that it shall not, directly or indirectly, receive any remuneration in exchange for PHI of an individual without (1) the written approval of the covered entity, unless receipt of remuneration in exchange for PHI is expressly authorized by this Contract and (2) the valid authorization of the individual, except for the purposes provided under section 13405(d)(2) of the HITECH Act,(42 U.S.C. § 17935(d)(2)) and in any accompanying regulations
- (16) Obligations in the Event of a Breach
- A. The Business Associate agrees that, following the discovery of a breach of unsecured protected health information, it shall notify the Covered Entity of such breach in accordance with the requirements of section 13402 of HITECH (42 U.S.C. 17932(b) and the provisions of this Section of the Contract.
- B. Such notification shall be provided by the Business Associate to the Covered Entity without unreasonable delay, and in no case later than 30 days after the breach is discovered by the Business Associate, except as otherwise instructed in writing by a law enforcement official pursuant to section 13402 (g) of HITECH (42 U.S.C. 17932(g)) . A breach is considered discovered as of the first day on which it is, or reasonably should have been, known to the Business Associate. The notification shall include the identification and last known address, phone number and email address of each individual (or the next of kin of the individual if the individual is deceased) whose unsecured protected health information has been, or is reasonably believed by the Business Associate to have been, accessed, acquired, or disclosed during such breach.
- C. The Business Associate agrees to include in the notification to the Covered Entity at least the following information:
1. A brief description of what happened, including the date of the breach and the date of the discovery of the breach, if known.
 2. A description of the types of unsecured protected health information that were involved in the breach (such as full name, Social Security number, date of birth, home address, account number, or disability code).
 3. The steps the Business Associate recommends that individuals take to protect themselves from potential harm resulting from the breach.
 4. A detailed description of what the Business Associate is doing to investigate the breach, to mitigate losses, and to protect against any further breaches.
 5. Whether a law enforcement official has advised either verbally or in writing the Business Associate that he or she has determined that notification or notice to

individuals or the posting required under section 13402 of the HITECH Act would impede a criminal investigation or cause damage to national security and; if so, include contact information for said official.

- D. Business Associate agrees to provide appropriate staffing and have established procedures to ensure that individuals informed by the Covered Entity of a breach by the Business Associate have the opportunity to ask questions and contact the Business Associate for additional information regarding the breach. Such procedures shall include a toll-free telephone number, an e-mail address, a posting on its Web site and a postal address. Business Associate agrees to include in the notification of a breach by the Business Associate to the Covered Entity, a written description of the procedures that have been established to meet these requirements. Costs of such contact procedures will be borne by the Contractor.
 - E. Business Associate agrees that, in the event of a breach, it has the burden to demonstrate that it has complied with all notifications requirements set forth above, including evidence demonstrating the necessity of a delay in notification to the Covered Entity.
- (i) Permitted Uses and Disclosure by Business Associate.
- (1) General Use and Disclosure Provisions Except as otherwise limited in this Section of the Contract, Business Associate may use or disclose PHI to perform functions, activities, or services for, or on behalf of, Covered Entity as specified in this Contract, provided that such use or disclosure would not violate the Privacy Rule if done by Covered Entity or the minimum necessary policies and procedures of the Covered Entity.
 - (2) Specific Use and Disclosure Provisions
 - (A) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI for the proper management and administration of Business Associate or to carry out the legal responsibilities of Business Associate.
 - (B) Except as otherwise limited in this Section of the Contract, Business Associate may disclose PHI for the proper management and administration of Business Associate, provided that disclosures are Required by Law, or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that it will remain confidential and used or further disclosed only as Required by Law or for the purpose for which it was disclosed to the person, and the person notifies Business Associate of any instances of which it is aware in which the confidentiality of the information has been breached.
 - (C) Except as otherwise limited in this Section of the Contract, Business Associate may use PHI to provide Data Aggregation services to Covered Entity as permitted by 45 C.F.R. § 164.504(e)(2)(i)(B).
- (j) Obligations of Covered Entity.

- (1) Covered Entity shall notify Business Associate of any limitations in its notice of privacy practices of Covered Entity, in accordance with 45 C.F.R. § 164.520, or to the extent that such limitation may affect Business Associate's use or disclosure of PHI.
 - (2) Covered Entity shall notify Business Associate of any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Business Associate's use or disclosure of PHI.
 - (3) Covered Entity shall notify Business Associate of any restriction to the use or disclosure of PHI that Covered Entity has agreed to in accordance with 45 C.F.R. § 164.522, to the extent that such restriction may affect Business Associate's use or disclosure of PHI.
- (k) Permissible Requests by Covered Entity. Covered Entity shall not request Business Associate to use or disclose PHI in any manner that would not be permissible under the Privacy Rule if done by the Covered Entity, except that Business Associate may use and disclose PHI for data aggregation, and management and administrative activities of Business Associate, as permitted under this Section of the Contract.
- (l) Term and Termination.
- (1) Term. The Term of this Section of the Contract shall be effective as of the date the Contract is effective and shall terminate when the information collected in accordance with clause h. (10) of this Section of the Contract is provided to the Covered Entity and all of the PHI provided by Covered Entity to Business Associate, or created or received by Business Associate on behalf of Covered Entity, is destroyed or returned to Covered Entity, or, if it is infeasible to return or destroy PHI, protections are extended to such information, in accordance with the termination provisions in this Section.
 - (2) Termination for Cause Upon Covered Entity's knowledge of a material breach by Business Associate, Covered Entity shall either:
 - (A) Provide an opportunity for Business Associate to cure the breach or end the violation and terminate the Contract if Business Associate does not cure the breach or end the violation within the time specified by the Covered Entity; or
 - (B) Immediately terminate the Contract if Business Associate has breached a material term of this Section of the Contract and cure is not possible; or
 - (C) If neither termination nor cure is feasible, Covered Entity shall report the violation to the Secretary.
 - (3) Effect of Termination
 - (A) Except as provided in (1)(2) of this Section of the Contract, upon termination of this Contract, for any reason, Business Associate shall return or destroy all PHI received from Covered Entity, or created or received by Business Associate on behalf of Covered Entity. Business Associate shall also provide the information collected in accordance with clause h. (10) of this Section of the Contract to the Covered Entity

within ten business days of the notice of termination. This provision shall apply to PHI that is in the possession of subcontractors or agents of Business Associate. Business Associate shall retain no copies of the PHI.

(B) In the event that Business Associate determines that returning or destroying the PHI is infeasible, Business Associate shall provide to Covered Entity notification of the conditions that make return or destruction infeasible. Upon documentation by Business Associate that return or destruction of PHI is infeasible, Business Associate shall extend the protections of this Section of the Contract to such PHI and limit further uses and disclosures of PHI to those purposes that make return or destruction infeasible, for as long as Business Associate maintains such PHI. Infeasibility of the return or destruction of PHI includes, but is not limited to, requirements under state or federal law that the Business Associate maintains or preserves the PHI or copies thereof.

(m) Miscellaneous Provisions.

(1) Regulatory References. A reference in this Section of the Contract to a section in the Privacy Rule means the section as in effect or as amended.

(2) Amendment. The Parties agree to take such action as is necessary to amend this Section of the Contract from time to time as is necessary for Covered Entity to comply with requirements of the Privacy Rule and the Health Insurance Portability and Accountability Act of 1996, Pub. L. No. 104-191.

(3) Survival. The respective rights and obligations of Business Associate shall survive the termination of this Contract.

(4) Effect on Contract. Except as specifically required to implement the purposes of this Section of the Contract, all other terms of the Contract shall remain in force and effect.

(5) Construction. This Section of the Contract shall be construed as broadly as necessary to implement and comply with the Privacy Standard. Any ambiguity in this Section of the Contract shall be resolved in favor of a meaning that complies, and is consistent with, the Privacy Standard.

(6) Disclaimer. Covered Entity makes no warranty or representation that compliance with this Section of the Contract will be adequate or satisfactory for Business Associate's own purposes. Covered Entity shall not be liable to Business Associate for any claim, civil or criminal penalty, loss or damage related to or arising from the unauthorized use or disclosure of PHI by Business Associate or any of its officers, directors, employees, contractors or agents, or any third party to whom Business Associate has disclosed PHI contrary to the provisions of this Contract or applicable law. Business Associate is solely responsible for all decisions made, and actions taken, by Business Associate regarding the safeguarding, use and disclosure of PHI within its possession, custody or control.

(7) Indemnification. The Business Associate shall indemnify and hold the Covered Entity harmless from and against any and all claims, liabilities, judgments, fines, assessments, penalties, awards and any statutory damages that may be imposed or assessed pursuant to HIPAA, as amended or the

April 2019

HITECH Act, including, without limitation, attorney's fees, expert witness fees, costs of investigation, litigation or dispute resolution, and costs awarded thereunder, relating to or arising out of any violation by the Business Associate and its agents, including subcontractors, of any obligation of Business Associate and its agents, including subcontractors, under this section of the contract, under HIPAA, the HITECH Act, the Privacy Rule and the Security Rule.

Notice to Executive Branch State Contractors and Prospective State Contractors of Campaign Contribution and Solicitation Limitations

This notice is provided under the authority of Connecticut General Statutes §9-612(g)(2), as amended by P.A. 10-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (*italicized words are defined on the reverse side of this page*).

CAMPAIGN CONTRIBUTION AND SOLICITATION LIMITATIONS

No *state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract or state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee (which includes town committees).

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

On and after January 1, 2011, no state contractor, prospective state contractor, principal of a state contractor or principal of a prospective state contractor, with regard to a state contract or state contract solicitation with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall **knowingly solicit** contributions from the state contractor's or prospective state contractor's employees or from a *subcontractor or principals of the subcontractor* on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

DUTY TO INFORM

State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

PENALTIES FOR VIOLATIONS

Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties—Up to \$2,000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of up to \$2,000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or not more than \$5,000 in fines, or both.

CONTRACT CONSEQUENCES

In the case of a state contractor, contributions made or solicited in violation of the above prohibitions may result in the contract being voided.

In the case of a prospective state contractor, contributions made or solicited in violation of the above prohibitions shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State shall not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to "Lobbyist/Contractor Limitations."

DEFINITIONS

“State contractor” means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. “State contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Prospective state contractor” means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. “Prospective state contractor” does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a state contractor or prospective state contractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract*, (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

“State contract” means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. “State contract” does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan, a loan to an individual for other than commercial purposes or any agreement or contract between the state or any state agency and the United States Department of the Navy or the United States Department of Defense.

“State contract solicitation” means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual's household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

“Subcontractor” means any person, business entity or nonprofit organization that contracts to perform part or all of the obligations of a state contractor's state contract. Such person, business entity or nonprofit organization shall be deemed to be a subcontractor until December thirty first of the year in which the subcontract terminates. “Subcontractor” does not include (i) a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or (ii) an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

“Principal of a subcontractor” means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a subcontractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization, (ii) an individual who is employed by a subcontractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a subcontractor, which is not a business entity, or if a subcontractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any subcontractor who has managerial or discretionary responsibilities with respect to a subcontract with a state contractor, (v) the spouse or a dependent child who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the subcontractor.

GENERAL REQUIREMENTS

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GENERAL REQUIREMENTS

Parcel A/B Major Hub Development

Naugatuck, CT

Contract FY24-B094

1. Scope of Work

The project consists of demolition of a stormwater pumping station, construction of approximately 800 feet of municipal roadway, major drainage and sidewalk reconstruction on Old Firehouse Road, construction of a pedestrian corridor between Church Street and Old Firehouse Road, installation of sidewalk pavers, fencing, curbing, lighting, street trees, and other amenities within the Borough's downtown. The work shall also conform to such additional Drawings and addenda to these Specifications and Drawings as may be published or exhibited prior to the opening of bid proposals and to such drawings in explanation of details, or as may be furnished by the Engineer from time to time during the construction.

Work and materials which are necessary in the construction, but which are not specifically referred to in the Specification, or shown on the Drawings, but implied by the Contract shall be furnished by the Contractor at their own cost and expense and shall be such as will correspond with the general character of the work as may be determined by the Engineer, whose decisions as to the necessity for and character of such work and materials shall be final and conclusive. It is the intent of these Specifications to produce a complete, operational, and finished project whether shown in every detail or not.

The Borough reserves the right to decrease the Scope of Work to be done under this Contract, select bid or alternate items in its best interest, or to omit any work in order to bring the cost within available funds. Exercise by the Borough of the above rights shall not constitute any grounds or basis of claim for damages or for anticipated profits on work omitted.

2. Standards

Wherever reference is made in this Contract to the Standard of any technical society or other recognized organization, these shall be construed to mean the latest standard adopted and published at the date of advertisement for bids.

Abbreviations are defined as follows:

| | |
|-----------|--|
| ASTM -- | American Society of Testing and Materials. |
| ANSI -- | American National Standards Institute |
| ASA -- | American Standards Association |
| ACI -- | American Concrete Institute |
| AASHTO -- | American Association of State Highway and Transportation Officials |
| ASME -- | American Society of Mechanical Town of Deep River Inspectors |
| IEEE -- | Institute of Electrical and Electronics Engineers |
| AWWA-- | American Water Works Association |
| ACPA-- | American Concrete Pipe Association |

3. Contract Drawings and Working Drawings

The work is shown on the accompanying Contract Drawings. Such additional working drawings, as required because of changes or to provide greater detail, will be provided by the Engineer.

4. Alterations

The Engineer may make alterations to the line, grade, plan, form, dimensions, or materials of the work, or any part thereof, either before or after the commencement of the work. If such alterations increase the quantity of work, such increase will be paid for according to the quantity of such extra work actually done and at the prices stipulated for such work under unit price Items of the Contract. In case no unit price is applicable, the alterations will be paid for as extra work defined in Article XXVIII of the Contract.

5. Planimeter

The use of the planimeter shall be considered satisfactory for estimating quantities where geometric and analytic methods would be comparatively laborious.

6. Contractor's Schedule of Operations

The Contractor shall submit, within ten (10) days of the date of the Notice to Proceed, a preliminary schedule of operations for the project to the Owner for approval. The approved preliminary schedule shall be used to prepare a detailed schedule of the principal construction events including all proposed purchase and delivery dates for items with critical delivery times. A supplemental bar graph shall also be prepared based on this construction schedule. The detailed schedule and supplemental bar graph shall be submitted by the preconstruction meeting.

The status of the project shall be evaluated monthly by the Contractor and shall be compared to the original schedule which shall be revised, if necessary, and reissued.

7. Coordination with Other Contractors and Utilities

During the progress of the work, other contractors and/or utilities may be engaged in performing work in the area. The Contractor shall coordinate the work to be done under this Contract with the work of others.

8. Cost Breakdown

Prior to the first estimate for payment to the Contractor, the Contractor shall submit to the Engineer for approval a detailed schedule of values of the various amounts to be paid for within each Lump Sum Item, as applicable. It shall also include, but not necessarily be limited to, proportional amounts for bonds, insurance and miscellaneous works which are to be paid for throughout the life of the Contract, and which are not specifically included for payment under

other Items and/or Division of the Contract.

9. Estimated Quantities

To aid the Owner in determining quantities to be paid for, the Contractor shall, whenever requested, give the Owner access to the proper invoices, bills of lading, or other pertinent documents and shall provide methods and assistance necessary for weighing or measuring materials.

10. Payment for Miscellaneous Work

No direct payment will be made to the Contractor for furnishing and providing miscellaneous temporary works, plants, and services, including Contractor's office, sanitary requirements, water supply, power, tools, equipment, lighting, telephone systems, store houses, store yards, safety devices, permits, insurances, bonds, watchmen, cleanup and the like, or other items specified under these General Requirements, unless payment therefore has been specifically provided. Compensation for the same is understood to be included in the scheduled prices hereinbefore given for the various kinds of work contemplated.

11. Drawings and Information to be furnished by the Contractor

For materials and equipment not supplied by the Owner, the Contractor shall promptly furnish to the Engineer, for their information, three (3) copies of drawings in detail of the materials, equipment, piping, and structural details for any part of the work for which Drawings are not to be issued by the Owner. Before placing orders for any manufactured item or part of structure, they shall also submit three (3) copies, for approval, of detailed lists and descriptions of the various materials, fixtures, fittings and supplies which they propose to use in the work, and also the names of individuals or companies who propose to furnish or manufacture the same. Copies of the results of all tests of materials and equipment shall be furnished by the Contractor immediately following the performance of required tests.

All submittals shall be submitted sufficiently in advance of construction requirements to provide no less than fifteen (15) days, excluding Saturdays, Sundays, and Owner holidays for review from the time received by the Borough's Engineer/Inspector. For submittals of major equipment, that require more than fifteen (15) days to review, due to its sheer complexity and amount of detail and also requiring review by more than one engineering discipline, a letter will be sent by the Project Manager or his/her designee to the Contractor informing him/her of the circumstances and the date it is expected the submittal will be returned to the Contractor.

Prior to the submittal of shop drawings, the Contractor shall check, approve, initial and date the drawings and shall also indicate by reference the Standard Specification, Special Provision and/or Plan which covers the item. Submittals will be returned to the Contractor if they have not been properly processed by them.

Approval by the Owner of shop drawings for any material, apparatus, device and layout shall not relieve the Contractor from the responsibility of furnishing same of proper dimension, size,

quality, quantity and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Approval shall not relieve the Contractor from the responsibility for errors of any sort on the shop drawings. If the shop drawings deviate from the Contract Documents, the Contractor shall advise the Owner of the deviations in writing, including the reasons for the deviation.

In the event the Contractor obtains the Engineer's approval for the material, manufactured items, or equipment, other than that which is shown on the Plans or specified herein, the Contractor shall, at their own expense, make any changes as required in the structures, buildings, piping, or any other portion of the work necessary to accommodate the approved material, manufactured item, or equipment.

12. Substitution Clause

Whenever in the Contract Documents any item of equipment or material is designated by reference to a particular brand, manufacturer or trade name, it is understood that an approved equal product, acceptable to the Owner, may be substituted by the Contractor, except where expressly noted as "no substitutions."

13. Contract Limits

The Contractor shall confine their activities to within street lines, easements, and right-of-way.

The Contractor shall take particular care to existing walls, protect trees and shrubs and private personal property. The Contractor shall make good any damage to the satisfaction of the Owner.

The Contractor shall not enter upon or make use of any private property along the line of work, outside the limits of the rights-of-way, except when written permission is secured from the owner of said property and a copy delivered to the Owner. The Contractor shall be held responsible for all damages or injury, done by the Contractor or those in the Contractor's employment, to any private or public property of any character during the prosecution of the work. The Contractor shall restore or repair at their own expense, in a manner satisfactory to the Owner, such property as may be damaged by their operations during the prosecution of the work.

In case of failure on the part of the Contractor to restore or repair such property in a manner satisfactory to the Owner, the Owner may, upon 48-hour notice to the Contractor, proceed with such restoration or repair. The expense of such restoration or repair shall be deducted from any monies which are due or may become due the Contractor under this Contract.

14. Work in Easements

The Contractor shall comply with all permanent and temporary construction easements related to the work and shall be responsible for coordinating with property owners where work in easements exists.

15. Cleaning up the Site

During the progress of the work, the Contractor shall keep the construction areas in a neat condition, free from accumulations of waste materials and rubbish. Lunch papers, bottles, lumber cut-offs, drinking cups and like rubbish shall be removed from the site daily. No alcoholic beverages will be permitted at the construction site(s).

On, or before the completion of the work, and before acceptance and final payment shall be made, the Contractor shall clean and remove, from the site and adjacent property all surplus and discarded materials, rubbish, and temporary structures and restore, in an acceptable manner, all property and leave the whole area in a neat and presentable condition.

16. Storage of Materials

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms and covered or stored in a suitable building, as directed by the Owner. Stored materials shall be located so as to facilitate prompt inspections.

Materials and equipment supplied by the Owner shall be jointly inspected by the Owner and the Contractor and shall, upon acceptance by the Contractor, become the Contractor's responsibility to make good any damage to the materials and equipment until they have been incorporated and accepted in the work.

17. Removal of Condemned Materials

The Contractor shall remove from the site of the work, without delay, all rejected and condemned materials of any kind brought to or incorporated in the work. No such rejected or condemned materials shall again be offered for use by the Contractor.

18. Hauling Materials

Before starting any work, the Contractor shall arrange, with the Municipal or State officials having jurisdiction, for the use of routes of travel for hauling materials, including surplus earth and rock, that will result in minimum inconvenience to the traveling public. Routes of travel so scheduled shall be adhered to throughout the course of the work, unless otherwise approved.

19. Accommodation of Traffic

During the progress of the work, all streets shall be kept open for the passage of traffic and pedestrians and shall not be obstructed unless authorized by the authority having jurisdiction over same. Driveways, sidewalks, and areas of roadway shall be closed as short a time as possible while work is in progress and passage shall be restored by the close of work every day, by properly placed backfill or approved bridging. The Contractor shall notify residents prior to working in front of their home or business. The Contractor shall take such measures as may be necessary to keep the street open for traffic and shall give at least 48-hour advance notice to the Fire and Police Departments, and the Board of Education of their proposed street operations.

They further agree to be responsible for all legal notices to the public concerning the state of the roads while the work is in progress.

Warning signs shall be provided along all streets while work is in progress and, where traffic direction is required, flag person shall be designated by the Contractor to direct traffic past the equipment, machinery or construction operations. Barricades and lights shall be provided as required to protect life and property. Where trenches have been cut in streets on which traffic may pass at times, warning signs shall be placed at frequent intervals and maintained until the street is safe for travel. All such work and operations shall be in accordance with requirements of the Owner, Standard Specifications and Special Provisions herein. The use of unauthorized or unapproved signs, barricades, or traffic delineators will not be permitted.

The Contractor shall construct, maintain, without extra compensation, such adequate and proper bridges over excavations as may be necessary or directed for the purpose of accommodating pedestrians and vehicles. Ingress and egress to private property, satisfactory to the Owner, shall be continuously provided.

Should the Contractor or their employees neglect to set out and maintain barricades or lights, as required in the Specifications, the Owner may immediately and without notice arrange for furnishing, installing and maintaining barricades or lights and any other precaution deemed necessary. The cost thereof shall be borne by the Contractor and may be deducted from any amount due or to become due to the Contractor under this Contract.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific Contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall be held responsible for any damages that may have to be paid as a consequence of the Contractor's failure to protect the public.

20. Temporary Roads and Driveways

The Contractor shall be responsible for providing and maintaining such temporary access roads, to and along right-of-way. Where temporary roads, necessary for the transportation of materials and equipment are on private property, the Contractor shall obtain permission from the property owners and the Borough for their construction and use and pay all costs pertaining thereto.

21. Dust Control

The Contractor shall take all necessary precautions to prevent and abate nuisance caused by dust arising from their operations. Approved methods applicable to various parts of the work, such as sweeping application of water spray or calcium chloride, shall be employed. This also applies to maintaining temporary paving nuisance-free until permanent paving is placed. The area of construction along roadways shall be broom swept each day after completion of the day's work and the application of water as necessary, all at no additional cost to the owner.

22. Working Conditions

In prosecuting the work of this Contract, the Contractor shall provide working conditions on each operation that shall be as safe and healthful as the nature of the operation permits. The Contractor shall comply with all safety and sanitary rules, laws, and regulations.

23. Work in Inclement Weather

During freezing, storm or inclement weather, no work shall be performed except such as can be done satisfactorily and in such manner as to secure first-class construction throughout.

24. Working Hours

The Contractor's working schedule shall be confined to a five (5)-day week, Monday through Friday, and the working day shall be confined between the hours of 7:00 a.m. and 5:00 p.m. current local time, unless otherwise approved by the Engineer. Refer to Section 1.08 Prosecution and Progress of work for winter shutdown requirements.

Unless otherwise permitted by the Owner, no work shall be done between the hours of 5:00 p.m. and 7:00 a.m. except as necessary for the proper care and protection of the work already performed. If it shall become absolutely necessary to perform work at night, this shall be approved by the Owner at least 24 hours in advance, of the beginning of the performance of such work. Only such work shall be done at night as can be done satisfactorily and in a first-class manner. Good lighting and all other necessary facilities for carrying out and inspecting the work shall be provided and maintained at all points where such work is being done.

25. Emergency Work

The Contractor shall file, with the Borough of Naugatuck Engineer, the name and telephone number of a person authorized by them who may be contacted regarding emergency works at the job site that may be required during non-working hours for reasons of public safety. This person shall be readily available and full Authority to deal with any emergency that may occur.

26. Sedimentation and Erosion Control

The Contractor shall prepare and submit for approval a sedimentation and erosion control plan for the work, prior to the start of construction.

27. Work Near Brook(s) and Stream(s)

Care shall be taken to prevent, or reduce to a minimum, any damage to any water body from pollution by debris, sedimentation, or other material, or from manipulations of equipment and/or materials near such water bodies and on abutting property. Particular care shall be taken to prevent gasoline, diesel fuel, and other oils from entering any water body.

28. Work Within or Near Areas Designated as Inland Wetlands

Care shall be taken to prevent, or reduce to a minimum, any damage to any inland wetland from pollution by debris, sedimentation, or other material, or from manipulations of equipment and/or materials near such water bodies and on abutting property. Particular care shall be taken to prevent gasoline, diesel fuel, and other oils from entering any inland wetland.

29. Soil and Groundwater Conditions

The Owner assumes no responsibility whatsoever with respect to ascertaining for the Contractor such facts concerning physical characteristics at the site of the project. The Contractor agrees that they will make no claim for and has no right to additional payment for extension of time for completion of the work, or any other concession because of any interpretations or misunderstanding on their part of this Contract, or because of any failure on their part to fully acquaint themselves with all conditions relating to the work.

30. General Sewer Requirements

No impact to the sanitary sewer is anticipated. If sanitary sewer conflicts arise, immediately notify the Owner and Engineer.

31. Water Supply and Electrical Energy

Contractor to supply all water and electrical energy required to perform the work at no additional expense to the Owner.

32. Contractor's Office

Refer to the applicable special provision regarding the Contractor's Office.

33. Resident Engineer's Office

Space for the resident engineer shall be provided according to the Contractor's Office special provisions.

34. Explosives and Blasting

Not applicable for this Contract.

35. Sheeting, Shoring, and Bracing

Where necessary, the sides of trenches and excavations shall be supported by adequate sheeting, shoring and bracing. The Contractor shall be held accountable and responsible for the sufficiency of all sheeting, shoring and bracing used and for all damage to persons or property resulting from the improper quality, strength, placing maintaining or removing of the same. Where sheeting is removed, care shall be taken not to disturb the new work or existing utilities and structures. The Contractor shall adhere to all OSHA standards and requirements pertaining to the work.

No sheeting is to be left in place unless expressly permitted by the Engineer. No direct payment will be made for sheeting, shoring, and bracing and compensation for such work and all expenses incidental thereto shall be considered as included in the unit prices bid for the various Items of this Contract.

36. Existing Structures

All known surface and underground structures, except electric and telephone service connections, and water, gas and sewer service pipes, on or immediately adjacent to the work, are shown on the Plans. Sewer, drainage, water and gas mains, manholes and similar structures located in or adjacent to the location of the structures included in this Contract, are shown on the Contract Drawings, which locations should be considered approximate. This information is shown for the convenience of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete. The Contractor shall explore the route ahead of trenching and shall uncover all known obstructing pipes sufficiently to determine their location. Necessary changes in location may be made by the Engineer to avoid unanticipated obstructions.

Wherever water or gas mains, electric or telephone ducts, or electric or telephone poles are encountered and may be in any way interfered with, the Contractor shall keep the utility company involved fully informed in advance. The Contractor shall cooperate with the utility company in the protection, removal, relocation and replacement of such structures.

The Contractor shall, at their own expense, sustain in their places and protect from direct or indirect injury all utilities, pipes, poles, conduit, walls, buildings and other structures and property in the vicinity of their work, and they shall be responsible for all damage and assume all expense for direct or indirect injury caused by their work to any of them or to any person or property by reason of injury to them.

Guard rails, posts, guard cables, signs, poles, markers, mailboxes, fences, walls and stone walls, and other private improvements, which are temporarily removed, damaged or destroyed during construction, shall be replaced and restored to a condition as good as or better than existed and to the satisfaction of the Owner.

The Contractor shall, at their own expense, retain the services of a licensed surveyor to replace property markers, on or adjacent to privately owned property, which have been disturbed during the course of construction.

37. Marking New Underground Plant

All new underground plant shall be marked with warning tape in accordance with State of Connecticut Public Act 16-345 and DPUC Regulations.

38. Operation of Water Valves

Unless otherwise permitted, existing water valves shall not be operated by the Contractor. Whenever the operation of a water valve is necessary, the Contractor shall make arrangements, at least 24 hours in advance of the need, to have the utility company's forces perform the required operations. Contractor must prepare and distribute customer notices to all affected customers at least 24 hours prior to any shutdown of service.

39. Testing Laboratories

The Contractor shall appoint an independent testing laboratory for all material testing in accordance with the Standard Specifications, which shall be included in the cost of the contract. The Contractor shall provide material samples to the laboratory, as required, throughout the duration of the project.

40. Wage Rates

The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of section 31-53, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair project is being undertaken. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

The Contractor shall comply with all Connecticut General Statutes pertaining to the payment of prevailing wages. The Contractor shall provide to the Borough weekly certified payrolls of their employees and any subcontractors employed on the work.

SUPPLEMENTAL CONDITIONS

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SUPPLEMENTAL CONDITIONS

These Supplemental Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

1. DEFINITIONS

- A. The Terms used in these Supplemental Conditions which are defined in the General Conditions of the Construction Contract have the meanings assigned to them in the General Conditions.
- B. Wherever used in the Contract Documents, the following words have the meanings indicated, which are applied to both the singular and the plural thereof:

"Plans" – Titled PARCEL A/B MAJOR HUB DEVELOPMENT – See section 8 of the Supplemental Conditions.

"Project Manual" - shall mean the bound volume containing the following Contract Documents:

- Requests For Bids
- Information For Bidders
- Signed copy of the Bid Proposal Forms, with all attachments required for bidding
- Contract Forms
- General Requirements
- Supplemental Conditions
- Performance Bond and Payment Bond
- Certificate of Insurance
- Addenda
- Special Provisions
- State Wage Rates
- Project Specifications

The word "Remove," where it applies to existing materials, shall mean remove entirely from the site unless material is approved by the Engineer for re-use. In addition, the word "remove" shall imply the permanent patching of all remaining work affected by removal. All existing materials which have been removed shall become the Contractor's property unless otherwise specified.

"As Necessary" or "As Required" - Work referred to as "As Necessary" shall be that work, which is required for completed construction, but is not necessarily shown or described in the Contract Documents.

The word "Furnish" or the word "Supply" - shall mean purchase, delivery, and off-loading at the job site including all documentation, storage, and protection.

The word "Install", or the word "Apply" - shall mean set in place complete for normal use or service, all in accordance with the Contract Documents.

The word "Provide" - shall mean furnish (or supply) and install (or apply).

The words "Approved Equal" - shall mean any product which in the opinion of the Engineer is comparable in quality, durability, appearance, strength, performance, design, physical dimension, and arrangement to the product specified, and will function properly in accordance with the design intent.

The word "Product" - shall mean any item of equipment or material provided under the Contract Documents.

2. SCOPE OF WORK

The project consists of demolition of a stormwater pumping station, construction of approximately 800 feet of municipal roadway, major drainage and sidewalk reconstruction on Old Firehouse Road, construction of a pedestrian corridor between Church Street and Old Firehouse Road, installation of sidewalk pavers, fencing, curbing, lighting, street trees, and other amenities within the Borough's downtown. Construction shall be in accordance with the Borough of Naugatuck's Design and Construction Standards, Form 818 (2020), all supplements thereto and special provisions provided herein.

The Borough reserves the right to decrease the Scope of Work to be done under this Contract, select bid or alternate items in its best interest, or to omit any work in order to bring the cost within available funds. Exercise by the Borough of the above rights shall not constitute any grounds or basis of claim for damages or for anticipated profits on work omitted.

3. TIME FOR COMPLETION

The Contractor shall commence work within ten (10) calendar days of the date of the written "Notice to Proceed" from the Owner and the Contractor shall fully complete this Contract within three-hundred and twenty (320) days from the date of the written "Notice to Proceed." Refer to NTC Section 1.08 for determination of contract time and winter shutdown period.

4. LIQUIDATED DAMAGES

The Contractor shall proceed with the work at such rate of progress to ensure full completion within the time requirements stated above. It is expressly understood and agreed by and between the Contractor and the Borough that the Contract time for the completion of the work described herein shall be reasonable, taking into consideration the climatic and economic conditions and other factors prevailing in the locality of the work.

If the Contractor shall fail to complete the work within the Contract times, or extension of time granted by the Borough, then the Contractor and their sureties shall be liable for and shall pay to the Borough for each and every calendar day that they shall be in default in completing any given assignment in the time stipulated above, the dollar value listed in the Contract and Agreement. This sum is hereby agreed upon, not as a penalty, but as fixed liquidated damages which the Owner will suffer by reason of such default, time being of the essence of the Contract and a material consideration thereof. The Owner shall have the right to deduct the amount of any such damages from any monies due the Contractor under this Contract.

5. PAYMENTS AND RETAINAGE

Monthly applications for payment shall be submitted to the Borough Engineer for consideration. Payment shall be made within thirty days after approval of the application for payment by the Borough.

An amount of 95 percent (95%) of the estimated amount due, less any payments previously made and/or any moneys to be held will be paid to the Contractor monthly. The balance will be retained by the Borough until final completion of the work. Final payment will not be made until final completion and acceptance by the Borough of all work covered by the Contract. The Contractor agrees that they will indemnify and save the Borough harmless for all claims growing out of the lawful demands of subcontractors, laborers, suppliers, and assignees.

6. PAYMENT OF WAGES

The Contract Documents contain a copy of the minimum wage rate schedule issued by the State of Connecticut Labor Department. Said wage rate schedule shall be posted at a conspicuous location on the project site. The Contractor is cautioned that wage rates are continually changing and they shall ensure that the enclosed schedule is the latest issue, this being the Contractor's responsibility.

7. FAIR EMPLOYMENT PRACTICES

The successful Contractor shall agree that neither they nor their subcontractors will refuse to hire or employ or to bar or to discharge from employment an individual, or to discriminate against them in compensation or ill terms, conditions, or privileges of employment because of race, color, religious creed, age, sex, national origin, or ancestry, except in the case of a bona fide occupational qualification or need.

The terms stated above are taken from Section 31-126 of the Connecticut General Statutes "Unfair Employment Practices."

8. CONTRACT DRAWINGS

The Contract Drawings dated March 2024 are appended to this Contract. Any sheets revised, added, or deleted by Addenda shall also be included as part of this Contract.

| <u>Sheet Title</u> | <u>Sheets in Set</u> | <u>Sheet</u> |
|--|----------------------|--------------|
| General Sheets | 01 – 04 | GEN |
| Illustrative | 00 | ILL |
| Existing Conditions Plan | 00 – 05 | EXT |
| Streetscape Tree Preservation Plan | 00 – 04 | STP |
| Alignment & Curb Tie Plan | 00 – 05 | ALN |
| Typical Roadway Sections | 01 – 02 | TYP |
| Streetscape Miscellaneous Details | 01 – 43 | MDS |
| Demolition Plan | 00 – 05A | DMO |
| Storm Water Pump Station Demolition | 01 | AD |
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| Construction Plan | 00 – 05 | PLN |
| Grading Plan & Profile | 00 – 05 | GRD |
| Detail Grading | 01 – 03 | GRD – DET |
| Streetscape Index Plan | 00 | SIP |
| Streetscape Layout Plan | 01 – 05 | SLP |
| Streetscape Materials Plan | 01 – 05 | SMP |
| Streetscape Paver Layout Plan | 01 – 05 | SPV |
| Streetscape Enlargement Plan | 01 – 04 | ENL |
| Streetscape Gateway Plan | 01 – 04 | GTY |
| Streetscape Planting Plan | 01 – 05 | SPP |
| Structural Plan | 01 – 02 | STR |
| Drainage Plan & Profile | 00 – 03 | DRG |
| Utility Plan | 00 – 05 | UTL |
| Signage and Pavement Markings Plan | 00 – 05 | SPM |
| Electrical Site Plan | 00 – 07 | ELE |
| Electrical Demolition Plan | 02 – 04 | ELD |

*Refer to Title Sheet for list of Connecticut DOT Standard Drawings.

9. SAFETY

The Contractor shall perform all work in accordance with the latest local, state, and federal governmental laws and regulations including, but not limited to, the governmental safety regulations of the Department of Labor and Office of Safety and Health Administration suggested practices.

10. LINES, GRADES, AND MEASUREMENTS

The controlling lines and grades shall be as shown on the Contract Drawings. Additional batter boards, lines, grades and forms shall be furnished and set by the Contractor if they through willfulness or carelessness removes, or permits to be removed, any reference marks establishing said controlling lines and grades, before the performance of the work requires such removal. The replacement of such reference marks shall be at the Contractor's expense.

The Contractor shall make all measurements and check all dimensions necessary for the proper construction of the work as directed or as called for in the Standard Specifications and Special Provisions.

During the performance of the work, the Contractor shall make all necessary measurements to prevent misfitting in said work and be responsible therefore for the accurate construction of the entire work.

11. BLASTING AND EXPLOSIVES

Not applicable for this Contract.

12. PUBLIC ACCESS

Roads, including driveways, sidewalks, crossings and local businesses shall remain open and passable while work is in progress except as noted. Refer to Section 31 of the Supplemental Conditions.

13. UTILITIES

Utilities may be located within the area and may be adjacent to the construction work. The Contractor shall make all the necessary arrangements with any utility that must be protected or relocated in order to accomplish the work. The Contractor shall be solely responsible for the protection of the operating condition of all active utilities within the areas of construction and they shall take all necessary precautions to avoid damage to existing utilities. Any cost of temporary relocations for the Contractor's convenience shall be paid for by the Contractor.

The Contractor shall avail themselves of the Connecticut Underground Utility Protection Plan. The Contractor shall notify "Call Before You Dig" at 811 or visit CBYD.com in accordance with Section 18 of the Supplemental Conditions. The Contractor shall coordinate the construction activities with all utility companies with facilities in the project, including the Borough.

14. TEMPORARY UTILITIES

Unless otherwise provided for in the Standard Specifications or the Special Provisions, the Contractor shall pay the cost of all temporary light, heat, electric power and water required for completion of the Contract. The necessary temporary utilities shall be installed at the start of the project.

15. TOILET ACCOMMODATIONS AND DRINKING WATER

The Contractor shall provide necessary sanitary toilet accommodations and drinking water for the workers. Separate facilities shall be provided for female workers.

16. SEQUENCE OF CONSTRUCTION

Prior to the start of construction, the Contractor shall prepare and submit a sequence of construction for approval by the Engineer. Refer to Drawings SCS for Engineer's suggested construction sequence plan. Refer to Section

17. BEST MANAGEMENT PRACTICES FOR PROTECTION OF THE ENVIRONMENT

- a. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.
- b. No equipment, materials, or machinery shall be stored, cleaned, or repaired within 25 feet of any wetland or watercourse.
- c. No construction shall proceed until a method to prevent construction debris, paint, spent blast materials, or other materials from entering the wetland or watercourse has been implemented as the sequence of construction necessitates. These materials shall be collected and disposed of in an environmentally safe manner as determined by Federal, State, and local laws. The applicant shall monitor wind velocities and storm events during the conduct of such work, and shall cause such activity to cease if storm or wind conditions threaten to cause deposits of materials in the waterway.
- d. No objectionable materials resulting from any clearing activity shall be disposed of in any wetland or watercourse. This includes but is not limited to: stumps, tree roots, matted roots, wood chips, and other debris.
- e. No fill or materials shall be deposited in surrounding wetlands or watercourses.
- f. Where dewatering is necessary, the pump shall not discharge directly into the wetland or watercourse. Proper methods and devices shall be utilized, such as pumping the water into a temporary sedimentation basin, providing surge protection at the inlet

and the outlet of pumps, or floating the intake of the pump, or other method to minimize and retain the suspended solids. If the pumping operation is causing turbidity problems, work shall cease until such time that turbidity controlling measures have been implemented.

- g. Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining, and properly disposing of drained oil, removed oil filters, or other deleterious material. All oil spills shall be reported immediately to the DEEP/Hazardous Materials office at (860) 424-3338. Failure to do so may result in the imposition of a fine under Section 22a-450 of the Connecticut General Statutes.
- h. Every precaution shall be used while working in the vicinity of a waterway to prevent and minimize degradations of the existing water quality. All activities shall conform and be at all times consistent with applicable water quality standards, and management practices of the Federal Clean Water Act (1972), Connecticut's Water Quality Standards and other applicable State laws, and as defined in Form 817, Section 1.10, entitled "Environmental Compliance".

18. CALL-BEFORE-YOU-DIG

The Contractor's attention is called to the fact that they are obligated, by State Law, to notify the Public Utilities Control Authority. The Contractor shall avail themselves of the Connecticut Underground Utility Protection Plan. The Contractor shall notify "Call Before You Dig" at 811 or visit CBYD.com at least two full working days prior to the start of any excavation work to request the mark-out of existing utilities. The Contractor shall coordinate the construction activities with all utility companies with facilities in the project, including the Borough. The Contractor assumes all responsibilities for any damage to the various utility services, and all liabilities arising therefrom.

The Contractor shall make the necessary arrangements with the respective utility companies and provide grades for the resetting and adjusting of private utility company manhole and grade boxes, and the relocation of poles and hydrants; all at no additional costs to the Borough. Any delays, which are caused by conflicts with utility lines, shall not be considered as a basis of extending the time for completion.

19. DUST CONTROL

The contractor shall be responsible for controlling dust from its operations, and when ordered by the Engineer shall use whatever methods necessary for dust control, in a manner satisfactory to the Engineer. This work shall be paid for under the appropriate dust control item in the contract.

20. QUALITY CONTROL

All materials furnished and used in the completed work shall be new, of best quality, and recognized as standard in construction practices. Whenever a specification number of reference is given, the subsequent amendments (if any) shall be included. The standards set forth in the selection of materials and supplies are intended to conform to those standards adopted by the Owner. Preference in manufacture shall be given to adopted standards, and the Contractor shall further familiarize themselves with the requirements of the Owner when the occasion or choice of materials or supplies so demands.

21. METHODS OF CONSTRUCTION

No materials shall be used which are known or found to be defective in any way. Notice shall be given to the Owner of any defective or imperfect material. Defective or unfit material, found to have been used, shall be removed and replaced by the Contractor with sound and unobjectionable material without additional expense to the Owner. All materials furnished by the Contractor are subject to thorough inspections and tests by the Owner. The Contractor shall submit samples as stated in the Standard Specifications and Special Provisions or as required by the Owner, of the various materials used on the contract for testing purposes. All ordering lists shall be submitted for approval to the Owner by the Contractor.

22. MOBILIZATION

This item shall consist of all the work necessary for the movement of personnel and equipment to and from the project site, including obtaining any necessary permits.

23. EXISTING CONDITIONS

Before submitting the bid, the Contractor shall examine the site, become familiar with the conditions, and verify the information in the Contract Drawings. Any discrepancy between the information provided in the Contract Documents and actual field conditions, the Contractor shall make a note of it and bring it to the attention of the Engineer prior to bid. No claims for extras will be allowed based upon differences that could have been discovered by the Contractor prior to bid.

24. EXISTING STORM AND SEWER LINES

The Contractor shall be responsible for maintaining and protecting all existing storm drainage and sewer lines encountered in the work under this contract. Hand excavation and adequate bracing and shoring shall be employed where required to insure the structural integrity of said existing structures. The Contractor shall hold the Borough of Naugatuck harmless and shall be solely responsible for any liabilities or damages arising from their work near, under, or through existing sewers and culverts. The Contractor shall repair and replace, as required by the

Borough, any existing sewers or culverts damaged as a result of their work. No payment by the Borough for work covered in this section, unless authorized in writing by the Borough of Naugatuck.

25. SURPLUS EXCAVATED MATERIAL

The Contractor shall take ownership of all surplus excavated material and is responsible for removal of all surplus excavated material from the project site.

26. DAILY CLEANUP

The Contractor shall at the end of each workday, keep the project area clean, and free from debris, excavation materials, or any other items considered as trash. These items shall be disposed of daily in a legal manner at an approved dumping site. No extra payment shall be made for any work involved in this section.

27. CONSTRUCTION SCHEDULE

At the preconstruction meeting held by the Borough, the Contractor shall furnish a detailed anticipated construction schedule for review and approval by the Borough prior to monthly payments to the Contractor. This construction schedule shall be revised to show progress to date and anticipated future progress and submitted to the Borough. In addition, the Contractor shall provide a two-week look-ahead of proposed activities in anticipation of bi-weekly progress meetings.

28. PROJECT MEETINGS

The Borough or its designated agent shall inspect all work performed by the Contractor and regularly scheduled project meetings with Borough staff, the Contractor, and the Engineer will be required on a bi-weekly basis to review progress of the work. Meetings are to be held at a site adjacent to or on the work site as determined by the Borough of Naugatuck. The meetings are to be chaired by a designated representative of the Borough of Naugatuck.

29. UTILITY COORDINATION

The Contractor shall coordinate the construction activities with all utility companies with facilities in the project area, including the Borough's. See Section 13 and 18 of the Supplemental Conditions. Contacts below were involved in design coordination.

Gas: Eversource Gas

Sankar Ganesh, Project Engineer

Office: 860-665-6532

Cell: 314-814-3381

Sankar.Ganesh@eversource.com

Electric: Eversource Electric

Jaskaran Singh, Supervisor Distribution Projects and Programs

Office: 203-270-5865

Cell: 860-488-1318

Jaskaran.singh@eversource.com

Fiber Optics: Crown Castle Fiber

Terence J. Shea, Senior Network Construction Manager

Office: (203) 649-3905

Cell: (860) 402-6471

terence.shea@crowncastle.com

Water: Connecticut Water

Christopher Wojciak

Office: (860) 623-3355 x 2840

Distribution System Manager

Christoper.Wojciak@ctwater.com

Telecom: Frontier

Naldi Jr, Roger, Engineer

860-212-7620

roger.j.naldi@fr.com

CT Transit: North East Transportation

Peter Vaccarelli, Assistant General Manager

860-945-1643

bkalosky@ct-transwb.com

31. BOROUGH EVENTS

The Contractor shall coordinate the construction activities around known events taking place in the downtown area and provide safe access to the public for all Borough Events. The Contractor shall relocate equipment and cleanup work site to make safe. The Borough will work with all parties to relocate venues where possible to support the construction schedule.

**NOTICE TO CONTRACTOR – CONNECTICUT DEPARTMENT OF
TRANSPORTATION FORM 818**

Technical specifications for the Project shall follow the ConnDOT Standard Specifications for Roads, Bridges, and Incidental Construction Form 818, dated 2020, including any Supplementals, and Special Provisions to Form 818 contained herein.

Article 1.01.01 – “Definitions” is amended and supplemented as follows:

Substitute the word “City” for “Department” wherever “Department” appears in the definitions for each of the following terms: Award, Contract, Highway, Plans, and Project.

Substitute the word “Engineer” for “Commissioner” wherever “Commissioner” appears in the definitions for each of the following terms: Subcontractor and Sub-Subcontractors.

Engineer: Delete the definition in its entirety and replace with the following:

The Borough of Naugatuck or authorized representative

State: Delete the definition in its entirety and replace with the following:

The Borough of Naugatuck, Connecticut

Add the following:

Municipal: Of or Relating to the Municipality

Municipality: Borough of Naugatuck, Connecticut

Town: Same definition as Municipality

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NOTICE TO CONTRACTOR – VERIFICATION OF EXISTING CONDITIONS

Included in this contract is the modification, alteration, and/or addition to existing drainage structures. The Contractor is cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features as actual conditions may vary from information shown on the design plans, the record plans or contained elsewhere in the Specifications.

The cost for this work and incorporation of information into the working drawings and shop drawings is part of the general cost of the work. Accordingly, no additional payment will be made for this work.

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**NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS
AND FIELD MEASUREMENTS**

The Contractor is responsible for verifying all dimensions before any work is begun. Dimensions of the existing structures shown on the plans are for general reference only; they are not guaranteed. The Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall assume full responsibility for their accuracy. When shop drawings and/or working drawings based on field measurements are submitted for approval and/or review, the field measurements shall also be submitted for reference by the reviewer.

In the field, the Contractor shall examine and verify all existing and given conditions and dimensions with those shown on the plans. If field conditions and dimensions differ from those shown on the plans, the Contractor shall use the field conditions and dimensions and make the appropriate changes to those shown on the plans as approved by the Engineer. All field conditions and dimensions shall be so noted on the drawings submitted for approval.

There shall be no claim made against the Department by the Contractor for work pertaining to modifications required by any difference between actual field conditions and those shown by the details and dimensions on the contract plans. The Contractor will be paid at the unit price bid for the actual quantities of materials used or for the work performed, as indicated by the various items in the contract.

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NOTICE TO CONTRACTOR - PROJECT COORDINATION

UTILITES

Contractor shall be responsible for contacting utility companies prior to the start of construction in order to coordinate the schedule, prosecution, and progress of proposed utility relocation work.

It is anticipated that multiple utilities, including utility and light poles, telecommunication conduit, water main, and gas main, will need to be relocated due to conflicts with the proposed storm drainage systems and / or curb lines. The Contractor shall determine with the utility owner how the relocation work will occur in conjunction with the proposed roadway reconstruction. The Contractor should note that coordination with Frontier will be of particular importance regarding the relocation of their underground conduit.

The Contractor is hereby notified that all utility specifications contained elsewhere herein shall be made a part of this contract, and that the contractor shall be bound to comply with all requirements of such specifications. The requirements and conditions set forth in the subject specifications shall be binding on the Contractor just as any other specification would be.

After award, the Contractor shall conduct a utility coordination meeting or meetings to obtain contemporaneous scheduling information from the utilities prior to submitting its baseline schedule to the Department in accordance with Section 1.05.08. If deemed necessary by the Contractor or the Borough of Naugatuck, regularly scheduled utility meetings shall be held throughout the course of construction.

NEARBY CONSTRUCTION

The Contractor shall be responsible for awareness of and coordination with nearby construction activities. Refer to Drawing GEN-03 General Site Plan for an overview of neighboring projects.

Connecticut Department of Transportation (CTDOT) and Pennrose Properties, LLC (Pennrose) will begin Construction in 2025. Access to Parcel B through the Rubber Avenue Construction Entrance must be made available throughout the duration of construction.

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NOTICE TO CONTRACTOR - PROTECTION OF EXISTING UTILITIES

The Contractor is hereby notified of the need for protection of the existing underground and overhead utilities throughout construction.

Representatives of the various utility companies shall be allowed access to the work.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations, or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

Any damage to any existing utility shall be repaired including all materials, labor, etc., to the Engineer's and/or respective utility company's satisfaction at no cost to the Owner.

The Contractor's attention is directed to the requirements of Article 1.07.13 – Contractor's Responsibility for Adjacent Property and Services. The contractor shall provide a minimum three feet nominal cover, and equipment wheel loads shall not exceed 24,000 lbs. where construction equipment traverses watermains.

The Contractor shall notify utility companies by calling the number 1-800-922-4455 (Call Before You Dig) at least forty-eight (48) hours prior to the start of excavation. This notification will enable the utility companies to mark out their facilities in the field.

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, gas, electric lines, etc., will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

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NOTICE TO CONTRACTOR – SITE CLEANLINESS

The Contractor is hereby notified that all areas utilized for construction activities including all onsite and offsite facilities shall be maintained so as to be free of rubbish, trash and deleterious construction debris at all times. The use of covered and secured trash receptacles is required. All receptacles will be regularly emptied and maintained.

There will be no direct payment for maintaining the site cleanliness of the construction areas under the contract.

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NOTICE TO CONTRACTOR – BITUMINOUS CONCRETE ADJUSTMENTS

Adjustments to bituminous concrete quantities for payment will not be permitted. This includes, but is not limited to, adjustments for density, mixture, weight, thickness, and width.

NOTICE TO CONTRACTOR – BITUMINOUS CONCRETE DENSITY TESTING

In lieu of performing cores to determine density of compacted bituminous concrete material as outlined in Section 4.06 – Bituminous Concrete, the Contractor shall perform in-place nuclear density compaction tests for bituminous concrete.

In the event that the in-place nuclear density test results for bituminous concrete pavement are unsatisfactory, the Contractor shall be required to take cores of the compacted bituminous concrete material. In this case the Borough's inspection staff will randomly locate core locations as specified in Section 4.06. Borough inspection staff will tag and transport the cores to an independent material test lab for analysis.

The completed pavement course on roadways and bridges will have the mat and longitudinal joints tested for compaction in accordance with "Density Testing Procedure" established by the Department's Director of Research and Materials. Each course placed at a depth of one and one-half inches or greater shall have the mat and longitudinal joints compacted to a minimum of 92.0 percent and no more than 97.0 percent density as determined by AASHTO T209 (modified).

All costs associated with obtaining cores for acceptance of testing and dispute resolution are included in the general cost of the Contractor's work.

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NOTICE TO CONTRACTOR – BUILDING DEMOLITION PERMIT

The Contractor shall apply for and obtain a Borough of Naugatuck building demolition permit. An online application is available at:

<HTTPS://NAUGATUCKCT.PORTAL.OPENGOV.COM/CATEGORIES/1078/RECORD-TYPES/6424>

As per section 29-406 of the Connecticut General Statutes applicants filing for a demolition permit shall submit a certificate of insurance specifying demolition purposes and providing liability coverage for bodily injury of at least \$100,000 per person with an aggregate of at least \$300,000, and for property damage of a least \$50,000 per accident with an aggregate of at least \$100,000; each such certificate shall provide that the town or city and its agents shall be saved harmless from any claim or claims arising out of the negligence of the applicant or his agents or employees in the course of the demolition operations.

- (a) No person shall demolish any building, structure, or part thereof without obtaining a permit for the demolition undertaking from the building official of the town, city, or borough wherein such building or part thereof is located. No person shall be eligible to receive a permit under this section unless he furnishes to the building official has written evidence:
 - (1) of financial responsibility in the form of a certificate of insurance specifying demolition purposes and providing liability coverage noted above; each such certificate shall provide that the State of Connecticut, Borough of Naugatuck, and its agents shall be saved harmless from any claim or claims arising out of the negligence of the applicant or their agents or employees in the course of the demolition operations;
 - (2) in the form of a certificate of notice executed by all public utilities having service connections within the premises proposed to be demolished, stating that such utilities have severed such connections and service, and
 - (3) that they are the holder of a currently valid certificate of registration issued under the visions of section 29-402.

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NOTICE TO CONTRACTOR – SEQUENCE OF CONSTRUCTION

The anticipated starting date for construction is Summer 2024 with completion in Summer / Early Fall 2025. Prior to commencement of work, erosion and sedimentation control structures shall be installed. Schedule work to minimize the length of time bare soil will be exposed within each phase of construction. The suggested construction sequence has been prepared to meet needs of the Borough.

1. Contact the Borough at least forty-eight (48) hours prior to commencement of any demolition or construction on this project.
2. Submit and install project sign approved by the Borough.
3. Physically mark out clearing limits in the field and for approval by the Borough agent prior to the start of work. Install tree protection silt fence and other erosion control measures.
4. Install construction fence around staging area to minimize disruption to pedestrians and separate construction activities from the remainder of the site.
5. Construct construction entrances.
6. Remove existing topsoil, groundcover, trees, and other vegetation per the demolition plans.
7. Coordinate with utilities on modifications and relocations.
8. Demolish pump station in accordance with Special Provision 1403610A and Drawings.
 - a. **PUMP STATION DEMOLITION MUST OCCUR WITHIN 2024.**
9. Begin demolition of existing drainage and installation of proposed storm drainage along Old Firehouse Road and Connector Road per demolition and drainage plans.
10. Construct Connector Road and coordinate with Borough on traffic control measures.
11. Abandon underground tunnel on Rubber Avenue in accordance with Contract Drawings and Specifications.
12. Begin installation of proposed storm drainage on Water Street and Rubber Avenue.
13. Construct intersection Rubber Avenue, Old Firehouse Road, and Elm Street including temporary construction driveway on Rubber Avenue.
14. Construct Rubber Avenue and Water Street.
15. Construct curb lines, sidewalk, and streetscape items along Old Firehouse Road.
16. Construct raised intersection and install Bus Shelters.
17. Construct pedestrian corridor, modify municipal parking lot, and provide associated streetscape items.
18. Plantings and landscaping.

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SECTION 1.03 - AWARD AND EXECUTION OF CONTRACT

Article 1.03.08 - Notice to Proceed and Commencement of Work:

Change the first paragraph to read as follows:

The Contractor shall commence and proceed with the Contract work on the date specified in a written Notice to Proceed issued by the Engineer to the Contractor. The date specified will be no later than 45 calendar days after the date of the execution of the Contract by the Department, however, the contractor is hereby put on notice that it is the Department's intent to issue the Notice to Proceed no later than 24 calendar days after the date of the execution of the Contract by the Department.

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SECTION 1.05 - CONTROL OF THE WORK

Replace Article 1.05.02 with the following:

1.05.02—Plans, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department’s Action:

1. Plans: The plans prepared by the Engineer show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare Working Drawings, Shop Drawings or Product Data necessary to complete the Project.

Project submittals shall be delivered to the Department / Engineer using an agreed upon electronic delivery method. The delivery processes and document tracking procedures shall be performed in accordance with this specification.

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the Working Drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The Working Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Working Drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with “No Exceptions Noted” or “Exceptions as Noted.” Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

All Working Drawing submission documents shall conform to the following requirements:

- a. Drawings:
 - i. Delivered in a single multi-page PDF file.
 - ii. Shall be sized ANSI D (34 inches × 22 inches).
 - iii. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department’s stamp.
 - iv. Text height and width shall be 0.125 inch.
 - v. All letter characters shall be uppercase.
 - vi. Shall be searchable.
 - vii. Shall be black and white.
 - viii. Cover Page - shall be digitally signed by the Contractor’s Professional Engineer.
 - ix. All pages shall include a watermark of the Professional Engineer’s stamp in a common area.
- b. Calculations:
 - i. Delivered in a single PDF file

- ii. Shall be sized ANSI A (8.5 inches × 11 inches).
 - iii. Cover Page shall be digitally signed by the Contractor's Professional Engineer.
- c. Supporting Documentation:
 - i. Delivered as an independent single PDF file
 - ii. Shall be sized ANSI A (8.5 inches × 11 inches).
- d. Working Drawings for Permanent Construction: The Contractor shall supply to the Department a certificate of insurance in accordance with 1.03.07 at the time that the Working Drawings for the Project are submitted.
 - i. The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of \$2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum \$250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of
 - ii. 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or
 - iii. 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.
- e. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Department in accordance with this Specification, with the exception of requirements defined under a. Working Drawings for Permanent Construction.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Shop Drawings to the Department for review.

Shop Drawings shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Shop Drawings but the cost thereof shall be considered as included in the general cost of the work.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Shop Drawing submission documents shall conform to the following requirements:

- a. Delivered in a single multi-page PDF file.
- b. Shall be sized ANSI D (34 inches × 22 inches).

- c. Contain a border, title block and a rectangular box, 2.25 inches wide × 1.75 inches high, in the lower right hand corner for the Department's stamp.
- d. Text height and width shall be 0.125 inch.
- e. All letter characters shall be uppercase.
- f. Shall be searchable.
- g. Shall be black and white.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver Product Data to the Department for review.

Product Data shall be submitted sufficiently in advance of the work detailed, to allow for their review in accordance with the requirements specified in 1.05.02-5 (including any necessary revisions, resubmittal, and final review). There will be no direct payment for furnishing any Product Data but the cost thereof shall be considered as included in the general cost of the work.

The Contractor shall submit the Product Data in a single submittal for each element of construction.

The Contractor shall mark each copy of the Product Data submittal to show applicable choices and options. Where Product Data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product Data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer's printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

The Contractor is only required to deliver paper copies that have been stamped with "No Exceptions Noted" or "Exceptions as Noted." Guidance to the Contractor for the number of properly sized paper copies will be provided by the Department.

Product Data submission documents shall conform to the following requirements:

- a. Delivered in a single PDF file
- b. Shall be sized ANSI A (8.5 inches × 11 inches).
- c. Marked to indicate applicable choices and options.
- d. Where non-applicable information and products are included, notations shall be made to clearly delineate applicable from non-applicable information.

5. Submittal Preparation and Processing – Review Timeframes: If the Department deems a submittal incomplete or unacceptable because not all the required documents were attached, documents are incomplete, or are in the incorrect format, the Department will send the submittal back to the Contractor before reviewing. When a submittal is sent back as incomplete, the associated documents have not been reviewed and the review process and any associated timeframe requirements have not begun.

The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department. For any submittals stamped with "Revise and

Resubmit” or “Rejected,” the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor’s failure to transmit submittals sufficiently in advance of the work to permit processing.

The furnishing of Shop Drawings, Working Drawings or Product Data, or any comments or suggestions by the Designer or Engineer concerning Shop Drawings, Working Drawings or Product Data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the Shop Drawings, Working Drawings and Product Data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department’s Action: The Department will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked “No Exceptions Noted” or “Exceptions as Noted” by the Department. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

- a. If submittals are marked “No Exceptions Noted,” the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer’s written warranty in compliance with the Contract provisions.
- b. If submittals are marked “Exceptions as Noted,” the considerations or changes noted by the Department’s Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Department if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
- c. If submittals are marked “Revise and Resubmit,” the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.
- d. If submittals are marked “Rejected,” the Contractor shall prepare and submit a new submittal in accordance with the Department’s notations. The resubmissions require an additional review and determination by the Department. The Contractor shall allow an additional review period as specified in 1.05.02-5.

SECTION 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES

Delete Article 1.07.07 in its entirety and replace it with the following:

1.07.07—Safety and Public Convenience: The Contractor shall conduct the Project work at all times in such a manner as to ensure the least possible obstruction to traffic. In a manner acceptable to the Engineer, the Contractor shall provide for the convenience and interests of the general public; the traveling public; parties residing along or adjacent to the highway or Project Site; and parties owning, occupying or using property adjacent to the Project Site, such as commuters, workers, tenants, lessors and operating agencies.

Notwithstanding any other Contract provision, the Contractor shall not close to normal pedestrian or vehicular traffic any section of road, access drive, parking lot, sidewalk, station platform, railroad track, bus stop, runway, taxiway, occupied space within a Site, or occupied space within a building, except with the written permission of the Engineer.

All equipment, materials, equipment or material storage areas, and work areas must be placed, located, and used in ways that do not create a hazard to people or property, especially in areas open to public pedestrian or vehicular traffic. All equipment and materials shall be placed or stored in such a way and in such locations as will not create a hazard to the traveling public or reduce sight lines. In an area unprotected by barriers or other means, equipment and materials must not be stored within 30 feet of any traveled way.

The Contractor must always erect barriers and warning signs between any of its work or storage areas and any area open to public, pedestrian, or vehicular traffic. Such barriers and signs must comply with all laws and regulations, including any applicable codes.

The Contractor must arrange for temporary lighting, snow and ice removal, security against vandalism and theft, and protection against excessive precipitation runoff within its Project work and storage areas, and within other areas specifically designated in the Contract.

In addition to meeting the requirements of Section 9.71, the Contractor shall take all precautions necessary and reasonable for the protection of all persons, including, but not limited to, employees of the Contractor or the Department, and for the protection of property, until the Engineer notifies the Contractor in writing that the Project or the pertinent portion of the Project has been completed to the Engineer's satisfaction.

The Contractor shall comply with the safety provisions of applicable laws, including building and construction codes and the latest edition of the CFR. The Contractor must make available for reference in its field office, throughout the duration of the Project, a copy of the latest edition and all supplements of the CFR pertaining to OSHA.

The Contractor shall make available to the Contractor's employees, subcontractors, the Engineer, and the public, all information pursuant to OSHA 29 CFR Part 1926.59 and The Hazard

Communication Standard 29 CFR 1910.1200, and shall also maintain a file on each job site containing all MSDS for products in use at the Project. These MSDS shall be made available to the Engineer upon request.

The Contractor shall observe all rules and regulations of the Federal, State, and local health officials. Attention is directed to Federal, State, and local laws, rules, and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to the worker's health or safety.

Safety Plan: Before starting work on the Project, the Contractor shall submit to the Engineer a written Safety and Health Plan (hereinafter referred to as the "Plan"). The Plan shall meet or exceed the minimum requirements of this Subsection and any applicable State or Federal regulations.

The Plan shall apply to any work under the Contract whether such work is performed, by way of example and not limitation, by the Contractor's forces, subcontractors, suppliers, or fabricators.

The Plan shall be prepared by the Contractor and submitted to the Engineer for review before the actual start of work on the Project. Within ten (10) calendar days of receipt, the Engineer will determine whether or not the Plan meets the requirements of this Specification. If the Plan does not meet the requirements of this Specification, it will be returned for revision. Work on the Project may not proceed until the Engineer has accepted the Plan. Nothing herein shall be construed, however, to relieve the Contractor from responsibility for the prosecution of the Project.

The Plan shall conform to the following general format:

1. General Introduction.

- a. **Description.** The general introduction of the Plan shall include a statement by the Contractor describing its commitment to maintain a safe work environment for its employees, Department representatives, and the public. Implementation procedures and company policies relative to safety shall be summarized or referenced in the Plan.
 - i. The Plan shall include the names, addresses, and telephone numbers of the Contractor's Project Manager, Project superintendent and/or its designee for safety oversight, all competent persons, and the traffic control coordinator. Any changes to the safety management and oversight for the Project shall be promptly communicated to all concerned.
 - ii. The Plan shall provide guidelines for protecting all personnel from hazards associated with Project operations and activities.
 - iii. The Plan shall establish the policies and procedures that are necessary for the Project to be in compliance with the requirements of OSHA and other State and Federal regulatory agencies with jurisdiction, rules, regulations, standards, or guidelines in effect at the time the work is in progress.
- b. **Responsibility, Identification of Personnel, and Certifications.** The Contractor is solely responsible for creating, implementing, and monitoring the Plan.

- i. The Contractor shall identify and designate on-site supervisory level personnel who shall be responsible for implementing and monitoring the Plan at all times throughout the duration of the Project and shall have authority to take prompt corrective measures to eliminate hazards including the ability to stop work activities.
- ii. Documentation of training provided to the on-site supervisory level personnel shall be included as part of the Plan.
- iii. For any work activities wherein the Contractor has identified a competent person as defined by OSHA, that person shall be capable of identifying existing and predictable hazards and have the authority to take prompt corrective measures to eliminate the hazards, including the ability to stop work activities.
- iv. Documentation of the qualifications of such competent persons identified, including any certifications received, shall be included as part of the Plan.
- v. The Contractor shall further identify the qualified safety professional responsible for developing the Plan and shall provide that person's qualifications for developing the Plan which shall include, but not be limited to, education, training, certifications, and experience in developing this type of Plan.
- vi. The Plan shall contain a certification executed by the qualified safety professional that developed the Plan, stating that the Plan complies with OSHA and other applicable State and Federal regulatory agencies with jurisdiction, rules, regulations, standards, or guidelines in effect at the time the work is in progress.

2. Elements of the Plan. The Plan shall address, but not be limited to, the following elements:

a. Management Safety Policy and Implementation Statement.

- i. The Plan shall describe in detail the means by which the Contractor shall implement and monitor the Plan. Implementation and monitoring shall also mean that the Plan shall be a document with provision for change to update the Plan with new information on a yearly basis at a minimum and shall include new practices or procedures, changing site and environmental conditions, or other situations that could adversely affect site personnel. The Plan shall provide guidelines for protecting all personnel from hazards associated with Project operations and activities.

b. Emergency Telephone Numbers.

c. Personnel Responsibilities.

- i. Management responsibilities
- ii. Responsibilities of Supervisor(s)
- iii. Site safety officer(s) responsibilities
- iv. Employee responsibilities
- v. Competent person(s) as defined by OSHA responsibilities
- vi. d. Training.

d. Regulatory

- i. Documentation
- ii. Site hazard assessment -Daily employee awareness of site operations

- e. Safety Rules.**
 - i. General safety rules
 - ii. Personal protective equipment
 - iii. Housekeeping
- f. Safety Checklists.**
 - i. Project safety-planning checklist
 - ii. Emergency plans and procedures checklist
 - iii. Documentation checklist
 - iv. Protective materials and equipment checklist
- g. Traffic Control Coordinator Inspections.**
 - i. Responsible person
 - ii. Frequency
 - iii. Documentation of actions taken
- h. Record Keeping.**
 - i. OSHA 200 log
- i. Reporting.**
 - i. Accident(s)
 - ii. On site
 - iii. Legal notice requirement
 - iv. Public liability
 - v. Property damage
 - vi. Department of Labor
 - vii. Hazard Communications
- j. Additional Procedures for Project Specific Situations as Applicable.**
 - i. Compressed gas cylinders
 - ii. Confined spaces
 - iii. Cranes
 - iv. Crystalline silica (stone, masonry, concrete, and brick dust)
 - v. Electrical
 - vi. Equipment operators
 - vii. Fall protection
 - viii. Hand and power tools
 - ix. Hearing conservation
 - x. Highway safety
 - xi. Lead health and safety plan
 - xii. Lock out/tag out
 - xiii. Materials handling, storage, use, and disposal
 - xiv. Areas of environmental concern
 - xv. Night work
 - xvi. Personal protective equipment
 - xvii. Project entry and exit
 - xviii. Respiratory protection
 - xix. Sanitation
 - xx. Signs, signals, and barricades
 - xxi. Subcontractors
 - xxii. Trenching

3. Appendix for Environmental Health and Safety Plan (HASP). If environmental hazards are identified in the Contract, an Environmental HASP shall be included in an appendix to the Plan, or in a separate document. References to any Environmental HASP shall be included within the Plan, where appropriate.

The Plan shall be kept on the site and shall apply and be available to all workers and all other authorized persons entering the work site. Copies of all updates to the Plan shall be promptly supplied to the Engineer.

If at any time during the Project the Engineer determines that the Contractor is not complying with the requirements of this provision or the updated Plan, the Contractor shall correct such deficiencies immediately. Failure to remediate such deficiencies may result in suspension of the Contractor's operations until the deficiencies have been corrected. Suspensions ordered due to safety deficiencies will not be considered compensable or excusable delays.

The Contractor is responsible for implementation of the Plan. Pursuant to Article 1.07.10, the Contractor shall indemnify, and save harmless the State from any and all liability related to the Plan in proportion to the extent that the Contractor is held liable for same by an arbiter of competent jurisdiction. The Contractor shall allow onto the Project site any inspector of OSHA or other legally responsible agency involved in safety and health administration upon presentation of proper credentials, without delay and without the presentation of an inspection warrant.

Article 1.07.13 - Contractor's Responsibility for Adjacent Property, Facilities and Services is supplemented as follows:

The Contractor shall coordinate with the utilities in the area for the protection of utilities at least 30 days prior to the start of any work on this project involving the respective utility. Refer to Supplemental Conditions Section 29 for utility contact information.

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SECTION 1.08 - PROSECUTION AND PROGRESS

Article 1.08.04 - Limitation of Operations - Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor will not be permitted to perform any work which will interfere with the described traffic operations on all project roadways as follows:

All Roadways

Saturday and Sunday between 10:00 a.m. and 6:00 p.m.

No streets shall be shut down to pedestrian and vehicle access without prior authorization from the Department of Public Works. Provide requests for road closures at least 72-hour in advance of proposed work and provide notification to business owners at least 48-hours in advance of any road closures.

Article 1.08.07 – Determination of Contract Time – Modify the following:

When the Contract time is stated on a calendar-day basis, that time shall be the number of consecutive calendar days contained in the Contract period designated in the Contract, excluding the time period from each *December 22 through the following March 1 (the "winter shutdown period") or agreed upon winter shutdown period between the Contractor and Owner*. The Contract time will begin to run on the date designated in the Engineer's "Notice to Proceed" as the date for commencement of the Project, and the time will be computed as herein provided on a consecutive-day basis, including all Saturdays, Sundays, holidays, and non-workdays from *March 2 through December 21* of each included year.

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TECHNICAL SPECIFICATION - SPECIAL PROVISIONS

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Technical Specifications – Special Provisions

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ITEM #0101157A: CONTAMINATED SOIL MANAGEMENT

Description: Furnish all labor, materials, equipment, and incidentals required to characterize and stage excess soil and fill material. The Contractor shall be experienced and knowledgeable and have the trained and qualified personnel needed to conduct the work. Contractor shall have demonstrated experience in handling and management of soils, including characterization for off-site disposal. In the course of the work, it may be necessary to excavate and manage potentially contaminated soil and fill. The soil and fill management practices specified herein apply to all soil and fill excavated during this contract. Potentially contaminated sites are located within or adjacent to the construction areas as described in the Environmental Conditions Memo appended in the Contract Documents.

Construction Methods: The Contractor, or their designated environmental professional, shall characterize all excavated soil and fill material prior to off-site reuse or disposal; pre-excavation characterization may be conducted by the Contractor. Characterization requirements may vary depending on the site selected to receive soil suitable for reuse or the disposal facility permits and policies. The Contractor is responsible for final waste characterization and shall determine waste characterization required by the facility. At a minimum, all surplus soils shall be analyzed for the following parameters: Resource Conservation and Recovery Act (RCRA) total metals; volatile organic compounds; semi-volatile organic compounds; extractable total petroleum hydrocarbons; polychlorinated biphenyls (PCBs); pesticides; chlorinated herbicides; corrosivity/pH; ignitability; reactivity; and conductivity. Toxicity Characteristic Leaching Procedure (TCLP) analysis shall be conducted for any analyte for which the mass analysis divided by 20 is greater than or equal to Toxicity Characteristic (TC) thresholds defined in 40 CFR 261.3. The Owner shall not be responsible for costs associated with additional soil characterization. Characterization of soil, fill, and unknown material for disposal/reuse purposes, including field screening and soil management/segregation; temporary storage/staging; and laboratory analysis (as may be necessary for unknown materials and/or for compliance with receiving facility requirements). All laboratory chemical analyses conducted shall utilize currently accepted USEPA and applicable state agency analytical protocols and procedures. The Contractor, or their designated environmental professional, shall complete all required soil profile documentation based upon the waste characterization results. The Contractor will provide the soil profile documentation to the Owner and Engineer for review and signature.

Excavated soil that cannot be re-used on site shall either be loaded directly into containers for off-site reuse/disposal (provided the material has been approved for acceptance at an off-site facility) or temporarily stockpiled at a location determined and secured by the Contractor, pending disposal characterization by the Contractor, or their designated environmental professional. Soil suspected of being hazardous waste, defined as having the characteristics of a hazardous waste or of containing a listed hazardous waste, shall not be removed from the area of contamination, or staged at another location except at the direction of the Engineer. Unless excavated soil is live loaded for disposal, it shall be the responsibility of the Contractor to maintain segregated waste stockpiles in conformance with all applicable federal, state, and local waste disposal regulations. The Contractor shall select the area to facilitate handling of the material and to minimize interference with other ongoing construction activities. The Contractor shall provide construction details of the proposed staging area(s), including dimensions and protective measures, to the Owner or Engineer prior to

construction. Unless the staging area is comprised of an impervious surface material such as asphalt or concrete, the Contractor shall pre-characterize the surface soils (0-6") at the staging area(s) prior to staging any soils to document the existing conditions relative to contamination which may result from using the area to stage excess or unknown materials. A minimum of one composite surface soil sample, consisting of at least five grab samples, for every 2,500 square feet of staging area shall be collected by the Contractor prior to staging materials at the location. The samples will be submitted to a certified laboratory for analysis for: RCRA total metals; volatile organic compounds; semi-volatile organic compounds; extractable total petroleum hydrocarbons; pesticides; chlorinated herbicides; corrosivity/pH; ignitability; reactivity; and conductivity. At the completion of the work, the Contractor shall replicate the pre-staging sampling and analysis protocol to assess impacts to the area from use as a staging area. Stockpiles located within the soil staging areas shall be placed on asphalt or concrete, or on a 20-mil HDPE liner and bermed to minimize the effects of contamination release. Each soil category shall be staged in separate areas with berms constructed a minimum of 2 feet above the existing grade with common fill, hay bales, concrete barriers, or functionally equivalent berm material. Hazardous waste must be disposed off-site within 90 days of excavation. All other waste must be disposed of within 120 calendar days of excavation. Stockpiles are to be segregated based on a review of pre-characterization data and visual and olfactory conditions and field screening results obtained during excavation. Each stockpile must be clearly separated from adjacent stockpiles. Stockpiles shall be limited in size to approximately 500 cubic yards, unless approved by the Engineer. If, because of combining soil piles into larger volumes than 500 cubic yards, soil must be disposed of as a higher cost bid item than would otherwise be required, the Contractor shall be responsible for the additional cost. Stockpiles shall be clearly designated by a signpost or marker which can be cross-referenced with the source location and with samples collected from the pile for characterization purposes. The signs/markers are not to be moved, except by authorized personnel and not until the soil is ready to be either reused on site or loaded for off-site disposal. Excavated soil shall not be added to a stockpile after it has been sampled for characterization. Unknown, potentially hazardous soils/debris and drummed materials encountered during the project shall be in a separate bermed location. The Contractor shall be responsible to inform the Owner if hazardous waste disposal will not be performed within 90 days of hazardous waste characterization. This notification shall take place a minimum of 30 days prior to the 90-day deadline. No hazardous waste stockpiled at the site shall remain on site more than 90 days after it is characterized.

Prior to transporting any soils or fill material to a disposal facility the Contractor shall submit a letter from the disposal facility indicating that the facility has reviewed the available data and the generator's profile of the material and the facility agrees that it meets the facility's acceptance criteria. It is the responsibility of the Contractor to complete all manifests, Bill of Ladings, Material Shipping Records, and supporting documents completely, legibly, and accurately prior to submitting them to the Engineer. The Contractor shall be responsible for coordinating disposal documentation with all parties. Where appropriate the Contractor shall submit waste manifests for all waste disposed off-site to the appropriate Engineer, agency, facility, or person within the time constraints specified by state and federal regulations. Copies of all waste manifests and Bill of Lading documentation including weight slips shall be provided to the Engineer within 10 days of shipment. The Contractor shall reimburse the Engineer for any and all fines associated with inaccurate, incorrect, or improperly completed waste manifests, including fines resulting from late or untimely submittals.

Method of Measurement: This item is being paid on a lump sum and thus will not be measured for payment. Transportation and disposal of soil and fill shall be paid for under Item #202310.

Basis of Payment: This item will be paid for at the Contract lump sum price for “Contaminated Soil Management” as required, which price shall include all soil characterization, coordination, equipment, tools, and labor incidental thereto.

Pay Item
Contaminated Soil Management

Pay Unit
Lump Sum

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ITEM #0140361A ABANDON UNDERGROUND TUNNEL

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: The work of this Section shall consist of providing all equipment, labor, and materials required to abandon an existing underground tunnel to the conformity, lines, grades, and dimensions as shown on the plans, or as directed by the Engineer.

The existing tunnel will overlap with the proposed improvement and represents an existing ground instability in its current state. The following procedure is recommended for isolation and backfill to final sub grade.

Materials: Granular fill, if necessary, shall meet the requirements of M.02.01. Protective compound material shall be as specified in M.03.09 and acceptable to the Engineer,

Construction Methods: Perform in accordance with the Contract Drawings and 5.86.03. Backfilling shall be performed in accordance with 2.86.03.

Site Preparation: Existing utilities above or within the tunnel are to be isolated and protected. Break apart the existing concrete slab floor of the tunnel in order to expose existing cavities under the floor prior to excavation of tunnel roof. Remove all pavement and surface material from within the proposed excavation area above the tunnel roof. Care should be taken to avoid mixing of these materials with other excavated soils. Stockpile, transport, and dispose all excavated material in accordance with Federal, State, and local regulations.

Excavation: Excavation should conform to OSHA health and safety standards for excavation contained in 29 CFR Part A1926, latest edition. Excavation height, depth and slope should conform to these OSHA standards and all local, State, and Federal safety regulations. As a safety measure, it is recommended that vehicles and soil piles be kept a minimum lateral distance from the crest of excavations. On-site construction safety is solely a responsibility of the Contractor. The information provided herein is provided as a service to our Client and should not be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

It is anticipated that excavations for this project may be accomplished by using regular earth moving equipment (Caterpillar E320 excavator or similar). However, special equipment like excavator-mounted hydraulic hammers for concrete slab excavation may be required.

Break apart the existing brick roof of the tunnel. Remove loose debris including concrete and brick pieces. Care should be taken to avoid mixing of these materials with other excavated soils. Stockpile, transport, and dispose all excavated material in accordance with Federal, State, and local regulations.

Subgrade Preparation: Areas of weak and unstable soils - as defined in this report - observed at the final excavation subgrade should be over excavated and replaced with compacted structural fill or 3/4” crushed stone wrapped in non-woven geotextile. If encountered at the excavation subgrade, boulders should also be removed from within the zone of influence of the proposed pavement, pipe, or utilities, and replaced with structural fill or 3/4” crushed stone.

Backfill and Compaction: Crushed Stone should be placed in loose lift thicknesses of maximum 12 inches and should be compacted with heavy compaction equipment to achieve an unyielding subgrade. At the Borough’s discretion, the Borough may furnish fill to be applied by the Contract, including hauling, spreading and compaction.

Method of Measurement: This item shall be paid on a lump sum basis and will not be measured for payment.

Basis of Payment: This work will be paid for at the Contract lump sum price for “Abandon Underground Tunnel” which price shall include all permits, utility coordination, utility support and protection, demolition, relocation, handling, hauling, spreading and compaction of approved backfill material, all materials, equipment, testing, and labor incidental to completion of this item.

Pay Item

Abandon Underground Tunnel

Pay Unit

L.S.

ITEM #2020310.1-3 A: TRANSPORTATION AND DISPOSAL OF SOIL AND FILL

Description: Furnish all labor, materials, equipment, and incidentals required to transport excess soil and fill material off-site, and dispose, reuse, or recycle at a licensed facility approved by the Owner. All solid waste shall be disposed in accordance with all applicable federal, state, and local laws and regulations, as well as all other state laws through which the waste material is being transported. Potentially contaminated sites are located within or adjacent to the construction areas as described in the Environmental Conditions Memo appended to the Contract Documents.

Construction Methods: The Contractor shall reuse, recycle or dispose of all excess soil and wastes resulting from excavation activities in accordance with federal, state and local regulations and these specifications. Transport shall be performed by a permitted and licensed waste transporter. Prior to disposal, it shall be the responsibility of the Contractor to maintain segregated waste stockpiles in conformance with all applicable federal, state, and local waste disposal regulations and as specified in Item #101157: CONTAMINATED SOIL MANAGEMENT

No truck shall be allowed to exit the site until all free liquids are drained from soil/fill or other solid waste being transported off-site. Material shall be covered at all times. The vehicle in which the waste is transported shall be driven directly to the intended destination without any stops or detours in between, except those necessary in response to road conditions, vehicle service needs, or emergencies. Discharge or release of material during transport shall be immediately reported to the Owner. Transporters shall clean up any discharge that occurs in transit, at the Contractor's expense.

Manifesting of solid waste shall be required and shall include vehicle identification; date of loading and disposal; tonnage, as measured at the disposal site; and signature of the Owner and/or its representative, transporter, and disposal facility's representative. Transportation of the wastes shall be accompanied by the appropriate manifests, such as a Material Shipping Record (MSR), Bill of Lading (BOL), or by a Uniform Hazardous Waste Manifest. Where paper documents are utilized, the original shall be returned to the Owner, and/or their representative, within ten working days of disposal.

Class A is any soil or fill material, not including sediments, which has concentrations of chemicals below the Regulations of Connecticut State Agencies 22a-133k-1-3 (inclusive). Any excavated soil/fill material which is not reused within the area of excavation, must be characterized prior to reuse. Class A soil may be reused as fill material provided it is geotechnically suitable. Class A soil may be used in gravel processing facilities provided the soil analytical data is comparable to materials being used by the facility and such use is approved by the Engineer. Class A soil may be reused at a permitted landfill, provided that in all cases, the excavated soil analyte concentrations meet the acceptance criteria established by the facility. Class A soil not exhibiting evidence of contamination or soils determined through laboratory chemical analysis to be Class A soils may also be reused in the area of excavation.

Class B is any soil or fill material that contains oil or hazardous materials at concentrations equal to or greater than (\geq) Regulations of Connecticut State Agencies 22a-133k-1-3 (inclusive), or soils

exhibiting either petroleum or chemical odor or visual indications of oil or hazardous materials. Any excavated soil/fill material which is not reused within the area of excavation, must be characterized prior to reuse. Class B soil may be reused as fill material at the discretion of the Owner or Engineer provided it is geotechnically suitable. Surplus soil/fill which may be contaminated shall be segregated by the Contractor. Potentially contaminated soils shall not be mixed with soils not exhibiting either petroleum or chemical odor or visual indications of oil or hazardous materials. Soil/fill which has been staged and characterized can be reused within the area of excavation or elsewhere on site provided the material has been characterized by laboratory analysis and has equal or less contamination than the point where it is to be reused. Class B soil that cannot be reused on-site shall be reused off-site, recycled, or disposed of at a permitted facility. Class B soil/fill must be removed from the site within 120 days of generation.

Class C is soil or fill material having or suspected of having the characteristics of a hazardous waste or of containing a listed hazardous waste shall not be removed from the excavation or staged at another location except at the direction of the Owner. Class C soil and fill shall not be reused on site. Class C soil/fill must be removed from the site with 90 days of generation.

Special Waste is any solid waste that is determined not to be hazardous waste and that exists in such quantity or in such chemical or physical state, or any combination thereof, so that particular management controls are required to prevent an adverse impact from the collection, transport, transfer, storage, processing, treatment or disposal of the solid waste. Special Waste shall not be reused on site. Asbestos and PCB-contaminated soils/fill (at regulated concentrations) are examples of special waste categories. Special Waste must be removed from the site within 90 days of generation.

Method of Measurement:

Unit price payment items are for transporting and disposing of soils and fill material. Measurement for payment shall be on the basis of tons of waste actually disposed, as measured at the disposal facility by certified scale, and documented on the return manifest or certified weight slip. No payments will be made in cases of incomplete documentation of disposal. The pay item includes loading, transportation, and disposal of soil at a facility in accordance with the facility's acceptance criteria and any fees and/or taxes. Loading, transportation, and disposal of bituminous concrete and construction debris are excluded.

Basis of Payment: This material will be paid for at the Contract unit price per ton for transportation and disposal of soils specified, which price shall include all materials, equipment, tools, and labor incidental thereto.

Pay Item

2020310.1 Class A Transportation and Disposal
2020310.2 Class B Transportation and Disposal
2020310.3 Class C Transportation and Disposal

Pay Unit

per TON
per TON
per TON

ITEM #0202452A – TEST PIT

Description: The work covered under this item includes furnishing all labor, equipment, materials, and incidentals necessary to perform all operations in connection with excavating and backfilling by machine and/or by hand exploratory test pits at locations indicated or directed by the Engineer. The purpose of the test pits is for locating and examining soils, groundwater, drains, pipes, rocks, utilities, structure foundations, or any other obstacles.

Construction Methods: Test pit excavations shall have neat, clean-cut, and vertical sides; hand-digging shall be employed when required by the Engineer. Sawcut shall be performed where necessary and as directed by the Engineer.

It shall be agreed that the Contractor entered into this contract with full knowledge that in any work involving excavation, operation in public highways or adjacent to other developments, obstacles, difficulties, unforeseen soil or groundwater conditions, etc., may be encountered, and that the Contractor has included in the bid and contract obligations the assumptions of the risks and costs to which such obstacles, etc., may be present. Contractor shall “Call Before Dig” before any excavation work.

Perform all work in conformance with local, state, and federal codes.

Dig test pits so as to ensure that underground utilities or structures are not damaged. It shall be the Contractor’s sole responsibility for any damages incurred during excavation operations. Any damages shall be repaired or replaced by the Contractor to the satisfaction as directed by the Engineer at the Contractor’s own expense.

Contractor shall notify the Engineer of any revealed conflicts which may require design revisions, relocations, and/or adjustments as early as possible to avoid unnecessary delays. The Engineer shall be allowed sufficient time to perform all necessary design revisions. No work shall be started within areas of conflict until so authorized.

Protect each pit with steel plates, other coverings, fences, barriers, or other appropriate materials as deemed necessary. Do not backfill pits until authorized. Compact backfill materials 95% to the sub-grade elevation or as otherwise directed.

The surface of test pit areas shall be restored to a condition equal or better than original as approved by the Engineer. Test pits throughout the project area are to be completed prior to beginning actual construction activities.

Method of Measurement: Test pits will be measured for payment by the number of each test pit dug within the limits and to the depths as ordered and approved by the Engineer.

Basis of Payment: The cost of the sawcut, excavation, removal of pavement, restoration of the surface of the test pit areas, and associated construction work will be included in the test pit cost.

Pay Item
Test Pit

Pay Unit
each

ITEM #0216012A – CONTROLLED LOW STRENGTH MATERIAL

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description: Controlled Low Strength Material (CLSM) is a self-consolidating, ridge setting material to be used in backfills, fills, structural fills, and elsewhere as indicated on the plans, or as directed by the Engineer. The flow and set times characteristics of CLSM shall be designed to meet the job conditions. All CLSM material covered by this specifications shall be designed to be hand excavatable at any time after placement. It shall be composed of a mixture of Portland cement, aggregate, and water with the option of using fly ash, slag cement, air-entraining agents, and other approved admixtures.

Materials: All materials utilized in the CLSM mix design shall be in accordance with the applicable requirements of Article M.03.01.

Composition: The composition of the CLSM shall be in accordance with the requirements set forth in Article M. 03.01-General Composition of Concrete Mixes, as well as the applicable section of ACI 229R. The Contractor shall submit each proposed mix design, with all supporting data, to the Engineer for review and approval at least two weeks prior to its use.

The setting time of CLSM materials shall be designed so as to achieve the strength necessary to comply with the time constraints called for under the Maintenance and Protection of Traffic requirements for the project specifications. The use of chloride accelerators is not permitted.

The minimum compressive strength of the CLSM material shall be 30 pounds per square inch (psi) and the maximum compressive strength of the CLSM shall be 150 pounds per square inch (psi) when tested in accordance with ASTM D4832 after 56 days.

The CLSM mix design shall utilize a nominal maximum size of No. 8 aggregate as specified in M.01.01.

CLSM mixes shall have a minimum of 20% entrained air when tested in accordance with AASHTO T152.

Construction Methods: CLSM shall only be placed when the ambient temperature is at least 32 degrees F and rising. CLSM material shall be deposited within 2 hours of initial mixing.

CLSM may be place by chutes, conveyors, buckets or pumps depending upon the application and accessibility of the site. Should voids or cavities remain after the placement of the CLSM, the Contractor shall modify the placement method or flow characteristics for the CLSM. Voids or cavities which have not been filled properly shall be corrected as directed by the Engineer and at the Contractor's expense.

Method of Measurement: This work will be measured for payment by the actual number of cubic yards of “Controlled Low Strength Material installed and accepted within the pay limits shown on the contract plans or as directed by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per cubic yard “Controlled Low Strength Material,” which price shall include all materials, equipment, tools, labor, and work incidental thereto.

Pay Item

Controlled Low Strength Material

Pay Unit

c.y.

ITEM #219011A – SEDIMENTATION CONTROL AT CATCH BASIN

Description: This work shall consist of furnishing, installing, cleaning, maintaining, replacing, and removing sedimentation control at catch basins at the locations and as shown on plans and as directed by the engineer.

Materials: Sack shall be manufactured from a specially designed woven polypropylene geotextile sewn by a double needle machine, using a high strength nylon thread. Sack shall be manufactured by one of the following or an approved equal:

Siltsack®

SI Geosolutions:
www.sigeosolutions.com
(800)621-0444

Dandy Sack™

Dandy Products Inc.
P.O. Box 1980
Westerville, Ohio 43086
Phone: 800-591-2284
Fax: 740-881-2791
Email: dlc@dandyproducts.com
Website: www.dandyproducts.com

FLeXstorm Inlet Filters

Inlet & Pipe Protection
24137 W. 111th St - Unit A
Naperville, IL 60564
Telephone: (866) 287-8655
Fax: (630) 355-3477

The sack will be manufactured to fit the opening of the catch basin or drop inlet. Sack will have the following features: two dump straps attached at the bottom to facilitate the emptying of sack and lifting loops as an integral part of the system to be used to lift sack from the basin. The sack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, the sack should be emptied, cleaned and placed back into the basin.

Construction Methods: Installation, removal, and maintenance shall be per manufacturer instructions and recommendations.

Method of Measurement: Sedimentation Control at Catch Basin will be measured as each installed, maintained, accepted, and removed. There will be no separate measurement for maintenance or replacement associated with this item.

Basis of Payment: “Sedimentation Control at Catch Basin” will be paid for at the contract unit price each complete in place and accepted, which price shall include all maintenance throughout construction, materials, equipment, tools, and labor incidental thereto.

Pay Item

Sedimentation Control System at Catch Basin

Pay Unit

ea.

ITEM #040100A – HD CONCRETE PAVEMENT

ITEM #0921013A –CONCRETE DRIVEWAY APRON

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022; as well as CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description:

1. Summary:

The work of this item shall consist of heavy duty concrete pavement and concrete driveway apron constructed on a processed aggregate base course, with steel reinforcement, reinforcement support, joint filler, and joint sealant, in the locations and to the dimensions and details shown on the plans or as ordered. This pay item also includes the removal and disposal of the existing materials in the locations of the proposed HD concrete pavement and concrete driveway apron. Contractor to include a mockup panel of HD concrete pavement and concrete driveway apron for review and acceptance by the Engineer.

2. Submittals:

- a) Product Data: For each type of product.
- b) Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.
- c) Samples for Verification: For each type of product or exposed finish, prepared as Samples at sizes indicated.
- d) 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.
- e) Qualification Data: For qualified ready-mix concrete manufacturer.
- f) Material Certificates: For the following, from manufacturer:
- g) Cementitious materials.
- h) Steel reinforcement and reinforcement accessories.
- i) Admixtures.
- j) Curing compounds.

- k) Applied finish materials.
- l) Bonding agent or epoxy adhesive.
- m) Joint fillers.
- n) Material Test Reports: For each of the following:
- o) Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- p) Field quality-control reports.

3. Quality Assurance:

- a) Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
- b) Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- c) Mockups: Build mockups to verify selections made under 2.c & 2.d. above and to demonstrate aesthetic effects and set quality standards for materials and execution.
- d) Build mockups of full-thickness sections of concrete paving to demonstrate typical joints; surface finish, texture, and color; curing; and standard of workmanship.
- e) Build mockups of concrete paving where directed by Engineer and not less than 96 inches by 96 inches.
- f) Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.
- g) Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4. 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:

- c) When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
- d) Do not use frozen materials or materials containing ice or snow.
- e) Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- f) Hot-Weather Concrete Placement: Comply with ACI 301 (ACI 301M) and as follows when hot-weather conditions exist:
 - g) Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) 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.
 - h) Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - i) Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

Materials: Materials for this work shall meet the requirements of Form 818, M.03.

1. Portland Cement Concrete:

Concrete shall have a minimum compressive strength of 4,400 psi at 28 day break and conform to M.03.02, PCC04462 Standard Portland Cement Concrete.

2. Liquid Membrane-Forming Curing Compound:

Curing compound shall be as specified in M.03.04-3.

3. Processed Aggregate Base:

Granular fill or reclaimed miscellaneous aggregate for base shall be as specified in M.05.01.

4. Steel Reinforcement:

Steel Reinforcement shall have a postconsumer recycled content plus one-half of preconsumer recycled content not less than 60 percent.

- a) Epoxy-Coated Welded-Wire Reinforcement: ASTM A884/A884M, Class A, plain steel.
- b) Epoxy-Coated Reinforcing Bars: ASTM A775/A775M or ASTM A934/A934M; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars.
- c) Epoxy-Coated-Steel Wire: ASTM A884/A884M, Class A; coated, deformed.

- d) Epoxy-Coated, Joint Dowel Bars: ASTM A775/A775M; with ASTM A615/A615M, Grade 60 (Grade 420) plain-steel bars.
- e) Tie Bars: ASTM A615/A615M, Grade 60 (Grade 420); deformed.
- f) Hook Bolts: ASTM A307, Grade A (ASTM F568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- g) 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.
- h) Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

5. Joint Filler:

- a) Joint Fillers: semi-rigid, closed-cell polypropylene foam, preformed joint filler that meets the following physical property requirements and fully complies with ASTM D8139.
 - 1) Compression Strength = 30-60 psi per ASTM D 545 or AASHTO T 42
 - 2) Compression Recovery > 80% per ASTM D 545 or AASHTO T 42
 - 3) Extrusion < 0.1 in. per ASTM D 545 or AASHTO T 42
 - 4) Density >3.5 lbs./cu.ft. per ASTM D 545 or AASHTO T 42
 - 5) Water Absorption < 1.0% per ASTM D 545 or AASHTO T 42
 - 6) Heat Resistance °F 392°F± 5°F per ASTM D 5249
 - 7) Freeze Thaw Resistance No change per ASTM C 666 (300 cycles)
 - 8) UV Weathering No change per ASTM D 4329 (1000 hrs., Cycle A)
 - 9) Thickness = 3/8 inch typical, 1/2 inch where walk abuts structures
- b) Provide cutting tool for pre-scoring the top edge of the joint filler, to allow removal of top portion for sealant application.

6. Joint Sealant for Horizontal Applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

7. Joint Sealant for vertical applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00230, non-sag, 2c NS EZ Mix, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

8. Sealant Backer Rod:

- a) Compressible rod stock or polyethylene foam, polyethylene jacketed, butyl rubber foam, or neoprene foam, as recommended by sealant manufacturer where required for back-up of sealant.

Construction Methods:

1. Excavation:

Excavation, including removal of any existing pavement (bituminous or concrete) and curbing, shall be made to the required depths below the finished grade, as shown on the plans or as directed.

All soft and yielding material shall be removed and replaced with suitable material.

When connecting new HD concrete pavement to a section of existing concrete pavement, the connection point shall be at the nearest joint in the existing pavement.

The Contractor shall establish the limits required to achieve grades for each concrete driveway apron prior to removal of existing pavement and ramps. The Contractor shall document and notify the Engineer of any control points that may conflict with the design grades or configuration of concrete driveway apron shown on the plans. Control points can be but are not limited to ROW, utility poles, drainage structures, buildings, fences, walls, or other features found near the proposed concrete driveway apron. When control points are encountered within the limits of the concrete driveway apron, the Engineer will determine if an alternative apron type is required, or the apron is to be constructed as shown on the plans.

2. Processed Aggregate Base:

The processed aggregate base shall be placed in layers not to exceed 6 inches deep and to such a depth that after compaction it shall be at the specified depth below the finished grade of the walk. The base shall be wetted and rolled or tamped after the spreading of each layer.

3. Forms:

Forms shall be of metal or wood, straight, free from warp and of sufficient strength to resist springing from the pressure of the concrete. If made of wood, they shall be of 2 inch surfaced plank except that at sharp curves thinner material may be used. If made of metal, they shall be of approved section and shall have a flat surface on the top.

Forms shall be of a depth equal to the depth of the pavement. Forms shall be securely staked, braced and held firmly to the required line and grade and shall be sufficiently tight to prevent leakage of mortar.

All forms shall be cleaned and oiled or wetted before concrete is placed against them. Sheet metal templates 1/8 inch thick, of the full depth and width of the pavement, shall be spaced at intervals of 12 feet or as directed.

If the concrete is placed in alternate sections, these templates shall remain in place until concrete has been placed on both sides of the template. As soon as the concrete has obtained its initial set, the templates shall be removed.

4. Discontinuities:

Vertical surface discontinuities shall be 1/4 inch maximum.

5. Concrete

The concrete shall be proportioned, mixed, placed, etc., in accordance with the provisions of Form 818, 6.01.03, except as modified herein.

6. Finishing:

The surface of the concrete shall be finished with a wood float or by other approved means, and shall have a medium broom finish perpendicular to the direction of pedestrian travel. Driveway aprons only shall have broom finish perpendicular to the direction of vehicular travel.

The outside edges of the slab and all joints shall be edged with a 1/4 inch radius edging tool.

Each slab shall be divided into 2 or more sections as detailed by forming dummy joints with a jointing tool as directed.

7. Curing:

Liquid membrane-forming compound shall be applied following finishing as recommended by the manufacturer.

The Contractor shall have on the Project sufficient approved cover sheet of cotton mats for the protection of the sidewalk in case of rain or breakdown of the spray equipment.

The cotton mats shall be maintained in a wet condition during the period of use, as specified in Form 818, 6.01.03-II-9.

8. Backfilling and Removal of Surplus Material:

The sides of the pavement and apron shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the pavement.

All surplus material shall be removed, and the Site left in a neat and presentable condition to the satisfaction of the Engineer.

Method of Measurement:

This work will be measured for payment as follows:

1. HD Concrete Pavement: This work will be measured by the actual number of square feet of completed and accepted HD concrete pavement. Liquid membrane-forming curing compound, steel reinforcement, joint filler, and joint sealant will not be measured for payment, but the cost shall be included in the price bid for the HD Concrete Pavement.

2. Excavation: Excavation below the finished grade of the pavement, backfilling, and disposal of surplus material will not be measured for payment, but the cost shall be included in the price bid for the HD Concrete Pavement.

3. Processed Aggregate Base: This work will not be measured for payment, but the cost shall be considered as included in the price bid for the HD Concrete Pavement.

4. Concrete Driveway Apron: This work will be measured by the actual number of square feet of completed and accepted Concrete Driveway Apron. Liquid membrane-forming curing compound, steel reinforcement, joint filler, and joint sealant will not be measured for payment, but the cost shall be included in the price bid for the Concrete Driveway Apron.

Basis of Payment:

Construction of HD concrete pavement and Concrete Driveway Apron will be paid for at the Contract unit price per square foot for " HD Concrete Pavement " or "Concrete Driveway Apron" complete and accepted in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, curb removal and any monolithic or separately cast concrete curb when required for the HD concrete pavement or Concrete Driveway Apron as

shown on the plans, processed aggregate base, steel reinforcement, joint filler, joint sealant, curing compound, equipment, tools, materials and labor incidental thereto.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|------------------------------------|-----------------|
| 0401000A – HD Concrete Pavement | SF |
| 0921013A - Concrete Driveway Apron | SF |

ITEM #0402800A – CLEAN EXISTING CONCRETE SIDEWALK

Description:

1. Summary:

Provide all labor, equipment, materials, tools, and supervision to complete the existing concrete sidewalk cleaning in accordance with these specifications, as detailed on the plans or as directed by the Engineer. The use of a light duty all-purpose cleaner for stone and masonry shall be utilized to clean the existing concrete sidewalk. Provide and install new joint sealant at areas of cleaned existing concrete sidewalk.

2. Submittals:

- a) Manufacturer's literature, specifications and application instructions for each product.
- b) Product Data Sheets and MSDS Sheet for each product.

3. Project Conditions:

- a) Do not apply when temperature is below freezing or will be overnight. If freezing conditions existed prior to application, let surfaces thaw.
- b) It is the Contractor's responsibility to protect all existing trees and vegetation in the area of cleaning. Any trees or vegetation damaged or killed due to treatment operations shall be replaced by the contractor at no cost to the Owner. Tree and Vegetation replacement will be approved by the City Engineer.

4. Quality Assurance:

- a) Mock-up a test area of existing concrete sidewalk. The mock-up shall be performed under the on-site supervision of the product manufacturer's local representative. The test shall determine suitability, dilution rates and desired result. Let surface dry thoroughly before inspection and approval (approx. 3 to 7 days). Approved mock-up shall be maintained for comparison throughout the duration of the project. The same dilution rate, mixing process, application procedures, etc. shall be utilized for the remainder of the project.

Material:

1. Stone and Masonry Cleaner:

D/2 Biological Solution as manufactured by D/2 Biological solutions, Inc., Westport, MA
Phone: (917) 693-7441. E-mail: tkinnari@d2bio.com or approved equal.

D/2 Biological Solution is a biodegradable, easy to use liquid that removes stains from mold, algae, mildew, lichens and air pollutants. It is effective on marble, granite, limestone, brownstone, travertine, masonry, terra cotta, concrete, stucco, wood, and other architectural surfaces including monuments, sculpture and headstones.

2. Joint Sealant: Match joint sealant material from Item No. 921001A.

Construction Methods:

Treating existing concrete sidewalk shall be in accordance to manufacturer’s instructions, guidelines and specifications at locations indicated on the drawings or as directed by the Engineer. Contractor shall notify the Engineer no less than 48 hours prior to treating the existing concrete sidewalk. The contractor shall not proceed with treating the existing concrete sidewalks without Engineer approval.

Method of Measurement:

Measure for this item will be based on the square feet of existing concrete sidewalk cleaned, completed and accepted.

Basis of Payment:

The existing concrete sidewalk cleaning will be paid for at the contract unit price per square feet for “Clean Existing Concrete Sidewalk” which price shall include all materials, equipment, tools and labor incidental thereto.

PAY ITEM

PAY UNIT

0404800A Clean Existing Concrete Sidewalk

SF

ITEM #0406999A - ASPHALT ADJUSTMENT COST

Description: The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of Hot Mix Asphalt (HMA), Polymer Modified Asphalt (PMA), Ultra-Thin Bonded HMA (UTB-HMA), Ultra-Thin Bonded PMA (UTB-PMA) and Asphalt Rubber Chip Seal treatments completed and accepted during the Contract.

The Asphalt Price is available on the Department of Transportation website at:
<http://www.ct.gov/dot/asphaltadjustment>

Construction Methods: An asphalt adjustment will be applied only if all the following conditions are met per mixture:

1. For HMA and PMA mixtures:
 - a. The HMA or PMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
 - b. *The total quantity for all HMA and PMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.*
 - c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
2. For UTB-HMA and UTB-PMA mixtures:
 - a. The UTB-HMA or UTB-PMA mixture for which the adjustment would be applied is listed as a Contract item.
 - b. *The total quantity for the UTB-HMA or UTB-PMA mixture in the Contract exceeds:*
 - i. 800 tons if the UTB-HMA or UTB-PMA item has a pay unit of tons,*
 - ii. 30,000 square yards if the UTB-HMA or UTB-PMA item has a pay unit of square yards, or*
 - iii. the Project duration is greater than 6 months.*

Note: The quantity of UTB-HMA or UTB-PMA measured in tons shall be determined from the material documentation requirements set forth in the UTB-HMA or UTB-PMA item specification.

- c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
 - d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the UTB-HMA or UTB-PMA mixture system.
3. For Asphalt Rubber Chip Seal treatments:
 - a. The Asphalt Rubber Chip Seal treatment for which the adjustment would be applied is listed as a Contract item.
 - b. *The total quantity for the Asphalt Rubber Chip Seal treatment in the Contract exceeds 30,000 square yards or the Project duration is greater than 6 months.*

Note: The quantity of asphalt binder measured in tons used for the Asphalt Rubber Chip Seal treatment shall be determined from the material documentation requirements set forth in the Asphalt Rubber Chip Seal item specification. The Asphalt Adjustment Cost will also be applied

to the asphalt binder used to pre-coat the cover aggregate as part of the Asphalt Rubber Chip Seal and will be considered as a portion of the total tons of binder for the treatment. The additional quantity of binder measured in tons will be determined based on a percentage of the cover aggregate weight per the requirements set forth in the Asphalt Rubber Chip Seal item specification.

- c. The difference between the posted *Asphalt Base Price* and *Asphalt Period Price* varies by more than \$5.00 per ton.
4. Regardless of the binder used in all HMA, PMA, UTB-HMA and UTB-PMA mixtures or Asphalt Rubber Chip Seal treatments, the Asphalt Adjustment Cost will be based on PG 64- 22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the **Asphalt Weekly Monitor**® furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal. The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US\$/ST).

Method of Measurement:

| |
|--|
| Formula A: HMA X [PG%/100] x [(Period Price - Base Price)] = \$ _____ |
|--|

Where:

HMA:

1. For HMA, PMA, UTB-HMA and UTB-PMA mixtures with pay units of tons:
The quantity in tons of accepted HMA, PMA, UTB-HMA or UTB-PMA mixture measured and accepted for payment.
2. For UTB-HMA and UTB-PMA mixtures with pay units of square yards:
The quantity of UTB-HMA and UTB-PMA mixture delivered, placed, and accepted for payment, calculated in tons as reported according to the Material Documentation provision of the UTB-HMA and UTB-PMA specification.
3. **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
4. **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the HMA, PMA, UTB-HMA and UTB-PMA mixture was placed.
5. **PG%** (Performance-Graded Binder percentage):
 - a. For HMA or PMA mixes:
 - i. PG% = 4.5 for HMA S1 and PMA S1
 - ii. PG% = 5.0 for HMA S0.5 and PMA S0.5
 - iii. PG% = 6.0 for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
 - b. For UTB-HMA and UTB-PMA mixes:
 - i. PG% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

For Asphalt Rubber Chip Seal:

| |
|---|
| Formula B: Total Tons x [(Period Price - Base Price)] = \$ _____ |
|---|

Where:

1. **Total tons:** The tons of asphalt binder for each lot of asphalt rubber produced, as reported according to the Testing and Certification article of the specification for Asphalt Rubber Chip Seal, and the tonnage of binder used to coat the cover aggregate calculated as follows: 0.6% x tons of cover aggregate.
2. **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
3. **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the Asphalt Rubber Chip Seal mixture was placed.

The Asphalt Adjustment Cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

Basis of Payment: The "Asphalt Adjustment Cost" will be calculated using the applicable formula(s) indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

Pay Item
Asphalt Adjustment Cost

Pay Unit
ALL.

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ITEM #507119A – GRANITE CURB CATCH BASIN INLET (SINGLE)
ITEM #507120A – GRANITE CURB CATCH BASIN INLET (DOUBLE)

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, to the requirements of Section 5.86, and supplemented as follows:

Article 5.86.02 Materials: Add the following: Granite curb material for catch basin inlets shall conform to M.12.06 and the plan details.

Article 5.86.03 Construction Methods: Add the following: Granite curbing for catch basin inlets shall be constructed in accordance with the plan details.

Article 5.86.04 Method of Measurement: Add the following: Furnishing and constructing granite curb inlets for catch basins shall be measured as units for each type.

Article 5.86.05 Basis of Payment: The work to install granite curb inlets for catch basins shall be paid at the contract unit price each for “Granite Curb Catch Basin Inlet (Single)” or “Granite Curb Catch Basin Inlet (Double)” complete in place, which price shall include furnishing and installation of the granite curb inlet including placement of the mortar bed and all material, equipment, tools and labor incidental thereto.

Pay Item

Granite Curb Catch Basin Inlet (Single)
Granite Curb Catch Basin Inlet (Double)

Pay Unit

ea.
ea.

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ITEM #0507602A DOGHOUSE MANHOLE - 5' DIAMETER

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description: The work under this Section shall consist of furnishing, preparing, and installing doghouse manholes in conformity with the lines, grades, dimensions and details shown on the plans and directed by the Engineer, including modification and connection to the existing drainage pipe. Work includes bypass, excavation, subbase, compaction, backfill, building bench and invert, pipe connections, walls, cone, corbel, riser, frame and cover and all ancillary appurtenances.

Materials: Materials will be in accordance with Article 05.86.02 for the standard specifications, modified according to the “Doghouse Manhole” detail included in contract documents. Manhole cover shall be in accordance with the Borough of Naugatuck Standard Details.

Construction Methods: Construction methods will be specified in Article 05.07.03 and as supplemented by the doghouse manhole detail shown on the plans and the manufacturer’s installation instructions. Care shall be taken to prevent damage to the existing pipe and structures. Contractor shall be responsible for repairing and or replacing any damage caused by their work at no additional cost to the Owner.

Method of Measurement: Doghouse manholes shall be measured for each unit installed, connected to existing drainage system, tested, and approved by the Engineer.

Basis of Payment: Payment will be made at the Contract unit price for each "Doghouse Manhole," complete in place, which price shall include all excavation, modifications to existing pipe, backfill, materials, equipment, tools, and labor incidental thereto.

Pay Item

Pay Unit

Doghouse Manhole – 5’ Diameter

ea.

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ITEM #0519003A – WATERPROOFING AT BUILDING WALL AND PAVEMENT INTERFACE

Description:

1. Summary:

Provide all labor, equipment, materials, tools, and supervision to complete the installation of waterproofing at existing building walls and pavement interface, including adhesives, flashing, cold applied waterproofing and joint sealant. Work is to be coordinated with the placement of the pavement, so that waterproofing is installed prior to pavement base materials and that flashing is installed prior to final pavement top course installation.

2. Submittals:

- a) Manufacturer's literature, specifications and application instructions for each product.
- b) Product Data Sheets and MSDS Sheet for each product.

3. Project Conditions:

- a) Do not apply when the temperature is below freezing or will be overnight. If freezing conditions existed prior to application, let surfaces thaw.
- b) It is the Contractor's responsibility to protect all existing building walls, doors, windows and façades. Any damage to these components shall be replaced by the contractor at no cost to the Owner. Repair and replacement will be approved by the City Engineer.

4. Quality Assurance:

- a) Mock-up a test area of existing building foundation wall. The mock-up shall be performed under the on-site supervision of the product manufacturer's local representative. The test shall determine suitability, application procedures and pavement interface options. Approved mock-up shall be documented for comparison throughout the duration of the project. The same waterproofing installation/techniques shall be utilized for the remainder of the project, unless the building foundation wall or conditions require an alternate method of waterproofing.

Material:

1. Single-Component, Modified Polyurethan Waterproofing: ASTM C836 and coal-tar free:

Provide products by one of the following:

- a) CETCO.
- b) Carlisle Coatings and Waterproofing.
- c) Tremco Incorporated.

2. Flashing – provide metal flashing complying with SMACNA’s “Architectural Sheet Metal Manual and as follows:

- a) Stainless Steel: ASTM A240 or ASTM A666, type 304, 0.016 inch thick.
- b) Fabricate through-wall flashing with sealant stop unless otherwise indicated. Fabricate by bending metal back on itself 3/4 inch (19 mm) at exterior face of wall and down into joint 1/4 inch (6 mm) to form a stop for retaining sealant backer rod.

3. Joint Sealant for Horizontal Applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

4. Joint Sealant for vertical applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00230, non-sag, 2c NS EZ Mix, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

Construction Methods:

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work. Verify that foundation wall has been cleaned and prepared as recommended in writing by waterproofing manufacturer. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method in accordance with ASTM D4263. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Preparation:

- a) Clean, prepare, and treat substrates in accordance with manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- b) Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- c) Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants or film-forming coatings from concrete.

- 1) Abrasive blast clean concrete surfaces uniformly to expose top surface of fine aggregate in accordance with ASTM D4259 with a self-contained, recirculating, blast-cleaning apparatus. Remove material to provide a sound surface free of laitance, glaze,

efflorescence, curing compounds, concrete hardeners, or form-release agents. Remove remaining loose material and clean surfaces in accordance with ASTM D4258.

d) Remove fins, ridges, and other projections, and fill honeycomb, aggregate pockets, holes, and other voids.

2. Installation Of Waterproofing:

a) Apply waterproofing in accordance with manufacturer's written instructions and to recommendations in ASTM C898/C898M and ASTM C1471/C1471M.

b) Start installing waterproofing in presence of manufacturer's technical representative.

c) Apply primer over prepared substrate unless otherwise instructed in writing by waterproofing manufacturer.

d) Unreinforced Waterproofing Applications: Mix materials and apply waterproofing by spray, roller, notched squeegee, trowel, or other application method suitable to slope of substrate.

1) Apply one or more coats of waterproofing to obtain a seamless membrane free of entrapped gases and pinholes, with a dry film thickness of 90 mils (2.25 mm.)

2) Apply waterproofing to prepared wall terminations and vertical surfaces.

3) Verify manufacturer's recommended wet film thickness of waterproofing every 100 sq. ft. (9.3 sq. m).

3. Installation Of Flashing:

a) General: Install embedded flashing at ledges and other obstructions to downward flow of water in wall where indicated.

b) Install flashing as follows unless otherwise indicated:

1) Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape **as recommended by flashing manufacturer**.

4. Protection:

a) Protect waterproofing from damage and wear during remainder of construction period.

b) Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

Method of Measurement:

Measure for this item will be based on the linear feet of waterproofing at building wall and pavement interface, completed and accepted.

Basis of Payment:

The waterproofing at building wall and pavement interface will be paid for as an allowance for the “waterproofing at building wall and pavement interface” which price shall include all materials, equipment, tools and labor incidental thereto.

PAY ITEM

0519003A Waterproofing at Building Wall and Pavement Interface

PAY UNIT

ALLOW

ITEM #0586086A ABANDON DRAINAGE STRUCTURE
ITEM #0586790A REMOVE DRAINAGE STRUCTURE

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description: The work under this Section shall consist of providing all equipment, labor, and material required to remove or abandonment existing structures and drainpipe in conformity with the lines, grades, dimensions and details shown on the plans, including two bulkheads at each end of pipe being abandoned outside of drainage trench excavation limits.

Materials: Granular fill, if necessary, shall meet the requirements of M.02.01. Protective compound material shall be as specified in M.03.09 and acceptable to the Engineer,

Construction Methods: Perform in accordance with the Contract Drawings and 5.86.03. Backfilling shall be performed in accordance with 2.86.03.

Method of Measurement: Removal or abandonment of drainage structures outside of drainage trench excavation limits, as defined in 2.86.03, will be measured as separate units. There will be no measurement or direct payment for the application of the protective compound material. The cost of this work shall be considered as included in the general cost of the work. Measurement for payment for work and materials involved with installing pipes to connect new drainage structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04. There will be no measurement or direct payment for plugging existing pipes with cement masonry, the cost of this work will be considered as included in the general cost of the work. Controlled low strength material used to fill abandoned pipe shall be measured and paid for under Item #0216012A.

Basis of Payment: Removal or abandonment of drainage structures outside of drainage trench excavation limits as defined in 2.86.03 will be paid for at the Contract unit price each for "Remove Drainage Structure" or "Abandon Drainage Structure," which price shall include excavation, cutting of pavement, removal and replacement of pavement, backfill, and all equipment, tools, and labor incidental thereto.

Pay Item
Abandon Drainage Structure
Remove Drainage Structure

Pay Unit
EA.
EA.

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ITEM #813012A – 5”x18” GRANITE STONE CURBING

ITEM #813013A – 5”x18” GRANITE CURVED STONE CURBING

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description: This item shall consist of stone curbing, furnished in accordance with the dimensions and details of the plans, and installed to the lines and grades shown on the plans.

Materials: The stone curbing shall meet the requirements of M.12.06.

The mound of concrete required at all stone curbing joints shall meet the requirements of any mix design type listed in Table M.03.02-1.

Mortar shall meet the requirements of M.11.04.

Base material, if required, shall meet the requirements of M.02.01, M.02.02 or M05.01.

Construction Methods:

1. Trim backs of curbs to provide a consistent 1/4-inch joint where installed against unit pavers.
2. Finishes:
 - a. Top surface shall be sawed to an approximately true plane and shall have no projections or depressions greater than 1/8 inch. Curbstones shall be thoroughly cleaned of any iron rust or iron particles.
 - b. Front face shall be at right angles to the plane of the top and shall be smooth quarry-split, free from drill holes in the exposed face. There shall be no projections greater than 3/4 inch, or depressions greater than 1/2 inch, measured from the vertical plane of the face through the top arris line for a distance of 8 inches down from the top. For the remaining distance, there shall be no projections or depressions greater than 1 inch measured in the same manner. The arris lines at the ends shall be pitched with no variation from the plane of the face greater than 1/8 inch.
 - c. Back surface of the curbstone shall have no projection for 3 inches down from the top which would fall outside of a plane having a batter of 4 inches in 12 inches from the back arris line.
 - d. The ends of all stones shall be square with the planes of the top and face and so finished that, when the stones are placed end to end as closely as possible, no space more than 1/2 inch shall show in the joint for the full width of the top or down on the face for 8 inches.
 - e. No exposed drill marks.

Method of Measurement: This work will be measured for payment along the top arris line of the curb and will be the actual number of linear feet of stone curbing or curved curbing completed and accepted.

Basis of Payment: Payment for this work will be made at the Contract unit price per linear foot for “5”x18” Granite Stone Curbing” or “5”x18” Granite Curved Stone Curbing,” of the type and size specified, complete and accepted in place, which price shall include all excavation, materials, equipment, tools, backfilling, disposal of surplus material and labor incidental thereto. There will be no direct payment for furnishing, placing and compacting base material, beveling or rounding the ends of the curbing and pointing the joints with mortar, but the cost of this work shall be considered as included in the general cost of the work.

Pay Item

5”x18” Granite Stone Curbing

5”x18” Granite Curved Stone Curbing

Pay Unit

l.f.

l.f.

ITEM #0901003A – STEEL PIPE BOLLARD

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing steel bollards with concrete footings as shown on the plans or as directed by the Engineer.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Manufacturers warranties.

Material:

1. Bollard:

Steel pipe bollards shall be manufactured from 4" O.D. Extra Strong galvanized steel pipe or tubing.

Bollard shall be buried a minimum of 42" below the surface and extend 42" above the surface.

Steel pipe bollards shall be filled with concrete. Concrete for filling bollards and for concrete foundations to match Portland cement concrete with a minimum compressive strength of 3,300 psi as defined in Form 818, M.03.02.

Steel pipe bollards shall be installed in a manner as to not interfere with the installation of decorative metal bollards over the steel pipe bollards as detailed.

Construction Methods:

Install bollard at locations indicated on the drawings. Install footings in a manner that do not interfere with the footings/foundations of other site components.

Coordinate installation of steel pipe bollards with the installer for Item #0901006A Decorative Metal Bollard 52”.

Method of Measurement:

This work will be measured for payment by the number of steel pipe bollards furnished and installed at locations where proposed, with such work as directed and accepted by the Engineer.

Basis of Payment:

The bollard will be paid for at the contract unit price per each for “STEEL PIPE BOLLARD” which price shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

Pay Item
0901003A Steel Pipe Bollard

Pay Unit
EA

ITEM #0901005A – DECORATIVE METAL BOLLARD 36”

ITEM #0901006A – DECORATIVE METAL BOLLARD 52”

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing bollards and concrete bollard footings as shown on the plans or as directed by the Engineer.

- a) Decorative Metal Bollard 36” - Work under this item shall consist of furnishing and installing decorative metal bollards 36” high, including bollard, integral welded 4” steel pipe, anchor bolts, and concrete footings where indicated on the plans or as ordered and in conformity with the details and these specifications. Work shall also include furnishment of (4) “attic stock” decorative bollards 36” to the borough for their future use and replacement. The cost attic stock bollards shall be factored into the unit price of the furnished and installed bollards. The basis of design for the decorative bollard is the San Jose bollard by Urban Accessories, Inc., 465 East 15th Street, Tacoma, WA 98421, (877)487-0488. Other manufacturers and products will be considered if determined to be an Equal Product by the Engineer.
- b) Decorative Metal Bollard 52” - Work under this item shall consist of furnishing and installing decorative metal bollards 52”, including bollard, anchor bolts, and set screws where indicated on the plans or as ordered and in conformity with the details and these specifications. These bollards will be placed over concrete filled steel pipe bollards provided for under Item # 0901003. Work shall also include furnishment of (2) “attic stock” decorative bollards to the borough for their future use and replacement. The cost attic stock bollards shall be factored into the unit price of the furnished and installed bollards. The basis of design for the decorative bollard is the San Jose bollard by Urban Accessories, Inc., 465 East 15th Street, Tacoma, WA 98421, (877)487-0488. Other manufacturers and products will be considered if determined to be an Equal Product by the Engineer.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Maintenance/Attic Stock: Provide an additional six (6) 36” Decorative Metal Bollards and two (2) 52” Decorative Metal Bollards as maintenance stock to be turned over to the Borough of Naugatuck. Deliver to the location designated by the Borough for storage.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Warranty Information:

- a) Bollard and footing: Sample warranty demonstrating protection of all components - including bollard, foundation, plate, anchors, fasteners – against damage caused by corrosion, faulty installation, tipping or shifting of bollard, and other failures that result from improper installation. Warranty to be minimum of 2 years from date of substantial completion.
- b) Bollard Finish: Sample warranty demonstrating protection of bollard finish paint from chipping, scratching, excessive fading, or other failures that result from improper coating. Warranty to be minimum of 2 years from date of substantial completion.

Material:

1. Decorative Metal Bollard 36”:

Urban Accessories San Jose Series Bollard

- a) Height: 36 inches +/-.
- b) Mounting: Integral welded 4” pipe cast into concrete footing.
- c) Material: Aluminum, ASTM B26
- d) Finish: Polyester Powder Coating, Matte Black color
- e) Bollard Footing: Construct to the dimensions indicated on plan. Concrete: Portland cement concrete, minimum compressive strength of 3,300 psi, as defined in Form 818, M.03.02.

2. Decorative Metal Bollard 52”:

Urban Accessories San Jose Series Bollard

- a) Height: 52 inches +/-.
- b) Mounting: set screw attachment to steel pipe bollard provided under pay item #0901003.
- c) Material: Aluminum, ASTM B26
- d) Finish: Polyester Powder Coating, Matte Black color
- e) Bollard Footing: Included under item #0901003.

Construction Methods:

1. Examination:

Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, utility installations, and other conditions affecting timing and performance of the Work. Do not begin installation

before final grading is completed unless otherwise permitted by Engineer. Proceed with installation only after unsatisfactory conditions have been corrected.

2. **Coordinate:** timing of bollard installations with steel pipe bollard and brick sidewalk installations.
3. **Set:** cast-in integral 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.
4. **Install:** bollard and footing in accordance with bollard manufacturer's instructions. Install level, plumb, true, and as indicated on drawings.
5. **Clean up:** Remove all waste and other debris and legally dispose of them.

Method of Measurement:

This work will be measured for payment by the number of decorative metal bollards furnished and installed at locations where proposed, with such work as directed and accepted by the Engineer.

Basis of Payment:

The bollards will be paid for at the contract unit price per each for "DECORATIVE METAL BOLLARD 36" and "DECORATIVE METAL BOLLARD 52" which price shall include all materials, attic stock, equipment, tools and labor incidental thereto including furnishing, excavation, installation, removal of excess materials, and clean up.

Payment for concrete footing shall be included under Decorative Metal Bollard 36", but not under Decorative Metal Bollard 52". Payment for concrete filled Steel Pipe Bollard shall not be included under Decorative Metal Bollard 52", but under Item # 0901003.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|---------------------------------------|-----------------|
| 0901005A Decorative Metal Bollard 36" | EA |
| 0901006A Decorative Metal Bollard 52" | EA |

Maintenance/attic stock – included in the pay item cost above for bollard material and delivery only. Contractor to provide delivery/payment receipts to the Owner for verification.

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ITEM #0912700A – TIMBER GUIDE RAIL

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing timber guide rails as shown on the plans or as directed by the Engineer. Work shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.
- d) Wood Preservative Treatment including certifications by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Material:

1. Timber Guide Rail:

Posts and Timbers:

- a) Rough sawn, No. 2 or better Southern yellow pine timbers.
- b) AWPA Standard U1, with .40 lbs., p.c.f. retention of waterborne ACQ-D preservative.
- c) Kiln dried or air dried before and after treatment or 25% maximum moisture content.

2. Fasteners:

- a) Bolts, nuts and washers as indicated on the drawings.
- b) Fasteners shall have galvanized finish, and be sized to ensure that the bolt length does not extend past the face of the post.

Construction Methods:

Install timber guide rail at locations indicated on the drawings. Counter sink bolt holes to allow for concealment of the nuts and washers. Adjust fastener lengths as necessary to account for radial or directional changes in the layout.

Method of Measurement:

This work will be measured for payment by the linear feet of timber guide rail furnished and installed at locations indicated on the drawings, with such work as directed and accepted by the Engineer.

Basis of Payment:

The timber guide rail will be paid for at the contract unit price per linear foot of “Timber Guide Rail” which price shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

Pay Item

0912700A Timber Guide Rail

Pay Unit

LF

ITEM #0914017A – 8’ HIGH MESH INSERT FOR DECORATIVE ORNAMENTAL METAL FENCE SCREENING

Description:

1. Summary:

Work under these items shall consist of furnishing and installing punched perforated metal mesh inserts where indicated on the plans or as ordered and in conformity with these specifications. Work shall include all necessary edging treatments and hardware fasteners.

The basis of design for 8’ high mesh insert panels is perforated metal, as manufactured by McNichols Co. (800) 237-3820 mcnichols.com. Other manufacturers and products will be considered if determined to be an Equal Product by the Engineer, however the Contractor will be responsible for any redesign based on other products.

2. Submittals:

- a. Product data for each component of the screening systems.
- b. Installer qualifications indicating a minimum of 3 projects on which they installed similar metal fencing or screening systems. Picket type metal fence systems do not count towards this goal.
- c. Shop Drawings:
 - i. For each type of mesh insert panel and accessory, showing materials, dimensions, cutouts and penetrations, finish, and other information necessary to describe work.
 - ii. Size and spacing of fasteners, mounting clips, and other panel attachment devices.
- d. Samples: Two samples of the specified mesh, minimum of 12” by 12” in size and showing geometry type that represents the specified pattern. Include finish sample(s) as well to represent exact specified finish.
- e. Manufacturer’s Warranty: Manufacturer’s limited warranty against defects in material and workmanship. Warranty to be minimum of 10 years.
- f. Contractor’s Warranty: Sample warranty demonstrating protection of all components - including panels, and fasteners – against damage caused by corrosion, faulty installation, scratching or chipping of finishes, tipping or shifting of system components, and other failures that result from improper installation. Warranty to be minimum of 5 years.
- g. Maintenance Instructions: Submit manual to Borough providing all information concerning the inspection, cleaning and preservation of the systems.
- h. Submit specific product information, including names of patterns and pattern numbers to allow for future repair re-order of each panel.

Material:

1. Manufacturer:

Basis of Design Standard: McNichols Co. (800) 237-3820 mcnichols.com

2. Material:

Mesh Insert Panels – 8’ high.

- a) 14-gauge carbon steel

- b) Hole pattern – ¼” round holes
- c) Hole Centers – 5/16”
- d) Bar width – 1/16”
- e) Open area – 58%
- f) Hole arrangement – 60-degree staggered centers.
- g) Finishes General: All components shall be factory finished for assembly. Finish shall be Powder Coat. Color for mesh inserts to be standard black.
- h) U-edging framing – carbon steel, hot rolled, 14-gauge, type 402 U-Edging (1/8” Opening X 1” width. Finished to match mesh insert.
- i) Carriage bolt anchors – sized as detailed or recommended by the Manufacturer, finish to match color of Item # 0914019A-8’ High Decorative Ornamental Metal Fence Screening.

3. Fabrication:

Mesh Insert Panels

Mesh insert panels shall be prefabricated, finished and ready for installation. Fence panels shall be coordinated and arrive to the site with factory drilled/punched holes for attachment of mesh insert panels to the fence panels.

Construction Methods:

1. Examination:

Examine areas and conditions, with Installer present, for compliance with requirements for completion of fence panel system and other conditions affecting timing and performance of the Work. Proceed with installation only after unsatisfactory conditions have been corrected.

2. Mesh Insert:

Install mesh insert with mechanical fasteners onto fence and gate panels as detailed. Mesh inserts shall be pre-finished as indicated, free of distortion and surface imperfections, and uniform in color and gloss. Furnish and install closures, caps, fasteners and trims with finish matching panel system.

3. Clean-up:

Remove protective film from components. Clean exposed surfaces in accordance with manufacturer’s instructions. Repair and touch up minor surface damage with color matching high grade enamel, only where permitted by the Engineer and only where appearance after touch-up is acceptable to Engineer. Replace damaged components that, in opinion of the Engineer, cannot be satisfactorily repaired.

Method of Measurement:

This work will be measured for payment as followings:

- a. by the number of linear feet of completed and accepted 8’ High Mesh Insert for Ornamental Metal Fence Screening as measured from the inside to inside of posts.

Basis of Payment:

For 8' High Mesh Insert for Decorative Ornamental Metal Fence Screening, this work will be paid for at the contract price per linear foot for the indicated heights, complete and in place, which price shall include all materials, equipment, tools, disposal of surplus material and labor incidental thereto.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|--|-----------------|
| 0914017A 8' High Mesh Insert for Decorative Ornamental Metal Fence Screening | LF |

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ITEM #0914018A – 4’ HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING

ITEM #0914019A – 8’ HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING

ITEM #0914020A – 8’ HIGH DECORATIVE ORNAMENTAL METAL FENCE SCREENING DOUBLE LEAF GATES

ITEM #0914021A – DECORATIVE ORNAMENTAL METAL FENCE SCREENING TRELLIS

Description:

1. Summary:

Work under these items shall consist of furnishing and installing laser-cut architectural metal panels, gates and trellis where indicated on the plans or as ordered and in conformity with these specifications. Work shall include all necessary hardware fasteners and concrete footings.

The basis of design for the the decorative ornamental metal fence screening product is the 4’ high flat bare railing system, the 8’ high panel fence system, the 8’ high panel gate system as manufactured by Revamp Panels, LLC, 1526 W Riverside Ave, Spokane, WA. (509) 919-0460 REVAMPPANELS.COM. Other manufacturers and products will be considered if determined to be an Equal Product by the Engineer, however the Contractor will be responsible for any redesign based on other products.

2. Submittals:

- a. Product data for each component of the screening systems.
- b. Installer qualifications indicating a minimum of 3 projects on which they installed similar metal fencing or screening systems. Picket type metal fence systems do not count towards this goal.
- c. Delegated Design: Engage structural engineer licensed in the State of Connecticut in the preparation of calculations and other documents necessary to demonstrate the systems can withstand the loads and stresses applicable to the panels, gates, and trellis at this location.
- d. Shop Drawings:
 - i. For each type of panel and accessory, showing materials, dimensions, cutouts and penetrations, finish, and other information necessary to describe work.
 - ii. Size and spacing of fasteners, mounting clips, and other panel attachment devices.
 - iii. Panel layout and supports shown in elevation for all portions of fence, gate, and trellis work.
- e. Samples: One sample for each fence, gate, and/or trellis pattern, minimum of 12” by 12” in size and showing geometry type that represents the specified pattern. Include finish sample(s) as well to represent exact specified finish.
- f. Manufacturer’s Warranty: Manufacturer’s limited warranty against defects in material and workmanship. Warranty to be minimum of 10 years.

- g. Contractor's Warranty: Sample warranty demonstrating protection of all components - including panels, foundations, moving components and fasteners – against damage caused by corrosion, faulty installation, scratching or chipping of finishes, tipping or shifting of system components, and other failures that result from improper installation. Warranty to be minimum of 5 years.
 - h. Maintenance Instructions: Submit manual to Borough providing all information concerning the inspection, cleaning and preservation of the systems.
 - i. Submit specific product information, including names of patterns and pattern numbers to allow for future repair re-order of each panel or post.
- 3. Attic/Maintenance Materials Stock:**
- a. **In addition to the installed decorative ornamental metal fence screening panels, provide the following to the Owner:**
 - i. **(1) 4' High by 4' wide laser cut custom decorative ornamental metal fence panel with top rail. Include necessary mounting screws/bolts/hardware for 4' high decorative ornamental metal fence panel.**
 - ii. **(1) 4' High by 6' wide laser cut custom decorative ornamental metal fence panel with top rail. Include necessary mounting screws/bolts/hardware for 4' high decorative ornamental metal fence panel.**
 - iii. **(2) 4' High fence posts with base plates and necessary mounting screws/bolts/hardware for 4' high decorative ornamental metal fence posts.**

Material:

1. Manufacturer:

Basis of Design Standard: Revamp Panels, LLC, 1526 W Riverside Ave, Spokane, WA.
(509) 919-0460 REVAMPPANELS.COM.

2. Material:

Revamp Panels Flat Bar Railing System (Steel) – 4' high

- a) Posts and horizontal framing members – 3" x 1/4" flat bar with welded bases for surface-mount installation.
- b) Panels – 1/8" thick formed with 1 1/2" return flange on three sides with laser-cut decorative pattern.
- c) Pattern Design – Custom design as indicated on the drawings.
- d) Panels shall be mechanically fastened to vertical and horizontal framing members.
- e) Fasteners shall be stainless steel for exterior use.
- f) Steel panels shall be A36.
- g) Finishes General: All components shall be factory finished for assembly. Finish shall be Powder Coat. Color to be custom color as selected by the Engineer. Primer coat shall be E396-GR1327 "Gray Zinc Rich Primer at min. 2.0-2.5 mils.

Revamp Panels Fence and Screen System (Steel) – 8' high

- a) Fence Panel Inline Posts – 1/4" plate, formed into 4" x 2.5" channel. A36 hot rolled, pickled and oiled. Top caps – 1/8" steel plate. Baseplates – 3/8" steel plate.
- b) Fence Panel Corner Posts – 1/4" plate, formed into 4" x 4" channel. A36 hot rolled, pickled and oiled. Top caps – 1/8" steel plate. Baseplates – 3/8" steel plate. Brace supports – 1/4" plate.

- c) Panels – 1/8” (11 ga.) with 1.5” formed return flange on all four sides. A36 hot rolled, pickled and oiled.
- d) Pattern Design – Custom design as indicated on the drawings.
- e) Finishes General: All components shall be factory finished for assembly. Finish shall be Powder Coat. Color to be custom color as selected by the Engineer. Primer coat shall be E396-GR1327 “Gray Zinc Rich Primer at min. 2.0-2.5 mils.

Revamp Panels Gate System – 8’ high

- a) Gate Posts – 5” x 5” x 3/8” HSS
- b) Gate Framing – 2” x 3” x 1/4” formed angle at hinge side; 2” x 2” x 1/4” formed angle at top, bottom and latch side.
- c) Gate Hinges - Model Elite Heavy Duty Ball-bearing Power Hinges. Hinges shall be welded to 1/2-inch steel mounting plates for mechanical fastening to gate posts and welding to gate frames as manufactured by Chamberlain Group, Inc, 845 Larch Avenue, Elmhurst, IL 60125-1196, 1-800-528-2806, www.chamberlain.com.
- d) Gate slide bar and drop rods - Slide bars fabricated from 1-inch diameter solid stainless-steel rod. Slide bar mounting brackets shall be fabricated from steel pipe welded to 1/4-inch steel mounting plate for mechanical fastening to gate panels. Drop rods shall be fabricated from 5/8-inch diameter stainless steel rod. Drop Rod brackets shall be steel pipe welded to 1/4-inch steel mounting plates for mechanical fastening to gate frames.
- e) Gate Panels – 1/4” (11 ga.) A36 hot rolled, pickled and oiled steel.
- f) Pattern Design – Custom design as indicated on the drawings.
- g) Finishes General: All components shall be factory finished for assembly. Finish shall be Powder Coat. Color to be custom color as selected by the Engineer. Primer coat shall be E396-GR1327 “Gray Zinc Rich Primer at min. 2.0-2.5 mils.

3. Fabrication:

Fence Panels

Fence panels shall be prefabricated, finished and ready for installation. Fence panel posts shall have welded top caps and welded baseplates, finished and ready for installation. Brace supports shall be prefabricated, finished and ready for installation. All welds shall be continuous at all connections and shall be watertight and ground smooth.

Gate System

Gates shall be prefabricated, welded, finished and ready for installation. Hinges, slide bars, drop roads shall be fabricated and finished before being mechanically fastened to gate posts and frames. Gate posts shall be sized for minimum 42” embedment in concrete or deeper as indicated by delegated design engineer. Gate posts shall have welded caps. Gate frame shall be continuously welded at all connections. All welds shall be watertight and ground smooth. Panels shall be mechanically fastened to gate framing members. Hinge assemblies shall be mounted to gate posts and gates so as to allow gates to open between 90 degrees and 180 degrees. Drop rod receivers shall be provided at closed position. Slide bar assembly shall allow of securing in closed position with Utility Company provided pad lock.

4. Footings:

Dimensions: Construct to the dimensions indicated on the plans or provided by the Delegated Design Engineer.

Concrete: Portland cement concrete, minimum compressive strength of 3,300 psi, as defined in M.03.02 of Form 818. Coordinate footings with other site improvements and footings to ensure footings do not conflict with the installation of other improvements.

Construction Methods:

1. Examination:

Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, utility installations, and other conditions affecting timing and performance of the Work. Do not begin installation before final grading is completed unless otherwise permitted by Engineer. Proceed with installation only after unsatisfactory conditions have been corrected.

2. Preparation:

Stake locations of fence lines, terminal posts, gates, and trellis. Do not exceed intervals of 8 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments in close proximity to the systems.

3. Panel Post Footing Installation:

Footing Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to the diameter's noted on the details or as directed by the delegated design shop drawings. Footing depth shall not be less than 42 inches. Set top of post footings to allow for level installation of the fence per each fence run. Top of footing to have a minimum of 2" exposed above the finished grade, and a maximum of 6" exposed above finished grade. Top of footing to have a 1" chamfer and flat surface able to receive the post base plates.

4. Gate Post Installation - Concrete Footings:

Install gates according to manufacturer's written instructions.

Post Excavation: Drill or hand-excavate holes for posts in firm, undisturbed soil. Excavate holes to the diameter's noted on the details or as directed by the delegated design shop drawings. Footing depth shall not be less than 42 inches.

Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.

Concrete Fill: Place concrete around posts and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

Concealed Concrete: Top 2 inches below grade to allow covering with surface material. Slope top surface of concrete to drain water away from post.

Posts Set in Concrete: Extend post to within approximately 6 inches of specified excavation depth, but not closer than 4 inches to bottom of concrete.

5. Gate Installation:

Gates shall be pre-finished as indicated, free of distortion and surface imperfections, uniform in color and gloss. Install gates plumb, true, level and in alignment to established lines and elevations. Furnish and install closures, caps, fasteners and trims with finish matching panel finish.

6. Fences and Trellises:

Install fence panel posts plumb, true, level and in alignment to established lines and elevations. Fence panel posts shall be pre-finished as indicated, free of distortion and surface imperfections, and uniform in color and gloss. Furnish and install closures, caps, fasteners and trims with finish matching panel system.

Install fence panels plumb, true, level and in alignment to established lines and elevations. Fence panels shall be mechanically fastened to fence panel inline and corner posts assemblies. Brace supports shall be mechanically fastened to fence panels. Furnish and install closures, caps, fasteners and trims with finish matching panel finish.

7. Clean-up:

Remove protective film from components. Clean exposed surfaces in accordance with manufacturer's instructions. Repair and touch up minor surface damage with color matching high grade enamel, only where permitted by the Engineer and only where appearance after touch-up is acceptable to Engineer. Replace damaged components that, in opinion of the Engineer, cannot be satisfactorily repaired.

Method of Measurement:

This work will be measured for payment as followings:

- a. by the number of linear feet of completed and accepted Ornamental Metal Fence Screening of the height specified and measured from the outside to outside of terminal posts.
- b. By the number of pairs of Ornamental Metal Fence Double Leaf Gates completed and accepted.
- c. By the numbers of Ornamental Metal Fence Screening Trellises completed and accepted.

There will be no measurement for payment or direct payment for Attic/Maintenance Materials Stock. This cost shall be considered as included in the general cost of work.

Basis of Payment:

For Decorative Ornamental Metal Fence Screening, this work will be paid for at the contract price per linear foot for the indicated heights, complete and in place, which price shall include all materials, equipment, tools, excavation, backfill, resetting of monuments, disposal of surplus material and labor incidental thereto.

For Decorative Ornamental Metal Fence Screening Double Leaf Gates, this work will be paid for at the contract price per gate pair, complete and in place, which price shall include all materials, equipment, tools, excavation, backfill, resetting of monuments, disposal of surplus material and labor incidental thereto.

For Decorative Ornamental Metal Fence Screening Trellis, this work will be paid for at the contract price for each trellis, complete and in place, which price shall include all materials, equipment, tools, excavation, backfill, resetting of monuments, disposal of surplus material, cleanup, and labor incidental thereto.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|--|------------------------|
| 0914018A 4' High Decorative Ornamental Metal Fence Screening | LF |
| 0914019A 8' High Decorative Ornamental Metal Fence Screening | LF |
| 0914020A 8' High Decorative Ornamental Metal Fence Screening Double Leaf Gates | PAIR |
| 0914021A Decorative Ornamental Metal Fence Screening Trellis | EACH |

PARCEL A/B MAJOR HUB DEVELOPMENT
NAUGATUCK, CT

ITEMS NOS. 0914018A, 0914019A,
0914020A, 0914021A

ITEM #0914022A – PEDESTRIAN GATEWAY ARCH

Description:

1. Summary:

Work under this item shall consist of furnishing and installing metal archways as dimensioned on the drawings, at locations indicated on the plans or as ordered, and in conformance with these specifications. Work shall include all necessary hardware fasteners and concrete footings.

2. Submittals:

- a. Product data for each archway component - including steel type, finish treatments and fasteners.
- b. Installer qualifications indicating a minimum of 5 projects on which they installed similar metal archways.
- c. Delegated Design: Engage structural engineer licensed in the State of Connecticut in the preparation of calculations and other documents necessary to demonstrate the systems can withstand the loads and stresses applicable to the archway at this location.
- d. Shop Drawings:
 - i. Showing materials, dimensions, cutouts and penetrations, finish, and other information necessary to describe work.
 - ii. Size and spacing of fasteners, trusses, and other archway devices.
- e. Samples: One sample of each material type with applied finish representing exact specified finish.
- f. Contractor's Warranty: Contractor shall warranty all components - including panels, foundations, moving components and fasteners – against damage caused by corrosion, faulty installation, scratching or chipping of finishes, tipping or shifting of system components, and other failures that result from improper installation. Warranty to be minimum of 10 years.
- g. Maintenance Instructions: Submit manual to Borough providing all information concerning the inspection, cleaning and preservation of the archway.

Material:

1. Column Posts and Column Sleeves:

- a. Column Posts – extra strong steel 6” square tubing with welded base plate.
- b. Post base plate – 1” thick steel plate, continuous weld to column post.
- c. Column Sleeve - extra strong steel 8” square tubing sized to fit over and be mechanically attached to the column post as indicated in the drawings. Sleeve shall have precut opening designed to allow the arch beams to pass through it and to be mechanically attached.

2. Arch Beams and Braces:

- a. Arch Beam – extra strong steel 4” square tubing.
- b. Arch supports – extra strong steel 3” square tubing.

3. Fasteners:

- a. Bolts, nuts and washers shall be stainless steel, and sized as required in the drawings or by the Delegated Design Engineer.

4. Concrete for foundation footings:

- a. Concrete for foundation footings shall be a minimum of 3300 psi, and shall include steel reinforcement and anchor bolt placement as determined by the Delegated Design Engineer.
- b. Concrete to conform to CTDOT Form 818, article 6.01 Concrete for Structures for Quality Control Requirements.
- c. Concrete to conform to CTDOT Form 818, article M.03.02 PCC03342 for mix design.

5. Fabrication:

Fabricate pedestrian gateway arch to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads. Shop assemble components to greatest extent possible to minimize field assembly. Disassemble units only as necessary for shipping and handling limitations.

Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

- a) Use materials and methods that minimize distortion and develop strength and corrosion-resistance of base metals.
- b) Obtain fusion without undercut or overlap.
- c) Remove flux immediately.
- d) At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.
- e) All welding to be completed at the shop. No field welding shall be allowed.

Brackets, Flanges, Fittings, and Anchors: Provide brackets, flanges, bolts, miscellaneous fittings, and anchors to interconnect pedestrian gateway arch members to other Work unless otherwise indicated.

Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by the pedestrian gateway arch. Coordinate anchorage devices with supporting structure.

6. Finishes:

All pedestrian gateway components including columns, sleeves, beams and braces shall be hot dip galvanized, with architectural finish coat. Basis of Design finish is ColorGalv20 by Duncan Galvanizing. Color to be selected by the engineer from a selection of all standard, custom and metallic finishes available.

7. Footings:

Dimensions: Construct to the dimensions indicated on the plans and as indicated by the Delegated Design Engineer.

Concrete: Portland cement concrete, minimum compressive strength of 3,300 psi, as defined in Form 818, M.03.02.

Reinforcement: As indicated by the Delegated Design Engineer.

Construction Methods:

1. Examination

Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, utility installations, and other conditions affecting timing and performance of the Work. Do not begin installation before final grading is completed unless otherwise permitted by Engineer. Proceed with installation only after unsatisfactory conditions have been corrected.

2. Preparation

Indicate locations of utilities, underground structures, benchmarks, and property monuments in close proximity to the archway posts. Coordinate placement of footings with other adjacent site improvements that also require footings.

3. Archway Concrete Footings and Columns

Install archway footings as indicated on the plans. Coordinate footings and column baseplate with Electrical Contractor to ensure conduit is placed in footing, and baseplate is notched to allow conduit to pass through to top of column.

Footing Excavation: Drill or hand-excavate holes for post footings in firm, undisturbed soil. Excavate holes to the diameter's noted on the details or as directed by the Delegated Design Engineer's shop drawings. Footing depth shall not be less than 42 inches. Remove Large existing tree roots if necessary and notify the contract arborist in accordance with provision #0915000A. Set top of footing elevation as indicated in the drawings, to allow for subsequent installation of brick paver sidewalks or other site improvements.

Post Setting: Set posts on top of concrete footings, utilizing the base plates and anchor bolts indicated by the Delegated Design Engineer. Verify that posts are set plumb, aligned, and at correct height and spacing to allow installation of the sleeve-beam assembly over the top of the column posts.

4. Archway Assembly

Shop assemble archway sleeves and rails to the greatest extent possible. Install archway assembly plumb, true, level, and in alignment to established lines and elevations. Archway to be bolted to the columns as indicated on the drawings.

Method of Measurement:

This work will be measured for payment as followings:

- a. By the numbers of Pedestrian Gateway Arches completed and accepted.

Basis of Payment:

This work will be paid for at the contract price for each archway, complete and in place, which price shall include all materials, equipment, tools, excavation, backfill, resetting of monuments, disposal of surplus material, cleanup, and labor incidental thereto.

Pay Item

0914022A Pedestrian Gateway Arch

Pay Unit

EACH

ITEM #0915000A – TREE PROTECTION, PRUNING AND TRIMMING

Description:

1. Summary:

The work of this Item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to preserve existing trees. Included is contracting with a Contract Arborist, excavating using Supersonic Air tool, root pruning, and root collar excavation.

2. Submittals:

- a. Qualification Data: For qualified arborist and tree service firm.
- b. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- c. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- d. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - i. Use sufficiently detailed photographs or videotape.
 - ii. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

3. Quality Assurance:

- a. Contract Arborist Qualifications: Arborist certified by the State of Connecticut and the International Society of Arboriculture.
- b. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- c. All pruning, root pruning, soil excavation around tree roots with air spade, and repair work to trees to remain to be performed under the supervision of an Arborist certified by the State of Connecticut and the International Society of Arboriculture.

4. Definitions:

- a. Certified Arborist: Credential of an individual arborist issued and administered by the International Society of Arboriculture. This credential must be current and valid to qualify to use the copyrighted designation of “Certified Arborist”.
- b. Contract Arborist: Arboricultural firm contracted to implement the approved tree preservation plans on site. All crews conducting arboricultural operations on site shall consist of at least one Certified Arborist who directly oversees all work by the crew. Arboricultural operations include, but are not limited to, pruning, tree protection device installation and maintenance, root pruning, air tool root

excavation / exploration (SSAT), soil care activities, soil testing, mulch application, tree inspections, pesticide / chemical applications and tree removal. Special qualifications submittal is required for review and approval. Contract arborist will be sub-contracted by the general contractor.

- c. Critical Root Zone (CRZ): A specific CRZ radius is defined in the Tree Protection Action Key for each identified tree.
- d. Structural Critical Root Zone (SCRZ): A specific SCRZ radius is defined in the Tree Protection Action Key for each identified tree.
- e. Supersonic Airtool (SSAT): Hand held tool designed to focus highly compressed air (90-125 psi) provided from a large air compressor (185-375 cfm) at speeds close to 1400 mph at the tip of the tool. Widely used by arboricultural firms and consultants for multiple purposes including but not limited to: root collar investigation, CRZ investigation, root pruning (especially large roots >1.5 inch diameter or where existing underground cables or conduits are located), radial mulching and restoration of compacted soils, excavation for utilities within protected CRZs to minimize root damage from constriction.
- f. Tree Protection Area (TPA): Any area within the Critical Root Zone radius of any tree to remain.

Materials:

1. Tree Protection Fence:

- a. Fence shall be 6' high chain link fence fabric mounted on 8' x 1.5" diameter galvanized steel pipe line posts. Corner posts shall be 2" diameter. Fence shall be attached to posts using aluminum ties. Plastic zip ties shall not be used.
- b. Tree protection area signs shall be affixed to all tree protection fence at 30' spacing. Signs shall be bilingual in English and Spanish. Signs shall not be affixed directly to trees.

Construction Methods:

1. General :

- a. All tree protection measures must be in place prior to commencement of demolition, site clearing or construction, and maintained throughout construction. Tree protection measures may only be removed with the Engineer's approval.

2. Tree Protection Fence:

- a. Install after root pruning and prior to clearing and grading.
- b. Silt fence shall be coordinated for installation to enhance protection and avoid unnecessary root cuts by silt fence installation.
- c. Fence may be removed only after all construction and final landscaping is complete and with the Engineer's approval.

3. Tree Preservation:

- a. For excavation within pavement at areas of existing trees to remain, the intent is to protect roots and minimize root damage from excavations.

- b. Excavation shall be performed using SSAT, hand tools (shovels, etc.), or other approved non-damaging method. Roots shall not be damaged by the excavation.
- c. All work shall be directly supervised by ISA Certified Arborist (provided by the Contract Arborist) in collaboration with the Owner's trades and subcontractors.
- d. Perform root collar excavation at base of existing trees to reduce the potential of vascular disorders.
- e. Perform soil cultivation to eliminate compaction to a depth of 3 inches to approximately the extent of the pavement using a Supersonic Airtool.
- f. Roots 1 inch and larger shall be protected during pavement installation. Larger roots may only be cut by the Contract Arborist if no alternative is deemed possible and Contract Arborist judges the tree impact to be acceptable. Any larger roots to be cut shall be documented including photographs and justification for cutting. Smaller roots may be cut by the Contract Arborist. No roots may be cut by the contractor.
- g. If no roots over 1 inch in diameter are located within the area of the pavement, the Contract Arborist shall prune the roots and the contractor may proceed with conventional excavation methods. Excavation shall not extend beyond the line where roots were pruned.
- h. If roots over 1 inch in diameter are uncovered, they should be protected to the greatest extent possible. Contract arborist shall determine if specific roots of this size can be cut. Roots that are not cut shall be protected and the pavement excavation shall continue with hand excavation methods.
- i. Roots over 3 inch in diameter are critical and shall not be cut without approval from the Engineer and Project Arborist.
- j. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered.
- k. Excavate with Supersonic Airtool along pavement to expose roots for observation and prune roots for construction under the supervision of an Arborist certified by the State of Connecticut and the International Society of Arboriculture.
- l. Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
- m. Root Pruning:
 - i. Purpose of the root pruning is to provide a more suitable cut so as to not rip or tear roots during excavations and grading with standard construction equipment.
 - ii. 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.
 - iii. All root pruning operations shall be performed by the Contract Arborist and directed in the field by an ISA Certified Arborist with documented experience in similar SSAT excavation and root pruning.

4. Construction Monitoring/Inspections:

- a. A Certified Arborist shall make regular monthly inspections during active construction and demolition and shall provide reports to the Engineer. Reports shall document condition of tree protection devices and provide recommendations for maintenance and additional care.

5. Tree Protection Requirements:

- a. No toxic materials shall be stored within 100' of tree protection areas.
- b. All work in or near tree protection areas shall be performed in a manner to minimize damage to trees, shrubs, ground cover, soil and root systems.
- c. Mechanized equipment shall not be permitted to enter any tree protection areas.

6. Canopy Pruning and Support Cables:

- a. Canopy pruning shall be Cleaning Pruning or Restoration Pruning and shall be in conformance with current ANSI A300 Standards and ISA Best Management Practices. This pruning shall be done at the direction of and under the direct supervision of the Contract Arborist.
- b. Pruning shall remove only dead, dying, damaged or broken branches greater than 1" in diameter. Pruning of small trees may include removal of limbs to improve structure.
- c. Foliage removal shall not be more than 25% of the total live canopy volume of any tree in any one season. Pruning shall not remove interior branching except as otherwise stated.
- d. Pruning for specific clearance, such as construction access or proposed improvements, shall be reviewed and approved by the Engineer.
- e. Support cables shall be installed in conformance with current ANSI A300 Standards and ISA Best Management Practices.

7. Special Demolition Procedures:

- a. Demolition of driveways, walks, and curbs within Tree Protection Areas shall be done by or directly supervised by the Contract Arborist.
- b. Mechanized equipment shall not enter the Tree Protection Areas.
- c. Backfill of voids from demolition within the Tree Protection Areas shall be loosely placed topsoil or CU Structural Soil as directed by the Contract Arborist or as indicated on the plans. Only the amount of soil necessary to fill the void without spreading over existing adjacent grades shall be allowed.
- d. Roots encountered during demolition shall be reviewed on a case-by-case basis by the Contract Arborist. The Arborist shall provide appropriate treatment or pruning methods as needed and in general conformance with accepted industry standards and with this specification.

Method of Measurement:

This item will be paid on a lump sum basis which will include tree protection and preservation measures, monthly monitoring, pruning and trimming to maintain and improve tree health and structure as described above within the limits as shown on the drawings.

Basis of Payment:

This work will be paid for at the contract lump sum price for ‘Tree Protection, Pruning and Trimming’, at the locations indicated, complete in place, which price shall include all materials, tools, equipment and labor incidental thereto, also all cleaning up of the site and disposal upon completion of the work.

Pay Item

Pay Unit

0915000A Tree Protection, Pruning and Trimming

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ITEM #0921001A – CONCRETE SIDEWALK

ITEM #0921003A – CONCRETE SIDEWALK REPAIR

ITEM #0921005A – CONCRETE SIDEWALK RAMPS

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022; as well as CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description:

1. Summary:

The work of this item shall consist of concrete sidewalks and ramps constructed on a processed aggregate base course, with steel reinforcement, reinforcement support, joint filler, and joint sealant, in the locations and to the dimensions and details shown on the plans or as ordered. This pay item includes the removal and disposal of the existing materials in the locations of the proposed concrete sidewalk. Contractor to include a mockup panel of concrete sidewalk and ramps for review and acceptance by the Engineer. Detectable Warning Surfaces are installed into wet concrete, but measurement and payment are not included under this item and can be found under Item #0921050A.

2. Submittals:

- a) Product Data: For each type of product.
- b) Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.
- c) Samples for Verification: For each type of product or exposed finish, prepared as Samples of size indicated below:
- d) 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.
- e) Qualification Data: For qualified ready-mix concrete manufacturer.
- f) Material Certificates: For the following, from manufacturer:
- g) Cementitious materials.
- h) Steel reinforcement and reinforcement accessories.
- i) Admixtures.

- j) Curing compounds.
- k) Applied finish materials.
- l) Bonding agent or epoxy adhesive.
- m) Joint fillers.
- n) Material Test Reports: For each of the following:
- o) Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- p) Field quality-control reports.

3. Quality Assurance:

- a) Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
- b) Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- c) Mockups: Build mockups to verify selections made under 1.6.D. above and to demonstrate aesthetic effects and set quality standards for materials and execution.
- d) Build mockups of full-thickness sections of concrete paving to demonstrate typical joints; surface finish, texture, and color; curing; and standard of workmanship.
- e) Build mockups of concrete paving where directed by Engineer and not less than 96 inches (2400 mm) by 96 inches (2400 mm).
- f) Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.
- g) Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4. 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:

- c) When air temperature has fallen to or is expected to fall below 40 deg F (4.4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
- d) Do not use frozen materials or materials containing ice or snow.
- e) Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- f) Hot-Weather Concrete Placement: Comply with ACI 301 (ACI 301M) and as follows when hot-weather conditions exist:
 - g) Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) 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.
 - h) Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - i) Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

Materials: Materials for this work shall meet the requirements of Form 818, M.03.

1. Portland Cement Concrete:

Concrete shall have a minimum compressive strength of 4,400 psi and conform to M.03.02, PCC04462 Standard Portland Cement Concrete.

2. Liquid Membrane-Forming Curing Compound:

Curing compound shall be as specified in M.03.04-3.

3. Processed Aggregate Base:

Granular fill or reclaimed miscellaneous aggregate for base shall be as specified in M.05.01.

4. Steel Reinforcement:

Steel Reinforcement shall have a postconsumer recycled content plus one-half of preconsumer recycled content not less than 60 percent.

- a) Epoxy-Coated Welded-Wire Reinforcement: ASTM A884/A884M, Class A, plain steel.
- b) Epoxy-Coated Reinforcing Bars: ASTM A775/A775M or ASTM A934/A934M; with ASTM A615/A615M, Grade 60 (Grade 420) deformed bars.
- c) Epoxy-Coated-Steel Wire: ASTM A884/A884M, Class A; coated, deformed.

- d) Epoxy-Coated, Joint Dowel Bars: ASTM A775/A775M; with ASTM A615/A615M, Grade 60 (Grade 420) plain-steel bars.
- e) Tie Bars: ASTM A615/A615M, Grade 60 (Grade 420); deformed.
- f) Hook Bolts: ASTM A307, Grade A (ASTM F568M, Property Class 4.6), internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- g) 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.
- h) Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

5. Joint Filler:

- a) Joint Fillers: semi-rigid, closed-cell polypropylene foam, preformed joint filler that meets the following physical property requirements and fully complies with ASTM D8139.
 - 1) Compression Strength = 30-60 psi per ASTM D 545 or AASHTO T 42
 - 2) Compression Recovery > 80% per ASTM D 545 or AASHTO T 42
 - 3) Extrusion < 0.1 in. per ASTM D 545 or AASHTO T 42
 - 4) Density >3.5 lbs./cu.ft. per ASTM D 545 or AASHTO T 42
 - 5) Water Absorption < 1.0% per ASTM D 545 or AASHTO T 42
 - 6) Heat Resistance °F 392°F± 5°F per ASTM D 5249
 - 7) Freeze Thaw Resistance No change per ASTM C 666 (300 cycles)
 - 8) UV Weathering No change per ASTM D 4329 (1000 hrs., Cycle A)
 - 9) Thickness = 3/8 inch typical, 1/2 inch where walk abuts structures
- b) Provide cutting tool for pre-scoring the top edge of the joint filler, to allow removal of top portion for sealant application.

6. Joint Sealant for Horizontal Applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

7. Joint Sealant for vertical applications:

a) Two component polyurethane elastomeric type complying with FS-TT-S-00230, non-sag, 2c NS EZ Mix, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.

b) Color to be selected by Engineer.

8. Sealant Backer Rod:

a) Compressible rod stock or polyethylene foam, polyethylene jacketed, butyl rubber foam, or neoprene foam, as recommended by sealant manufacturer where required for back-up of sealant.

Construction Methods:

1. Excavation:

Excavation, including removal of any existing sidewalk (bituminous or concrete) and curbing, shall be made to the required depths below the finished grade, as shown on the plans or as directed.

All soft and yielding material shall be removed and replaced with suitable material.

When connecting new concrete sidewalk to a section of existing concrete sidewalk, the connection point shall be at the nearest joint in the existing sidewalk. If joint is not clean, then it shall be saw cut for a straight edge.

The Contractor shall establish the limits required to achieve grades for each ramp prior to removal of existing sidewalk and ramps. The Contractor shall document and notify the Engineer of any control points that may conflict with the design grades or configuration of ramps shown on the plans. Control points can be but are not limited to ROW, utility poles, drainage structures, buildings, fences, walls, or other features found near the proposed ramp. When control points are encountered within the limits of the ramp, the Engineer will determine if an alternative ramp type is required, or the ramp is to be constructed as shown on the plans.

2. Processed Aggregate Base:

The processed aggregate base shall be placed in layers not to exceed 6 inches deep and to such a depth that after compaction it shall be at the specified depth below the finished grade of the walk. The base shall be wetted and rolled or tamped after the spreading of each layer.

3. Forms:

Forms shall be of metal or wood, straight, free from warp and of sufficient strength to resist springing from the pressure of the concrete. If made of wood, they shall be of 2 inch surfaced plank except that at sharp curves thinner material may be used. If made of metal, they shall be of approved section and shall have a flat surface on the top.

Forms shall be of a depth equal to the depth of the sidewalk. Forms shall be securely staked, braced and held firmly to the required line and grade and shall be sufficiently tight to prevent leakage of mortar.

All forms shall be cleaned and oiled or wetted before concrete is placed against them. Sheet metal templates 1/8 inch thick, of the full depth and width of the walk, shall be spaced at intervals of 12 feet or as directed.

If the concrete is placed in alternate sections, these templates shall remain in place until concrete has been placed on both sides of the template. As soon as the concrete has obtained its initial set, the templates shall be removed.

4. Discontinuities:

Vertical surface discontinuities shall be 1/4 inch maximum.

5. Concrete:

The concrete shall be proportioned, mixed, placed, etc., in accordance with the provisions of Form 818, 6.01.03, except as modified herein.

6. Joint Filler:

The joint filler is to be installed per the manufacturer's recommendations, making accommodation for the depth of the final bead of joint sealant.

7. Finishing:

The surface of the concrete shall be finished with a wood float or by other approved means, and shall have a medium broom finish perpendicular to the direction of pedestrian travel.

The outside edges of the slab and all joints shall be edged with a 1/4 inch radius edging tool.

Each slab shall be divided into 2 or more sections as detailed by forming dummy joints with a jointing tool as directed.

8. Curing:

Liquid membrane-forming compound shall be applied following finishing as recommended by the manufacturer.

The Contractor shall have on the Project sufficient approved cover sheet of cotton mats for the protection of the sidewalk in case of rain or breakdown of the spray equipment.

The cotton mats shall be maintained in a wet condition during the period of use, as specified in Form 818, 6.01.03-II-9.

9. Backfilling and Removal of Surplus Material:

The sides of the sidewalk shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the sidewalk.

All surplus material shall be removed, and the Site left in a neat and presentable condition to the satisfaction of the Engineer.

10. Detectable Warning Surface:

The detectable warning surface for new construction shall be set directly in plastic concrete and each tile shall be weighed down to prevent the tile from floating after placement in wet concrete in accordance with curing procedures.

Install detectable warning surface according to the plans and the manufacturer's requirements, or as directed by the Engineer.

11. Joint Sealant:

Apply the joint sealant at expansion joint locations as detailed and as recommended by the Manufacturer. Ensure that surfaces are clean and dust free, and installation is done when weather conditions will not damage the installation with blown dust or rain.

Method of Measurement:

This work will be measured for payment as follows:

1. Concrete Sidewalk or Ramp and Concrete Sidewalk Repair: This work will be measured by the actual number of square feet of completed and accepted concrete sidewalk or ramp. Liquid membrane-forming curing compound, steel reinforcement, joint filler, and joint sealant will not be measured for payment, but the cost shall be included in the price bid for the sidewalk or ramp.

2. Excavation: Excavation below the finished grade of the sidewalk or ramp, backfilling, and disposal of surplus material will not be measured for payment, but the cost shall be included in the price bid for the sidewalk or ramp.

3. Processed Aggregate Base: This work will not be measured for payment, but the cost shall be considered as included in the price bid for the sidewalk or ramp.

4. Detectable Warning Surface: For new construction (cast in place), the detectable warning surface will be measured for payment under Item 0921050A, by the actual number of square feet of detectable warning surface installed and accepted.

Basis of Payment:

Construction of a concrete sidewalk or ramp will be paid for at the Contract unit price per square foot for "Concrete Sidewalk" and "Concrete Sidewalk Repair" and "Concrete Sidewalk Ramp" complete and accepted in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, curb removal and any monolithic or separately cast sidewalk curb when required for the sidewalk ramp as shown on the plans, processed aggregate base, steel reinforcement, joint filler, joint sealant, curing compound, equipment, tools, materials and labor incidental thereto.

A new detectable warning surface will be paid for at the Contract unit price per square foot under Item 0921050A.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|-----------------------------------|-----------------|
| 0921001A Concrete Sidewalk | SF |
| 0921003A Concrete Sidewalk Repair | SF |
| 0921005A Concrete Sidewalk Ramp | SF |

ITEM #0921007A – BRICK SIDEWALK – RAMP

ITEM #0921008A – BRICK SIDEWALK – BANDING PAVER

ITEM #0921009A – BRICK SIDEWALK – FIELD PAVER

ITEM #0921010A – BRICK SIDEWALK – INSET PAVER

ITEM #0921015A – BRICK SIDEWALK REPAIR

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install brick paver sidewalk, brick sidewalk ramps and brick sidewalk repair as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, sidewalk or ramp removal and disposal, furnishing and installing the concrete base slab, sidewalk ramp base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, brick banding paver, brick field paver, brick inset paver, joint sand and expansion joints. The concrete base slab will conform to the requirements of Item 0921001A, including expansion joints, with the exception that broom finish and tooled/control joints are not required. Detectable warning surfaces are installed into the wet concrete, but measurements and payment are not included under this item, and can be found under Item #0921050A.

2. Submittals:

Submit sample units of each paver type representative of size, shape, color and finish, indicating color variation and texture range expected in finished installation. Submit minimum of ½ pallet of 4”x8” brick banding pavers, minimum of ½ pallet of 4”x8” brick field pavers and submit minimum of twelve 8”x8” brick inset pavers. Lay out pavers on site or where directed for the Engineer’s approval. Do not order brick for project until Engineer's approval of the sample units.

Submit five (5) copies of Manufacturer's Product Data and Installation Instructions for the following items:

- a) Banding pavers
- b) Field pavers
- c) Inset pavers
- d) Polymeric sand joint filler mixture
- e) Neoprene-modified asphalt setting adhesive
- f) Bituminous setting bed

g) Joint sealant

Submit five (5) copies of the test report of brick pavers and accent brick pavers indicating ASTM C-902 compliance as applicable. Testing shall be done by a qualified independent testing laboratory. Test procedures shall conform to ASTM C-67-03 methods, as applicable. Test report shall indicate, as a minimum, the following:

- a) Compressive strength, psi
- b) Absorption, 5 hr. submersion in cold water.
- c) Absorption, 24 hr. submersion in cold water.
- d) Maximum saturation coefficient.
- e) Initial rate of absorption (suction).
- f) Abrasion index.
- g) Freeze-thaw.
- h) Tolerance to saline conditions.
- i) Efflorescence.

3. Quality Assurance:

Installer Qualifications: Installer shall have not less than three years experience with at least 75-100,000 square feet installed. Successful completion of five similar clay brick paver installations similar in design which are to be documented. Installer shall include the specified product(s) in their bid and shall have read and understand the contents of ASTM C 902 and/or C 1272 whichever is applicable.

Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

Dimensional Uniformity: The entire order for all material including waste must be ordered and blended at the manufacturer's plant at one time, so that they can be supplied from one production run or sequential production runs to ensure reasonable dimensional uniformity. The manufacturer shall earmark the plant-blended pavers ordered for this Contract.

Inspections: Inspect all materials upon delivery. Colors and size within a given shipment may vary slightly due to subtle changes in clay composition and kiln firing temperatures. Pavers are sealed with a siloxane-based penetrating sealer/water proofer.

Preinstallation Meetings: Conduct pre-installation meeting one week prior to commencing work of this Section to verify project requirements, substrate condition, coordination with other trades, installation instructions, and warranty requirements. Preinstallation meeting shall include the Contractor, Installer, Engineer, Distributor and/or Manufacturer's Representative for the polymeric sand, and other interested parties as appropriate.

Mockup: Construct a mockup of not less than 12' x 12' to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. The Mockup shall include the soldier course banding pattern, the herringbone field pattern, and brick inset pavers. Use mock-up(s) to determine pre-compaction setting bed level, joint sizes, lines, laying patterns, color and texture range, and workmanship. Do not start work until Engineer has approved mock-up. Remove mock-up and dispose of materials at the completion of the work or as directed by Engineer.

Material:

1. Brick Pavers:

The brick pavers shall be light-traffic paving brick; ASTM C 902, Class SX, Type I, 4"x8" brick pavers shall be Application PX. Provide brick without frogs or cores in surfaces exposed to view in the completed work.

The brick paver shall be 4 inches x 8 inches x 2 ¼ inches dry-pressed beveled and lugged pavers to match the adjoining Church Street brick paving and as manufactured by Belden. The color blend for each manufacturer is listed in the table below.

| Paver Type/Application | Size | Belden |
|------------------------|------------------|-----------------------|
| Banding Paver | 4" x 8" x 2 1/4" | Regimental (Red) |
| Field Paver | 4" x 8" x 2 1/4" | Regimental Full Range |
| Inset Paver | 8" x 8" x 2 1/4" | Nutmeg |

All brick pavers shall be rated "not effloresced" when tested according to ASTM C 67.

2. Bituminous Setting-Bed:

Primer for Base shall be ASTM D 2028, cutback asphalt, grade as recommended by brick paver manufacturer.

Asphalt cement to be used in the bituminous setting bed shall be Performance Grade binder PG 64-28.

Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coatings, lumps of clay, alkali salts, and organic matter. Aggregate shall be ASTM D 1073, No. 2 or No. 3.

Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees F at the asphalt plant. The approximate proportion of materials shall be 7% asphalt cement and 93% fine aggregate.

3. Neoprene-Modified Asphalt Setting Adhesive:

Neoprene modified asphalt setting adhesive shall meet paving manufacturer's standard adhesive consisting of oxidized asphalt combined with 2 percent neoprene and 10 percent long-fibered mineral fibers containing no asbestos.

4. Concrete Base Slab:

Shall conform to Section 0921001A of these specifications with the following additions:

- a) All concrete base slabs will receive wire mesh reinforcing below the top of the slab as detailed.

5. Sand for Joints:

High Performance Polymeric Jointing Sand for pavers. Color to be selected by Engineer and conform to the ASTM C-144 requirements for joint sand.

- a) Mixture of polymer binders and calibrated sand.
- b) Water resistant after 90 minutes
- c) For surface exposed to heavy foot traffic
- d) Applied dry- hardens after being misted
- e) Inhibits weed growth
- f) Deters ants and other insect infestations
- g) Resists erosion – water, frost heaving, wind, power washing, etc.
- h) Stabilizes pavers – strengthens interlocking pavers

6. Pea Stone:

Crushed stone conforming to CDOT Form 818, Article M.01.01, gradation No. 8.

7. Joint Filler:

a) Joint Fillers: semi-rigid, closed-cell polypropylene foam, preformed joint filler that meets the following physical property requirements and fully complies with ASTM D8139.

- 1) Compression Strength = 30-60 psi per ASTM D 545 or AASHTO T 42
- 2) Compression Recovery > 80% per ASTM D 545 or AASHTO T 42
- 3) Extrusion < 0.1 in. per ASTM D 545 or AASHTO T 42
- 4) Density >3.5 lbs./cu.ft. per ASTM D 545 or AASHTO T 42
- 5) Water Absorption < 1.0% per ASTM D 545 or AASHTO T 42
- 6) Heat Resistance °F 392°F± 5°F per ASTM D 5249
- 7) Freeze Thaw Resistance No change per ASTM C 666 (300 cycles)
- 8) UV Weathering No change per ASTM D 4329 (1000 hrs., Cycle A)
- 9) Thickness = 3/8 inch typical, 1/2 inch where walk abuts structures

b) Provide cutting tool for pre-scoring the top edge of the joint filler, to allow removal of top portion for sealant application.

8. Joint Sealant for Horizontal Applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

Construction Methods:

1. Delivery, Storage, and Handling:

Store pavers on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.

Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.

Store asphalt cement and other bituminous materials in tightly closed containers.

2. Project Conditions:

Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

Weather Limitations for Bituminous Setting Bed:

- a) Install bituminous setting bed only when ambient temperature is above 40 deg F and when base is dry.
- b) Apply asphalt adhesive only when ambient temperature is above 50 deg F and when temperature has not been below 35 deg F for 12 hours immediately before application. Do not apply when setting bed is wet or contains excess moisture.

3. Protection of Finished Surfaces:

Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

4. Excavation:

Work under this item shall consist of removing and disposing of existing sidewalk and foundation to a full depth. Wherever portions of concrete sidewalks or concrete driveway ramps are to be removed, such removals shall be made to neat lines. Partial removals shall generally be to existing joints except when a location other than a joint is identified on the plans or set by the Engineer due to construction staging limits. At removal limits where a joint is not present, the Contractor shall sawcut the concrete full depth to create a neat line. The bottom of the excavation shall be graded smooth and thoroughly compacted to a firm, even surface using a roller weighing not less than five tons or a motor driven vibratory compactor.

- 5. Concrete Base Slab:** Concrete installation shall conform to Section 0921001A of these specifications. Additional requirements for concrete slab are as follows:

All concrete base slabs shall receive wire mesh reinforcing as detailed. Expansion joints shall be installed per 0921001A, but surface broom finish and control joints are not required. Coordinate installation of Detectable Warning Cast Iron Paver with Item #0921050A.

6. Preparation :

Core-drill weep holes in concrete substrates at 24-inch centers at lowest elevations, and against curbs, walls, and other permanent structures. Fill holes with washed pea stone and install temporary plugs to prevent ingress of setting bed material or neoprene adhesive during construction. Remove plugs when paving adjacent to weep holes.

Sweep concrete substrates to remove dirt, dust, debris, and loose particles.

7. Bituminous Setting Bed:

Bituminous setting bed shall be installed over the fully cured concrete base. Apply primer to concrete slab or binder course immediately before placing setting bed.

Control bars ¾" deep shall be placed approximately 11 feet apart and parallel to one another, to serve as guides for striking board. Adjust bars to subgrades required for accurate setting of paving units to finished grades indicated.

Place bituminous setting bed where indicated, in panels, by spreading bituminous material between control bars. Spread mix at a minimum temperature of 250 deg F. Strike setting bed smooth, firm, even, and not less than ¾ inch thick. Add fresh bituminous material to low, porous spots after each pass of striking board. After each panel is completed, advance first control bar to next position in readiness for striking adjacent panels. Carefully fill depressions that remain after removing depth-control bars.

The setting bed shall be rolled with a power roller to a nominal depth of ¾" while still hot. The thickness of the setting bed shall be adjusted so that when the bricks are placed and rolled, the top surface of the pavers will be at the required finished grade.

Apply neoprene-modified asphalt adhesive to cold setting bed by squeegeeing or troweling to a uniform thickness of 1/16 inch. Proceed with setting of paving units only after adhesive is tacky and surface is dry to touch.

8. Brick Pavers:

Do not use brick pavers with chips, cracks, voids, discolorations, or other defects that might be visible or cause staining in finished work.

If pavers are not factory-blended, the installer must blend from a minimum of three pallets of each color in the blend as they are placed to produce uniform blend of colors and textures.

Cut brick pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

Place pavers carefully by hand in straight courses, maintaining accurate alignment and uniform top surface. Protect newly laid pavers with plywood panels on which workers can stand. Advance protective panels as work progresses, but maintain protection in areas subject to continued movement of materials and equipment to avoid creating depressions or disrupting alignment of pavers. If additional leveling of paving is required, and before treating joints, roll paving with power roller after sufficient heat has built up in the surface from several days of hot weather.

Pavers shall be set true to the required lines and grades in the pattern detailed on the Drawings. Lay full pavers first and adjust pavers to form straight bond lines and appropriate joint widths. Provide 1/16" to 3/16" sand filled joints between pavers. Do not exceed 1/8-inch unit-to-unit offset from flush (lippage) nor 3/8 inch in 10 feet from level, or indicated slope, for finished surface of paving.

String lines or chalk lines must be used to keep paver bond lines straight and true. The straight and true bond lines shall not deviate more than +/- 1/2" at the end of 50 feet. Establish a center line working outward setting parallel string lines or chalk lines every 2 to 6 feet, depending on the area, to continuously check and adjust paver bond lines.

Roll or compact bituminous-set pavers to achieve full bond with the setting bed, reduce lippage and improve the overall flatness of the surface. Fill the spaces between pavers in conformance with the polymeric sand producer's installation instructions and recommendations as soon as possible after the pavers have been placed. Clean joints of all debris with power air blowers or vacuums to ensure full penetration of the jointing sand. Sweep dry joint filling sand over surface of paving until all joints are completely filled. Once the initial filling of the joints is completed, roll the surface of the pavers to fully compact the pavers into place. Utilize a light rubber-tired roller with sufficient pressure to achieve a full bond to the setting bed or a 4-5000 LBF plate tamper with a protective mat attached. Do not operate the roller in a vibrating mode, as this may cause cracking of the pavers. Protect the surface with plywood or other suitable materials to prevent damage to the edges of the pavers. Perform rolling at the warmest part of the day, but prior to final set of the adhesive, taking care to ensure that the alignment is not altered. After rolling, add dry sand to the joints as necessary to ensure that the sand has penetrated to the bottom of the joints. Do not vibrate the pavers after they or the sand have been placed on the setting bed. Roll the surface when the sand shows no sign of further settlement. Add additional sand as necessary. Mist and rinse in conformance with the polymeric sand producer's installation instructions and recommendations.

Do not permit traffic, including construction equipment, on pavers before joint filling. Disturbed areas of pavers should be taken up, the setting bed re-rolled and pavers re-laid. Remove cracked or damaged pavers and replace with new units. Protect areas where joints have not been filled with waterproof covering overnight.

Completed brick paver areas within the path of travel of any construction equipment shall be protected with steel road plates.

Discontinue laying operations when weather conditions are such that pavement performance may be compromised. On laying operations recommencement, verify acceptable setting bed condition before further pavers are laid.

Method of Measurement:

Brick Sidewalk Ramps, Brick Sidewalk – Banding Paver, Brick Sidewalk – Field Paver, and Brick Sidewalk Repair will be measured on a per square foot basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Brick Sidewalk – Inset Paver will be measured on a per each 8” x 8” paver basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Prices shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing and proposed facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks or driveway ramps removal and disposal, furnishing and installing the process aggregate base, concrete base slab, sidewalk ramp base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, brick pavers, expansion joints and expansion joint sealant. Detectable warning cast iron paver will be measured for payment under Item 0921050A, and by the actual number of square feet of detectable warning installed and accepted.

Basis of Payment:

The brick sidewalk will be paid for at the contract unit price per square foot for “BRICK SIDEWALK RAMP” and “BRICK SIDEWALK - BANDING PAVER” and BRICK SIDEWALK – FIELD PAVER” and “BRICK SIDEWALK REPAIR” and at the contract unit price per each for “BRICK SIDEWALK – INSET PAVER” which prices shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks or driveway ramps removal and disposal, furnishing and installing the processed aggregate base, concrete base slab, sidewalk ramp base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, brick pavers, accent brick pavers, expansion joints and expansion joint sealant.

Unless otherwise indicated, all areas of brick pavers, including but not limited to the soldier course “banding” pattern, the herringbone “field” pattern, the inset brick pavers, within Sidewalk Ramps will be paid under this Item.

The cost of detectable warning pavers in sidewalk ramps will be paid for under the Item “Detectable Warning Cast Iron Paver”.

A. GENERAL

1) The unit prices for all items of work shall include the cost of all saw cuts to meet existing facilities, the cost of removing and disposing of all surplus material, excavation, preparation of subgrade and base, base material, concrete (including additives), formwork, welded wire fabric, jointing, shoring, backfill, restoration of adjacent pavement and grassed areas, and all other labor, equipment, and material incidental or necessary to complete the item in accordance with the plans and specifications.

2) Unless otherwise specified, there will be no direct payment for adjusting to grade monuments, valve boxes, manhole frames and covers, hatchways, vaults, or other existing surface structures in any new or reconstructed walk, the cost of this work being considered to be included in the unit price for the item of work.

3) Openings in walk for tree wells and planters shall be determined prior to the start of construction, as well as pedestrian curb ramps. No additional payment for extra formwork, etc. occasioned by these features shall be made, the cost of this work being considered to be included in the unit price for the item of work.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|---|------------------------|
| 0921007A Brick Sidewalk – Ramp | SF |
| 0921008A Brick Sidewalk – Banding Paver | SF |
| 0921009A Brick Sidewalk Field Paver | SF |
| 0921010A Brick Sidewalk – Inset Paver | EA |
| 0921015A Brick Sidewalk Repair | SF |

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ITEM #0921017A – BRICK PAVER ROADWAY – FIELD PAVER
ITEM #0921018A – BRICK PAVER ROADWAY – INSET PAVER

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install brick paver roadway as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, pavement and concrete curb removal and disposal, furnishing and installing the concrete base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, brick paver roadway – field pavers, brick paver roadway – inset pavers, joint sand, expansion joints and expansion joint sealant. The concrete base slab will conform to the requirements of Item 040100A, including expansion joints, with the exception that broom finish and tooled/control joints are not required. Steel reinforcement will be as detailed for Brick Paver Roadway.

2. Submittals:

Submit sample units of each paver type representative of size, shape, color and finish, indicating color variation and texture range expected in finished installation. Submit minimum of ½ pallet of 4”x8” brick banding pavers, minimum of ½ pallet of 4”x8” brick field pavers and submit minimum of twelve 8”x8” inset brick pavers. Lay out pavers on site or where directed for the Engineer’s approval. Do not order brick for project until Engineer's approval of the sample units.

Submit five (5) copies of Manufacturer's Product Data and Installation Instructions for the following items:

- a) Banding pavers
- b) Field pavers
- c) Inset pavers
- d) Polymeric sand joint filler mixture
- e) Neoprene-modified asphalt setting adhesive
- f) Bituminous setting bed
- g) Joint sealant

Submit five (5) copies of the test report of brick pavers indicating ASTM C-1272 compliance as applicable. Testing shall be done by a qualified independent testing

laboratory. Test procedures shall conform to ASTM C-67-03 methods, as applicable. Test report shall indicate, as a minimum, the following:

- a) Compressive strength, psi
- b) Absorption, 5 hr. submersion in cold water.
- c) Absorption, 24 hr. submersion in cold water.
- d) Maximum saturation coefficient.
- e) Initial rate of absorption (suction).
- f) Abrasion index.
- g) Freeze-thaw.
- h) Tolerance to saline conditions.
- i) Efflorescence.

3. Quality Assurance:

Installer Qualifications: Installer shall have not less than three years experience with at least 75-100,000 square feet installed. Successful completion of five similar clay brick paver installations similar in design which are to be documented. Installer shall include the specified product(s) in their bid and shall have read and understand the contents of ASTM C 902 and/or C 1272 whichever is applicable.

Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

Dimensional Uniformity: The entire order for all material including waste must be ordered and blended at the manufacturer's plant at one time so they can be supplied from one production run or sequential production runs to ensure reasonable dimensional uniformity. The manufacturer shall earmark the plant-blended pavers ordered for this Contract.

Inspections: Inspect all materials upon delivery. Colors and size within a given shipment may vary slightly due to subtle changes in clay composition and kiln firing temperatures. Pavers are sealed with a siloxane-based penetrating sealer/water proofers.

Preinstallation Meetings: Conduct pre-installation meeting one week prior to commencing work of this Section to verify project requirements, substrate condition, coordination with other trades, installation instructions, and warranty requirements. Preinstallation meeting shall include the Contractor, Installer, Engineer, Distributor and/or Manufacturer's Representative, and other interested parties as appropriate.

Mockup: Construct a mockup of not less than 12' x 12' to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. The Mockup shall include the herringbone pattern. Use mock-up(s) to determine pre-compaction setting bed level, joint sizes, lines, laying patterns,

color and texture range, and workmanship. Do not start work until Engineer has approved mock-up. Remove mock-up and dispose of materials at the completion of the work or as directed by Engineer.

Material:

1. Brick Paver Roadway Pavers:

The brick paver roadway pavers shall be heavy vehicular paving brick; ASTM C 1272, Type R, Application PX. Provide brick without frogs or cores in surfaces exposed to view in the completed work.

The brick paver shall be 4 inches x 8 inches x 2 ¾ inches dry-pressed beveled and lugged pavers to match the adjoining Church Street brick paving and as manufactured by Belden. The color blend for each manufacturer is listed in the table below.

| Paver Type/Application | Size | Belden |
|------------------------|------------------|-----------------------|
| Banding Paver | 4" x 8" x 2 3/4" | Regimental (Red) |
| Field Paver | 4" x 8" x 2 3/4" | Regimental Full Range |
| Inset Paver | 8" x 8" x 2 3/4" | Nutmeg |

All brick paver roadway pavers shall be rated “not effloresced” when tested according to ASTM C 67.

2. Bituminous Setting-Bed:

Primer for Base shall be ASTM D 2028, cutback asphalt, grade as recommended by brick paver manufacturer.

Asphalt cement to be used in the bituminous setting bed shall be Performance Grade binder PG 64-28.

Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coatings, lumps of clay, alkali salts, and organic matter. Aggregate shall be ASTM D 1073, No. 2 or No. 3.

Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees F at the asphalt plant. The approximate proportion of materials shall be 7% asphalt cement and 93% fine aggregate.

3. Neoprene-Modified Asphalt Setting Adhesive:

Neoprene modified asphalt setting adhesive shall meet paving manufacturer's standard adhesive consisting of oxidized asphalt combined with 2 percent neoprene and 10 percent long-fibered mineral fibers containing no asbestos.

4. Concrete Base Slab:

Shall conform to Section 0401000A of these specifications with the following additions:

- a) All concrete base slabs will receive No. 4 steel reinforcing bar a minimum of 2 inches below the top of the slab and as detailed. Steel bar reinforcing shall be epoxy coated, No. 4 spaced 16" on center both ways.

5. Sand for Joints:

High Performance Polymeric Jointing Sand for pavers. Color to be selected by Engineer and conform to the ASTM C-144 requirements for joint sand.

- a) Mixture of polymer binders and calibrated sand.
- b) Water resistant after 90 minutes
- c) For surface exposed to heavy foot traffic
- d) Applied dry- hardens after being misted
- e) Inhibits weed growth
- f) Deters ants and other insect infestations
- g) Resists erosion – water, frost heaving, wind, power washing, etc.
- h) Stabilizes pavers – strengthens interlocking pavers

6. Pea Stone:

Crushed stone conforming to CDOT Form 818, Article M.01.01, gradation No. 8.

7. Joint Filler:

a) Joint Fillers: semi-rigid, closed-cell polypropylene foam, preformed joint filler that meets the following physical property requirements and fully complies with ASTM D8139.

- 1) Compression Strength = 30-60 psi per ASTM D 545 or AASHTO T 42
- 2) Compression Recovery > 80% per ASTM D 545 or AASHTO T 42
- 3) Extrusion < 0.1 in. per ASTM D 545 or AASHTO T 42
- 4) Density >3.5 lbs./cu.ft. per ASTM D 545 or AASHTO T 42
- 5) Water Absorption < 1.0% per ASTM D 545 or AASHTO T 42
- 6) Heat Resistance °F 392°F± 5°F per ASTM D 5249
- 7) Freeze Thaw Resistance No change per ASTM C 666 (300 cycles)
- 8) UV Weathering No change per ASTM D 4329 (1000 hrs., Cycle A)
- 9) Thickness = 3/8 inch typical, 1/2 inch where walk abuts structures

b) Provide cutting tool for pre-scoring the top edge of the joint filler, to allow removal of top portion for sealant application.

8. Joint Sealant for Horizontal Applications:

a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.

b) Color to be selected by Engineer.

Construction Methods:

1. Delivery, Storage, and Handling:

Store pavers on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.

Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

Store asphalt cement and other bituminous materials in tightly closed containers.

2. Project Conditions:

Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

Weather Limitations for Bituminous Setting Bed:

- a) Install bituminous setting bed only when ambient temperature is above 40 deg F and when base is dry.
- b) Apply asphalt adhesive only when ambient temperature is above 50 deg F and when temperature has not been below 35 deg F for 12 hours immediately before application. Do not apply when setting bed is wet or contains excess moisture.

3. Protection of Finished Surfaces:

Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

4. Excavation:

Work under this item shall consist of removing and disposing of existing pavements and concrete curbs, including foundations, to their full depth. Removals shall be made to neat lines. Partial removals shall generally be to existing joints except when a location other than a joint is identified on the plans or set by the Engineer due to construction staging limits. At removal limits where a joint is not present, the Contractor shall sawcut the pavement full depth to create a neat line. The bottom of the excavation shall be graded smooth and thoroughly compacted to a firm, even surface using a roller weighing not less than five tons or a motor driven vibratory compactor.

5. Concrete Base Slab: Concrete installation shall conform to Section 0401000A of these specifications. Additional requirements for concrete slab are as follows:

All concrete base slabs shall receive No. 4 steel bar reinforcing a minimum of 2 inches below the top of the slab. Bar shall be placed 16 inches on center both ways. Expansion joints shall be installed per 0401000A, but surface broom finish and control joints are not required.

6. Preparation:

Core-drill weep holes in concrete substrates at 24-inch centers at lowest elevations, and against curbs, walls, and other permanent structures. Fill holes with washed pea stone and install temporary plugs to prevent ingress of setting bed material or neoprene adhesive during construction. Remove plugs when paving adjacent to weep holes.

Sweep concrete substrates to remove dirt, dust, debris, and loose particles.

7. Bituminous Setting Bed:

Bituminous setting bed shall be installed over the fully cured concrete base. Apply primer to concrete slab or binder course immediately before placing setting bed.

Control bars $\frac{3}{4}$ " deep shall be placed approximately 11 feet apart and parallel to one another, to serve as guides for striking board. Adjust bars to subgrades required for accurate setting of paving units to finished grades indicated.

Place bituminous setting bed where indicated, in panels, by spreading bituminous material between control bars. Spread mix at a minimum temperature of 250 deg F. Strike setting bed smooth, firm, even, and not less than $\frac{3}{4}$ inch thick. Add fresh bituminous material to low, porous spots after each pass of striking board. After each panel is completed, advance first control bar to next position in readiness for striking adjacent panels. Carefully fill depressions that remain after removing depth-control bars.

The setting bed shall be rolled with a power roller to a nominal depth of $\frac{3}{4}$ " while still hot. The thickness of the setting bed shall be adjusted so that when the bricks are placed and rolled, the top surface of the pavers will be at the required finished grade.

Apply neoprene-modified asphalt adhesive to cold setting bed by squeegeeing or troweling to a uniform thickness of $\frac{1}{16}$ inch. Proceed with setting of paving units only after adhesive is tacky and surface is dry to touch.

8. Brick Pavers:

Do not use brick pavers with chips, cracks, voids, discolorations, or other defects that might be visible or cause staining in finished work.

If pavers are not factory-blended, the installer must blend from a minimum of three pallets of each color in the blend as they are placed to produce uniform blend of colors and textures.

Cut brick pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

Place pavers carefully by hand in straight courses, maintaining accurate alignment and uniform top surface. Protect newly laid pavers with plywood panels on which workers can stand. Advance protective panels as work progresses but maintain protection in areas subject to continued movement of materials and equipment to avoid creating depressions or disrupting alignment of pavers. If additional leveling of paving is required, and before treating joints, roll paving with power roller after sufficient heat has built up in the surface from several days of hot weather.

Pavers shall be set true to the required lines and grades in the pattern detailed on the Drawings. Lay full pavers first and adjust pavers to form straight bond lines and appropriate joint widths. Provide 1/16" to 3/16" sand filled joints between pavers. Do not exceed 1/8-inch unit-to-unit offset from flush (lippage) nor 3/8 inch in 10 feet from level, or indicated slope, for finished surface of paving.

String lines or chalk lines must be used to keep paver bond lines straight and true. The straight and true bond lines shall not deviate more than +/- 1/2" at the end of 50 feet. Establish a center line working outward setting parallel string lines or chalk lines every 2 to 6 feet, depending on the area, to continuously check and adjust paver bond lines.

Roll or compact bituminous-set pavers to achieve full bond with the setting bed, reduce lippage and improve the overall flatness of the surface. Fill the spaces between pavers in conformance with the polymeric sand producer's installation instructions and recommendations as soon as possible after the pavers have been placed. Clean joints of all debris with power air blowers or vacuums to ensure full penetration of the jointing sand. Sweep dry joint filling sand over surface of paving until all joints are completely filled. Once the initial filling of the joints is completed, roll the surface of the pavers to fully compact the pavers into place. Utilize a light rubber-tired roller with sufficient pressure to achieve a full bond to the setting bed or a 4-5000 LBF plate tamper with a protective mat attached. Do not operate the roller in a vibrating mode, as this may cause cracking of the pavers. Protect the surface with plywood or other suitable materials to prevent damage to the edges of the pavers. Perform rolling at the warmest part of the day, but prior to final set of the adhesive, taking care to ensure that the alignment is not altered. After rolling, add dry sand to the joints as necessary to ensure that the sand has penetrated to the bottom of the joints. Do not vibrate the pavers after they or the sand have been placed on the setting bed. Roll the surface when the sand shows no sign of further settlement. Add additional sand as necessary. Mist and rinse in conformance with the polymeric sand producer's installation instructions and recommendations.

Do not permit traffic, including construction equipment, on pavers before joint filling. Disturbed areas of pavers should be taken up, the setting bed re-rolled and pavers re-laid. Remove cracked or damaged pavers and replace with new units. Protect areas where joints have not been filled with waterproof covering overnight.

Completed brick paver areas within the path of travel of any construction equipment shall be protected with steel road plates.

Discontinue laying operations when weather conditions are such that pavement performance may be compromised. On laying operations recommencement, verify acceptable setting bed condition before further pavers are laid.

Method of Measurement:

Brick Paver Roadway – Field Paver will be measured on a per square foot basis, Brick Paver Roadway – Inset Paver will be measured on a per unit each 8” x8” basis; complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Price shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing and proposed facilities, the removing and disposal of all surplus materials, excavation, pavement and concrete curb removal and disposal, furnishing and installing the process aggregate base, concrete base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, brick paver, expansion joints and expansion joint sealant.

Basis of Payment:

The brick paver roadway will be paid for at the contract unit price per square foot for “BRICK PAVER ROADWAY – FIELD PAVER” and at the contract unit price per each for “BRICK PAVER ROADWAY – INSET PAVER” which price shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, pavement and concrete curb removal and disposal, furnishing and installing the process aggregate base, concrete base slab, sidewalk ramp base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, brick paver, expansion joints and expansion joint sealant.

A. GENERAL

1) The unit prices for all items of work shall include the cost of all saw cuts to meet existing facilities, the cost of removing and disposing of all surplus material, excavation, preparation of subgrade and base, base material, concrete (including additives), formwork, welded wire fabric, jointing, shoring, backfill, restoration of adjacent pavement and grassed areas, painting and cross walk adjustment, and all other labor, equipment, and material incidental or necessary to complete the item in accordance with the plans and specifications.

2) Unless otherwise specified, there will be no direct payment for adjusting to grade monuments, valve boxes, manhole frames and covers, hatchways, vaults, or other existing surface structures in any new or reconstructed roadway, the cost of this work being considered to be included in the unit price for the item of work.

Pay Item

0921017A Brick Paver Roadway – Field Paver
0921018A Brick Paver Roadway – Inset Paver

Pay Unit

SF
EA

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ITEM #0921023A – CRUSHED GRANITE AGGREGATE SURFACING – 6” DEPTH

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022; as well as CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, and supplemented as follows:

Description:

1. Summary:

The work of this item shall consist of crushed granite aggregate surface on a processed aggregate base course. Landscape edging used to contain the crushed granite aggregate surfacing shall be paid for under Item # 0949003A Furnishing, planting and mulching trees, shrubs, vines & groundcovers.

2. Submittals:

Samples for Selection: For each type of stone:

- a) 2-quart volume of each type and size of stone required; in sealed plastic bags labeled with product name and source of material. Each sample shall be typical of the lot of material to be furnished and provide an accurate representation of color and size ranges.
- b) Crushed granite aggregate.
Sieve Analyses: for crushed granite aggregate, according to ASTM C 136.

3. Quality Assurance:

Source Limitations: Obtain each type of material from a single source with the resources to provide materials and products of consistent quality in appearance and physical properties in the quantities needed for the Project.

Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and to set quality standards for materials and execution.

Build mockups of full-width and full-thickness sections. Crushed granite surfacing: Length: 5 feet.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4. Delivery, Storage, And Handling

Bulk materials:

- a) Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

Materials:

1. Crushed Granite Aggregate:

- a) Crushed granite aggregate to be used for crushed granite surfacing.
- b) Hard, durable crushed granite, free of loam, sand, clay, and other foreign substances.
- c) Subject to compliance with requirements, available manufacturers offering products that may be incorporated in the Work include, but are not limited to, Stony Creek Quarry.
- d) Aggregate: washed 3/8-inch crushed stone.
- e) Color: to be selected by Landscape Architect, to complement building finishes.

2. Processed Aggregate Base:

- a) Conform to CTDOT Form 818, M05.

3. Geotextile:

- a) For separation and drainage, complying with Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction Form 818, M.08.01-19.
- b) Staples for use in securing geotextile: 4" x 1" x 4" wire staple.

Construction Methods:

1. Examination:

- a) Examine areas indicated to receive aggregate surfacing with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- b) Proceed with installation only after unsatisfactory conditions have been corrected.

2. Installation:

- a) Excavate to lines, grades and depths as specified on the Drawing.

- b) Compact subgrade uniformly beneath areas to receive aggregate surfacing.
- c) Coordinate the installation of landscape edging with Item # 0949003A.
- d) Install geotextile, covering area to receive aggregate surfacing and wrap up sides as indicated on Drawings, over-lapping and pinning edges of geotextile at least 6 inches and according to manufacturer's written instructions.
- e) Place indicated thickness of aggregate fully covering the geotextile. Rake aggregate to a uniform surface level with adjacent finish grades, unless otherwise indicated on Drawings.

3. Installation of crushed granite surfacing:

- a) Crushed Granite Aggregate: Spread aggregate evenly over processed aggregate base subgrade. Compact at optimum moisture content to required grades, lines, cross section, and thickness to not less than 95 percent of maximum dry density unit weight according to ASTM D 1557.

4. Cleaning:

- a) 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.
- c) Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
- d) Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

5. Installation tolerances – crushed granite surfacing:

- a) Thickness: Compact each course to produce the thickness indicated within the following tolerances:
- b) Surface Course: Plus ¼-inch, no minus.
- c) Surface Smoothness: compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - a. Surface Course: ¼-inch.

6. Field quality control:

- a) Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- b) Replace and compact crushed granite surfacing where core tests are taken.
- c) Remove and replace or install additional crushed granite surfacing where test results or measurements indicate that it does not comply with specified requirements.

Method of Measurement:

This work will be measured for payment as follows:

Crushed Granite Aggregate Surface: This work will be measured by the actual number of square feet of completed and accepted crushed granite aggregate surface.

Excavation: Excavation below the finished grade of the crushed granite aggregate surfacing will not be measured for payment, but the cost shall be included in the price bid for the crushed granite aggregate surfacing.

Processed Aggregate Base: This work will not be measured for payment, but the cost shall be included in the price bid for the crushed granite aggregate surfacing.

Basis of Payment:

Construction of Crushed Granite Aggregate Surface will be paid for at the Contract unit price per square foot for "Crushed Granite Aggregate Surface" complete and accepted in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, processed aggregate base, geotextile fabric and crushed granite aggregate as well as all equipment, tools, materials and labor incidental thereto.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|---|-----------------|
| 0921023A Crushed Granite Aggregate Surfacing – 6” depth | SF |

ITEM #0921024A – PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK
ITEM #0921025A – PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK - NOTCHED
ITEM #0921026A – PEDESTRIAN GATEWAY GRANITE COLUMN BLOCK
ITEM #0921027A – PEDESTRIAN GATEWAY GRANITE COLUMN COPING BLOCK
ITEM #0921031A – GRANITE SEAT WALL – STRAIGHT – TYPE 1
ITEM #0921032A – GRANITE SEAT WALL – STRAIGHT – TYPE 1 CORNER
ITEM #0921037A – GRANITE SEAT WALL COPING – STRAIGHT – TYPE 1
ITEM #0921038A – GRANITE SEAT WALL COPING –TYPE 1 - CORNER

Description:

1. Summary:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install Granite Seat Walls and Pedestrian Gateway Granite Columns as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all saw cuts to meet existing facilities, the removing and disposal of all surplus materials, excavation and backfilling, dewatering, concrete foundations and stepped footings as required, granite wall and column sections and copings, corners and end pieces, core holes or water jet cut holes in copings and all incidental work necessary to complete each granite seat wall.

2. Submittals:

Submit Shop Drawings including plans, sections, and details for each granite seat wall and Pedestrian Gateway Granite Column piece to be fabricated. Shop drawings must be based on actual field measurements of the final finished grades and wall locations.

Submit Product Data for each variety of stone, stone accessories, and manufactured product.

Submit granite samples representative of color and finishes, indicating color variation and texture range expected in finished installation.

Preinstallation Meetings: Conduct pre-installation meeting one week prior to commencing work of this Section to verify project requirements, substrate condition, coordination with other trades, installation instructions, and warranty requirements. Preinstallation meeting shall include the Contractor, Installer, Engineer, Quarry Representative, and other interested parties as appropriate.

Field-Constructed Mock-Up: Before starting granite seat wall and column work, provide a mock-up using materials, bond, and joint treatments indicated for the project work. Build panel at the site of full thickness and full height x 4' long. Provide the range of

color, texture, and workmanship proposed for the work. Correct and rebuild sample panel until Engineer acceptance of the mock-up. Retain during construction as a standard for completed stone masonry work. Mock-up shall not be a permanent section of the seat wall.

Submit detailed photographs to document the progress of the stone fabrication work, and the appearance and workmanship of the finished product. Take and submit photographs at critical intervals before, during, and after completion of the fabrication process. Make granite fabrications available for examination by the Engineer at the fabricator's premises.

Submit mortar and sealant samples for selection of color match to granite seat wall. Make Samples using same sand and mortar ingredients to be used on Project.

Submit proposed mix designs and test data before concrete operations begin. Indicate quantity of each ingredient per cubic yard of concrete. Indicate type and quantity of admixtures proposed or required.

3. Quality Assurance:

Source Limitations for Stone: Obtain each variety of stone, regardless of finish, from single quarry, whether specified in this Section or in another Section of the Specifications, with resources to provide materials of consistent quality in appearance and physical properties.

Material:

1. Granite Block:

Material Standard: Comply with ASTM C 615.

Granite Blocks: are to match the existing Granite at the Town Green, similar to Stony Creek or O&G granite MDS 28, and as reviewed and approved by the Engineer.

Granite shall be sound, durable, and free of blemishes and defects. Blocks shall be fabricated as detailed and in conformance with approved shop drawings and samples.

Finish:

Wall Blocks and Column Base Blocks: To be selected by the Engineer to be either Smooth Quarry Split face or heavy sand blast for all exposed faces. Saw to true dimensions as detailed for sides, top and bottom not exposed.

2. Granite Column Blocks and Coping:

Material Standard: Comply with ASTM C 615.

Granite Blocks: are to match the used for the wall blocks.

Granite shall be sound, durable, and free of blemishes and defects. Blocks shall be fabricated as detailed and in conformance with approved shop drawings and samples.

Finish: Thermal finish on all exposed faces, saw cut at abutting coping and column block pieces.

3. Stone Fabrication:

Select stone for intended use to prevent fabricated units from containing cracks, seams, and starts that could impair structural integrity or function. Cut stone to produce pieces of thickness, size, and shape indicated.

- a) Stone Edges: Radius/eased edge unless otherwise noted.
- b) Joint Width: 3/8 inch. Joints between Granite coping and granite Block are to align vertical.

4. Cast-In-Place Concrete:

PCC03360 Concrete conforming to CDOT Form 818, Section M.03.02.

5. Reinforcing Steel:

CDOT Form 818, Article M.06.01.

6. Dowels / Pin/Coping Anchors:

Fabricated from type 304 stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666 to match shapes and dimensions found in the drawings.

7. Mortar:

CDOT Form 818, Article M.11.04.

8. Joint Sealant for Horizontal Applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling designed for foot traffic, 2c SL, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

9. Joint Sealant for vertical applications:

- a) Two component polyurethane elastomeric type complying with FS-TT-S-00230, non-sag, 2c NS EZ Mix, as manufactured by SIKA, Pecora. Subject to compliance with requirements, provide the specified product or comparable product of BASF MasterSeal NP2 Sealant or LymTal International Iso-Flex 881 R Sealant.
- b) Color to be selected by Engineer.

10. Sealant Backer Rod:

1. Compressible rod stock or polyethylene foam, polyethylene jacketed, butyl rubber foam, or neoprene foam, as recommended by sealant manufacturer where required for back-up of sealant.

Construction Methods:

1. Excavation and Backfill:

CDOT Form 818 Articles 2.03.01, 2.03.02, and 2.03.03.

2. Concrete Foundations:

CDOT Form 818 Articles 6.01.01, 6.01.02, and 6.01.03. Finish the top of wall foundation to a smooth uniform elevation, or pour a leveling grout on top of the stem wall to provide for the precise placement of the granite blocks true to line and grade and aligned flush with each other.

3. Reinforcing Steel:

CDOT Form 818 Articles 6.02.01, 6.02.02, and 6.02.03.

4. Granite Block:

Granite blocks are to be installed true to line and grade, with a uniform elevation across the top of the seat wall, and adjacent blocks flush to each other. Core holes in granite wall in locations and at dimensions on the drawings. Maintain a consistent joint width of 3/8-inch (\pm 1/8-inch.) Fill joints with mortar, backer rod and sealant.

Installation Tolerances:

(a) Variation in line: Do not exceed 1/8-inch in 96-inches, 1/4-inch in 20-feet, or 3/8-inch maximum.

(b) Variation in surface plane: Do not exceed 1/8-inch in 10-feet, 1/4-inch in 20-feet, or 3/8-inch maximum from level or slope indicated.

(c) Variation in plane between adjacent units (lipping): Do not exceed 1/32-inch difference between planes of adjacent units.

5. Granite Coping:

Coping is to be installed true to line and grade, with a uniform elevation across the top of the coping, and adjacent blocks flush to each other. Core holes in granite wall coping in locations and at dimensions on the drawings. Maintain a consistent joint width of 3/8-inch (\pm 1/8-inch.) Fill joints with mortar and joint sealant as detailed.

Installation Tolerances:

(a) Variation in line: Do not exceed 1/8-inch in 96-inches, 1/4-inch in 20-feet, or 3/8-inch maximum.

(b) Variation in surface plane: Do not exceed 1/8-inch in 10-feet, 1/4-inch in 20-feet, or 3/8-inch maximum from level or slope indicated.

(c) Variation in plane between adjacent units (lipping): Do not exceed 1/32-inch difference between planes of adjacent units.

Method of Measurement:

Granite Seat walls and copings for seat walls will be measured individually on a linear foot basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Granite Seat walls and copings corner pieces will be measured individually on a per item basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Pedestrian Gateway Granite column blocks and copings will be measured individually on a per item basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer.

Basis of Payment:

Pedestrian Gateway Granite base block, column block and coping blocks will be paid for at the contract unit price each for “PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK”, “PEDESTRIAN GATEWAY GRANITE COLUMN BASE BLOCK – NOTCHED”, “PEDESTRIAN GATEWAY GRANITE COLUMN BLOCK” and “PEDESTRIAN GATEWAY GRANITE COLUMN COPING BLOCK”.

Granite Seat Walls and Granite Seat Wall Copings will be paid for at the contract unit price linear foot for “GRANITE SEAT WALL – STRAIGHT - TYPE 1” and “GRANITE SEAT WALL COPING – STRAIGHT TYPE 1”.

Granite Seat Wall Corner and Granite Seat Wall Copings Corner will be paid for at the contract unit price per each for “GRANITE SEAT - STRAIGHT TYPE 1 – CORNER” and “GRANITE SEAT WALL – COPING – TYPE 1 - CORNER”.

Prices shall include all materials, equipment, tools and labor incidental thereto including all saw cuts to meet existing facilities, the removing and disposal of all surplus materials, excavation and backfilling, dewatering, concrete foundations and stepped footings as required, curved and straight granite seat wall sections, delegated design of foundations, and all incidental work necessary to complete each granite seat wall.

Pay Item

Pay Unit

| | |
|---|----|
| 0921024A Pedestrian Gateway Granite Column Base Block | EA |
| 0921025A Pedestrian Gateway Granite Column Base Block - Notched | EA |
| 0921026A Pedestrian Gateway Granite Column Block | EA |
| 0921027A Pedestrian Gateway Granite Column Coping Block | EA |
| 0921031A Granite Seat Wall – Straight – Type 1 | LF |
| 0921032A Granite Seat Wall – Straight – Type 1 - Corner | EA |
| 0921037A Granite Seat Wall Coping – Straight – Type 1 | LF |
| 0921038A Granite Seat Wall Coping –Type 1 - Corner | EA |

ITEM #0921042A – GRANITE PAVER BANDING – TYPE “C”

ITEM #0921043A – GRANITE PAVER BANDING – TYPE “R”

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install dimension stone granite paver banding as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, bituminous concrete roadway removal and disposal, furnishing and installing the concrete base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, rectangular and curved dimension stone granite pavers, joint sand and expansion joints.

2. Submittals:

Submit sample dimension stone granite pavers of each paver type representative of size, shape, color and finish, indicating color variation and texture range expected in finished installation. Do not order granite stone pavers for Project until Engineer's approval of field sample panel.

Submit Product Data for each variety of stone, stone accessories, and manufactured product.

Submit Shop Drawings including plans, sections, and details for each type of dimension stone paver.

3. Quality Assurance:

Source Limitations for Stone: Obtain each variety of stone, regardless of finish, from single quarry, whether specified in this Section or in another Section of the Specifications, with resources to provide materials of consistent quality in appearance and physical properties.

Preinstallation Meetings: As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

Mockup: As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

Material:

1. Granite:

Material Standard: Comply with ASTM C 615.

Granite Pavers: Curved and Straight are to match the existing Granite at the Town Green, similar to Stony Creek or O&G granite MDS 28, and as reviewed and approved by the Engineer.

Granite shall be sound, durable, and free of blemishes and defects. Blocks shall be fabricated as detailed and in conformance with approved shop drawings and samples.

Finish: Saw cut edges and Thermal surface.

2. Stone Fabrication:

Select stone for intended use to prevent fabricated units from containing cracks, seams, and starts that could impair structural integrity or function. Cut stone to produce pieces of thickness, size, and shape indicated.

- a) Stone Thickness: 2-3/4 inches gauged to match thickness of brick pavers.
- b) Type “C” Paver Face Size: Curved pieces fabricated to match various radii indicated on the drawings.
- c) Type “R” Paver Face Size: Rectangular pieces 12 inches x 18 inches in dimension.
- a) Stone Edges: Square cut with top corner slightly eased to prevent snipping.
- b) Joint Width: 1/16 inch to 1/8 inch.

3. Other Materials:

Bituminous Setting-Bed, Neoprene-Modified Asphalt Setting Adhesive, Concrete Base Slab, Sand for Joints, Pea Stone, and Joint Filler: As specified in Item 0921016A “Brick Paver Roadway – Banding Paver”.

Construction Methods:

1. Delivery, Storage, and Handling:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

2. Project Conditions:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

3. Protection of Finished Surfaces:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

4. Excavation:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

5. Concrete Base Slab:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

6. Preparation:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

7. Bituminous Setting Bed:

As specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

8. Dimension Stone Granite Pavers:

Conform to the Construction Methods for Brick Pavers as specified in Item 0921017A “Brick Paver Roadway – Field Paver”.

Method of Measurement:

Granite Paver Banding will be measured on a per square foot basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Price shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, bituminous concrete roadway removal and disposal, furnishing and installing the processed aggregate base, concrete base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, granite stone pavers Type “C” or Type “R”, and expansion joints.

Basis of Payment:

The Granite Paver Banding will be paid for at the contract unit price per square foot for “GRANITE PAVER BANDING – TYPE C” or “GRANITE PAVER BANDING – TYPE R” which price shall include all materials, equipment, tools and labor incidental thereto including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, bituminous concrete roadway removal and disposal, furnishing and installing the processed aggregate base, concrete base slab, bituminous/sand setting bed, neoprene-modified asphalt setting adhesive, joint sand, granite stone pavers, and expansion joints.

Pay Item

Granite Paver Banding – Type “C”

Granite Paver Banding – Type “R”

Pay Unit

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ITEM #0921050A – DETECTABLE WARNING CAST IRON PAVER

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work of this item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install Detectable Warning Cast Iron Paver as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including the removing and disposal of all surplus materials, and detectable warning cast iron pavers.

2. Submittals:

- a. Detectable Warning Cast Iron Paver
 - i. Samples: Submit manufacturer's samples of materials and finishes.
 - ii. Product Data: Submit manufacturer's product data, storage and handling requirements and recommendations and installation methods.
 - iii. Shop Drawings: Submit manufacturer's shop drawings, including plans and elevations, indicating overall dimensions.
 - iv. Warranty: Manufacturer's standard warranty.

3. Quality Assurance:

- a. Detectable Warning Cast Iron Paver
 - i. Manufacturer's Qualifications: Manufacturer regularly engaged in manufacturer of tactile warning strips for more than 5 years.
 - ii. Product Support: Products are supported with complete engineering drawings and design patents.

Material:

1. **Detectable Warning Cast Iron Paver:** Basis of Design Standard = Truncated Domes, 100% recycled grey iron with rust conditioner finish as manufactured by Urban Accessories www.urbanaccessories.com.

The Detectable Warning Cast Iron Pavers, for new construction, shall be cast iron, 24 inch deep paver as shown on plans. Straight and radial detectable warning cast iron paver plates shall be ADA / ABA compliant, with slip resistant surface. Plate shall be heavy duty grey iron, compliant with ASTM A48 CL35B. The detectible warning cast iron paver shall have a 24 inch depth of tactile warning strip for dimensioned lengths, unless otherwise indicated on plan. Detectable warning cast iron paver shall be manufactured with integral anchor lugs to ensure solid attachment to cast-in-place concrete.

2. Concrete Base Slab:

Shall conform to Item 0401000A or 0921001A of these specifications with the following additions:

- a) All concrete base slabs will receive steel reinforcement per 0401000A or 0921001A and as detailed.

Construction Methods:

1. Protection of Finished Surfaces:

Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

2. Delivery, Storage, and Handling:

a. Detectable Warning Cast Iron Paver

- i. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product names and manufacturer.
- ii. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.
- iii. Handling: Protect materials and finish during handling and installation to prevent damage.

3. Excavation:

Excavation for concrete installation shall conform to Item 0401000A or 0921001A of these specifications.

4. Concrete Base Slab: Concrete installation shall conform to Item 0401000A or 0921001A of these specifications.

5. Detectable Warning Cast Iron Paver:

Install detectable warning cast iron paver in accordance with manufacturer's instructions at locations indicated on the drawings. Any cutting required to fit detectable warning to an abutting piece, shall be done making every effort that cut line does not bisect the tactile domes, but falls between them. If cuts do bisect a dome, then the edge of the cut dome must be ground to meet ADA requirements for change in vertical grades. Cut pieces shall be dry fitted to ensure tight butt joint between plates prior to placing tactile warning in wet concrete. Set plates in wet concrete at final position. Keep wet concrete off of the top surface of the plates at all times. Press tiles into wet concrete to final elevation. Finish brick paving around assembled plates. Plates must be flush with abutting surface and flush curbing.

Method of Measurement:

Detectable Warning Cast Iron Paver will be measured on a per square foot basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Price shall include all materials, equipment, tools and labor incidental thereto including disposal of all surplus materials and furnishing and installing the detectable warning cast iron pavers.

Basis of Payment:

The detectable warning iron paver will be paid for at the contract unit price per square foot for “DETECTABLE WARNING CAST IRON PAVER” which price shall include all materials, equipment, tools and labor incidental thereto including the removing and disposal of all surplus materials and furnishing and installing the detectable warning iron pavers. The concrete base/setting bed for the detectable warning cast iron paver shall be either Concrete sidewalk or HD Concrete Pavement and shall be paid for under Item 0401000A or 0921001A.

Pay Item

0912050A Detectable Warning Cast Iron Paver

Pay Unit

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ITEM #0921097A – FLEXIBLE PERMEABLE PAVEMENT

Description:

1. Summary:

The work of this Item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to install Flexible Permeable Pavement as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, and flexible permeable pavement.

The Basis of Design Standard for the Flexible Permeable Pavement is “Perk E Pave”, Pottstown, PA - www.perkEpave.com and is a flexible porous paving system comprised of combination of three components: recycled passenger car tires, aggregate and urethan binder, that provides a strong, pervious, yet flexible paving. Other manufacturers/products will be considered if determined to be an Equal Product by the Engineer.

2. Submittals:

- a. Product data for each component of the Flexible Permeable Pavement.
- b. Installers qualification data.

3. Quality Assurance:

- a. Flexible Permeable Pavement installer shall be required to be experienced with installation procedures and to have attended the Manufacturer’s installation training program.
- b. Flexible Permeable Pavement installer shall employ no less than two Manufacturer-trained “Flexible Porous Paving” technicians on staff who directly oversee and perform the installations during all Flexible Permeable Pavement placement.
- c. At the start of the Flexible Permeable Pavement work, Contractor to ensure that the Manufacturer’s representative is onsite for a minimum of 1/2 day supervision of the installation of the Flexible Permeable Pavement.

Material:

1. Flexible Permeable Pavement:

- a. Base aggregate: #57 stone.
- b. Stone: Triple-washed and dried coarse aggregate (1/4 to 3/8 inch) per ASTM C33. Bagged in 50 lb. quantity. Nominal maximum aggregate size shall not exceed 1/3 of the specified paving thickness.
- c. Rubber: Recycled passenger tires ground to 1/4” nominal with wire remnants removed.

- d. Binding Agent: urethane liquid prepolymer based upon DiphenylmethaneDiisocyanate.
- e. Mix Design: Using materials mix ratio as acceptable by the Manufacturer for the intended application. The volume by weight of aggregate shall be as required by the Manufacturer for the intended application.
- f. Forms: shall be clean and free of debris of any kind, rust, and hardened concrete and make use of a bio-diesel or vegetable oil as a form release.
- g. Color: Selected product color to match perEPave #31, beige stone/tan rubber.

Construction Methods:

1. Mockup:

Construct a 6' x 10' display panel size, color, and finish specimen in this Item to illustrate component application including pattern and edge details. Do not start work until Engineer has approved mock-up. Remove mock-up and dispose of materials at the completion of the work or as directed by Engineer.

2. Protection of Finished Surfaces:

Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

3. Excavation:

Work under this item shall consist of removing and disposing of existing sidewalk and foundation to a full depth. Wherever portions of concrete sidewalks or concrete driveway ramps are to be removed, such removals shall be made to neat lines. Partial removals shall generally be to existing joints except when a location other than a joint is identified on the plans or set by the Engineer due to construction staging limits. At removal limits where a joint is not present, the Contractor shall sawcut the concrete full depth to create a neat line. The bottom of the excavation shall be graded smooth and thoroughly compacted to a firm, even surface using a roller weighing not less than five tons or a motor driven vibratory compactor. Subgrade to be prepared to receive a thickness of 4" #57 stone and 2" Flexible Permeable Pavement, as detailed to work with tree rootball and trunk.

4. Flexible Permeable Pavement:

- a. Install the #57 base stone and 2" Flexible Permeable Pavement layer per the manufacturer's instructions and as detailed to work with tree rootball and trunk.
- b. Follow Manufacturer's Hot- and Cold-weather construction recommendations as required.
- c. Mix the Flexible Permeable Pavement material on site in compliance with Manufacturer's written specifications.
- d. Do not place Flexible Permeable Paving on frozen or wet subgrade or subbase.
- e. Deposit Flexible Permeable Pavement either directly onto the subgrade or subbase by wheelbarrow or by material handler onto the subgrade or subbase, unless otherwise specified.

- f. Deposit Flexible Permeable Pavement between the forms to an approximately uniform height.
- g. Spread the pervious paving uniformly to the required elevation and screed to achieve a uniform flat surface.
- h. Hold back paving material from the tree trunk as detailed and bevel the edge to provide a transition from the surface to the root flare area.
- i. Final surface of the flexible permeable pavement shall be smoothed with bull float and magnesium hand floats coated with a form release film.
- j. Curing: Completely cover the paving surface with a minimum 4 mil thick polyethylene sheet if rain or sprinklers are imminent. Cure paving for a minimum of 24 uninterrupted hours, unless otherwise specified.
- k. Forms: When permanent edging or abutting structures are not present, bevel the edge of the top surface to a 45 degree slope.

Method of Measurement:

Flexible Permeable Pavement shall not be measured for payment under this Pay Item but shall be measured under “FLEXIBLE PERMEABLE PAVEMENT AT NEW TREE W/STRUCTURAL SOIL”.

Basis of Payment:

Flexible Permeable Pavement shall not be paid under this Pay Item but under Flexible Permeable Pavement at New Tree w/Structural Soil or Flexible Permeable Pavement at new Tree W/Tree Filter at the contract unit price per tree pit for “FLEXIBLE PERMEABLE PAVEMENT AT NEW TREE W/STRUCTURAL SOIL” complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Price shall include all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, furnishing and installing Flexible Permeable Pavement.

Pay Item

Pay Unit

0921098A Flexi-Pave Pavement at New Tree W/Structural Soil

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0922050A – DECORATIVE CROSSWALK

Description: This item shall consist of a durable imprinted aggregate reinforced preformed thermoplastic pavement marking system (herein “System”) that provides a textured, highly attractive and durable topical treatment to the surface of asphalt pavement. The work shall consist of furnishing, preparing and installing the system in the locations and to the dimensions and details shown on the plans or as ordered and in accordance with these specifications.

Materials: Preformed thermoplastic material must be composed of an ester modified rosin impervious to degradation by motor fuels, lubricants, etc. in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements. Pigments and anti-skid/anti-slip elements must be uniformly distributed throughout the material. The material conforms to AASHTO designation M249, with the exception of the relevant differences due to the material being supplied in a preformed state, being non-reflective, and being of a color different from white or yellow. The System shall be provided in accordance with and manufactured by TrafficPatternsXD by Ennis Flint, 4161 Piedmont Parkway, Suite 370, Greensboro, NC 27410, 1-800-331-8118, or approved equal. The selected color shall be “Colonial Brick” and the pattern shall be “Offset Brick with Soldier Course”.

1. **Pigments:** White pigment material shall be manufactured with sufficient titanium dioxide pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected. All other color pigment systems must not contain heavy metals nor any carcinogen, as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.
2. **Skid Resistance:** The surface of the material shall contain factory applied anti-skid/anti-slip elements with a minimum hardness of 6 (Mohs scale). Upon application the material shall provide a minimum skid resistance value of 60 BPN when tested according to ASTM E 303.
3. **Slip Resistance:** The surface of the material shall contain factory applied anti-skid/anti-slip elements with a minimum hardness of 6 (Mohs scale). Upon application the material shall provide a minimum static coefficient of friction of 0.6 when tested according to ASTM C 1028 (wet and dry), and a minimum static coefficient of friction of 0.6 when tested according to ASTM D 2047.
4. **Thickness:** The material must be supplied at a minimum thickness of 150 mil (3.8mm).
5. **Environmental Resistance:** The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.
6. **Storage Life:** The material may be stored for 12 months, if stored indoors and protected from the elements.

7. **Transverse Lines to Supplement System Application:** Supplied as white, retroreflective preformed thermoplastic line stripe material in 90 mil (2.3mm) or 125 mil (3.2mm) thicknesses, material is available in 6 in. (.15m), 8 in. (.20m) or 12 in. (.30m) widths. This preformed thermoplastic material may be supplied and applied by the certified applicator in conjunction with the System, and is available from the System manufacturer.

Construction Methods:

1. Specialized Application Equipment

- a) **Stamping Templates:** A wire rope template is required in the execution of the System. The template is used for imprinting the defined pattern once the preformed thermoplastic has been applied. The wire rope diameter for the imprinting template used for the specified pattern is 3/8 in. (9.5mm). The stamping templates are distributed by the System manufacturer.
- b) **Heating Equipment:** The System manufacturer shall distribute reciprocating infrared heating equipment designed specifically to elevate the temperature of the preformed thermoplastic material and asphalt pavement without adversely affecting it. The primary heating unit must employ a bank of propane-fired infrared heaters, mounted on a track device that allows the heater bank to reciprocate back and forth over a designated area, thereby allowing the operator to monitor the temperature of the preformed thermoplastic at all times during the pavement heating process.

A smaller, mobile infrared heater distributed by the System manufacturer is designed specifically to heat areas such as borders and narrow areas that are inaccessible to the primary heaters. This secondary heater also allows the operator to monitor the temperature of the preformed thermoplastic at all times during the heating process.

An approved hand-held propane heat torch distributed by the System manufacturer shall be used to heat isolated areas of the preformed thermoplastic.

- c) **Sealer:** A two-part epoxy sealer specified and distributed by the System manufacturer must be applied to the substrate prior to material application to ensure proper adhesion, and to provide reinforcement for larger volumes of material.
- d) **Specialized Sealer Dispensing Gun:** Used to dispense the required two-part epoxy sealer onto the substrate. The sealer dispensing guns are distributed by the System manufacturer.
- e) **Hand-Held Finishing Tool:** Enables the applicator to complete the imprinting of the thermoplastic in areas around permanent structures, such as curbs and manhole covers, which may be inaccessible to the stamping template. The hand-held finishing tools are distributed by the System manufacturer.

- f) **Aggregate:** Supplemental anti-skid/anti-slip elements to be applied to the surface of the molten thermoplastic as needed, if the factory applied anti-skid/anti-slip elements embed too deeply into the surface of the molten thermoplastic material during the heating process. (Embedded aggregate is exposed upon wear for extended skid resistance.) The aggregate is distributed by the System manufacturer.
- g) **Air Powered Spray Hopper:** Used to spray supplemental anti-skid/anti-slip elements (aggregate) on the surface of the molten preformed thermoplastic in a uniform manner. The air powered spray hoppers are distributed by the System manufacturer.
- h) **Vibratory Plate Compactor (700-900 lb.):** Shall be used for pressing the 3/8" (9.5mm) wire rope stamping templates into the thermoplastic to create the specified pattern in both the thermoplastic and asphalt substrate. The System manufacturer does not supply vibratory plate compactors.

2. Application (Asphalt Substrate Only):

- a) **Manufacturer Certified Applicator Requirement:** The System shall be supplied and applied only by an applicator certified by the System manufacturer. The applicator shall provide proof of current certification before commencing work. The Certified Applicator shall follow the System manufacturer's current published application procedures.
- b) **Substrate Condition:** The System must only be applied to a stable, high quality asphalt pavement substrate over a stable base that is free of defects, as per the manufacturer published Substrate Guide. The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.
- c) **Procedure:** The System is applied to asphalt pavement using proprietary reciprocating infrared heating equipment. The material must be able to be applied at ambient and road temperatures down to 45°F(7°C) without any preheating of the pavement to a specific temperature. A two-part epoxy sealer specified by the manufacturer must be applied to the substrate prior to preformed thermoplastic application. Immediately following sealer application, the panels of aggregate reinforced preformed thermoplastic are positioned properly on the asphalt substrate with the aggregate side facing up. The preformed thermoplastic is then heated to the required melting temperature. Additional aggregate may be applied to the preformed thermoplastic surface as needed following the melting process. As the material is cooling, it is imprinted with a stamping template made from 3/8 in. (9.5mm) flexible wire rope in the required design using a vibratory plate compactor. The preformed thermoplastic material is then allowed to cool thoroughly before being opened to vehicle or pedestrian traffic. (Consult the manufacturer's published application procedures for complete information).

The System shall not be applied to Portland Cement Concrete.

Method of Measurement: This work will be measured for payment by the actual number of square feet of completed and accepted imprinted aggregate reinforced preformed thermoplastic pavement markings.

Basis of Payment: This work will be paid for at the contract unit price per square foot for “Decorative Crosswalk” complete in place.

Pay Item
Decorative Crosswalk

Pay Unit
s.f.

ITEM #0944000A – FURNISHING AND PLACING TOPSOIL

9.44.01 – Description:

1. Summary: The Work shall consist of testing, screening, amending, placing and finish grading all topsoil as shown on the Drawings and specified herein. Provide all imported topsoil and compost and amendments necessary to properly complete all turf establishment, and planting operations. Provide specified depth of topsoil in all turf establishment lawn and planting areas. Topsoil used for planting areas shall be paid for under item #0949003A Furnishing, Planting, Mulching, Trees, Shrubs, Vines and Groundcovers.

2. Quality Assurance:

Topsoil Testing: Representative samples of borrow topsoil and stockpiled topsoil shall be subject to testing analysis to determine: Nutrient analysis using the Modified Morgan extractant for soil available P, K, Ca, and Mg; Soil pH; organic content determined by loss of weight on ignition; and particle size analysis of sand, silt, and clay percentages using the hydrometer or pipette methods of particle size analysis with size fractions based upon size limits established by USDA.

Topsoil testing shall be performed as directed by Engineer.

3. Submittals:

Submit topsoil for testing/analysis and subsequent or conditional approval based on results.

Submit materials certificates and product data for compost and soil amendments, clearly marked, to indicate proposed materials. Printed data shall state application rates and amount of product to be added, if applicable.

Submit delivery tickets for the soil amendments, compost and processed sand, indicating the trade name, the supplier/distributor's name and the amount of product delivered to the contracting firm/project site.

Submit materials certificate and certified test report for processed sand and gravel.

4. Product Handling:

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.

Bulk Materials:

- a) Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

- b) 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.
- c) Do not move or handle materials when they are wet or frozen.
- d) Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

5. Project Conditions:

Stockpile existing topsoil as required. Review quantity/quality of existing topsoil with Engineer. Verify that storm sewerage system and dry wells are complete and fully functional prior to beginning work of this Section. Protect storm sewerage system and dry wells from failure.

9.44.02 – Materials:

1. Topsoil:

Borrow Topsoil shall be clean, fertile, friable, and well draining; not to contain materials harmful to plant life. All topsoil to be free of any subsoil earth clods, sods, stones over 3/4" in any dimension, sticks, roots, weeds, litter and other deleterious material. Topsoil shall be uniform in quality and texture and contain specified organic matter and mineral elements necessary for sustaining healthy plant growth. Topsoil shall have a pH of 5.5 to 6.5. Topsoil shall have an Organic Matter Content of 5 to 8%. Nutrient levels shall be achieved by the Contractor's addition of amendments to the topsoil to meet the optimum nutrient levels specified in the testing laboratory report. A single source of all import topsoil is required. Topsoil shall meet the USDA Soils Textural Classification percentage of sand, silt and clay for "sandy loam" or "fine sandy loam" classifications. Topsoil shall be free of any toxic chemical, waste or any material or condition that would prevent the establishment of a suitable lawn. Import topsoil shall be from local sources. All textural classes of topsoil with greater than 80% sand content will be rejected.

The Contractor shall notify the Engineer of the location of the topsoil at least 15 calendar days prior to delivery. The topsoil and its source shall be inspected and approved by the Engineer before the material is delivered to the project. Any material delivered to the project, which does not meet specifications or which has become mixed with undue amounts of subsoil during any operation at the source or during placing and spreading, will be rejected and shall be replaced by the Contractor with acceptable material.

2. Amendments:

Soil Amendments shall be as recommended by the Topsoil Test Report.

3. Compost:

Compost shall be derived from organic wastes such as food and agricultural residuals,

animal manures, mixed solid wastes and biosolids (treated sewage sludge) that meet all State Environmental Agency requirements. The product shall be well composted, free of viable weed seeds and contain material of a generally humus nature capable of sustaining growth of vegetation, with no materials toxic to plant growth. Compost generator shall also provide minimum available nitrogen and other macro and micronutrients to determine fertilizer requirements. Compost shall have the following properties:

| <u>Parameters</u> | <u>Range</u> |
|------------------------|-----------------------|
| pH | 5.5 – 7.0 |
| Moisture Content | 35% - 55% |
| Soluble Salts | 4.0 mnhos (dS) |
| C:N ratio | 15 – 30:1 |
| Particle Size | <1” |
| Organic Matter Content | >50% |
| Bulk Density | <1000 lbs./cubic yard |
| Foreign Matter | <1% (dry weight) |

4. Sand:

Sand shall meet ASTM C33 Fine Aggregate.

9.44.03 – Construction Methods:

1. Topsoil Preparation:

Determine quantity of imported topsoil scheduled to be placed. Provide topsoil to complete the work of this Section. Based on topsoil testing reports, provide amendments and conditioners to topsoil to bring it in compliance with project requirements. Bulk mix to produce a homogeneous product.

2. Shaping and Grading of Subsoil at Lawn Areas:

At completion of rough grading, shape and grade subgrade areas to lines and levels as noted on the drawings. All approved topsoil is to be spread. Shape subgrade areas to allow placement of uniform depth of topsoil. Provide all shaping adjustments at no additional cost to the owner. Harrow or otherwise loosen the subgrade soil to a depth of 4 inches. Remove all sticks, stones, or foreign material two (2) inches or greater in dimension from surface. Remove debris and stone off-site.

3. Spreading Topsoil and Topsoil/Compost Mixes:

Do not apply topsoil materials to the scarified subgrade without approval of Engineer. No vehicular traffic or rubber tired equipment shall be allowed on finished subgrades. Topsoil materials shall not be spread until topsoil has been amended as required. Topsoil materials shall not be delivered or worked in a frozen or muddy condition. Uniformly distribute and spread topsoil materials over all graded lawn areas to conform smoothly to the lines, grades, and elevations shown or otherwise required. Maintain consistent depths of material

throughout the project area. Manually supply topsoil around all trees to remain. Avoid damage to root systems. Depth of topsoil around existing trees to be determined by Engineer.

Place topsoil in layers that will provide the scheduled thickness after natural settlement and light rolling. Spread topsoil from edges inward toward the middle of areas being topsoiled. Do not allow equipment directly on the loosened subgrade. Do not overcompact the topsoil. Do not allow rubber-tired equipment on topsoiled areas. Use lightest weight equipment practicable. Sequence operations to minimize the number of equipment passes required. Track topsoiled slopes parallel to the fall line. Place topsoil materials only when it can be immediately followed by seeding operations. Resupply and place topsoil to eroded, settled or damaged areas until all lawn areas are stabilized. Care shall be taken not to damage grass or pavement areas in the replacement to topsoil.

4. Protection:

Remove weeds prior to lawn development operations. No weeds shall be allowed to go to seed. Keep heavy equipment, trucks, etc. off topsoiled areas at all times. If compaction occurs, harrow to the full depth of the topsoil and regrade topsoil.

9.44.04 – Method of Measurement:

This work will be measured for payment by the number of cubic yards of topsoil furnished and placed, completed and accepted.

Topsoil used for plant bed and tree pit installation shall not be measured under this pay item, but included under Item # 0949003A.

9.44.05 - Basis of Payment:

This work will be paid for at the contract unit price per cubic yard of “FURNISHING AND PLACING TOPSOIL”, completed and accepted, including all equipment, material, tools, labor and incidental expenses thereto.

Topsoil used for plant bed and tree pit installation shall not be paid under this pay item, but included under Item # 0949003A.

PAY ITEM

PAY UNIT

Furnishing and Placing Topsoil

CY

ITEM #0944104A –STRUCTURAL SOIL

ITEM #0944105A –STRUCTURAL SOIL FOR TREE PLANTING

Description:

1. Summary:

The Work of Item 0944104A includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to install CU Structural Soil below new sidewalks as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, furnishing and installing the CU structural soil, and filter fabric.

The work of Item 0944105A includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to install CU Structural Soil at new trees as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, furnishing and installing the CU structural soil, filter fabric, 4" PVC perforated pipe with sleeve and biobarrier root control fabric.

2. Submittals:

- a. At least 30 days prior to ordering materials, the installing contractor shall submit to the engineer representative samples, certificates, manufacturer's literature and test results for materials specified below. No materials shall be ordered until the required samples, certificates, manufacturer's literature, producer's current license and test results have been reviewed and approved by the engineer. The engineer reserves the right to reject any material that does not meet CU-Structural Soil[®] specifications. Delivered materials shall closely match the approved samples.
- b. Submit from licensed producer, 1/2 cubic foot representative sample of clay loam, one cubic foot representative sample of crushed stone, and one cubic foot representative sample of CU-Structural Soil[®] mix for approval. In the event of multiple source fields for clay loam, submit a minimum of one set of samples per source field or stockpile. The samples of all clay loam, crushed stone, and CU-Structural Soil[®] shall be submitted to the engineer as a record of the soil color and texture.
- c. Submit soil test analysis reports for sample of clay loam from an independent soil-testing laboratory. The testing laboratory for particle size and chemical analysis may include a public agricultural extension service agency.

- i. Submit a mechanical analysis of the clay loam sample and particle size analysis including the following gradient of mineral content:

USDA Designation

Gravel

Sand

Silt

Clay

Sieve analysis shall be performed and compared to USDA Soil Classification System.

Sieve analysis shall be done by a combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D422 after destruction of organic matter by hydrogen peroxide.

- ii. Submit a chemical analysis, performed in accordance with current AOAC Standards, including the following:
 - 1. pH and buffer pH.
 - 2. Percent organic matter as determined by the loss of ignition of oven dried samples. Test samples shall be oven dried to a constant weight at a temperature of 230 degrees F, plus or minus 9 degrees.
 - 3. Analysis for nutrient levels by parts per million.
 - 4. Soluble salt by electrical conductivity of a 1:2 soil/water sample measured in Millimho per cm.
 - 5. Cation Exchange Capacity (CEC).
 - 6. Carbon/Nitrogen Ratio.

- d. Submit one cubic foot sample of crushed stone which will be used in production of CU-Soil™.

- i. Provide particle size analysis:

USDA Designation

3"

2 1/2"

2"

1 1/2"

1"

3/4"

Fine gravel

- ii. Provide the manufacturers analysis of the loose and rodded unit weight
- iii. Losses from LA Abrasion tests- not to exceed 40%
- iv. Minimum 90% with 2 or more fractured faces
- v. Percent pore space analysis

- e. At the engineer’s discretion, the sample of CU-Structural Soil® may be tested for the following:
 - i. Compaction in accordance with ASTM D698/AASHTO T99 without removing oversize aggregate
 - ii. California Bearing Ratio in accordance with ASTM D1883- soaked CBR shall equal or exceed a value of 50
 - iii. Measured dry-weight percentage of stone in the mixture
- f. The approved CU-Structural Soil® sample shall be the standard.
- g. Any deviation from the specified crushed stone and clay loam specifications shall be approved by Amereq, Inc.

3. Quality Assurance:

- a. Qualifications of installing contractor: The work of this section should be performed by a contracting firm which has a minimum of five years experience.

Material:

1. CU Structural Soil:

- a. Clay Loam
 - i. Soil shall be a “loam” with a minimum clay content of 20% or a “clay loam” based on the “USDA classification system” as determined by mechanical analysis (ASTM D-422) and it shall be of uniform composition, without admixture of subsoil. It shall be free of stones, lumps, plants and their roots, debris and other extraneous matter. It shall not contain toxic substances harmful to plant growth. Clay loam shall contain not less than 2% or more than 5% organic matter as determined by the loss on ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F., plus or minus 9 degrees.
 - ii. Mechanical analysis for the loam or clay loam shall be as follows:

| Textural Class | % of Total Weight |
|----------------|-------------------|
| Gravel | less than 5% |
| Sand | 20-45% |
| Silt | 20-50% |
| Clay | 20-40% |
 - iii. Chemical analysis: Meet, or be amended to meet the following criteria:
 - 1. pH between 5.5 to 6.5.
 - 2. Percent organic matter 2% - 5% by dry weight.
 - 3. Adequate nutrient levels.
 - 4. Soluble salt less than 1.0 mmho/cm.
 - 5. Cation Exchange Capacity (CEC) greater than 10.
 - 6. Carbon/Nitrogen ratio less than 33:1.

- iv. Loam or clay loam shall not come from USDA - classified prime farmland.
- b. Fertilizer (if needed)
 - i. Should nutrient analysis suggest that the loam or clay loam need additional nutrients, it shall be amended by Amereq's licensed producer.
- c. Sulfur (if needed)
 - i. Sulfur shall be a commercial granular, 96% pure sulfur, with material and analysis appearing on the labeled container.
 - ii. Sulfur used to lower pH shall be a ferrous sulfate formulation.
 - iii. Application rates shall be dependent on soil test results.
- d. Lime (if needed)
 - i. Agricultural lime containing a minimum of 85% carbonates.
 - ii. Application rates shall be dependent on soil test results.
- e. Crushed Stone
 - i. The size of the crushed stone shall be 0.75 inches to 1.5 inches allowing for up to 10% being greater than 1.5 inches, and up to 10% less than 0.75 inches.
 - ii. Acceptable aggregate dimensions will not exceed 2.5:1.0 for any two dimensions.
 - iii. Minimum 90% with two or more fractured faces.
 - iv. Results of Aggregate Soundness Loss test shall not exceed 18%.
 - v. Losses from LA Abrasion tests shall not exceed 40%.
- f. Hydrogel
 - i. Hydrogel shall be a coated potassium propenoate-propenamide copolymer (Gelscape® Hydrogel Tackifier) as manufactured by Amereq, Inc. 800-832-8788.
- g. Water
 - i. The installing contractor shall be responsible to furnish his own supply of water (if needed) free of impurities, to the site.
- h. CU-Structural Soil®
 - i. A uniformly blended urban tree mixture of crushed stone, clay loam and Gelscape® Hydrogel Tackifier, as produced by an Amereq-licensed company, mixed in the following proportion:

| <u>Material</u> | <u>Unit of Weight</u> |
|------------------------------|--|
| specified crushed Stone | 100 units dry weight |
| specified clay loam | 20 – 25 units (to achieve minimum CBR of 50) |
| Gelscape® Hydrogel Tackifier | 0.035 units dry weight |
| moisture | ASTM D698/AASHTO T-99 optimum moisture |

2. Biobarrier Root Control Fabric:

Root control fabric shall be 19.5” wide biobarrier root control fabric.

3. Supplemental Irrigation:

4" Rigid Polyvinyl Chloride Plastic Perforated Drain Pipe with filter sleeve, fittings, and slotted drain cap.

4. Filter Fabric:

Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made 100% Spunbonded Polypropylene; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

- a. Tensile Strength: 73(lbs)
- b. Puncture Strength (lbs): 23
- c. Air Opening Size (equivalent sieve): 30/40
- d. Air Opening Size (mm): 0.52
- e. Trap Tear (lbs): 35
- f. Air Permeability (cm/sec): 10×10^{-2}
- g. Flux (gal/ft²/min): 200
- h. Permittivity (sec⁻¹): 3.0
- i. Color: Black

Construction Methods:

1. Excavation:

Work under this item shall consist of removing and disposing of existing sidewalk and foundation to a full depth. Wherever portions of concrete sidewalks or concrete driveway ramps are to be removed, such removals shall be made to neat lines. Partial removals shall generally be to existing joints except when a location other than a joint is identified on the plans or set by the Engineer due to construction staging limits. At removal limits where a joint is not present, the Contractor shall sawcut the concrete full depth to create a neat line. The bottom of the excavation shall be graded smooth and thoroughly compacted to a firm, even surface using a roller weighing not less than five tons or a motor driven vibratory compactor.

2. Supplemental Irrigation:

Shall be installed at the line and grade as indicated on the drawings.

3. Biobarrier Root Control Fabric:

Biobarrier root control fabric shall be installed where indicated on the drawings and per manufacturer's recommendations.

4. Planting Procedures, Balled and Burlapped Planting:

Shall conform to Section 0949001A of these specifications.

5. CU Structural Soil:

- a. Examination of Conditions

- postpone installation of such elements until immediately after the installation of CU-Structural Soil®.
- ii. Excavate and compact the proposed subgrade to depths, slopes and widths as shown on the drawings. Maintain all required angles of repose of the adjacent materials as shown on the drawings. Do not over excavate compacted subgrades of adjacent pavement or structures.
 - iii. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.
 - iv. Clear the excavation of all construction debris, trash, rubble and any foreign material. In the event that fuels, oils, concrete washout silts or other material harmful to plants have been spilled into the subgrade material, excavate the soil sufficiently to remove the harmful material. Fill any over excavation with approved fill and compact to the required subgrade compaction.
 - v. Do not proceed with the installation of CU-Structural Soil® until all utility work in the area has been installed. All subsurface drainage systems shall be operational prior to installation of CU-Structural Soil®.
 - vi. Protect adjacent walls, walks and utilities from damage. Use ½” plywood and/or plastic sheeting as directed to cover existing concrete, metal and masonry work and other items as directed during the progress of the work.
 - 1. Clean up all trash and any soil or dirt spilled on any paved surface at the end of each working day.
 - 2. Any damage to the paving or architectural work caused by the installing contractor shall be repaired, as directed by the engineer.
- f. Installation of CU-Structural Soil® Material
- i. Install CU-Structural Soil® in 6 inch lifts and compact each lift.
 - ii. Compact all materials to at least 95% Proctor Density from a standard compaction curve AASHTO T 99 (ASTM D 698). No compaction shall occur when moisture content exceeds maximum as listed herein. Delay compaction if moisture content exceeds maximum allowable and protect CU-Structural Soil® during delays in compaction with plastic or plywood as directed by the engineer.
 - iii. Bring CU-Structural Soil® to finished grades as shown on the drawings. Immediately protect the CU-Structural Soil® from contamination by toxic materials, trash, debris, water containing cement, clay, silt or materials that will alter the particle size distribution of the mix with plastic or plywood as directed by the engineer.
 - iv. The engineer may periodically check the material being delivered, prior to installation for color and texture consistency with the approved sample provided by the installing contractor as part of the submittal for CU-Structural Soil®. If the engineer determines that the delivered CU-Soil™ varies significantly from the approved samples, the engineer shall contact the licensed producer.

- v. Engineer shall ensure that the delivered structural soil was produced by the approved CU-Soil™ licensee by inspecting weight tickets showing source of material.
- vi. CU-Soil™ should not be stockpiled long-term. Any CU-Soil™ not installed immediately should be protected by a tarp or other waterproof covering.
- g. Fine Grading
 - i. After the initial placement and rough grading of the CU-Structural Soil® but prior to the start of fine grading, the installing contractor shall request review of the rough grading by the engineer. The installing contractor shall set sufficient grade stakes for checking the finished grades.
 - ii. Adjust the finish grades to meet field conditions as directed. Provide smooth transitions between slopes of different gradients and direction. Fill all dips with CU-Soil™ and remove any bumps in the overall plane of the slope. The tolerance for dips and bumps in CU-Structural Soil® areas shall be a 3” deviation from the plane in 10’. All fine grading shall be inspected and approved by the engineer prior to the installation of other items to be placed on the CU-Structural Soil®.
- h. Clean-Up
 - i. Upon completion of the CU-Structural Soil® installation operations, clean areas within the contract limits. Remove all excess fills, soils and mix stockpiles and legally dispose of all waste materials, trash and debris. Remove all tools and equipment and provide a clean, clear site. Sweep, do not wash, all paving and other exposed surfaces of dirt and mud until the paving has been installed over the CU-Structural Soil® material. Do no washing until finished materials covering CU-Structural Soil® material are in place.

6. Filter Fabric:

- a. Install as shown on the drawings per manufacturers recommendations.

7. Clean Course Aggregate Stone:

- a. Install as shown on the drawings compact to 95% compaction per AASHTO T-180.

Method of Measurement:

Item 0944104A Structural Soil utilized solely under pavements and not including a new tree planting will be measured by the Cubic Yard installed, based on a typical 6” depth.

Item 0944105A Structural Soil used as part of a tree pit installation will be measured by the number square feet installed, based on a 3’ depth, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer.

Work shall include all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, furnishing and installing the CU structural soil, filter fabric and biobarrier root control fabric.

Basis of Payment:

Item 0944104A Structural Soil used under pavements not associated with a tree planting will be paid for at the contract unit price per cubic yard for complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Engineer. Price shall include all sawcuts to meet existing facilities, the removing and disposal of all surplus materials, excavation, concrete sidewalks removal and disposal, furnishing and installing the CU structural soil, and filter fabric.

Item 0944105A Structural Soil used as part of a tree pit installation will not be paid for under this item number but will be paid for at the contract unit price per square feet of tree pit for “FLEXI-PAVE PAVEMENT AT NEW TREE W/STRUCTURAL SOIL” .

Pay Item

Pay Unit

| | |
|---|----|
| Item 0944104A Structural Soil | CY |
| Item 0921098A Flexible Permeable Pavement at New Tree W/Structural Soil | SF |

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ITEM #0947207A – BICYCLE RACK

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing bike racks and anchoring hardware as shown on the plans or as directed by the Engineer.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Manufacturers warranties.

Material:

1. Bicycle Rack:

DuMor 83 Series Loop Bike Rack.

- a) 2-3/8 inches O.D galvanized pipe.
- b) Height: 35-1/2 inches.
- c) Mounting: S-2 Surface mount.
- d) Color: Black

2. Anchoring Hardware:

Stainless steel anchor bolts shall be sized to allow for anchoring bike racks into concrete base below brick paver sidewalk or to concrete sidewalk at the locations shown on the drawings.

Construction Methods:

Install bicycle rack in accordance with manufacturer's instructions at locations as directed by the Engineer.

Method of Measurement:

This work will be measured for payment by the number of bicycle racks furnished and installed at locations where proposed, with such work as directed and accepted by the Engineer.

Basis of Payment:

The bicycle rack will be paid for at the contract unit price per each for "BICYCLE RACK" which price shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

Pay Item

0947207A Bicycle Rack

Pay Unit

EA

ITEM #0947303A BUS SHELTER

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: This item shall consist of designing, furnishing, and installing bus shelters and the shelter foundations of the type called for at the location and to the dimensions and details shown on the plans or as directed by the Engineer. The Contractor shall provide shop drawings and calculations stamped by a professional engineer registered in the state of Connecticut for bus shelters and shelter foundations.

Materials: The materials for this work shall conform to the drawings and meet the following requirements:

Foundation:

- M.02.01 for Granular Fill
- M.03 for Class PCC04460 Concrete
- M.04.01 for HMA S0.375 Bituminous Concrete
- M.06.01 for Bar Reinforcement
- M.08.02-4 for Precast Concrete
- M.15.02 for Anchor Bolts
- M.15.03 for Rock Anchors

Bus Shelter:

Provide shelter “5x10HRsp Brandford Style” by Columbia Equipment, Freeport, NY or approved equal.

Size: 5’ x 10’

Model: “5x10HRsp Brandford Style” by Columbia Equipment, Freeport, NY.

Roof: Standing seam hipped metal roof over 5/8” FRP ceiling

Roof Facia: 6” high minimum; mechanically fastened; no exposed fastenings; cantilever weep holes designed to prevent drainage from crossing through the shelter on sidewalk

Windows: ¼-inch bronze tinted glass; factory installed

Body: Aluminum alloy 6061-T6 or 6063-T52, one-piece seamless

Finish: AAMA 2604 Powder Coating – Color to be determined by Owner

Base Detail: 6-inch external adjustable base flanges with ½” x 4 ½” stainless steel concrete expansion bolts

Accessories: 4’-6” aluminum bench with backrest finish to match shelter

1” x 1: decorative grillwork on all openings

Front partial windscreen and (2) ADA compliant entrances

Loads: Meet or exceed 40 pfs and wind loads of 80mph

Construction Methods: The foundation shall be constructed in accordance with the pertinent provisions of 6.01.03. They may be precast, or cast-in-place based on accepted design. The final elevation of the top of the catenary light standard foundation shall be as shown on the plans or as

directed by the Engineer. The top of the foundation shall be level in all respects. Concrete for foundation shall be placed monolithically against undisturbed soil for poured in place foundations. The concrete may be placed against the sides of the excavation; however, the exposed portion of the foundations shall be formed to the neat lines as shown on the plans. When in the judgment of the Engineer, unusual soil conditions prevent excavation to neat lines as shown on the plans, the complete foundation shall be formed.

After the forms have been completely removed, the entire excavation shall be backfilled in accordance with 2.14. All portions of the foundations which will remain exposed to view shall be finished to the satisfaction of the Engineer. Forms shall not be removed until after the concrete has hardened properly and not less than 24 hours after the concrete has been placed. The Contractor shall allow sufficient time for the foundation to cure before placing any strain on the foundation. Bus shelter shall not be installed until 10 days after the concrete has been placed.

Where a foundation is placed within or adjacent to a concrete sidewalk, the entire section of sidewalk between joints shall be replaced in accordance with 9.21, unless otherwise directed by the Engineer.

The bus shelter shall be installed in accordance with manufacturer's instructions.

Method of Measurement: This item shall be measured for payment by the number of units installed and accepted complete in place where the bus shelter and foundation count as one unit.

Basis of Payment: This work will be paid for at the Contract unit price for each "Bus Shelter" complete in place, which price shall include:

- Design, excavation, forms, concrete, backfill, anchoring, and installation of foundation;
- Design, coordination, delivery, and installation of Bus Shelter;
- Disposal of surplus material, restoration of pavement surfaces, and all materials, equipment, testing, and labor incidental to completion of this item.

Pay Item
Bus Shelter

Pay Unit
ea.

ITEM #0949000A – WOOD CHIP MULCH

9.44.01 – Description:

1. Summary: The Work shall consist of providing and placing all wood chip mulch as shown on the Drawings and specified herein. Provide all equipment and materials necessary to properly complete mulching operations. Provide specified depth of mulch in all planting areas.

2. Submittals:

Submit materials certificates and product data for wood chip mulch, clearly marked, to indicate proposed materials. Printed data shall state project name and location.

Submit delivery tickets for the wood chip mulch, indicating the trade name, the supplier/distributor's name and the amount of product delivered to the contracting firm/project site.

3. Product Handling:

Bulk Materials:

- a) Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
- b) 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.
- c) Do not move or handle materials when they are wet or frozen.

4. Project Conditions:

Verify that landscape plantings are complete prior to beginning work of this Section.

9.44.02 – Materials:

1. Wood Chip Mulch:

Wood Chip Mulch shall be free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of the following:

Type: Double-shredded softwood bark composed primarily of pine and spruce bark, undyed and aged not less than 9 months. Clean and free of foreign matter and disease. Sample to be approved.

Color: natural, undyed.

9.44.03 – Construction Methods:

1. Preparation:

Planting operations shall be completed prior to installation of wood chip mulch.

2. Placement:

Mulch shall be hand placed and spread to a depth as directed in the plans. Mulch shall not be placed directly against the bark of tree trunks.

3. Protection:

Remove weeds from mulched areas as required by maintenance operations of plantings. No weeds shall be allowed to go to seed.

9.44.04 – Method of Measurement:

This work will not be measured for payment and is to be included in Item 0949003A Furnishing, Planting and Mulching Trees, Shrubs, Vines and Ground Covers.

9.44.05 - Basis of Payment:

This work shall not be paid for under this pay item, but shall be included in the contract unit price per 0949003A “FURNISHING, PLANTING AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER”, completed and accepted, including all equipment, material, tools, labor and incidental expenses thereto.

PAY ITEM

PAY UNIT

0949003A Furnishing, Planting and Mulching Trees,
Shrubs, Vines and Groundcovers

LS

ITEM #0949003A – FURNISHING, PLANTING AND MULCHING TREES, SHRUBS, VINES AND GROUND COVER

Section 9.49 is being deleted in its entirety and replaced with the following:

9.49.01 - Description:

1. Summary:

Provide all labor, materials, necessary equipment and services to furnish and install plant materials as shown on the Drawings and as specified herein including source inspection; plant pit excavation, provision, preparation and installation of all backfill mixtures; planting all trees, shrubs, perennials, and groundcovers, including finishing operations; mulch for all plant bed and saucer areas; mineral mulch, steel edging and weed barrier fabric for maintenance strip; steel edging for shrub, perennial and groundcover beds; and protection, maintenance and replacement of plant material and related items.

2. Quality Assurance:

All plants shall meet or exceed the specifications of Federal, State and County laws requiring inspection for plant disease and insect control. Quality, size and ball container size shall conform with the current edition of "American Standard and Nursery Stock" by the American Nursery and Landscape Association and its amendments (ANSI Z60.1). All plants shall be certified true to name by the nursery source. Sealed certificates from the nursery source shall be submitted prior to any plant material installation. One plant of each species shall be tagged with the name and size of the plant in accordance with the standards of practice of the American Association of Nurserymen. Botanical names shall take precedence over common names.

Qualifications of Installers: Provide at least one person who shall be thoroughly familiar with the type of materials being installed and shall direct all work performed under this section.

3. Nursery Coordination:

Each specific plant type shall be provided from a single nursery source unless otherwise approved.

4. Submittals:

Submit product data for the following items, clearly marked, to indicate proposed materials. Printed data shall state application rates and amounts of product to be added, if applicable.

- a) Soil conditioners
- b) Water management polymer
- c) Fertilizers
- d) Anti-Desiccant
- e) Steel Edging
- f) Weed Barrier Fabric

Submit delivery receipts for the following items, indicating the trade name, the supplier/distributor's name and the amount of product delivered to the contracting firm/project site.

- a) Water management polymer
- b) Fertilizers
- c) Soil conditioners

Topsoil: Testing reports/analysis, as per Section 0944001, must be submitted prior to preparation of planting mixtures.

Percolation Test: Test for percolation shall be done to determine positive drainage of plant pits and beds. Soil and drainage conditions detrimental to the growth of plant material shall be identified and a proposal correcting the conditions shall be submitted.

5. Nursery Source Inspection:

All plant material(s) are to be inspected and accepted by Engineer at the nursery source or place of growth. Do not dig plant material until inspected, tagged, and approved by Engineer. Contractor must provide all transportation and shall accompany Engineer for all source inspections. All trees are to be flagged on the north side prior to digging. (Flagged side of tree (north side) to be located to north orientation when planted on site. See Item 3.02 A. 4.)

All plant material when inspected at the nursery source by Engineer is not to be "heeled-in" or "out-ground". Stockpiled material is not acceptable unless otherwise approved by the Engineer.

All plant material is also subject to reinspection and approval by Engineer once the plant material has been delivered to the project site. All plant material shall arrive at the site with Engineer's permanent tags. Any plant material rejected by Engineer shall be immediately removed from the project site and replaced with acceptable plant material at no additional cost.

All plant material must be accompanied by nursery inspection certificates, as required by State or Federal Regulations.

6. Product Handling:

Deliver all items to the job site in their containers with all labels intact and legible at the time of inspection. Root balls shall not be cracked or broken. Notify the Owner's Representative of delivery schedule at least two (2) days in advance so plant material may be inspected upon arrival at job site. Remove unacceptable plant material immediately from job site. Do not prune plants prior to delivery.

Use all means necessary to protect plant materials before, during, and after installation and to protect the work and materials of all other trades.

Replacements: In the event of damage, immediately make all repairs and replacements necessary to no additional cost to the Owner.

Delivery: Deliver fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, and conformance to state law.

7. Planting Season:

Progress with planting only under favorable weather conditions. Planting will not be permitted when ground is frozen or excessively moist.

Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance.

- a) Deciduous Plants: April 1 to May 30, and August 15 until the ground freezes. Spring planting may be extended until June 15 if a well-monitored irrigation system is in use.
- b) Evergreen Plants: April 1 to June 15, and August 15 to October 15.
- c) Perennials and ornamental grasses: April 1 to May 30, and September 1 to September 15.
- d) Bulbs: From September 1 until the ground freezes.
- e) If special conditions exist to justify a variance in the above planting dates, submit a written request to the Engineer stating the special conditions and the proposed variance. Describe techniques in addition to those specified herein that will be employed to prevent dieback and mortality. No waiver of the plant guaranty will be granted for planting performed out-of-season.

Planting Schedule: Contractor shall submit planting scheduling indicating proposed nursery source and anticipated installation schedule for review and approval. Coordinate with approved nurseries to secure and confirm installation dates of all plant material after acceptance of planting schedule.

8. Job Conditions:

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected. Coordinate work with other related site work that is not included in this contract. Maintain proper sequencing of operations. Commencement of work implies acceptance by Contractor of preparatory work by others.

The Contract drawings show the approximate locations of utility structures in the area of proposed landscape development. Exercise care when digging in these areas. The Contractor is responsible for any damage and shall replace or repair any damage at the Contractor's expense. Changes in the locations of plant material due to utility obstructions shall not be cause for extra compensation.

Notify Engineer at least 2 days prior to commencing any of the planting operations included in this Section.

Plant Locations on the Drawings are approximate and are to be used only as a guide.

Contractor shall provide all field engineering services to accurately stake out locations for all plants and outlines of plant beds. Do not begin excavation until Engineer has approved specific layout. Relocate the planting, without extra compensation if directed prior to final installation.

Upon Completion of Planting: remove from the site all excess soil, mulch, materials, and debris resulting from work operations of this Section. Restore to original conditions all damaged pavements, structures and lawn areas resulting from landscaping operations. Broom clean all walks and pavements. Dispose of all debris off-site in a satisfactory legal manner.

Maintain the site area in a neat and clean condition at all times.

9. One-Year Establishment Period:

All plant material shall be subject to a One-Year Establishment Period. During this time, the Contractor shall use currently accepted horticultural practices to keep all plant material installed in a healthy, vigorous growing condition at the date of final acceptance. The date of final acceptance shall be one full calendar year following the satisfactory completion of the planting activities as confirmed by the Engineer.

An inspection will be held one year from the date of installation with the Contractor and Engineer to determine the acceptability of the plant establishment. An inventory of losses and rejected materials will be made and corrective and necessary clean up measures will be determined at the plant inspection.

9.49.02 – Materials:

1. Trees, shrubs, ground cover, and perennials:

Plant varieties shall be nursery grown or plantation grown stock; hardy under climatic conditions similar to those in the locality of the project. The plant material source shall not exceed a 250 mile radius from the project site. Plants shall be typical of their species or variety, with a normal habit of growth. Sound, healthy and vigorous. Well-branched and densely foliated when in leaf, free of disease, harmful insects, eggs, or larvae. Shall have healthy well-developed root systems. All trees shall have straight single trunks with their main leader intact unless otherwise stated. Plants shall be free from sunscald injury, disfigurement and abrasion.

Substitutions will be permitted only upon approval Engineer.

Sizes shall conform to the measurement specified on the Drawings. Plants larger than specified on the Drawings may be used if approved Engineer. Use of such plants shall not increase the Contract price.

Height of Branching: Unless otherwise noted on the planting schedule, shade/street trees shall be free of branches to a height of 7 feet, ornamental/flowering trees shall be free of branches to a height of 6 feet.

Quantities: If there is a discrepancy between plants shown on the drawings and quantities given, the greater number will prevail. Discrepancies will not entitle the Contractor to an extra.

Perennial plants shall have been growing in the specified size container for at least one full year prior to installation. Root mass shall completely fill container.

2. Plant Pit Backfill Mixtures:

Provide mixtures as required. Bulk mix on-site, no off-site mixing allowed.

Planting Mixture No. 1 - for Trees and Shrubs:

- 1 part dehydrated cow manure
- 2 parts peat moss
- 5 parts topsoil
- Water Management polymers - at manufacturer's rate for specific tree and Shrub size.

Planting Mixture No. 2 - for Perennial and Groundcover Plants.

- 1 part dehydrated cow manure
- 2 parts peat moss
- 4 parts topsoil
- Water Management polymers - at manufacturer's rates for specific plant size.

3. Topsoil:

As per Section 0944000A.

4. Fertilizers:

Deliver fertilizers in unimpaired condition, in sealed containers fully labeled according to applicable State Law.

Bonemeal shall be finely ground commercial raw bonemeal having a minimum analysis of one (1) percent nitrogen and eleven (11) percent phosphoric acid.

Plant fertilizers shall be a complete plant food with a guaranteed analysis of 10.10.10 unless otherwise approved by Engineer. Fertilizer shall contain 50% slow release nitrogen and 50% quick release nitrogen.

5. Peat:

Conform to Form 818, Article M.13.07.13.

6. Dehydrated Cow Manure:

“Bovung” with a guaranteed analysis of 2:1:1 or approved equal.

7. Water Management Polymer:

Terrasorb AG as distributed by Industrial Services International, Inc., Bradenton, Fla., or approved equal.

- 8. Mulch:**
Conform to 0949000A. Sample to be approved.
- 9. Anti-Desiccant:**
Conform to Form 818, Article M.13.07.14.
- 10. Stakes:**
Conform to Form 818, Article M.13.07.14.
- 11. Guy Wire For Staking:**
Conform to Form 818, Article M.13.07.14.
- 12. Turnbuckles:**
Conform to Form 818, Article M.13.07.14.
- 13. Friction Guards For Staking:**
Conform to Form 818, Article M.13.07.14.
- 14. Tree Wrapping Material:**
Conform to Form 818, Article M.13.07.14.

9.49.03 – Construction Methods:

- 1. Planting Mixture:**
Provide planting mixtures for specific plants, shrubs, groundcover, as specified. Thoroughly mix all amendments to topsoil prior to commencing planting operations. Provide planting mixture for backfilling continuously excavated plant beds.
- 2. Planting Procedures, Balled and Burlapped Planting:**
Verify the location of underground utilities. When obstructions below ground or poor drainage affect the planting operation, proposed adjustments to plant location, type of plant, and planting method or drainage correction shall be submitted. Stake all plant locations in the field as per the planting plan. Obtain Engineer approval of all plant locations and orientation.

Excavate plant pits as detailed, remove excess excavated material. Scarify bottom and sides of each plant pit. Tree pits minimum 24" greater in diameter than the plant ball, and 6" deeper except as detailed. Shrub excavations shall be minimum 12" greater in diameter than ball and 6" deeper.

All plant pits must be free draining. Notify Engineer if positive drainage does not exist.

Set all plants in the center of plant pits, plumb and straight and as detailed on the drawings.
The side of the trees flagged "North Side" shall be oriented due North prior to backfilling.

Handle balled and burlapped plants from the ball only.

Face plants other than trees to give best appearance and as accepted by Engineer.

Carefully remove only surplus bindings and synthetic materials that do not readily decompose. Fold burlap away from top one third of root ball. Remove portions of any wire baskets, if present.

Backfill all pits 2/3 their depth with prepared plant backfill mixture, water thoroughly and allow to settle, then tamp around to fill all voids and air pockets. Complete backfilling to conform to required elevation after settlement.

Form saucer and install mulch over entire plant pit and saucer area as detailed.

3. Continuous Excavation:

All perennial and shrub plant beds are to be continuously excavated to depths required to allow installation of specified backfill mixture. Backfill completely with specified Plant Mix. Protect groundcover and perennial plants from the sun. Soak roots for several hours prior to planting. Remove from container and gently break apart any container-bound root mass. Install plants as specified in this Section.

4. Fertilizers For Plant Pit Saucers:

Conform to Form 818, Article 9.49.03.9.

5. Finishing Operations:

Staking Trees: Conform to Form 818, Article 9.49.03.11.

Wrapping: Conform to Form 818, Article 9.49.03.12.

Mulching: Conform to Item 0949000A Wood Chip Mulch.

Anti-Desiccant: Conform to Form 818, Article 9.49.03.14.

Watering Plants: Conform to Form 818, Article 9.49.03.10.

Pruning: Conform to Form 818, Article 9.49.03.13.

6. Repair of Lawn Areas:

Repair all lawn areas damaged/disturbed during all planting operations. Provide sediment and erosion control measures as required to protect un-established areas from erosion.

7. Maintenance of Plantings:

Period required begins immediately after planting and includes all transplanted material. Continue until the end of the guarantee period.

Maintenance Requirements: Maintenance responsibilities include cultivating, spraying, weeding, watering, tightening guys, pruning, fertilizing, mulching and any other operations necessary to properly maintain plant viability. Correct defective work as soon as possible. Correct dangerous conditions immediately.

9.49.04 – Method of Measurement:

1. Planting:

The quantity for which payment will be made will be the unit item lump sum of plants in place, planted and accepted.

2. Mulching:

This work will not be measured for payment and shall be included in the unit item lump sum for the specified thickness for the area on which mulch has been completed and accepted.

9.49.05 – Basis of Payment

1. Planting:

Payment for this work will be made at the contract unit price lump sum completed and accepted in place. The unit price shall include all materials, equipment, tools, labor, transportation, operations and all work incidental thereto, including the removal of guy wires, hose and tree support stakes after the initial establishment period.

2. Mulching:

This work will be included in the unit price lump sum for this pay item.

Pay Item

Furnishing, Planting and mulching trees, shrubs, vines and ground cover

Pay Unit

LS

ITEM #0950005A TURF ESTABLISHMENT

9.50.01 – Description:

1. Summary:

The Work shall consist of providing and installing all Turf Establishment areas as shown on the Drawings and as specified herein, including, but not necessarily limited to: Fine grading and preparing the seed bed; providing and incorporating amendments necessary for good lawn growth; seeding all proposed lawn areas; providing and installing erosion control fabric or salt hay mulch as necessary; mowing, watering, and maintaining the grass until established and accepted; treating all lawn areas with crabgrass and broadleaf weed controls as needed to insure that lawn is free of weeds and crabgrass at time of acceptance; repair of existing lawn areas damaged by the work of this Contract; and protection and security of seeded lawn areas, and repair of damage until acceptance of all lawn areas.

2. Quality Assurance:

Qualifications of Installers: Provide at least one person who shall be present at all times during execution of this portion of the Work, who shall be thoroughly familiar with the type of materials being installed and who shall direct all work performed under this Section.

Preventatives and Controls: Prior to the application of the preventatives and controls specified, confirm that each of the materials is permitted in the State of Connecticut.

3. Product Handling:

Seed, fertilizer, lime, and chemical preventatives and controls shall be delivered in standard size unopened containers, showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site.

4. Guaranty:

Duration of guaranty shall be until the completion of the specified maintenance period and until Owner's final acceptance of lawn areas.

5. Schedule:

Construct lawns between April 1 and June 1 and between August 15 and October 1 unless otherwise permitted by the Owner's Representative. If an irrigation system is available, seeding between April 1 and October 1 will be permitted.

6. Existing Work:

Verify that topsoil surface is true to grade, smooth, free of irregularities, properly installed to the scheduled thickness and in good condition to receive the work of this Section. Verify that irrigation work is complete. Protect from damage.

7. Submittals:

Provide copies of a material certificate signed by the seed vendor and the Contractor, (stating botanical and common names, percentages by weight, and percentages of purity,

germination and weed seed for each grass seed species) certifying that the seed mixture complies with the specified requirements.

Provide certification by grower of sod type, including percentage of each type of grass in the blend.

Submit materials certificates and product data for the following items, clearly marked, to indicate proposed materials. Printed data shall state application rates and amounts of product to be added, if applicable.

- a) Water management polymer
- b) Fertilizers
- c) Lime
- d) Chemical preventatives and controls

Submit delivery tickets for the following items, indicating the trade name, the supplier/distributor's name and the amount of product delivered to the contracting firm/project site.

- a) Water management polymer
- b) Fertilizers
- c) Seed mixes

8. Topsoil Testing:

Ensure that topsoil has been tested in accordance with Item 094101A.

9. Inspection and Acceptance of Seeded Areas:

Submit written notice requesting inspection at least 10 days prior to the anticipated date. Maintenance responsibilities end with final acceptance which shall be a minimum 60 consecutive calendar days from the date of seeding. Seeded areas will not be accepted in 'pieces' unless specifically agreed to by the Owner. No seeded areas will be accepted prior to the substantial completion of this Contract and prior to the completion of a minimum of 5 mowings. A satisfactory stand of acceptable grass is defined as: Consisting of a uniform dense stand of established permanent grass species. Engineer will be the judge. Any part of the lawn that does not show a uniform dense lawn grass shall be reseeded. Lawns must be free of weeds, crabgrass, and other undesirable plants, and with no diseases present.

Final acceptance will not be made until all damaged areas, including areas outside the property limits, have been restored to their original conditions by topsoiling, seeding, and other necessary operations.

Upon stabilization of lawn areas, erosion control devices and protection fencing shall be removed and disposed of off-site.

10. Protection and Security:

Provide protection and security as necessary to prevent damage to lawn areas by any cause, including malicious vandalism and unauthorized usage, prior to acceptance of lawns by Owner.

9.50.02 – Materials:

1. Lime:

Ground limestone, 95% passing through a 100 mesh screen. Calcium carbonate equivalency of 90% or higher.

2. Fertilizer:

Topsoil Fertilizer shall be complete at the ratios recommended in the topsoil test reports. Maintenance Fertilizer shall be high nitrogen complete fertilizer with a guaranteed analysis of 24.5.11 applied at a rate of 1 lb. Nitrogen/1000 SF, after lawn begins to grow, ideally in May or early September, but not before April 15, nor after October 15.

3. Seed:

Provide fresh, clean, new-crop seed; blue tag certified complying with the tolerance for purity and germination established by the Office of Seed Analysis of North America. Provide seed of the grass species, proportions and maximum percentages of weed seed. Provide seed in cleaned, sealed, properly labeled containers. Seed that is wet, moldy, or otherwise damaged will not be accepted. Handle seed in accordance with the manufacturer’s recommendations for exposure to extremes of heat, cold, or moisture.

Unless otherwise specified, the seed mixture shall conform to the following:

| Variety | Proportioned by Weight Percent | Min. Purity Percent | Min. Germination Percent |
|-------------------------------|--------------------------------|---------------------|--------------------------|
| A 34 Kentucky Bluegrass | 25 | 90 | 30 |
| Georgetown Kentucky Bluegrass | 25 | 90 | 30 |
| Touchdown Kentucky Bluegrass | 25 | 90 | 30 |
| Palmer Perennial Ryegrass | 8.33 | 90 | 90 |
| Pennfire Perennial Ryegrass | 8.33 | 90 | 90 |
| Fiesta Perennial Ryegrass | 8.33 | 90 | 90 |

Other improved seed varieties of similar type may be substituted upon approval of the Engineer. All seed shall be subject to the testing provisions of the Association of Official Seed Analyst.

4. Erosion Control Blankets:

100 percent straw matrix ultra short-term double-net erosion control blanket conforming to Federal Highway Administration Standard Specifications FP-03, Article 713.17(d), Type 1.D. Include manufacturer's recommended staples.

5. Mulches:

- a) Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- b) Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- c) Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

6. Hydromulch:

Soil Guard Bonded Fiber Matrix as manufactured by Weyerhaeuser or approved equal.

7. Pesticides:

- a) General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- b) Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- c) Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

8. Water:

Potable.

9. Water management polymer:

Terra-Sorb HB as distributed by Industrial Services International, Inc., Bradenton, FL or approved equal.

9.50.03 – Construction Methods:

1. Rates of Application:

- a) Topsoil Fertilizer, Lime and Topsoil Conditioners: As recommended by the topsoil test report.
- b) Grass Seed: 5 lbs./1,000 S.F.
- c) Hydromulch: As recommended by manufacturer.
- d) Maintenance Fertilizer: 1 lb. Nitrogen/ 1,000 S.F.
- e) Crabgrass Preventative: As recommended by the manufacturer.
- f) Lawn Pest/Disease Control: As recommended by the manufacturer.
- g) 7. Soil Insect Control: As recommended by the manufacturer.
- h) Broad Leaf Weed Control: As recommended by the manufacturer.
- i) Water Management Polymer: 3 lbs./1,000 S.F.

2. Seed Bed Preparation:

Apply lime, topsoil fertilizer, and other recommended conditioners at the rates recommended by the topsoil tests in all areas where topsoil and topsoil/compost mix have been installed. Cultivate topsoil to a 4" depth by spring-toothed harrow or other approved methods to thoroughly incorporate amendments into the topsoil. Maintain a loose friable seed bed. At no time will rubber tired loaders or graders having greater compaction than a small farm tractor be allowed on topsoil. Keep all heavy equipment and trucks off prepared topsoil. Do not prepare while ground is wet or frozen. Provide additional topsoil where and as required to properly meet all proposed finish grades. Remove any weeds, debris, foreign matter and stones having any dimension greater than 3/4". Remove from property.

Install water management polymer in all unirrigated lawn areas. Work into upper 2" of topsoil.

Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions where water will stand. Grades shall be within 1/2" of designated elevation. Any protective fencing around existing trees shall be removed and disposed of by the Contractor at this time. Topsoil shall be smoothly blended to existing finish grades around trees, erosion control devices and adjacent existing conditions, maintain existing surface drainage patterns. Smoothly round-off all top and toe of slopes. Reinstall erosion control devices and protective fencing as required. Approval of surface by Engineer shall be obtained before seeding operations begin.

Perform bulk density and compaction tests to monitor degree of soil compaction/seed bed friability where directed. Where required, loosen the seed bed to obtain no greater than 70% of the ASTM D-1557 modified optimum density.

3. Lawn Development:

All disturbed areas not developed otherwise shall be developed as lawn as indicated on the drawings and as specified.

4. Seeding Procedure - Lawn Areas:

Seeding shall be done when wind does not interfere with uniform distribution of hydroseeding mixture. Apply starter fertilizer, seed and maximum 10% of mulch in one operation by the use of an approved spraying machine. Avoid spraying mix on adjacent surfaces, walks, building walls, and curbs. Apply remaining 90-100% of the mulch in a second separate application. Mix materials with water. Keep in an agitated state so that the materials are uniformly suspended in the water. Apply all materials at the specified rates. Do not overseed with unapproved quick-germinating species.

5. Erosion Preventatives:

Install erosion control netting on all seeded slopes steeper than one foot (1') vertical to three (3) feet horizontal, or any seeded areas which receive concentrated run-off water, and areas as required by the t or Owner's Representative. Joints in these materials shall overlap no

less than one foot (1'), and the material shall be secured as recommended by the manufacturer.

6. Establishment:

Maintain a moist seed bed at all times. Water seed bed so that the topsoil is wet to a depth of 2". Apply complete coverage to the seeded area as necessary to insure proper germination conditions. Protect all lawn areas with barricades, if necessary, to keep all traffic off the area. Repair all damage to lawn areas including topsoil replacement, at no additional cost to Owner. Reseed all areas which have failed to show a uniform stand of grass after the initial plants have appeared. All areas disturbed/prepared for reseeding in spring or summer shall receive crabgrass preventative.

7. Crabgrass and Broadleaf Weed Control:

Treat any lawn areas infested with crabgrass or broadleaf weeds with weed control products in conformance with manufacturer's recommendations, as required after identification of weed/crabgrass presence.

8. Disease Control:

Treat any diseased lawn areas with proper disease control product in conformance with the manufacturer's recommendations, as required after diagnosis of disease organisms.

9. Maintenance of Lawn Areas:

Maintain lawns continuously immediately after seeding and continue until final acceptance. Provide all reseeding, watering, mowing, weeding, insect or disease control, refertilizing, repair of washouts and other maintenance procedures which are necessary to produce a uniform stand of grass. Grass must be maintained at a height of 1 1/2 - 2". Mowing frequency shall be weekly minimum and must be adequate to insure that no more than 1/3 of the grass blade height is removed at any one time. Remove heavy clippings. The Contractor shall provide a minimum of five (5) mowings. Initial mowing shall occur when grass reaches 2 1/2" height.

10. Project Clean-Up:

Upon completion of all lawn areas, remove all excess soil, debris, and other materials resulting from work operations of this Section. Restore all improvements to original condition. Broom-clean all walks and pavements. All clean-up shall be completed at the end of each working day. Upon stabilization of lawn areas, remove all erosion control devices. Reseed as required.

9.50.04 – Method of Measurement:

This work will be measured for payment by the number of square yard of turf area furnished and placed, completed and accepted.

9.50.05 - Basis of Payment:

This work will be paid for at the contract unit price per square yard of "TURF

ESTABLISHMENT”, completed and accepted, including all equipment, material, tools, labor and incidental expenses thereto.

Pay Item

Pay Unit

0950005A Turf Establishment

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ITEM #0950040A NE CONSERVATION WILDLIFE MIX

9.50.01 – Description:

1. Summary:

The Work shall consist of providing and installing all NE Conservation Wildlife Mix areas as shown on the Drawings and as specified herein, including, but not necessarily limited to: Fine grading and preparing the seed bed; providing and incorporating amendments necessary for good seed growth; seeding all proposed lawn areas; providing and installing erosion control fabric or salt hay mulch as necessary; mowing, watering, and maintaining the mix until established and accepted; repair of existing mix areas damaged by the work of this Contract; and protection and security of seeded mix areas, and repair of damage until acceptance of all seeded mix areas.

2. Quality Assurance:

Qualifications of Installers: Provide at least one person who shall be present at all times during execution of this portion of the Work, who shall be thoroughly familiar with the type of materials being installed and who shall direct all work performed under this Section.

3. Product Handling:

Seed shall be delivered in standard size unopened containers, showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site.

4. Guaranty:

Duration of guaranty shall be until the completion of the specified maintenance period and until Owner's final acceptance of seed mix areas.

5. Schedule:

Construct seeded mix areas between **March 15 and June 1** or **August 15 and October 15** unless otherwise permitted by the Owner's Representative.

6. Existing Work:

Verify that topsoil surface is true to grade, smooth, free of irregularities, properly installed to the scheduled thickness and in good condition to receive the work of this Section. Protect from damage.

7. Submittals:

Provide copies of a material certificate signed by the seed vendor and the Contractor, (stating botanical and common names, percentages by weight, and percentages of purity, germination and weed seed for each seed species) certifying that the seed mixture complies with the specified requirements.

Provide certification by grower of seed type, including percentage of each type of seed in the blend.

The Materials Certificate for all seed mixtures shall have a statement that certifies that the seed mixture does not include any invasive species pursuant to Connecticut General Statutes Sec. 22a-381d or any State Threatened or State Endangered species pursuant to Connecticut General Statutes Sec. 26-303.

8. Topsoil Testing:

Ensure that topsoil has been tested in accordance with Section 094101A.

9. Inspection and Acceptance of Seeded Areas:

Submit written notice requesting inspection at least 10 days prior to the anticipated date. Maintenance responsibilities end with final acceptance which shall be a minimum 60 consecutive calendar days from the date of seeding. Seeded areas will not be accepted in 'pieces' unless specifically agreed to by the Owner. No seeded areas will be accepted prior to the substantial completion of this Contract and prior to the completion of a minimum of required maintenance. A satisfactory stand of acceptable seed mix is defined as: Consisting of a uniform dense stand of established permanent seed mix species. Engineer will be the judge. Any part of the seed mix area that does not show a uniform dense stand shall be reseeded.

Final acceptance will not be made until all damaged areas, including areas outside the property limits, have been restored to their original conditions by topsoiling, seeding, and other necessary operations.

Upon stabilization of seed mix areas, erosion control devices and protection fencing shall be removed and disposed of off-site.

10. Protection and Security:

Provide protection and security as necessary to prevent damage to seed mix areas by any cause, including malicious vandalism and unauthorized usage, prior to acceptance of areas by Owner.

9.50.02 – Materials:

1. Seed – Basis of Design Standard:

N.E. Conservation wildlife mix: Seed mix shall be “New England Conservation Wildlife Mix”.

| SPECIES | Percent |
|--|----------------|
| Big Bluestem (Andropogon gerardii) | 20 |
| Switchgrass (Panicum virgatum) | 19 |
| Little Bluestem (Schizachyrium scoparius) | 13 |
| Canada Wild Rye (Elymus canadensis) | 13 |
| Fox Sedge (Carex vulpinoidea) | 13 |
| Partridge Pea (Chamaecrista fasciculata) | 6 |
| Fringed Bromegrass (Bromus ciliatus) | 5 |
| Pennsylvania Smartweed (Polygonum pensylvanicum) | 5 |
| Common Milkweed (Asclepias syriaca) | 2 |

| | |
|---|------------|
| Nodding Bur-Marigold (<i>Bidens cernua</i>) | 1.5 |
| Showy Tick-Trefoil (<i>Desmodium canadense</i>) | 1 |
| New England Aster (<i>Aster nova-angliae</i>) | 1 |
| Flat-top Aster (<i>Aster umbellatus</i>) | 0.5 |
| TOTAL | 100 |

The current New England Conservations Wildlife mix blend from New England Wetlands Plants will be acceptable if different from the species listed above. Other improved seed varieties of similar type may be substituted upon approval of the Engineer.

All seed shall be subject to the testing provisions of the Association of Official Seed Analyst. All approved seed mixtures shall be obtained in sufficient quantities to meet the pure live seed (PLS) application rates as determined by the seed analysis of the mixture.

Other conservation seed mixtures as provided by the distributors below will also be acceptable:

Mesic to Dry native Pollinator Mix as distributed by Ernst Conservation Seeds, Inc., 8884 Mercer Pike, Meadville, PA 16335

Or

Vermont Conservation and Wildlife Mix as distributed by Vermont Wetland Plant Supply, LLC, P.O. Box 153 Orwell, VT 05760

2. Erosion Control Blankets:

100 percent straw matrix ultra short-term double-net erosion control blanket conforming to Federal Highway Administration Standard Specifications FP-03, Article 713.17(d), Type 1.D. Include manufacturer's recommended staples.

3. Mulches

- a) Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- b) Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- c) Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

4. Hydromulch:

Soil Guard Bonded Fiber Matrix as manufactured by Weyerhaeuser or approved equal.

5. Water:

Potable.

9.50.03 – Construction Methods:

1. Rates of Application:

- a) NE Conservation Wildlife Mix: 1 pound per 1743 square feet or as indicated by the seed producer.

2. Seed Bed Preparation:

- a) Loosen topsoil to a depth of 3" by scarifying or other disking methods, which will not disrupt the line and grade of the surface. Obtain a friable soil bed to a depth of 3-4". Do not prepare while ground is wet or frozen.
- b) Provide additional topsoil where and as required to properly meet all proposed finish grades.
- c) Remove: any weeds, debris, foreign matter and stones having any dimension greater than 3/4". Remove from property.
- d) Fine grade to a smooth uniform surface. The entire area shall present an even grade with no depressions, ruts or scars. Any protective fencing around existing trees within slope stabilization area shall be removed and disposed of by the Contractor at this time. Topsoil shall be smoothly blended to existing finish grades around trees, erosion control devices and adjacent existing conditions. Round-off all top and toe of slopes. Reinstall erosion control devices and protective fencing as required.
- e) Approval of surface shall be obtained before seeding operations begin.
- f) Perform bulk density and compaction tests to monitor degree of soil compaction/seed bed friability where directed. Where required, loosen the seed bed to obtain no greater than 70% of the ASTM D-1557 modified optimum density.

3. Seeding Procedure:

- a) Verify that the soil has been prepared in accordance with this Section. Seeding will not be permitted on hard or crusted soil surface. Confirm that the required time period has elapsed since the last herbicide application.
- b) Apply seed mix by an agronomically accepted procedure. The mix may be applied by hydro seeding, mechanical spreader or by hand. Conform to seed producer's instructions.
- c) Seeding shall be done when wind does not interfere with uniform distribution of materials.
- d) Rake soil to create grooves, apply seed, then lightly rake over.

4. Erosion Preventatives:

- a) Immediately following seeding, mulch the seeded surface with straw or hay at a rate of 2 tones per acre. Spread mulch by hand or with a mulch blower.
- b) Provide biodegradable cotton netting and staples as required to hold mulch in place until establishment of the permanent seeding.

5. Watering Seeded Areas

- a) Maintain a moist seed bed to a depth of 2". Apply water to the seeded area as necessary to insure proper germination conditions.
- b) Protect all seeded areas with barricades, if necessary, to keep all traffic off the area. Repair all damage to seeded areas including topsoil replacement.
- c) Reseed all areas which have failed to show a uniform stand of grass after the initial plants have appeared.

6. Maintenance of Seeded Areas

- a) Period Required: Immediately after seeding and shall continue until acceptance of seeded areas.
- b) Scope: All reseeding, watering, weeding, insect or disease control, re-fertilizing, repair of washouts and other maintenance procedures which are necessary to produce a uniform stand of grasses and forbes.

7. Project Clean-Up

- a) Upon completion of seeded areas, remove all excess soil, debris, and other materials resulting from work operations of this Section.

9.50.04 – Method of Measurement:

This work will be measured for payment by the number of square yard of seeded mix area furnished and placed, completed and accepted.

Topsoil for areas of NE Conservations Wildlife Mix shall not be measured for payment under this Item, but under Item 0944000A Furnishing and Placing Topsoil.

9.50.05 - Basis of Payment:

This work will be paid for at the contract unit price per square yard of “NE CONSERVATION WILDLIFE MIX”, completed and accepted, including all equipment, material, tools, labor and incidental expenses thereto.

There shall be no payment for topsoil under this Item. Payment for topsoil used for areas of NE Conservations Wildlife Mix but shall be paid under Item 0944000A Furnishing and Placing Topsoil.

Pay Item

Pay Unit

0950040A NE Conservation Wildlife Mix

SY

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ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

Article 9.71.01 – Description *is supplemented by the following:*

The Contractor shall maintain and protect traffic as described by the following and as limited in the special provision for Section 1.08 - Prosecution and Progress.

Use of Borough Police Officers

1. For roadway work with impacts to vehicular traffic, the Contractor shall book police detail through the Borough's at least 48-hours in advance.
2. If schedule is known for the week, submit request for officers on Friday for the following week. Offices can be booked through contact information below:

NaugatuckCT@extradutysolutions.com

Phone: 203-577-5470

www.extradutysolutions.com

All Roadways

The Contractor shall maintain and protect a minimum of one (1) lane of traffic in each direction with each lane on a paved travel path not less than 11 feet in width, with the following exceptions:

1. During the allowable periods and when the Contractor is actively working, the Contractor will be permitted to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width and no more than 300 feet in length, unless specified elsewhere in the Contract. There shall be no more than one alternating one-way traffic operation within the Project limits without prior approval of the Engineer.
2. The Contractor shall maintain safe pedestrian access though the site during construction.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the Project limits. The Contractor will be permitted to temporarily close affected driveways while actively working with coordination and permission from the owner or proprietor.

Intermediate Term Sidewalk Closures

The Contractor shall maintain and protect existing pedestrian accommodations, or a minimum of 4 feet in width, on all existing sidewalks, sidewalk ramps, and access to pedestrian pushbuttons, with the following exception:

- During the allowable periods and when the Contractor is actively constructing pedestrian amenities or installing signal equipment, the Contractor will be allowed to close pedestrian sidewalks and sidewalk ramps and restrict access to pedestrian pushbuttons for no more than a continuous 120-hour period.

No more than two corners of an intersection may be closed for an intermediate term sidewalk closure at any time. Where all four corners of an intersection have sidewalks and sidewalk ramps, diagonal corners shall not be closed at the same time.

During the intermediate term sidewalk closure, all approaches to the sidewalk shall be blocked by Construction Barricade Detectable with Sidewalk Closed signs.

The Contractor shall ensure that traffic control signals with pedestrian phases where access to the pushbuttons cannot be provided are revised at the start of the closure to automatically activate the pedestrian phase every signal cycle.

Intermediate term sidewalk closures may be extended to 144 hours with prior approval of the Engineer.

Article 9.71.03 - Construction Methods *is supplemented as follows:*

General

Unpaved travel paths will only be permitted for areas requiring full depth and full width reconstruction. The unpaved section shall be the full width of the road and shall be perpendicular to the travel lanes. The Contractor will be allowed to maintain traffic on processed aggregate for a duration not to exceed 10 calendar days and opposing traffic lane dividers shall be used as a centerline.

The Contractor is required to delineate any raised structures within the travel lanes, so that the structures are visible day and night, unless there are specific Contract plans and provisions to temporarily lower these structures prior to the completion of work.

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway or bridge section by the end of a work shift, or as directed by the Engineer.

When the installation of all intermediate courses of bituminous concrete pavement is completed for the entire roadway, the Contractor shall then install the final course of bituminous concrete pavement.

When the Contractor is excavating adjacent to the roadway, the Contractor shall provide a 3-foot shoulder between the work area and travel lanes, with traffic drums spaced every 20 feet. At the end of the work shift if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary bituminous concrete traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of any active overhead construction work, shall close the lanes directly below the work area for the entire length of time overhead work is being undertaken.

At no time shall an overhead sign be left partially removed or installed.

When an existing sign is to be relocated or replaced, the work shall be completed during the same work shift.

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

The lane closure shall be of sufficient length to allow vehicles to enter or exit the work area at the posted speed limit, in order to merge with existing traffic.

Article 9.71.05 – Basis of Payment *is supplemented by the following:*

DELETE: "Maintenance and Protection of Traffic" does not include the cost of signs, barricades, drums, traffic cones, delineators, or the furnishing and placing of materials such as borrow, gravel, crushed stone, bituminous concrete for patching and pipe. These items will be paid for at their respective Contract unit prices, or in the absence of applicable Contract unit prices, as extra work."

INSERT: "Maintenance and Protection of Traffic includes the cost of signs, barricades, drums, traffic cones, delineators. Maintenance and Protection of Traffic does not include the furnishing and placing of materials such as borrow, gravel, crushed stone, bituminous concrete for patching and pipe. These items will be paid for at their respective Contract unit price."

The temporary relocation of signs and supports, and the furnishing, installation and removal of any temporary supports shall be paid for under the item "Maintenance and Protection of Traffic".

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ITEM #0992090A – BENCH (METAL)

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing benches and anchor bolts as shown on the plans or as directed by the Engineer.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Manufacturers warranties.

Material:

1. Bench:

DuMor #58-60 Series. 6' cast bench, steel seat.

- a) End Supports shall be ASTM A48 Class 30 cast iron.
- b) Seat straps shall be manufactured from 1/4" x 1 1/2" ASTM A36 carbon steel flat bar.
- c) Fasteners: Stainless steel.
- d) Seat Height: 16-1/16 inches
- e) Back Height: 31 11/16 inches
- f) Width: 27 9/16 inches
- g) Length: 74 1/4 inches
- h) Mounting: Surface - Contractor to provide 1/2 inch by 5-1/2 inch stainless steel expansion anchor bolts with flat washer and hex nut. (Do not use the shorter anchor bolts furnished by the manufacturer.)
- i) Finish:
 - a. Powder Coating
 - i. All parts are processed through an 8-stage iron phosphorous wash system.
 - ii. Parts are coated with a zinc-rich epoxy primer to an AVERAGE of 4-5 mils.

- iii. Parts are then finished with a topcoat of TGIC-polyester powder to an AVERAGE of 4-5 mils.
 - iv. Powder is cured at the powder manufacturers specifications using combination of infrared and convection heat for approximately 20 minutes.
 - v. Finished parts shall comply with the following American Standard Test Method (ASTM) for coating and coating method: ASTM-D-523, ASTM-D-3363, ASTM-D-1737, ASTM-D-3359, ASTM-D-2794, ASTM-B-117 and ASTM-D-3451.
- j) Colors: Black

Construction Methods:

Install bench in accordance with manufacturer’s instructions at locations indicated on the drawings. Ensure that anchor bolts have sufficient length to anchor into the concrete base below the brick paver pavement to a minimum depth of 3”.

Method of Measurement:

This work will be measured for payment by the number of benches furnished and installed at locations where proposed, with such work as directed and accepted by the Engineer.

Basis of Payment:

The bench will be paid for at the contract unit price per each for “BENCH (METAL)” which price shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

Pay Item
0992090A Bench (Metal)

Pay Unit
EACH

ITEM #0992103A – TRASH RECEPTACLE

ITEM #0992104A – RECYCLING RECEPTACLE

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 supplemented as follows:

Description:

1. Summary:

The work included in this item shall consist of furnishing and installing trash receptacles, recycling receptacles and anchor bolts as shown on the plans or as directed by the Engineer.

2. Submittals:

Product Data: Manufacturer's data sheets on each product to be used, including:

- a) Preparation instructions and recommendations.
- b) Storage and handling requirements and recommendations.
- c) Installation methods.

Shop Drawings: Complete details of layout and assembly, showing member sizes and part identification, fasteners, anchors, and fittings.

Manufacturer's Certificates: Certify products meet or exceed specified requirements.

Manufacturer's warranties.

Material:

1. Trash Receptacle: DuMor #102-32dm Series. 32 gallon steel trash receptacle.

- a) Receptacle Body shall be manufactured from 1/2" x 1" ASTM A36 carbon steel flat bar, 3/8" thick ASTM
- b) Cover shall be manufactured from 3/8 inch thick ASTM A36 steel plate. Dome Top.
- c) Liner shall be HDPE with 32 gallon capacity.
- d) Overall dimensions: 28 inch diameter x 36 inch height.
- e) Anchoring Fasteners: Stainless steel.
- f) Mounting: Surface Contractor to provide 1/2 inch by 5-1/2 inch stainless steel expansion anchor bolts with flat washer and hex nut. (Do not use the shorter anchor bolts furnished by the manufacturer.)
- g) Finish:
 - a. Powder Coating
 - i. All parts are processed through an 8-stage iron phosphorous wash system.

- ii. Parts are coated with a zinc-rich epoxy primer to an AVERAGE of 4-5 mils.
 - iii. Parts are then finished with a topcoat of TGIC-polyester powder to an AVERAGE of 4-5 mils.
 - iv. Powder is cured at the powder manufacturers specifications using combination of infrared and convection heat for approximately 20 minutes.
 - v. Finished parts shall comply with the following American Standard Test Method (ASTM) for coating and coating method: ASTM-D-523, ASTM-D-3363, ASTM-D-1737, ASTM-D-3359, ASTM-D-2794, ASTM-B-117 and ASTM-D-3451.
- h) Colors: Black

2. Recycling Receptacle: DuMor #102-22RC Series. 22 gallon steel trash receptacle.

- a) Receptacle Body shall be manufactured from 1/2" x 1" ASTM A36 carbon steel flat bar, 3/8" thick ASTM
- b) Cover shall be manufactured from 3/8 inch thick ASTM A36 steel plate. Dome Top.
- c) Liner shall be HDPE with 22 gallon capacity.
- d) Overall dimensions: 26.5 inch diameter x 32.75 inch height.
- e) Anchoring Fasteners: Stainless steel.
- f) Mounting: Surface Contractor to provide 1/2 inch by 5-1/2 inch stainless steel expansion anchor bolts with flat washer and hex nut. (Do not use the shorter anchor bolts furnished by the manufacturer.)
- g) Finish:
 - a. Powder Coating
 - i. All parts are processed through an 8-stage iron phosphorous wash system.
 - ii. Parts are coated with a zinc-rich epoxy primer to an AVERAGE of 4-5 mils.
 - iii. Parts are then finished with a topcoat of TGIC-polyester powder to an AVERAGE of 4-5 mils.
 - iv. Powder is cured at the powder manufacturers specifications using combination of infrared and convection heat for approximately 20 minutes.
 - v. Finished parts shall comply with the following American Standard Test Method (ASTM) for coating and coating method: ASTM-D-523, ASTM-D-3363, ASTM-D-1737, ASTM-D-3359, ASTM-D-2794, ASTM-B-117 and ASTM-D-3451.
- h) Colors: Black

Construction Methods:

Install receptacle in accordance with manufacturer's instructions at locations indicated on the drawings. Ensure length of anchor bolts is adequate to securely anchor into concrete base below brick paver pavement a minimum of 3".

Method of Measurement:

This work will be measured for payment by the number of receptacles furnished and installed at locations where proposed, with such work as directed and accepted by the Engineer.

Basis of Payment:

The receptacle will be paid for at the contract unit price per each for “TRASH RECEPTACLE” and “RECYCLING RECEPTACLE” which price shall include all materials, equipment, tools and labor incidental thereto including furnishing and installation.

Pay Item

0992103A Trash Receptacle
0992104A Recycling Receptacle

Pay Unit

EA
EA

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ITEM #1002110A DECORATIVE LIGHT POLE FOUNDATION

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: This item shall consist of designing, furnishing, and installing a light pole foundation of the type called for at the location and to the dimensions and details shown on the plans or as directed by the Engineer. The Contractor shall provide drawings and calculations stamped by a professional engineer registered in the state of Connecticut for a light pole foundation to support the Decorative Light Pole & Luminaire under Item #1003595A.

Submittals: Contractor shall hire a professional engineer licensed in the State of Connecticut to submit stamped drawings and calculations for the design of all decorative light pole foundations. Decorative light pole foundations shall be designed for applicable decorative light standard interaction forces in accordance with AASHTO standard specifications for structural supports for highway signs luminaries, and traffic signals for 90 mph winds.

Materials: The materials for the work shall be as specified in the following:

- M.02.01 for Granular Fill
- M.03 for Class PCC04460 Concrete
- M.04.01 for HMA S0.375 Bituminous Concrete
- M.06.01 for Bar Reinforcement
- M.08.02-4 for Precast Concrete
- M.13.01 for Topsoil
- M.13.03 for Fertilizer
- M.13.04 for Seed Mixture, if necessary, or as shown on the plans
- M.13.05 for Mulch Materials
- M.15.02 for Anchor Bolts
- M.15.03 for Rock Anchors
- M.15.09 for Electrical Conduit
- M.15.15-7 for Ground Rods

Construction Method: The light pole foundation shall be constructed in accordance with the pertinent provisions of 6.01.03. They may be precast, or cast-in-place based on accepted design. The final elevation of the top of the light standard foundation shall be as shown on the plans or as directed by the Engineer. The top of the foundation shall be level in all respects. Concrete for foundation shall be placed monolithically against undisturbed soil for poured in place foundations. Necessary electrical conduit, anchor bolts, ground rod sleeves and ground rods shall be placed in proper position and shall be held in place by means of a template. The concrete may be placed against the sides of the excavation; however, the exposed portion of the foundations shall be formed to the neat lines as shown on the plans. When in the judgment of the Engineer, unusual soil conditions prevent excavation to neat lines as shown on the plans, the complete foundation shall be formed.

After the forms have been completely removed, the entire excavation shall be backfilled in accordance with 2.14. All conduits shall be capped with standard pipe caps before placing the concrete and shall remain capped until the cable is installed. Electrical conduit of the size indicated shall extend 2 feet outside the foundation. All portions of the foundations which will remain exposed to view shall be finished to the satisfaction of the Engineer. Forms shall not be removed until after the concrete has hardened properly and not less than 24 hours after the concrete has been placed. The Contractor shall allow sufficient time for the foundation to cure before placing any strain on the foundation. Steel poles shall not be installed until a minimum of seven days after the concrete has been placed and a minimum of ten days before making span wire attachments thereto. Light poles shall not be installed until 10 days after the concrete has been placed.

Where a foundation is placed within or adjacent to a concrete sidewalk, the entire section of sidewalk between joints shall be replaced in accordance with 9.21, unless otherwise directed by the Engineer. Contractor shall coordinate location of decorative light pole foundations to avoid conflicts with adjacent footings, site structures, and utilities.

Method of Measurement: This item shall be measured for payment by the number of units installed and accepted. This measurement shall include the electrical conduit sweeps which shall extend 2 feet outside of the foundation.

Basis of Payment: This work shall be paid for at the Contract unit price each for “Decorative Light Pole Foundation”, complete in place, which price shall include design, coordination, all materials, equipment, forms, excavation, disposal of surplus material, concrete, electrical conduit sweeps, conduit caps, ground rod, sleeves, bonding bushings, anchor bolts, backfill, restoration of pavement surfaces, tools, and labor incidental thereto.

Decorative light pole & luminaire shall be paid for under Item #1003595A.

Pay Item
Decorative Light Pole Foundation

Pay Unit
ea.

ITEM #1003595A – DECORATIVE LIGHT POLE & LUMINAIRE

Work under this item shall conform to the requirements of Borough of Naugatuck Streetscape and Sidewalk Amenity Standards and Specifications dated 11/1/2022 and supplemented as follows:

Description: This work shall consist of furnishing and installing a Decorative Light Pole & Luminaire, and field adjustable wattage selector, according to the details, and at the locations shown on the plans or below specifications. It shall also include furnishing and installing all materials, including dampers, shaft, brackets, transformer bases, fixture, pole, washers, nuts, bolts, ground wire, strip tags, connections, electrometric leveling pads, handholes and covers, service from handhole to fixture, conduit, coordination, equipment, tools, and labor incidental thereto. All handholes shall be Americans with Disability Act (ADA) compliant, flush with grade.

Submittals: Shop Drawings for each decorative lighting installation to be provided to the engineer and landscape architect for review and approval prior to installation. This includes:

- a) Product Data: Manufacturer’s data sheets on each product used
- b) Preparation instructions
- c) Storage and handling requirements and recommendations
- d) Installation methods

Materials: The light pole & luminaire shall be manufactured by HADCO Lighting or approved equal. The Light Fixture Luminaire model shall be No. VX600 as described in the Lighting Fixture Schedule in the Electrical Drawings or approved equal. The Light Fixture shall be NO. P4465-14ATG or approved equal. The luminaire shall include field adjustable wattage selector. Electrical components shall be as described in the Drawings.

Construction Methods: The luminaire shall be constructed to the manufacturer’s specifications and fastened securely to the anchor bolts in the concrete light pole foundation. The luminaire & fixture shall be attached complying to Article 10.03.03 and 10.04.03 and approved by the Engineer. The contractor shall coordinate with all appropriate parties such as the power provider and the Borough before installation commences.

Method of Measurement: This work shall be measured for payment by the number of luminaire and light pole fixtures installed and accepted of the type specified, completed, and accepted in place.

Basis of Payment: This work shall be paid for at the Contract unit price each for “Decorative Light Pole & Luminaire”, complete in place, which price shall include all materials, including dampers, shaft, brackets, transformer bases, fixture, pole, washers, nuts, bolts, ground wire, strip tags, connections, electrometric leveling pads, all electrical components, handhole and cover, service from handhole to fixture, conduit, coordination, equipment, tools, and labor incidental thereto.

Decorative light pole foundation shall be paid for under Item #1002110A.

Pay Item

Decorative Light Pole & Luminaire

Pay Unit

ea.

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ITEM #1003675A – CATENARY LIGHT POLE – 16’ H

ITEM #1003678A – CATENARY LIGHTING AND SUPPORT CABLE

ITEM #1003680A – CATENARY LIGHT POLE 16’ H WITH GFI

ITEM #1003681A – CATENARY LIGHT POLE 16’ H WITH GFI & ARM BRACKET

Description:

1. Summary:

This work shall consist of furnishing and installing Catenary Light Pole -16’ H, Catenary Lighting and stainless steel support cable and low-voltage smart transformers for color-changing string lights according to the details, and at the locations shown on the plans or as shown below in the specification.

2. Submittals:

Product Data: Manufacturer’s data sheets on each product to be used, including:

- a) Preparation instructions
- b) Storage and handling requirements and recommendations
- c) Installation methods

Shop Drawings for each catenary lighting installation to be provided to the engineer and landscape architect for review and approval prior to installation of mounting cables and string lights.

Materials:

Catenary Light Poles

The catenary light poles shall be manufactured by Lumec.

The catenary light pole shall be a 16-ft high decorative steel pole with cap shall be Lumec model

With GFI: [R90D-073]-16-BLN1-CAP1-[TN-165]-BKTX

Without GFI: [R90D-073]-16-BLN1-CAP1-GFII-[TN-165]-BKTX

Catenary Light Poles with GFI & Arm Bracket

Refer to lighting schedule in the Drawings.

HADCO VX600-32-G3-A-C-2-E-N-730-A-3-S-S-P1-FAWS

MOUNTED TO LUMEC CR-1A-RF5-COLTX / MOUNTED TO LUMEC [R90D-073]-16-BLN1-CAP1-GFII-[TN-165]-BKTX / BRACKET ARM AT 14FT / OPTICAL HT APPROX 16.2 FT

Catenary Lighting and Support Cable

Catenary Lighting – see Light Fixture Schedule shown below. Cable shall be stainless steel.

Low-Voltage Smart Transformer

The low-voltage smart transformer shall be manufactured by Dals products or approved equal. The low-voltage smart transformer shall be model DCP-TR-200 or approved equal and compatible with Dals Connect PRO devices.

Luminaires

The luminaire shall be manufactured by HADCO Lighting. Refer to the Lighting Fixture Schedule shown on Contract Plan Sheet ELE-07 and below. Electrical components shall be as described in the Drawings.

Light Fixture Schedule

Refer to the Lighting Fixture Schedule shown on Contract Plan Sheet ELE-07.

Construction Methods: The catenary lights shall be constructed to the manufacturer’s specifications. The light pole & fixture shall be attached complying to Article 10.03.03 and 10.04.03 and approved by the Engineer. The contractor shall coordinate with all appropriate parties such as the power provider and the Borough before installation commences.

Method of Measurement: This work shall be measured for payment by the number of catenary light pole 16’ high installed and accepted of the type specified. The work shall be measured for payment by the linear footage of catenary lighting and support cable installed and accepted of the type specified.

Basis of Payment: This work shall be paid for at the contract unit price each for “Catenary Light Pole 16’ H”, “Catenary Lighting and Support Cable”, “Catenary Light Pole - 16’ H with GFI”, “Catenary Light Pole – 16’ H with GFI & Bracket Arm” complete in place, which price shall include all materials, including lights, cable, transformers, fixture, pole, washers, nuts, bolts, brackets, all electrical components, service from handhole to fixture, luminaire wiring, ground rod, grounding conductor, conduit, components, coordination, equipment, tools, and labor incidental thereto.

Pay Item

Pay Unit

| | |
|--|------|
| Catenary Light Pole 16’ H | ea. |
| Catenary Lighting and Support Cable | l.f. |
| Catenary Light Pole - 16’ H with GFI | ea. |
| Catenary Light Pole – 16’ H with GFI & Bracket Arm | ea. |

NAUGATUCK STREETSCAPE - DOWNTOWN SANITARY ZIP 06770 A & F (85126)

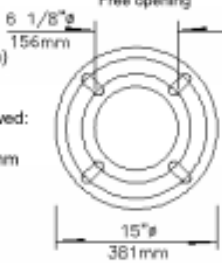
Base & Bolts Information



3 1/2" (89mm) Projection

Comes with 4 steel anchor bolts, 1" x 33" + 3" J Type Bolts, Fully Galvanized, 8 nuts and 8 washers. Important: Do not obstruct space between anchor plate and concrete.

Anchor Plate



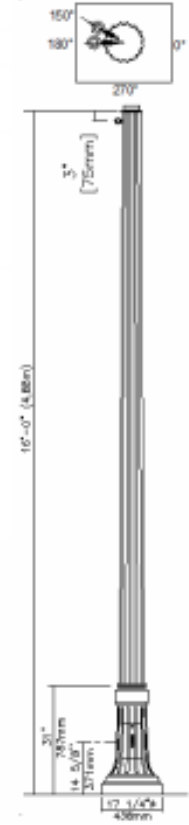
6 1/8" 156mm

Free opening

-Bolt Circle: 12 1/2" (318mm)

-NOTE: Bolt Circle Allowed: 11" to 13" 279mm to 330mm

15" 381mm



| | | | |
|-----|---|------|--|
| Qty | 1 | Type | F1 |
| | | Pole | [R90D-073]-16-BLN1-CAP1-GFII-[TN-165]-BKTX |

Description of Components:

Pole Shaft: Shall be made from a 16 fluted round mandrel formed high tensile carbon steel tapered shaft, having a 0.120" (3.0mm) wall thickness, welded to the pole base.

Pole shaft complete with two (2) eyelets Through bolts for string lights by others.

- One (1) eyelet at 180°, 3" from the top of the pole.
- One (1) eyelet at 150°, 3" from the top of the pole.

Pole Base: Shall be made from a 6 5/8" (168mm) round high tensile carbon steel tubing base having a 0.180" (4.6mm) wall thickness, welded to both the bottom and top of the anchor plate.

Maintenance Opening: The pole shall have a 4 1/2" x 10" (114mm x 254mm) maintenance opening (without door), centered 14 5/8" (371mm) from the bottom of the anchor plate, and a copper ground lug.

Base Cover: Two piece round base cover made from cast 356 aluminum, complete with a cast-in access door, mechanically fastened with stainless steel screws.

Pole Options: (BLN1) Anchor plate accepting 1" (25mm) O.D. bolts. (CAP1) Decorative Flat Pole Cap, Overlap type. (GFI) Duplex receptacle, WR Weather Resistant, 120 volts, ground fault interrupter, **complete with an in-use weatherproof aluminum painted cover.** Possibility of padlock (Padlock not included). 15 amp., NEMA 5-15R. (TN-165), comes with a 4" (102mm) OD by 1" (25mm) long tenon.

IMPORTANT: Lumec strongly recommends the installation of the complete lighting assembly with all of its accessories upon the anchoring of the pole. This will ensure that the structural integrity of the product is maintained throughout its lifetime.

Pole Weight: 130 lbs (59.1 kg)



Miscellaneous

Description of Components:

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Anchor Bolts: Anchor bolts made of ASTM F1554 grade 55 steel with a minimum yield strength of 55,000 psi. Nuts made of ASTM F1554-99 grade A steel or better. The thread adjustment is ANSI class 2B regardless of the diameter of the bolts. Washers made of ASTM grade F-844 steel or better. All galvanized parts are hot-dip galvanized with minimum requirement the ACNOR G-164 standard.

Finish: Color to be **black textured RAL9005TX (BKTX)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

Warning: IMPORTANT 120 volt line needed on site for (GFI).

Quality Control: The manufacturer must provide a written confirmation of its ISO 9001 and ISO 14001 International Quality Standards Certification.

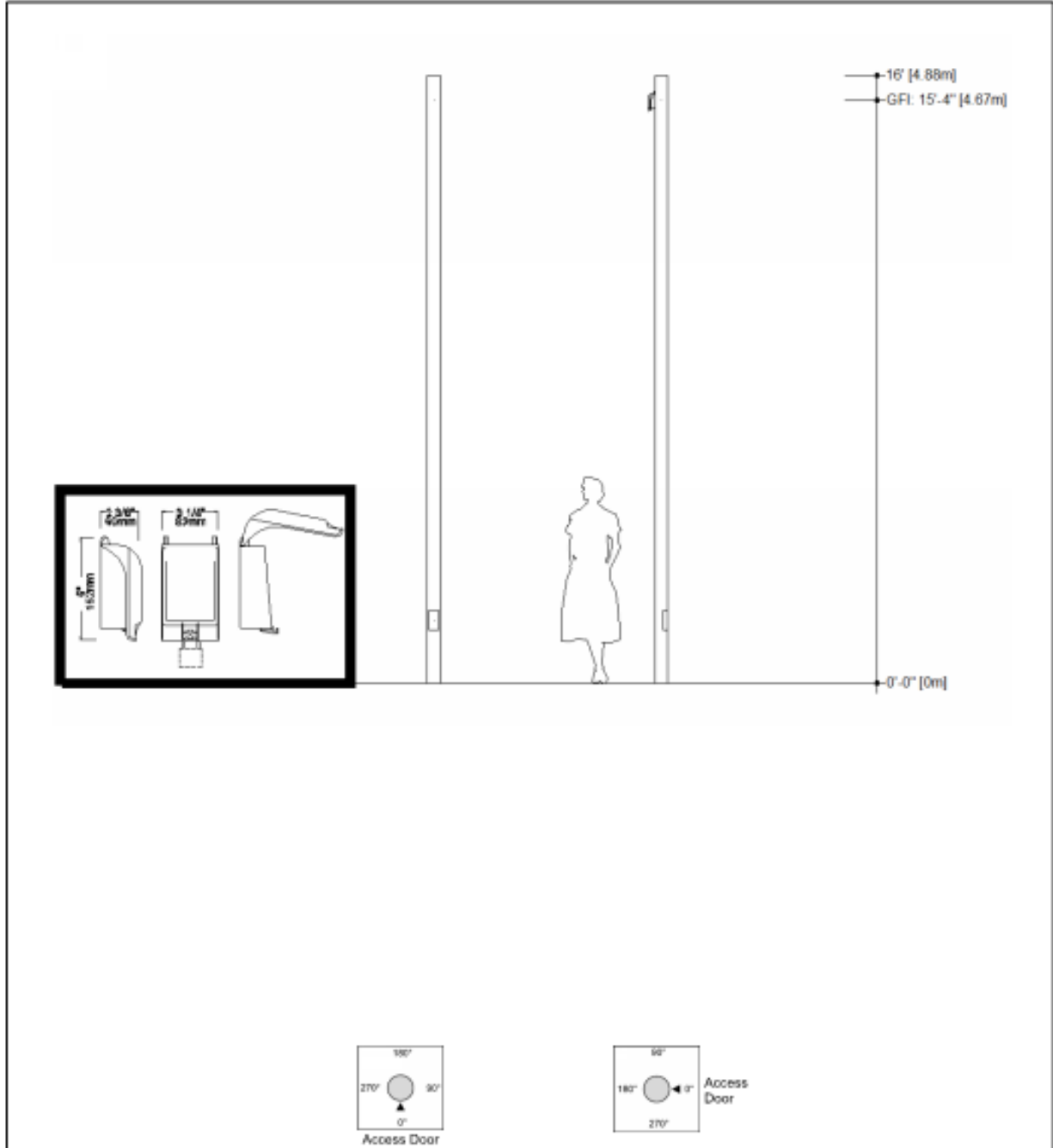
Mechanical resistance: This design information is intended as a general guideline only. The customer is solely responsible for proper selection of pole, luminaire, accessories and foundation under the given site conditions and intended usage. The addition of any other item to the pole may dramatically impact the wind load on that pole. It is strongly recommended that a qualified professional be consulted to analyze the loads given the user's specific needs to ensure proper selection of the pole, luminaire, accessories, and foundation. Lumec assumes no responsibility for such complete analysis or product selection. Failure to ensure proper site analysis, pole selection, loads and installation can result in pole failure, leading to serious injury or property damage.

Web site information details: / [CSA Pole Certification](#)

NAUGATUCK STREETScape - DOWNTOWN SANITARY ZIP 06770 A & F (85126)

Parametric Options Illustration

(schematic pole shown, for actual pole representation please refer to previous pages)



Core



The heart of your connected landscape system. By adding the Core, you unleash the full potential of smart lighting.

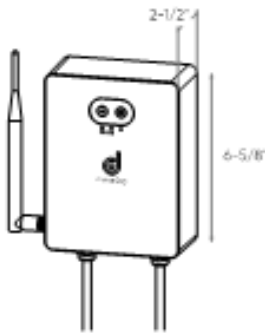


Landscape | dali.com 250

ITEM #1003675A, 1003678A, 1003680A, 1003681A

Model

DCP-TR60
60W low-voltage smart transformer



Specifications

Constant voltage mode power supply
Protection: short circuit / Over voltage
Input voltage: 120VAC 60Hz
Output voltage: 24V DC
Output Power: 60W
Maximum recommended load: 80%
Operating temperature: -30°C to 45°C
Control with the Dals Connect app
Integrated Hub
Number of supported smart devices per hub: 128
Can be controlled locally (without internet)
Works with Dals Connect PRO devices
Secure connection
Can be used with a voice-controlled assistant
Supports Wi-Fi and BLE Mesh protocols
5-year warranty

Finish

BK Black

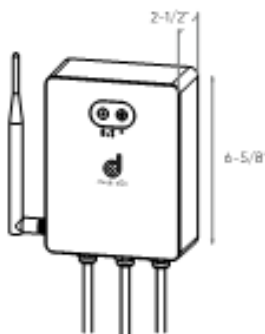
Download the Dals Connect app

Create groups
Set schedules
Remote access
Compatible with Google Assistant and Amazon Alexa



Model

DCP-TR200
200W low-voltage smart transformer



Specifications

Constant voltage mode power supply
Protection: short circuit / Over voltage
Input voltage: 120VAC 60Hz
Output voltage: 24V DC
Output Power: 2x 100W outputs
Maximum recommended load: 80%
Operating temperature: -30°C to 45°C
Control with the Dals Connect app
Integrated Hub
Number of supported smart devices per hub: 128
Can be controlled locally (without internet)
Works with Dals Connect PRO devices
Secure connection
Can be used with a voice-controlled assistant
Supports Wi-Fi and BLE Mesh protocols
5-year warranty

Finish

BK Black

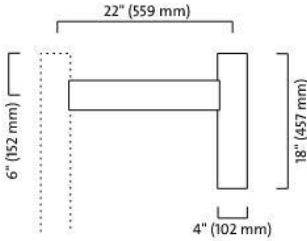
Download the Dals Connect app

Create groups
Set schedules
Remote access
Compatible with Google Assistant and Amazon Alexa



CR

EPA: 1.11 sq.ft. **Weight:** 12.0 lbs. (5.4 kg)



Specifications:

The **CR** mounting arm features a seamless 2" by 4" (51 by 102 mm) rectangular aluminum extrusion, mechanically assembled on both sides to the pole and to the luminaire adaptor.

The mounting arm includes a 4" (102 mm) O.D. extruded aluminum luminaire adaptor welded to the arm for luminaire mounting.

When specified with a central luminaire (configurations 3A, 4A, 4B and 5), a central pole adaptor serves to facilitate installation on site.

Configurations



ITEM #1003677A CATENARY LIGHT POLE FOUNDATION (16' H POLE)

Work under this item shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: This item shall consist of designing, furnishing, and installing a catenary light pole foundation of the type called for at the location and to the dimensions and details shown on the plans or as directed by the Engineer. The Contractor shall provide drawings and calculations stamped by a professional engineer registered in the state of Connecticut for a catenary light pole foundation to support the Catenary Light Pole & Luminaire -16' H under Item #1003675A.

Materials: The materials for the work shall be as specified in the following:

- M.02.01 for Granular Fill
- M.03 for Class PCC04460 Concrete
- M.04.01 for HMA S0.375 Bituminous Concrete
- M.06.01 for Bar Reinforcement
- M.08.02-4 for Precast Concrete
- M.13.01 for Topsoil
- M.13.03 for Fertilizer
- M.13.04 for Seed Mixture, if necessary, or as shown on the plans
- M.13.05 for Mulch Materials
- M.15.02 for Anchor Bolts
- M.15.03 for Rock Anchors
- M.15.09 for Electrical Conduit
- M.15.15-7 for Ground Rods

Construction Method: The catenary light pole foundation shall be constructed in accordance with the pertinent provisions of 6.01.03. They may be precast, or cast-in-place based on accepted design. The final elevation of the top of the catenary light standard foundation shall be as shown on the plans or as directed by the Engineer. The top of the foundation shall be level in all respects. Concrete for foundation shall be placed monolithically against undisturbed soil for poured in place foundations. Necessary electrical conduit, anchor bolts, ground rod sleeves and ground rods shall be placed in proper position and shall be held in place by means of a template. The concrete may be placed against the sides of the excavation; however, the exposed portion of the foundations shall be formed to the neat lines as shown on the plans. When in the judgment of the Engineer, unusual soil conditions prevent excavation to neat lines as shown on the plans, the complete foundation shall be formed.

After the forms have been completely removed, the entire excavation shall be backfilled in accordance with 2.14. All conduits shall be capped with standard pipe caps before placing the concrete and shall remain capped until the cable is installed. Electrical conduit of the size indicated shall extend 2 feet outside the foundation. All portions of the foundations which will remain exposed to view shall be finished to the satisfaction of the Engineer. Forms shall not be removed until after the concrete has hardened properly and not less than 24 hours after the

concrete has been placed. The Contractor shall allow sufficient time for the foundation to cure before placing any strain on the foundation. Steel poles shall not be installed until a minimum of seven days after the concrete has been placed and a minimum of ten days before making span wire attachments thereto. Light poles shall not be installed until 10 days after the concrete has been placed.

Where a foundation is placed within or adjacent to a concrete sidewalk, the entire section of sidewalk between joints shall be replaced in accordance with 9.21, unless otherwise directed by the Engineer.

Method of Measurement: This item shall be measured for payment by the number of units installed and accepted. This measurement shall include the electrical conduit sweeps which shall extend 2 feet outside of the foundation.

Basis of Payment: This work shall be paid for at the Contract unit price each for “Catenary Light Pole Foundation (16’ H Pole)”, complete in place, which price shall include design, coordination, all materials, equipment, forms, excavation, disposal of surplus material, concrete, electrical conduit sweeps, conduit caps, ground rod, sleeves, bonding bushings, anchor bolts, backfill, restoration of pavement surfaces, tools, and labor incidental thereto.

Catenary Light Pole & Luminaire -16’ H shall be paid under Item #1003675A.

Pay Item

Catenary Light Pole Foundation (16’ H Pole)

Pay Unit

ea.

ITEM #1003679A – DECORATIVE STRING LIGHTING IN EXISTING TREES

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: The work of this Section shall consist of providing all equipment, labor, and materials required to illuminate an existing tree with decorative string lighting, complete in place. This item is per tree illuminated. Provide each tree with a complete lighting system, including but not limited to coordination with landscape architect, string lights, PLC, mounting, wiring, and controller.

Materials: For each tree, provide a complete Twinkly Brand lighting system manufactured by LEDWORKS SRL that includes:

3 EA of TWPLUS-CTRL-PLC-22US Twinkly Plus Wifi 4 PLC Port Controller - 1,000 Pixels IP65 including Power Supply

12 EA of TW-PLC-S-CA-1X250SPP-G Twinkly 250 RGBW PLC Capsule Pixels Single Line String, AWG22 PVC Wire, 4" spacing, Green, IP65, 5m Lead, 25m Lighted Length

6 EA of TW-PLC-EXT-G Twinkly PLC Lead Extension Cable AWG22 PVC wire, 5m, Green, IP65

No or equals will be accepted.

Construction Methods: Follow manufacturer’s installation requirements. Owner’s representative must be on site during installation. Provide at least forty-eight (48) hours’ notice to Engineer prior to installation.

Method of Measurement: This item shall be measured per tree illuminated, including all labor, materials, tools, equipment, and incidentals thereto. No separate measurement shall be taken for components within the complete tree lighting system.

Basis of Payment: This work will be paid for at the Contract lump sum price for “Decorative String Lighting in Existing Tree” which price shall include all materials, coordination, fasteners, equipment, tools, and labor incidental thereto, as well as commissioning of light system operation.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|---|------------------------|
| Decorative String Lighting on Existing Tree | EA. |

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ITEM #103906A – REMOVE LIGHT STANDARD

Description: Under this item the Contractor shall remove an existing light standard with transformer base, bracket, and luminaire as indicated on the plans or as directed by the Engineer. The light standard, transformer base, bracket, luminaire, and associated wire, conduit, and handholes removed shall remain the property of the Borough.

Construction Methods: The Contractor shall disconnect power and make safe, remove a light standard, transformer base, bracket, and luminaire, where required. The removed material shall remain the property of the Borough.

Method of Measurement: This work will be measured for payment by the number of light standards with associated equipment removed and provided to the Borough.

Basis of Payment: This work will be paid for at the contract unit price for “Remove Light Standard” complete, which price shall include the removal of a light standard with associated transformer base, bracket, luminaire, lamp, cable and hardware, delivering, hauling, and including all materials, tools, equipment, labor and work incidental thereto.

Pay Item

Remove Light Standard

Pay Unit

ea.

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ITEM #103912A – REMOVE CONCRETE LIGHT STANDARD BASE

Description: Under this item the Contractor shall remove the existing concrete light standard base where shown on the plans or as directed, including all conduit, handholes, and wiring. The removed concrete base shall remain the property of the Contractor.

Construction Methods: The Contractor shall disconnect power and make safe. The Contractor shall remove a concrete light standard base where required. The removed base shall be properly disposed of by the Contractor. The hold shall be backfilled and graded to match surroundings, unless otherwise noted on the plans.

Method of Measurement: This work will be measured for payment by the number of concrete light standard bases removed and disposed of, complete and accepted.

Basis of Payment: This work will be paid for at the contract unit price for “Remove Concrete Light Standard Base”, which price shall include all materials, equipment and work incidental thereto including excavation, removal, backfill when necessary, hauling and disposing of the concrete base.

| Pay Item | Pay Unit |
|-------------------------------------|----------|
| Remove Concrete Light Standard Base | EA. |

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ITEM #1014908A – OUTDOOR GROUND BOX WITH RECESSED QUAD DUPLEX RECEPTACLE

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: The work of this Section shall consist of providing all equipment, labor, and materials required for installation of ground box with recessed quad duplex receptacles as show on the Drawings.

Materials: Outdoor ground box with recessed quad duplex receptacles shall be Legrand ‘XB814C515’ Series or approved equal.

Installation: Insall in compliance with the Americans with Disabilities Act (ADA); flush to grade.

Method of Measurement: This item shall be paid on a per each basis, provided and installed complete in place.

Basis of Payment: This work will be paid for at the Contract unit price for “Outdoor Ground Box with Recessed Quad Duplex Receptacle” providing all equipment, labor, and materials required for installation of ground box with recessed quad duplex receptacles as show on the drawings and incidental to completion of this item.

| <u>Pay Item</u> | <u>Pay Unit</u> |
|---|------------------------|
| Outdoor Ground Box with Recessed Quad Duplex Receptacle | ea. |

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ITEM #120622A DECD PROJECT SIGN

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: Provide a project sign that complies with the attached specifications for a Department of Economic and Community Development (DECD) funded project.

Materials:

Sign Panel: 3/4-inch MDO-EXT-APA Plywood supported with (2) 4x4 treated wood columns and secured 4-feet into grade. Top of sign must be at 8-feet above grade.

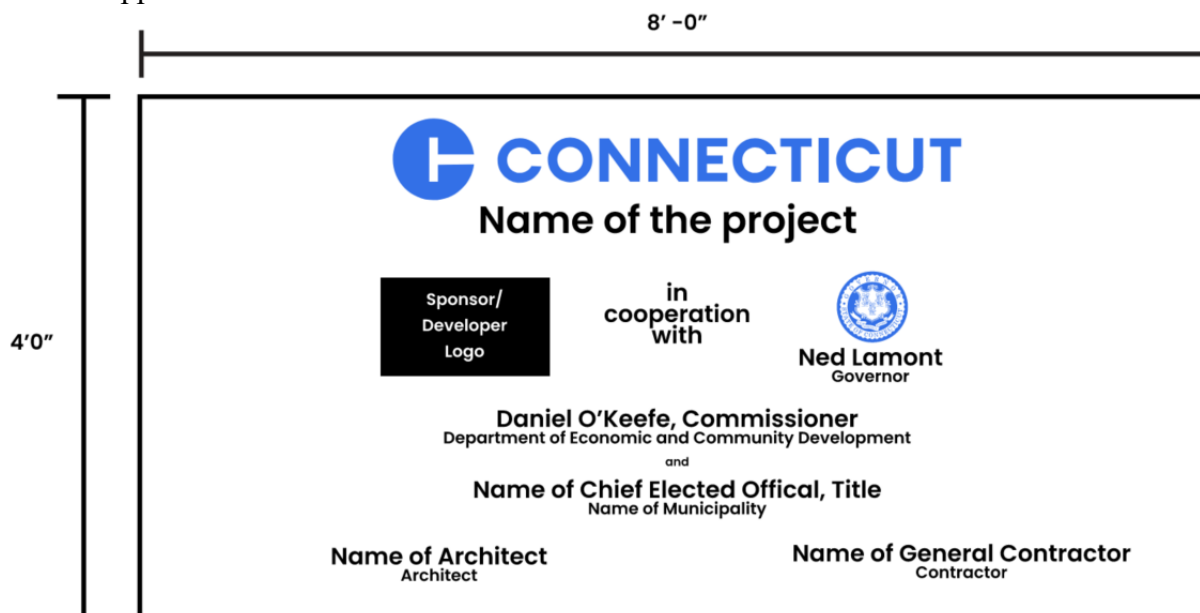
Colors: All letters and symbols are to be black. The background will be white enamel. Back of plywood and support structure shall be painted matte black.

Typeface: Poppins Semi-Bold. Name of Project is to be bigger than any names. Titles of Leaders is to be smaller than their names.

Location: Sign must be located where it is clearly visible to the public. Coordinate exact location with Engineer.

Timing: Install sign at the start of construction and remove sign at completion of construction.

Appearance:



Legend:

Name of Project: Parcel A/B Major Hub Development

Sponsor / Developer Logo: Borough of Naugatuck (See below)

Name of Chief Elected Official and Title: N. Warren "Pete" Hess III, Mayor

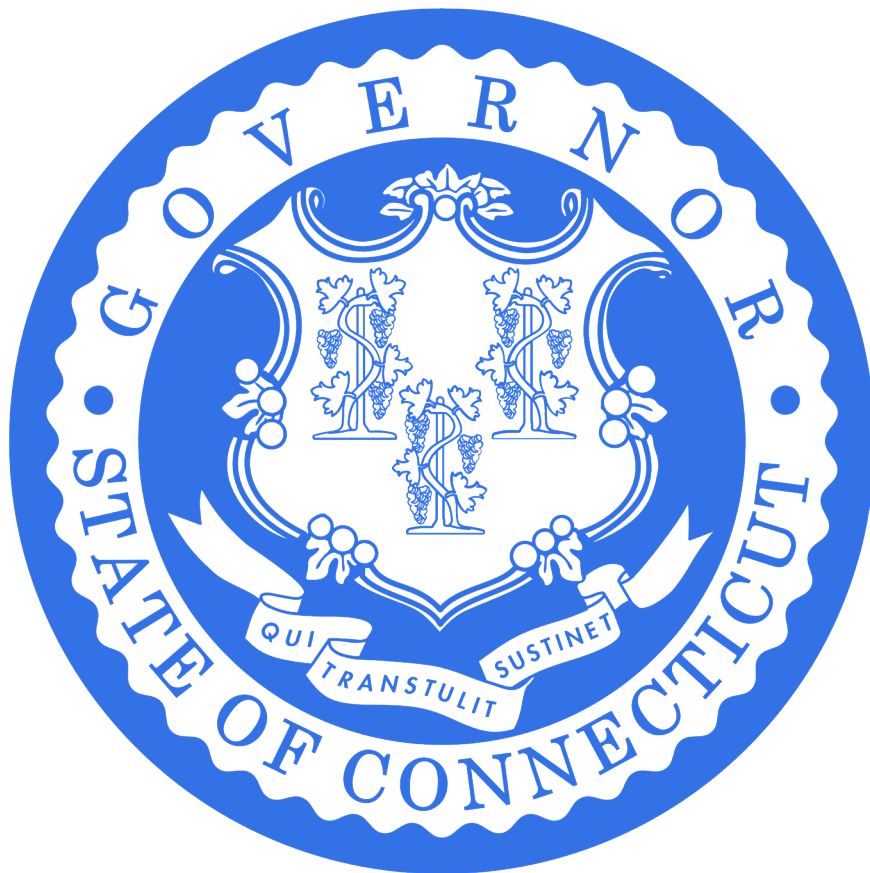
Name of Architect: Kleinfelder and Richter & Cegan

Logos:





CONNECTICUT



Method of Measurement: This work will be measured as the project sign furnished, installed, and accepted in place.

Basis of Payment: This work will be paid for at the contract unit price of each “DECD Project Sign” which will include all materials, equipment, tools, and labor incidental thereto.

Pay Item
DECD Project Sign

Pay Unit
EA.

ITEM NO. 1206023A - REMOVAL AND RELOCATION OF EXISTING SIGNS

Section 12.06 is supplemented as follows:

Article 12.06.01 – Description is supplemented with the following:

Work under this item shall consist of the removal and/or relocation of designated side-mounted extruded aluminum and sheet aluminum signs, sign posts, sign supports, and foundations where indicated on the plans or as directed by the Engineer. Work under this item shall also include furnishing and installing new sign posts and associated hardware for signs designated for relocation.

Article 12.06.03 – Construction Methods is supplemented with the following:

The Contractor shall take care during the removal and relocation of existing signs, sign posts, and sign supports that are to be relocated so that they are not damaged. Any material that is damaged shall be replaced by the Contractor at no cost to the Town.

Foundations and other materials designated for removal shall be removed and disposed of by the Contractor as directed by the Engineer and in accordance with existing standards for Removal of Existing Signing.

Sheet aluminum signs designated for relocation are to be re-installed on new sign posts.

Article 12.06.04 – Method of Measurement is supplemented with the following:

Payment under Removal and Relocation of Existing Signs shall be at the contract lump sum price which shall include all extruded aluminum and sheet aluminum signs, sign posts, and sign supports designated for relocation, all new sign posts and associated hardware for signs designated for relocation, all extruded aluminum signs, sheet aluminum signs, sign posts and sign supports designated for scrap, and foundations and other materials designated for removal and disposal, and all work and equipment required.

Article 12.06.05 – Basis of Payment is supplemented with the following:

This work will be paid for at the contract lump sum price for “Removal and Relocation of Existing Signs” which price shall include relocating designated extruded aluminum and sheet aluminum signs, sign posts, and sign supports, providing new posts and associated hardware for relocated signs, removing and disposing of foundations and other materials, and all equipment, material, tools and labor incidental thereto. This price shall also include removing, loading, transporting, and unloading of extruded aluminum signs, sheet aluminum signs, sign posts, and sign supports designated for scrap and all equipment, material, tools and labor incidental thereto.

Pay Item

Removal and Relocation of Existing Signs

Pay Unit

l.s.

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ITEM #1302047A – RESET GATE BOXES

Description: The Contractor shall adjust to final grade, the gate boxes and cover appurtenant to the water and gas mains as required and furnish and install extension rings, extension stems, air valve extensions, covers, and additional top and bottom section id necessary, as shown on the Contract Drawings or as directed by the Engineer in accordance with these specifications.

Connecticut Water Company and Eversource Gas shall be contacted a minimum of 48 hours prior to initiating the adjustment of any water or gas gate boxes so that an inspector can be provided for this work. The Contractor shall contact Connecticut Water Company and Eversource Gas to arrange an inspector for this work.

Materials: The Contractor shall furnish standard Connecticut Water Company and Eversource gate box sections as required and extension stems if necessary.

All additional materials, including any resurfacing materials and any additional fill required, shall be furnished and placed by the Contractor. Gravel shall conform to Article M.02.01.

Construction Methods: The Contractor shall carefully excavate around valve boxes, remove the box if necessary, reinstall the present valve box if useable, adjust the box to final grade using extension rings if applicable and refill the excavation. Care shall be taken to prevent material from filling the inside of the valve box.

Extension stems will be required if the gate box is raised 24-inches or more. Extension stems shall be fabricated according to Connecticut Water Company and Eversource Gas standards.

Any damage done to Connecticut Water Company or Eversource Gas facilities by the Contractor shall be repaired ore replaced by the Contractor at his expense.

Method of Measurement: The number of adjust gate boxes, complete with extension stems, air valve extensions, gate box extension rings, cover, and additional top of bottom sections, if necessary, measured for payment shall be the actual number of each box reset.

Basis of Payment: This work will be paid for at the contract unit price for “Reset Gate Boxes” complete in place, which price shall include the cost for furnishing material, including labor and equipment to incorporate them into the work. It shall also include the clearing, trenching and disposal of excavated materials, refilling trenches, furnishing the additional material for refilling, grading, sheeting, bracing, and pumping.

Pay Item

Reset Gate Boxes

Pay Unit

ea.

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ITEM #1401036A – ABANDON SANITARY SEWER

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and modified as follows:

Description: The work under this Section shall consist of providing all coordination, equipment, labor, and material required to properly abandonment a portion of sanitary sewer system that is believed to have been improperly abandoned. This work includes removal or abandonment of sanitary manholes and sanitary sewer pipe in conformity with the lines, grades, dimensions, and details shown on the plans, including two bulkheads at each end of pipe being abandoned.

This item also includes coordination with Veolia, the Owner’s contract operator. At the Owner’s discretion, Veolia will perform pre-CCTV inspection and be present during abandonment.

Materials: Granular fill, if necessary, shall meet the requirements of M.02.01. Protective compound material shall be as specified in M.03.09 and acceptable to the Engineer,

Construction Methods: Perform in accordance with the Contract Drawings. Backfilling shall be performed in accordance with 2.86.03.

Method of Measurement: This item shall be paid on a lump sum basis and will not be measure for payment. There will be no measurement or direct payment for plugging existing pipes with cement masonry or application of protective compound material, the cost of this work will be considered as included in the general cost of the work. Controlled low strength material used to fill abandoned pipe shall be measured and paid for under Item #0216012A.

Measurement for payment for work and materials involved with installing pipes to connect new structures into a run of existing pipe will be as provided for under the applicable Contract items in accordance with 6.86.04.

Basis of Payment: This work will be paid for at the Contract lump sum price for “Abandon Sanitary Sewer”, which price shall include all coordination, excavation, cutting of pavement, removal and replacement of pavement, backfill, and all materials, equipment, testing, tools, and labor incidental thereto.

Pay Item
Abandon Sanitary Sewer

Pay Unit
L.S.

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ITEM #1403610A - PUMP STATION DEMOLITION

The work under this Section shall conform to the CTDOT Form 818 Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, and supplemented as follows:

Description: The work of this Section shall consist of providing all equipment, labor, and materials required to demolish, remove from site, and legally dispose of items to be completely or selectively demolished. Contractor shall comply with latest requirements of all applicable Federal, State, and local regulations and guidance and health and safety requirements. The work of this Section includes, but is not limited to, the following:

1. Obtaining all necessary permits, providing necessary notifications, and complying with all local, state, and federal laws regarding safety and demolition.
2. Demolition of and all building structures, including foundations and slabs. Removal and off-site disposal of all concrete and other materials is included.
3. Deactivation of site utilities which are scheduled to be removed.
4. Conduct test pits to determine locations of utilities. Utilities within 10' of the perimeter of the building scheduled for demolition.
5. The clearing of vegetation as needed for site access.
6. Removal and disposal of existing drainage pipe.
7. Bulkheading existing pipe.
8. Dewatering as required to complete the work.
9. The removal and off-site disposal of site debris, solid waste, and other materials, which may or may not be indicated on the Drawings from within the limits of work.
10. Stockpiling, removal, and legal disposal or recycling of demolished materials.
11. The protection of areas outside the limits of work including paved roadways.
12. The protection of utilities which are scheduled to remain.

Refer to the Drawings for additional requirements for demolition.

Submittals: The Contractor shall submit the following items:

1. Waste Management Plan.

2. Disposal receipts from the recycling site or solid waste disposal facility at the completion of the project.

Construction Methods: Building to be demolished includes a one (1) one-story brick building, associated utilities, and below grade cistern pump chamber.

Occupancy: Areas to be demolished will be unoccupied prior to the start of work.

Condition of Structures: The Owner assumes no responsibility, nor makes any claim, as to the actual condition, potential salvage value or structural adequacy of any existing construction to be demolished. The Contractor shall investigate and assure themselves of the condition of the work to be demolished and shall take all precautions to ensure safety of persons and property.

Explosives: Blasting and use of explosives is not permitted.

Traffic: Conduct operations and removal of debris to ensure minimum interference with the normal use of public ways and other adjacent facilities. Do not close or obstruct traffic ways, streets, walks, or other used facilities without the written permission of the Owner and authorities having jurisdiction. The Contractor shall coordinate with the Borough of Naugatuck to provide access, circulation, vehicle parking, and security to the site.

Protection: Prevent injury to persons and damage to abutting property. Provide adequate shoring and bracing to prevent uncontrolled collapse. Immediately repair damaged property to its condition before being damaged. Take effective measures to prevent windblown dust. Do not create ice hazards by water spraying in cold weather.

Coordinate all utility work with appropriate utility companies. Contact Call Before You Dig (CBYD) at least four working days prior to starting work.

Utilities: Maintain service to all off-site properties. All utilities servicing the buildings shall be cut and capped within 10 feet of the building, as indicated on the contract drawings or as required by the utility owner. Supply measured ties to the cut and caps for locating in the future. All pipelines, associated structures, poles, pads, enclosures, equipment, machinery and other associated features associated with the service lines shall be completely demolished and removed from the site. Utilities to be demolished include:

1. Drainage pipes.
3. Gas service connection (to be confirmed).
4. Electrical.
5. Other utilities as may be indicated on the drawings.

Utilities to Be Protected: Utilities not identified for removal or as designated on the Drawings including water, sewer, storm drain, gas, electrical and communications lines, providing service to

the adjacent areas shall protected and maintained to provide uninterrupted service to the area. Temporary shutdowns, as needed, shall be proposed to the Owner at least one week prior to the intended date and coordinated with the utility company.

Concrete Demolition: All concrete slabs, walkways, knee walls and footings shall be removed and recycled/disposed off-site.

Demolition: The Building shall be demolished completely, and legally removed and disposed from the Site.

1. Utilize demolition methods within limitations of governing regulations. Demolition of Building, slab and foundation to be conducted according to the information provided on the contract drawings.
2. Proceed with demolition systematically. Demolish in small sections and avoid overloading structure and utilities. Burning on-site is not permitted.
3. Obtain all permits necessary for completion of work.
4. All walkways and slabs, whether bituminous concrete asphalt or concrete, shall be removed. See the drawings for areas where pavement shall remain.
5. Backfill and compact all excavations with approved material.
6. Site clearing work shall consist of the clearing, cutting, removal, and disposal of trees, vegetation, brush, trash, and debris from the site. Trees, brush and vegetation shall be removed only as required to complete the work.
7. The Contractor shall limit noise generation such that excessive noise is not generated. Scope of Work for Utilities and Clearance includes the following:

Storm Drainage: Protect existing drainage structures site wide, including manholes, catch basins, pipes, and basins. Storm pipe to be removed or abandoned shall be in accordance with the drawings.

Electric and Communications Distribution System: All services to the adjacent areas of the project shall remain operational. Remove all overhead and underground services to the buildings.

Demolition of Lead-Painted Building Components: The Contractor shall protect workers against harmful exposures of lead dusts, as mandated in OSHA 29 CFR Part 1926, "*Lead Exposure in Concentration: Interim Rule*". The Contractor shall assume that all painted surfaces contain lead-based paint. Any applicable pre-disposal testing requirements of the receiving facility of the demolition debris, or as required by any applicable codes or regulations, shall be identified and performed by the Contractor.

Backfill: Backfill the removed foundations with approved material. At the Borough’s discretion, backfill material may be furnished by the Borough for placement by the Contractor, including hauling, spreading, and compaction. Backfill low areas of roadway following removal of bituminous concrete with approved on-site backfill material.

Method of Measurement: This item shall be paid on a lump sum basis and will not be measured for payment.

Basis of Payment: This work will be paid for at the Contract lump sum price for “Pump Station Demolition” which price shall include all permits, utility coordination, pipe removal, bulkheading, cut and capping of existing pipe, saw cutting, dewatering, pipe removal and disposal, demolition, relocation, handling, hauling, spreading and compaction of approved backfill material, all materials, equipment, testing, and labor incidental to completion of this item.

Pay Item

Pump Station Demolition

Pay Unit

L.S.

WAGE RATES - STATE OF CONNECTICUT

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Minimum Rates and Classifications for Heavy/Highway Construction

ID#: 24-59954

**Connecticut Department of Labor
Wage and Workplace Standards**

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: FY25-094

Project Town: Naugatuck

State#:

FAP#:

Project: Parcel A & B Major HUB Development

| CLASSIFICATION | Hourly Rate | Benefits |
|---|--------------------|-----------------|
| 1) Boilermaker | 46.21 | 29.35 |
| 1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons | 41.63 | 34.50 |
| 2) Carpenters, Piledrivermen | 37.61 | 27.61 |
| 2a) Diver Tenders | 37.61 | 27.61 |
| 3) Divers | 46.07 | 27.61 |
| 03a) Millwrights | 40.56 | 28.87 |
| 4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray | 56.25 | 25.15 |
| 4a) Painters: Brush and Roller | 37.62 | 24.55 |
| 4b) Painters: Spray Only | 40.62 | 24.55 |

As of: March 27, 2024

| | | |
|--|-------|------------------------|
| 4c) Painters: Steel Only | 39.62 | 24.55 |
| 4d) Painters: Blast and Spray | 40.62 | 24.55 |
| 4e) Painters: Tanks, Tower and Swing | 39.62 | 24.55 |
| 4f) Elevated Tanks (60 feet and above) | 46.62 | 24.55 |
| 5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9) | 43.4 | 32.07+3% of gross wage |
| 6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection | 42.37 | 40.02 + a |
| 7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9) | 48.28 | 35.50 |
| ----LABORERS---- | | |
| 8) Group 1: General Laborers and concrete specialist | 33.5 | 25.59 |
| 8) Group 1a: Acetylene Burners (Hours worked with a torch) | 34.5 | 25.59 |
| 9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen | 33.75 | 25.59 |
| 10) Group 3: Pipelayers | 34.0 | 25.59 |
| 11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators | 34.0 | 25.59 |

As of: March 27, 2024

| | | |
|---|-------|-----------|
| 12) Group 5: Toxic waste removal (non-mechanical systems) | 35.5 | 25.59 |
| 13) Group 6: Blasters | 35.25 | 25.59 |
| Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe) | 36.5 | 25.59 |
| Group 8: Traffic control signalmen | 20.1 | 25.59 |
| Group 9: Hydraulic Drills | 34.25 | 25.59 |
| Group 10: Toxic Waste Removers A or B With PPE | 36.5 | 25.59 |
| ----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.---- | | |
| 13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders | 35.73 | 25.59 + a |
| 13b) Brakemen, Trackmen, Miners' Helpers and all other men | 34.76 | 25.59 + a |
| ----CLEANING, CONCRETE AND CAULKING TUNNEL---- | | |
| 14) Concrete Workers, Form Movers, and Strippers | 34.76 | 25.59 + a |
| 15) Form Erectors | 35.09 | 25.59 + a |
| ----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:---- | | |

As of: March 27, 2024

| | | |
|--|-------|-----------|
| 16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers, Miners Helpers | 34.76 | 25.59 + a |
| 17) Laborers Topside, Cage Tenders, Bellman | 34.65 | 25.59 + a |
| 18) Miners | 35.73 | 25.59 + a |
| ----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ---- | | |
| 18a) Blaster | 42.22 | 25.59 + a |
| 19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders | 42.02 | 25.59 + a |
| 20) Change House Attendants, Powder Watchmen, Top on Iron Bolts | 40.04 | 25.59 + a |
| 21) Mucking Machine Operator, Grout Boss, Track Boss | 42.81 | 25.59 + a |
| ----TRUCK DRIVERS----(*see note below) | | |
| Two Axle Trucks, Helpers | 32.16 | 30.51 + a |
| Three Axle Trucks; Two Axle Ready Mix | 32.27 | 30.51 + a |
| Three Axle Ready Mix | 32.33 | 30.51 + a |
| Four Axle Trucks | 32.39 | 30.51 + a |
| Four Axle Ready-Mix | 32.44 | 30.51 + a |

As of: March 27, 2024

| | | |
|--|-------|-----------|
| Heavy Duty Trailer (40 tons and over) | 34.66 | 30.51 + a |
| Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids) | 32.44 | 30.51 + a |
| Heavy Duty Trailer (up to 40 tons) | 33.39 | 30.51 + a |
| Snorkle Truck | 32.54 | 30.51 + a |
| ----POWER EQUIPMENT OPERATORS---- | | |
| Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over). (Trade License Required) | 52.78 | 27.80 + a |
| Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and over. | 48.37 | 27.80 + a |
| Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required) | 52.41 | 27.80 + a |
| Group 2a: Cranes (under 100 ton rated capacity). | 51.51 | 27.80 + a |
| Group 2b: Excavator over 2 cubic yards; Pile Driver (\$3.00 premium when operator controls hammer). | 48.0 | 27.80 + a |
| Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required) | 47.1 | 27.80 + a |
| Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper). | 46.64 | 27.80 + a |
| Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; | 45.92 | 27.80 + a |

As of: March 27, 2024

Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" mandrel)

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller. 45.92 27.80 + a

Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer). 45.55 27.80 + a

Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under Mandrel) 45.14 27.80 + a

Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine. 44.67 27.80 + a

Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder), Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater). 44.14 27.80 + a

Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc. 41.69 27.80 + a

Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment. 41.69 27.80 + a

Group 12: Wellpoint Operator. 41.61 27.80 + a

Group 13: Compressor Battery Operator. 40.92 27.80 + a

Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain). 39.54 27.80 + a

As of: March 27, 2024

| | | |
|---|-------|-----------|
| Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator. | 39.06 | 27.80 + a |
| Group 16: Maintenance Engineer. | 38.28 | 27.80 + a |
| Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator., Portable Grout Plant Operator, Portable Water Filtration Plant Operator. | 43.46 | 27.80 + a |
| Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license). | 40.54 | 27.80 + a |

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

| | | |
|--|-------|--------------|
| 20) Lineman, Cable Splicer, Technician | 48.36 | 16.92 |
| 21) Heavy Equipment Operator | 42.26 | 6.5% + 19.88 |
| 22) Equipment Operator, Tractor Trailer Driver, Material Men | 40.96 | 6.5% + 19.21 |
| 23) Driver Groundmen | 26.5 | 6.5% + 9.00 |
| 23a) Truck Driver | 40.96 | 6.5% + 17.76 |

----LINE CONSTRUCTION----

| | | |
|----------------------|-------|-------------|
| 24) Driver Groundmen | 30.92 | 6.5% + 9.70 |
| 25) Groundmen | 22.67 | 6.5% + 6.20 |

As of: March 27, 2024

| | | |
|--|-------|--------------|
| 26) Heavy Equipment Operators | 37.1 | 6.5% + 10.70 |
| 27) Linemen, Cable Splicers, Dynamite Men | 41.22 | 6.5% + 12.20 |
| 28) Material Men, Tractor Trailer Drivers, Equipment Operators | 35.04 | 6.5% + 10.45 |

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work
~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page:

www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

As of: March 27, 2024

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~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 clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

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APPENDIX A – GEOTECHNICAL REPORT

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GEOTECHNICAL REPORT

**PARCELS A & B MAJOR HUB DEVELOPMENT
CONCEPT DESIGN**

NAUGATUCK, CONNECTICUT

NOVEMBER 30, 2023

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

James Stewart, P.E.
Director of Public Works
246 Rubber Avenue
Naugatuck, CT 06770

GEOTECHNICAL REPORT

PARCELS A & B MAJOR HUB DEVELOPMENT CONCEPT DESIGN NAUGATUCK, CT

Kleinfelder Project Number: 24001774.001A

Prepared by:



Shradha Panda, EIT
Staff Professional-I

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1 DESCRIPTION OF PROPOSED PROJECT

1.1 GENERAL

The objective of this geotechnical report is to present the results of Kleinfelder’s geotechnical subsurface exploration program, and to provide preliminary geotechnical design recommendations for the concept design for the roadway and site developments as part of the Parcels A & B Major Hub Development in Naugatuck, Connecticut. The subsurface exploration program included soil borings and laboratory testing performed on selected soil samples obtained from the borings.

This report was prepared in general accordance with the provision of the 2022 Connecticut amendments to the 2021 International Building Code (collectively CSBC, the Code). This report is subject to the Limitations included herein and at the Limitations Section included at the end of this report.

A survey plan titled "Right of Way/Topographic Survey - Existing Conditions Plans" prepared by Martinez, Couch and Associates LLC, dated October 2023, was used to evaluate horizontal coordinates and elevations at the boring locations. Unless otherwise specified, latitude and longitude are referenced to the North American Datum of 1983 (NAD 83) horizontal datum and elevations (El.) are referenced to the NAVD 88 vertical datum. A site location plan is presented as **Figure 1**.

1.2 BACKGROUND INFORMATION

Our understanding of the proposed project is based on the scope of services (Scope) titled “Borough of Naugatuck Parcels A & B Major Hub Development – Borough Roadway and Site Improvements – Concept Design Phase – Scope of Services” prepared by Kleinfelder, executed, and signed on July 26, 2023; and the preliminary design (30%) drawing set titled “Construction Plans” prepared by Kleinfelder issued on September 6, 2023.

1.3 EXISTING CONDITIONS

The site consists of parcels A and B, and an adjoining network of paved roads comprising of Maple Street, Meadow Street, Division Street, Church Street, Old Firehouse Road, Rubber Avenue, Elm Street, and South Water Street in downtown Naugatuck, Connecticut. The site is

bound by the Metro North railroad and the Naugatuck River to the East, Maple Street to the North, Rubber Avenue and Elm Street to the South, and Meadow Street and Church Street to the West. A parking lot occupies most of the existing parcels. Parcel A houses an existing event center; Parcel B houses an existing stormwater pumping station, owned by the Borough of Naugatuck. The existing paved road along Rubber Avenue, South Water Street and within Parcel B are tattered, with many cracks filled with vegetation growth. An underground tunnel measuring approximately 8 ft wide, 57 ft long and 8.5 ft deep, exists underneath Rubber Avenue. Site grades vary between approximately El. 190 and El. 184.

1.4 PROPOSED CONSTRUCTION

Parcel A will be redeveloped with residential apartments. The existing Parcel B stormwater pumping station will be abandoned and demolished. Landscaping features are proposed for Parcel B.

The proposed complete streets improvement comprises of roadway designs, traffic improvements, along with sanitary and stormwater improvements for the site. A new at-grade pedestrian walkway approximately 250 feet in length connecting old Firehouse Road to Church Street has also been proposed.

It is anticipated that some site regrading will be performed for the new development. However, proposed site grades are expected to match approximately existing grades except along South Water Street and new Connector Road, wherein the existing grade elevations will be raised by approximately 5 ft to accommodate new pavement areas for the proposed station.

The existing conditions at the project site are shown on the attached **Figure 2-1** and **Figure 2-2**.

2 SUBSURFACE EXPLORATIONS AND SUBSURFACE CONDITIONS

2.1 GENERAL

Existing subsurface information from previous exploration programs performed in proximity of the project site was available for this project. In addition to the existing information, a subsurface exploration program consisting of test borings, tunnel probes and geotechnical laboratory testing was performed by Kleinfelder for this project. The locations of the previous and recent explorations performed at the project site is shown on **Figure 2-1** and **Figure 2-2** in the attachment respectively. The boring logs from the previous subsurface exploration program are provided in **Appendix A**. The boring logs from the recent subsurface exploration program performed by Kleinfelder are provided in **Appendix B**. The results of the recent geotechnical laboratory tests are included on the boring logs. A copy of the recent laboratory test report is provided in the **Appendix C**.

2.2 EXISTING SUBSURFACE INFORMATION FROM PREVIOUS PROJECTS

2.2.1 2022 Subsurface Exploration Program

The 2022 subsurface exploration program consisted of 5 borings performed for the Downtown Sanitary and Sewer improvements project. The borings were performed by New England Boring Contractors of Glastonbury, Connecticut. The test borings from this subsurface exploration program included borings B-1, B-2, B-3, B-4 and B-5, extending to elevations between approximately El. 179.5 and El. 191.5 (depths between 9.5 feet and 11 feet below ground surface -bgs).

2.3 RECENT SUBSURFACE EXPLORATIONS BY KLEINFELDER

Kleinfelder conducted a subsurface exploration program at the project site between September 14 and September 15, 2023. The subsurface exploration program consisted of seven borings (B-101 through B-105, B-105A and B-106), and two probes (P-1 and P-2). The explorations were performed by Soil Testing Inc. of Oxford, Connecticut.

2.3.1 Ground Penetrating Radar and Soft Digging

Prior to start drilling, the perimeter of an existing underground tunnel measuring approximately 8 ft wide and 57 ft long, under Rubber Avenue was located by ground penetrating radar survey performed by GPRS Inc. The depth of the tunnel was approximately 8.5 ft below existing grade.

Soft digging techniques were used in boring B-104 to a depth of approximately 5 feet bgs, to ensure the boring locations were clear from subsurface utilities. Soft digging comprised of hand-tool digging.

2.3.2 Test Borings and Tunnel Probes

Drilling of the test borings was performed using a truck rig and hollow stem auger or drive and wash drilling techniques. A 4-inch inside diameter (ID) casing or a 4.25-inch ID hollow-stem auger was used during drilling to advance the boreholes and probes. The bottom of the borings extended between approximately El. 153 and El. 182 (depths ranging between approximately 3.5 and 32 feet below ground surface – bgs).

Standard Penetration Test (SPT), in general accordance with ASTM D1586, was performed during drilling in the test borings. Standard penetration testing entails driving an approximately 1.38-inch ID (approximately 2-inch outside diameter - OD) split spoon sampler into a soil layer using a 140-lb weight (hammer) dropping freely from a height of 30 inches and recording the number of hammer blows (blow count) for four (4) consecutive advancements of the split spoon measuring 6 inches each, for a total advancement of the split spoon of 24 inches.

For this project, a safety hammer was used during the SPTs. Split spoon samples were obtained continuously from ground surface to a depth of 7 to 9 feet bgs and at standard five-foot intervals thereafter.

Bedrock was not encountered in the borings; therefore, bedrock coring was not performed. Groundwater monitoring wells were not installed as part of this exploration program. All the borings and probes were backfilled with drill cuttings or sand upon drilling completion. An asphalt cold patch was installed at the pavement surface after borings were backfilled.

The tunnel probes were located on opposite edges of the existing tunnel. The probes were drilled using hollow stem augers with a final split spoon sample collected at the probe termination depth.

The bottom of the probes extended between approximately El. 180 and El. 178.5 (depths ranging between 6.0 ft to 7.5 ft bgs).

2.3.3 Drilling Oversight

A Kleinfelder engineer performed full-time drilling observations during the recent subsurface exploration program. The Kleinfelder engineer prepared boring logs that included the blow counts recorded during the SPTs; a description of the soil samples recovered during the SPTs performed in general accordance with the Burmister soil classification system and Unified Soil Classification System (USCS).

Soil samples collected during drilling of the test borings were stored in sealed soil jars and brought to the Kleinfelder office for review and geotechnical laboratory testing.

2.4 GEOTECHNICAL LABORATORY TESTING

Geotechnical laboratory testing was performed on selected soil samples from the borings to evaluate engineering soil properties.

Fourteen (14) grain size analyses (ASTM D6913) were performed on soil samples obtained from the borings, by Thielsch Engineering, Inc. of Cranston, Rhode Island.

In addition to the index testing, a corrosion test suite to evaluate the corrosion potential of the soil was performed on one composite soil sample from the boring B-105. The corrosion test suite included Sulfate (EPA Method), Chloride (EPA Method), Sulfide (EPA Method), Red-ox Potential (EPA Method), pH (EPA Method) and soil Electrical Resistivity (ASTM G57).

2.5 SUBSURFACE CONDITIONS

The generalized subsurface conditions described below summarize trends observed in the borings at the time of drilling. Actual subsurface conditions between borings could be more variable. The boundaries between soil strata presented in the boring logs are based on observations during drilling and on widely spaced soil samples and should be considered approximate.

The major soil groups encountered during the field evaluation are described below in the order of their occurrence. Detailed soil descriptions are included in the boring logs in **Appendix B**.

2.5.1 Soil

Surface Materials: An asphalt layer, varying in thickness between approximately 4 inches to 6 inches was encountered at the ground surface in all borings except borings B-105, B-105 A and B-106. At borings B-103 and B-104, the 4-inch and 6-inch-thick asphalt pavement was overlying a reinforced concrete slab varying in thickness between approximately 8 inches to 6 inches respectively. The ground surface at borings B-105 and B-106 was covered by a loose layer of asphalt and gravel, varying in thickness between 5 inches and 6 inches.

Fill: Fill was encountered in all borings, underneath pavement. The thickness of this layer ranged between approximately 3.0 to 8.5 feet in the borings. The SPT N-values in the fill layer ranged between 10 to greater than 100 blows per foot (bpf) indicating loose to very dense material. Borings B-101 and B-102 were terminated in fill due to split spoon refusal.

Sand and Gravel: A naturally deposited Sand and Gravel layer was encountered underneath the fill in boring B-103. The thickness of this layer was approximately 17.5 feet in the boring. The SPT N-values in the silt layer ranged between 17 and 20 bpf, indicating medium dense material.

Clayey Silt and Sand: A naturally deposited Clayey Silt and Sand layer was encountered underneath the fill in boring B-104. The thickness of this layer was approximately 9.0 feet in the boring. The SPT N-values in the silt layer ranged between 24 and 27 bpf, indicating medium dense material.

Sand: A naturally deposited Sand layer was encountered underneath the clayey silt and sand layer in boring B-104. The thickness of this layer was approximately 13.5 feet in the boring. The SPT N-values in the silt layer ranged between 8 and 23 bpf, indicating loose to medium dense material.

Silty Sand: A naturally deposited Silty Sand layer was encountered underneath the fill layer in borings B-105 and B-106. The thickness of this layer was approximately 4.0 feet in the boring. The SPT N-values in the silt layer ranged between 6 and 35 bpf, indicating loose to dense material.

Concrete Slab: A relatively deeper concrete slab was encountered in B-101, B-102 and B-105A at approximately El. 181.7 and El. 182.8 (between approximately 3.5 ft bgs and 7.5 ft bgs).

It should be noted that the borings were terminated in the fill, sand and gravel, sand or silty sand stratum. Therefore, the thickness of these strata may be greater the penetrated strata thickness indicated herein.

Probes: Voids were not encountered while advancing the probes P-1 and P-2. Constant rig chatter, fine white dust production and hard drilling conditions were encountered during the advancement of the probes. Probe P-1 was terminated at approximately 7.5-ft bgs due to spoon refusal accompanied by auger failure. The spoon sample collected from near the termination depth comprised of white concrete fragments.

Probe P-2 was terminated at approximately 6-ft bgs due to auger refusal because of striking a metallic object.

2.5.2 Rollerbit and/or Split Spoon Refusal

Rollerbit and/or split spoon refusal, was encountered in borings B-101, B-102 and B-105A between approximately El. 181.7 and El. 182.8. Rollerbit refusal is defined as slow penetration of the rollerbit into the ground (less than 6 inches in 15 minutes, approximately). Split spoon refusal is defined as 100 hammer blows for a penetration of the split spoon of less than 6 inches.

2.5.3 Groundwater

Groundwater was observed during drilling in borings B-103 and B-104 between approximately El. 174.8 and 176.8 (between approximately 9.0 ft bgs and 13.5 feet bgs).

The groundwater measurements presented in this report only represent the conditions encountered at the location and time indicated. It should be noted that water was introduced in the borehole during drilling. Therefore, the collected groundwater measurements may not be representative of actual groundwater conditions. Furthermore, groundwater levels fluctuate due to local and regional factors including, but not limited to, site topography, seasonal changes, well pumping, and periods of wet or dry weather, nearby construction, or other below grade activities, such as excavation, dewatering, infiltration basins, etc.

3 GEOTECHNICAL DESIGN RECOMMENDATIONS

3.1 GEOTECHNICAL IMPLICATIONS OF SUBSURFACE CONDITIONS

The primary geotechnical issues associated with the design and construction of the proposed development are as follows:

Presence of shallow concrete slab: A concrete slab was encountered in selected borings at shallow depth. Concrete slab removal will likely be required for construction of pavement areas, drainage structures and other utilities at selected locations.

Presence of undocumented fill: Up to approximately 10 feet of undocumented fill with variable SPT N-values was encountered in the borings. The fill has variable in-situ density and may contain boulders, pockets of debris, organics and other deleterious materials considered to be an unsuitable bearing stratum.

Presence of tunnel: An existing underground tunnel is present within the project area. The tunnel will likely interfere with the proposed improvements and should be abandoned as recommended herein.

Presence of shallow groundwater: Groundwater at an approximate depth of 9 feet bgs was encountered during drilling at certain locations (B-104). Depending on the depth of the proposed utilities and drainage structures, limited dewatering may be required during construction.

3.2 GEOTECHNICAL RECOMMENDATIONS FOR THE PROPOSED IMPROVEMENTS

The analyses and recommendations included in this report are based on the data obtained from the relatively widely spaced borings and our understanding of the proposed project. The nature and extent of variations between explorations may not become evident until construction. If significant variations from the subsurface conditions observed in the borings appear during construction, or if changes occur in the design of the proposed structures, it will be necessary to re-evaluate these recommendations.

3.2.1 Structures and Trench Subgrade

The proposed utilities and drainage structures such as manholes and catch basins may be founded on naturally deposited layers of medium-dense Sand, Silty sand, Gravel and Sand, or Clayey Silt and Sand layers. Unsuitable soils should be over excavated from within the zone of influence of the pipe, pavement or drainage structure, to either the top of the naturally deposited soil layers or 12 inches bgs, whichever occurs first, and replaced with structural fill placed and compacted as described herein. Unsuitable soils include some existing fill or any other soft/loose, organic, or frozen soil observed at the excavation subgrade. The zone of influence is defined as the volume of soil underneath the pipe, pavement or structure, defined by a 1-horizontal to 1-vertical (1H:1V) plane extending downward and outward from the centerline. Subgrade preparation and trench backfill should be performed as described in the construction considerations section of this geotechnical report.

3.2.2 Frost Protection

The proposed drainage structures and utilities resting on soils subject to frost heave should bear at least 42 inches below grade.

3.2.3 Existing Tunnel Abandonment

The existing tunnel will overlap with the proposed improvement. The tunnel will represent a possible existing ground instability if it is left in its current state. We recommend that the portion of the existing tunnel overlapping with the proposed improvements be isolated and backfilled to the final subgrade with controlled, compacted lifts of structural backfill or flowable fill.

3.2.4 Design Groundwater Elevation

The FEMA Flood Insurance Rate Map (FIRM) places most of the project site within a "Special Flood Hazard Area (SFHA) - Zone AE – Area with a base flood elevation (BFE)". The 100-year flood elevation for this site varies between approximately El. 188.0 to El. 185.5 feet. We recommend assuming a design groundwater elevation corresponding El. 188 across the project area.

3.2.5 Lateral Earth Pressures

Design of cantilevered (i.e., unbraced) and braced support of excavation walls must consider lateral loadings exerted by soil, groundwater, and surcharge loads such as sloped backfill and adjacent traffic as appropriate. We recommend the following lateral earth pressures be used for the support of excavation design.

| Strata | Moist Unit Weight | Saturated Unit Weight | Undrained Shear Strength | Friction Angle | Triangular Pressure Diagrams (Unbraced Wall and Braced Wall Below Bottom of Excavation) | | | Rectangular Pressure Diagrams (Braced Walls above Excavation) |
|----------------------|-------------------|-----------------------|--------------------------|----------------|---|-----------|-----------|---|
| | γ_m (pcf) | γ_{sat} (pcf) | S_u (psf) | ϕ' (deg) | K_a (-) | K_o (-) | K_p (-) | Pressure Above Bottom of Excavation p (psf) |
| Fill | 115 | 120 | - | 28 | 0.36 | 0.53 | 2.77 | 27H |
| Sand and Gravel | 125 | 130 | - | 32 | 0.31 | 0.47 | 3.25 | 25H |
| Clayey silt and Sand | 125 | 130 | - | 32 | 0.31 | 0.47 | 3.25 | 25H |
| Sand | 125 | 130 | - | 32 | 0.31 | 0.47 | 3.25 | 25H |
| Silty Sand | 125 | 130 | - | 32 | 0.31 | 0.47 | 3.25 | 25H |

- H Stands for the total height of the support of excavation.
- Passive earth pressures ($K_p=1/K_a$) should only be used where special measures or provisions are taken to prevent disturbance or future removal of the soil on the passive side of the wall, or in areas where the wall design includes a key.
- Lateral deflection at the top of the support of excavation should not exceed 1 inch.
- Support of excavation should not be anchored in loose sand, loose gravel, soft clay or soft silty soils.
- Support of excavation shall be anchored in dense to medium-dense sand and/or gravel soils, and very stiff to stiff clay and/or silt soils.
- When the calculated earth pressure behind the excavation wall is less than 250 pounds per square foot (psf), it should be increased to 250 psf.
- Hydrostatic water pressure along the height of the wall below groundwater should be included for walls with undrained backfill.
- Multiply p (psf) for the ratio γ_b/γ_m with γ_b buoyant unit weight of soil to obtain earth pressure p (psf) below the groundwater table. Add a triangular groundwater pressure below the groundwater table using 62.4 pcf as the water unit weight if hydrostatic conditions are encountered.

3.2.6 Seismic Design

3.2.6.1 Spectral Response Accelerations

The 2022 CTIBC tabulated 5%-damped, 0.2-seconds (S_s) and 1-second (S_1) spectral response accelerations for the Borough of Naugatuck, CT are 0.197 and 0.054, respectively. The IBC 2021 and ASCE 7-16 mapped 5%-damped, (risk targeted) spectral response accelerations S_s and S_1 were 0.197 and 0.054, respectively which are essentially the same as the CTIBC tabulated values. The peak ground acceleration (PGA) was evaluated based on the ASCE 7-16 mapped values and was 0.109.

3.2.6.2 Seismic Site Class

As prescribed by the CTIBC 2022 edition and 2021 IBC, the Seismic Site Class was determined in accordance with Chapter 20 of ASCE 7-16.

Peat soils were not encountered in the borings. Therefore, the conditions of site class F, as described in section 20.3.1 of ASCE-7-16 do not apply. The conditions of section 20.3.2 of ASCE-7, triggering Site Class E (soft soils in excess of 10 feet) were not encountered.

The seismic Site Class was also evaluated using the average SPT resistance method as described in Chapter 20.4 of ASCE-7 using uncorrected N-values from the borings. Based on this procedure and on data from the borings, the Site Class was evaluated to be Site Class C (N-bar greater than 50 bpf) for borings B-101 and B-102, Site Class D (N-bar between 15 and 50 bpf) for borings B-103, B-104 and B-105, and Site Class E (N-bar less than 15 bpf) for boring B-106. However, we believe seismic site class D is representative of the site.

3.2.6.3 Seismic Design Parameters and Seismic Design Category

The 5%-damped, design spectral response accelerations at 0.2-seconds and 1-second (S_{DS} and S_{D1} , respectively) for Site Class D, and the Seismic Design Category (SDC) are as follows:

- $S_{DS} = 0.210$
- $S_{D1} = 0.086$
- $PGA_M = 0.172$
- $SDC = B$

3.3 RECOMMENDATIONS FOR PAVEMENT DESIGN

The following pavement cross-section is recommended for the proposed parking lot areas and access driveway, based on the assumption that the paved areas may experience heavy vehicle loads:

- Surface Course 3 inches
- Base Course 6 inches
- Subbase Course 9 inches

4 GEOTECHNICAL CONSTRUCTION CONSIDERATIONS

4.1 SITE PREPARATION

Remove all pavement and surface material from within the proposed excavation area. Care should be taken to avoid mixing of these materials with other excavated soils. Stockpile, transport and dispose all excavated material in accordance with Federal, State, and local regulations.

4.2 SITE EXCAVATIONS

4.2.1 General

Excavation should conform to OSHA health and safety standards for excavation contained in 29 CFR Part 1926, latest edition. Excavation height, depth and slope should conform to these OSHA standards and all local, State, and Federal safety regulations. As a safety measure, it is recommended that vehicles and soil piles be kept a minimum lateral distance from the crest of excavations. On-site construction safety is solely a responsibility of the Contractor. The information provided herein is provided as a service to our Client and should not be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

4.2.2 Excavation Equipment for Soil and Slab Removal

It is anticipated that excavations for this project may be accomplished by using regular earth moving equipment (Caterpillar E320 excavator or similar). However, special equipment like excavator-mounted hydraulic hammers for concrete slab excavation may be required.

4.2.3 Excavation Slopes and Support of Excavation

Trench excavations for pavement, pipes and other utilities/drainage structures should be accomplished using shield systems such as trench boxes or slide rails. Shield systems are only for protection of workers during utility installation and should not be used as an engineered support of excavation for excavation extending within the zone of influence of existing or new structures to remain on site. When advancing shield systems, the maximum unsupported trench height should not be more than 2 feet or as recommended by the Engineer.

If an engineered support of excavation system will be required, the engineered support of excavation systems should be selected by the Contractor and designed by an experienced Professional Engineer registered in the State of Connecticut retained by the Contractor. Possible engineered support of excavation systems include cantilevered systems such as sheetpiles, soldier pile and lagging support of excavation, with or without bracing. If the support of excavation will extend within the bearing zone of existing or proposed structures, the support of excavation should be cut below finished grade and abandoned in place after construction.

4.2.4 Excavation Dewatering

Based on the groundwater levels measured in the borings, groundwater will likely be encountered during excavations at selected locations.

Construction dewatering may be accomplished by means of a series of sumps and sump pumps or diversion trenches within and around excavations. Sumps should be provided with filters suitable to prevent pumping of fine-grained soil particles. Sumps should be located outside of the zone of influence of proposed pipes, pavement and drainage structures. Deep wells or well points may also be used if necessary to improve excavation dewatering. Installation and operation of the contractor's dewatering system should be integrated with other earthwork operation and sequence of excavation, foundation construction, and backfilling.

The Contractor should dispose dewatering water in accordance with local, State and Federal regulations. Recommendations for disposal of dewatering water is beyond the scope of this report and should be evaluated separately. At this site, after the necessary treatment, dewatering water could either be reinfiltrated or discharged to the local sewer system.

The Contractor should control water seepage, precipitation, infiltration, and surface water inflow within excavations to limit disturbance and maintain excavation subgrade integrity, and to allow foundation construction in-the-dry. It is recommended that temporary control measures be implemented to reduce the amount of surface water (from rainfall runoff) from potentially entering and ponding in the excavations. Temporary measures may include construction of drainage ditches and/or berms to divert and/or reduce the amount of surface water flowing over exposed subgrades during construction.

4.2.5 Pavement, Pipe and Utility Excavations and, Protection of Subgrades

Excavations should be sequenced to minimize disturbance of subgrades. The time that excavations near or below the groundwater table stay open should also be minimized to limit instability of the excavation walls. Excavation to final subgrade should be performed immediately before laying down the pipe, pavement and drainage structures. When possible, excavations of subgrades in granular, cohesionless soils should be completed manually for the last 3 to 6 inches; excavations of subgrades in cohesive soils should be performed with a smooth-edge excavator bucket.

Excavation subgrades exposure to heavy equipment traffic or weather should be minimized. Natural subgrades, especially in cohesive soils or soils with high fine content, are easily disturbed when wet and will require stabilization measures.

Based on construction and/or weather conditions, excavation subgrades should be protected by completing the excavation to final subgrade only immediately before placing the pipes, laying down the pavement, constructing the drainage structures, or by placing a mud mat or working mat of crushed stone wrapped all-around in non-woven geotextile on the final excavation subgrade, or by using erosion control of heating blankets.

4.3 SUBGRADE PREPARATION

Areas of weak and unstable soils - as defined in this report - observed at the final excavation subgrade should be overexcavated and replaced with compacted structural fill or $\frac{3}{4}$ " crushed stone wrapped in non-woven geotextile. If encountered at the excavation subgrade, boulders should also be removed from within the zone of influence of the proposed pavement, pipe or utilities, and replaced with structural fill or $\frac{3}{4}$ " crushed stone.

Exposed subgrades in cohesionless soil should be proof-compacted prior to placement of pavement, pipe, utilities or structural fill with at least 4 passes of a heavy (10,000 lb.) vibratory roller or 10 passes of a smaller walk-behind vibratory plate compactor. When near the water table, proof-compaction should be performed at the discretion of Kleinfelder's geotechnical engineer and may need to be performed using static (non-vibratory) methods to limit disturbance of the subgrade. Exposed subgrades in cohesive soil should be excavated 12 inches below final subgrade using a smooth-edge bucket and backfilled with $\frac{3}{4}$ " crushed stone wrapped in non-woven geotextile.

Following subgrade preparation, place, and compact the proposed backfill in accordance with the methods described herein.

4.4 BACKFILL COMPACTION AND BACKFILL GRADATION

Backfill should be placed in 12-inch maximum loose lift thickness (evaluated prior to compaction) or 6-inch lifts thickness in restricted areas such as trenches or around structures. Backfill should be compacted to a minimum Relative Compaction (RC, defined as backfill target dry density as a percentage of backfill maximum dry density, obtained as described in ASTM D-1557) as follows:

- RC= 95 percent underneath structures, pavement (pavement base/subbase) and utilities
- RC= 92 percent in landscape areas.

Backfill moisture during compaction should not be higher than the optimum moisture content plus 2% and should not be lower than the optimum moisture content minus 2%.

Crushed Stone should be placed in loose lift thicknesses of maximum 12 inches and should be compacted with heavy compaction equipment to achieve an unyielding subgrade.

Structural fill should be used for replacement of unsuitable materials, as defined herein, below structures and pavement areas, as trench backfill underneath structures and for other over-excavations. Crushed stone may be used underneath structures in lieu of structural fill or around flexible pipelines. Common fill should be used in landscaping areas or as trench backfill as described herein. Common fill should not be used within the zone of influence of new or existing structures or as pavement base or subbase.

Table 4.1 presents the gradation requirement for imported material of for on-site material to be reused

Table 4.1 – Gradation Requirements of Imported and On-Site Material

| Sieve Size | Percent Finer by Weight | | | | |
|------------|-------------------------|--|-----------------------|---------------------|------------|
| | Common Fill | Structural Fill Wall Backfill Pavement Base Pipe Base | 3/4" Crushed Stone | Pavement Subbase | |
| 6-inch | 100 | - | - | - | |
| 3-inch | - | - | - | 100 | |
| 2-inch | 90-100 | 100 | - | - | 100 |
| 1-1/2 inch | - | - | - | 70- 100 | 70- 100 |
| 1-inch | - | - | 100 | - | - |
| 3/4-inch | - | - | 90-100 | 50-85 | 50-85 |
| 1/2-inch | - | 50-85 | 10-50 | - | |
| 3/8-inch | - | - | 0-20 | - | |
| No. 4 | 20-65 | 40-75 | 0-5 | 30-60 | 30-55 |
| No. 10 | - | - | - | - | |
| No. 16 | - | - | - | - | |
| No. 50 | - | 8-28 | - | - | 8-24 |
| No. 60 | - | - | - | - | |
| No. 200 | 0-20 | 0-10 | - | 0-10 | 3-10 |

Flexible pipe excavations should be backfilled with ¾" crushed stone wrapped in non-woven geotextile to 12 inches minimum above the pipeline crown to minimize flexible pipeline deflection. Rigid pipe excavations should be backfilled with structural fill to 12 inches minimum above the pipeline crown. Trench backfill should be performed with common fill in landscape areas. Trenches within the zone of influence of new or existing structures should be backfilled with structural fill. Trenches underneath pavement may be backfilled with common fill from above a minimum of 12 inches above the pipeline crown up to the bottom of subbase (i.e., up to the pavement subbase subgrade).

Testing of the placed and compacted backfill should be performed to verify that the recommended relative compaction and moisture content have been achieved by the Contractor. Backfill testing should be performed by an experienced testing agency using methods and equipment as

described in ASTM D6938 or, alternatively, ASTM D1556. Testing frequency should be 1 test per backfill lift per every 1,000 square feet of backfill placed.

4.5 REUSE OF ON-SITE SOILS

Existing site soils, excluding asphalt pavement, may be re-used as common fill, regardless of gradation, provided the soil meets environmental requirements, it is free of organics, debris, or other unsuitable material, and can be compacted to the required density and moisture content. On-site soils can be re-used as structural fill underneath structures or as pavement base, provided they meet the gradation requirement in **Table 4.1**.

Based on the results of the geotechnical laboratory testing for this project, most of the site soils encountered in the borings, are anticipated to be suitable for on-site reuse.

If off-site disposal of soil is required, the disposal should be performed by the Contractor in accordance with applicable Federal, State, and local regulations. The evaluation of existing site soil for off-site disposal purpose was not included in the scope of this report.

5 LIMITATIONS

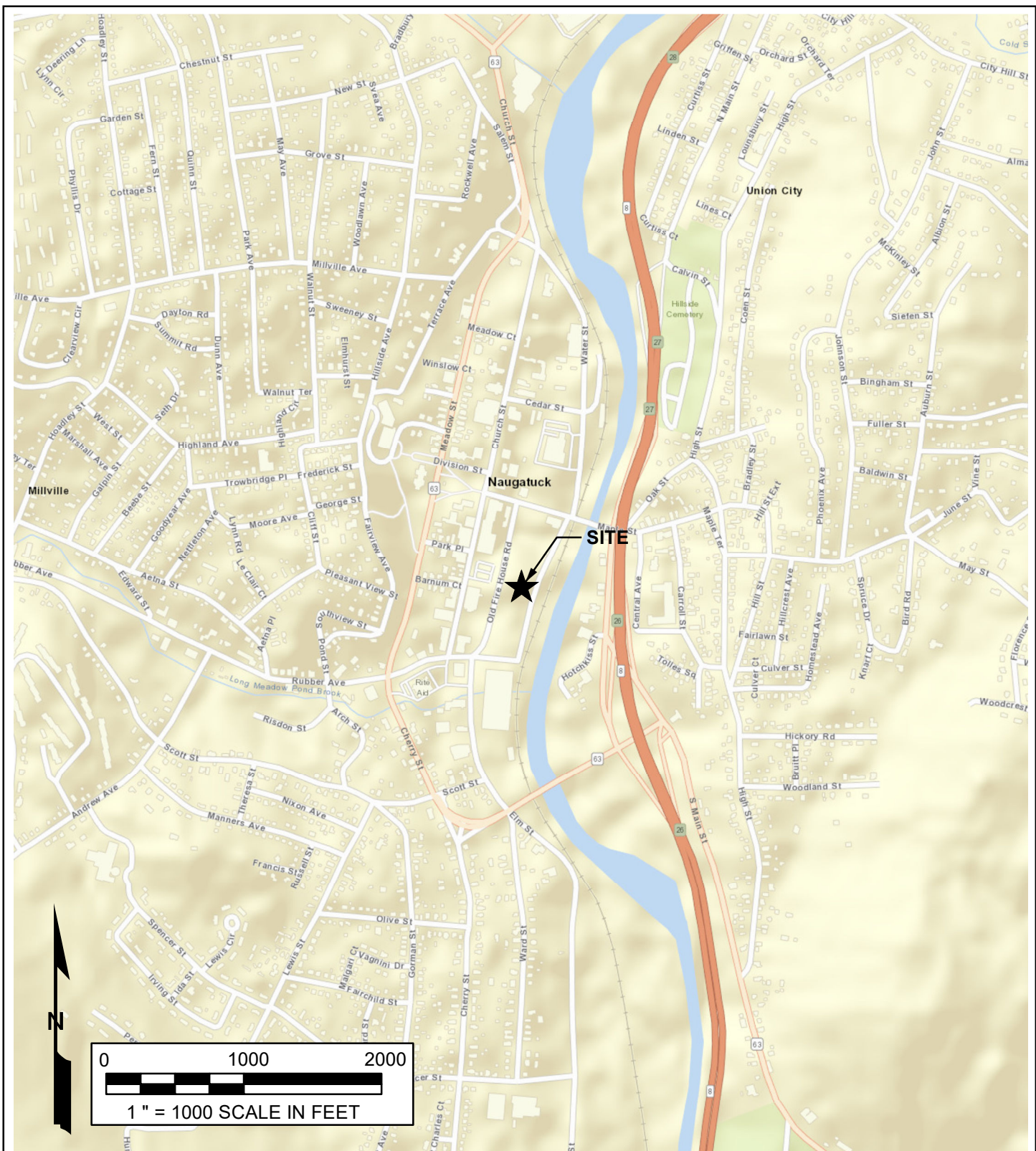
This report was prepared for the proposed Parcel A & B site development in Naugatuck, Connecticut, in accordance with generally accepted soil engineering practices and the Limitations in this section and throughout this report. This report may be used only for the purposes stated for this specific project within a reasonable time from its issuance but in no event later than two (2) years from the date of the report. The recommendations and conclusions in this report should not be extrapolated to other locations or projects.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services were provided. The data presented herein is based on a limited number of borings and laboratory tests. It is possible that field conditions could vary between or beyond the locations explored. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder cannot be responsible for interpretation by others of this report, or interpretation of the subsurface conditions encountered in the field. If soil or groundwater conditions are encountered during construction that differ from those described herein, Kleinfelder must be notified immediately so that we may reevaluate the geotechnical recommendations for this project. A written approval must be obtained from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will invalidate Kleinfelder's recommendations.


Figures

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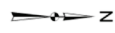
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NOTE:
 BASE MAPPING CREATED FROM LAYERS
 COMPILED BY ESRI PRODUCTS AND 2023 MICROSOFT CORPORATION.
 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE CONNECTICUT
 FIPS 0600

| | | | |
|---|---|--|----------|
|  | PROJECT NO. 24001774.001A | SITE LOCATION | FIGURE |
| | DRAWN BY: spanda CHECKED BY: N. Keenan DATE: 09-22-2023 | Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT | 1 |

Storm and Sewer System Improvement Concept Design

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1" = 120'

DOWNTOWN STORM & SEWER IMPROVEMENTS
NAUGATUCK, CT



| | |
|---------------------------|----|
| PROJECT NO. 20225069.001A | |
| ISSUE DATE | |
| CURRENT REVISION | |
| DESIGNED BY: AD | 15 |
| DRAWN BY: AD | |
| CHECKED BY: MP | |
| APPROVED BY: NK | |

Legend

- Proposed Storm Manhole Rehabilitation
- New Proposed Storm Manhole
- Proposed Storm Pipe Rehabilitation
- New Proposed Storm Pipe
- New Proposed Sanitary Manhole
- Proposed Sanitary Manhole Rehabilitation
- Proposed Sanitary Pipe Rehabilitation
- Storm Pipe
- Disconnected Storm Pipe
- Sanitary Pipes
- Project Boundary

B-1 INDICATES APPROXIMATE LOCATION OF SOIL BORINGS PERFORMED ON NOVEMBER 4, 2022 BY NEW ENGLAND BORING CONTRACTORS OF GLASTONBURY, CONNECTICUT

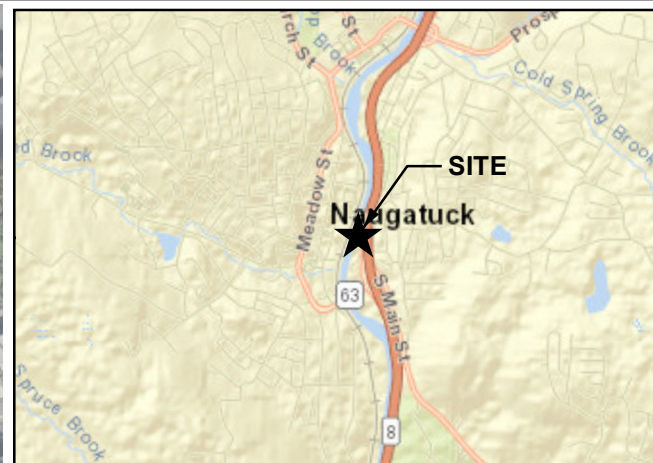
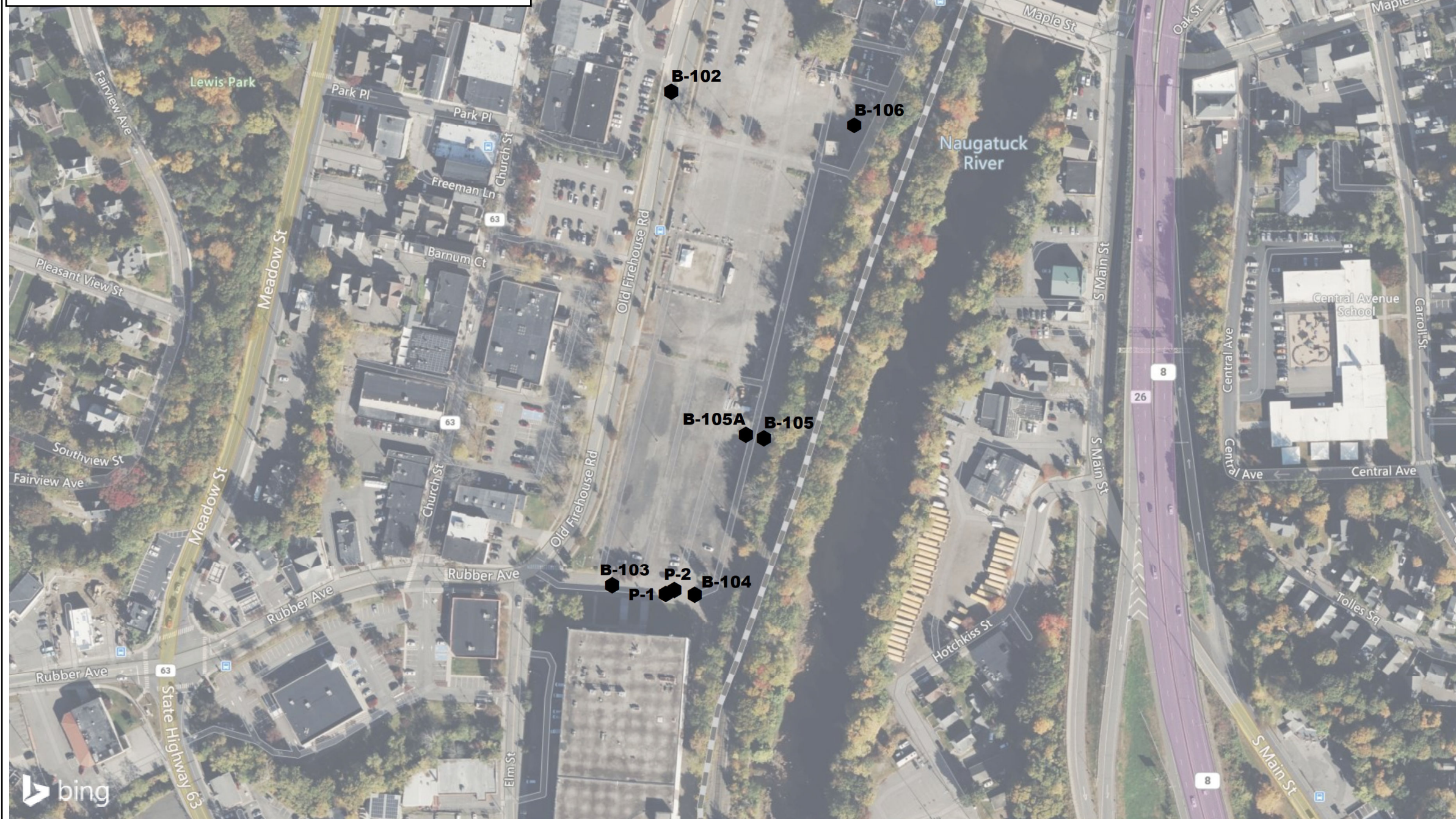
FIGURE 2-1



GIS FILE PATH: \\azrgis\top03\working_clients\Automated_Exploration_Plans\24001774.001A_ParcelsABMajorHubDevelopmentConceptDesign_20231129_spanda.WXD
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NOTES:

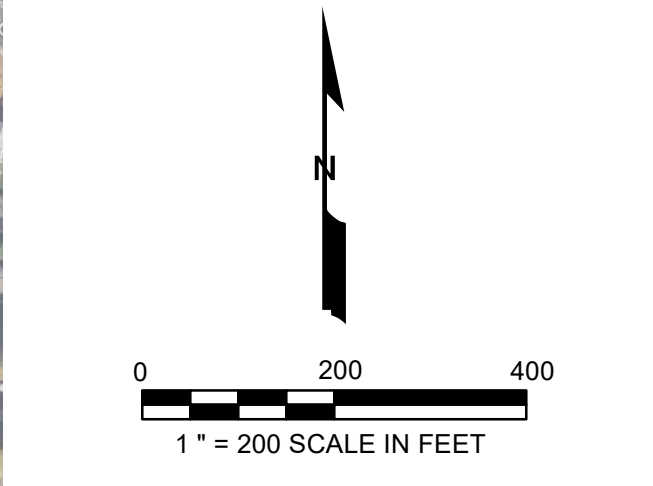
- 1) EXPLORATION LOCATION PLAN OBTAINED FROM A TOPOGRAPHIC SURVEY DRAWING TITLED "EXISTING CONDITIONS PLAN" PREPARED BY MARTINEZ, COUCH AND ASSOCIATES LLC, DATED OCTOBER 2023.
- 2) BORING AND PROBE LOCATIONS WERE DETERMINED BY TAPING AND LINE OF-SIGHT FROM SITE FEATURES. BORING AND PROBE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
- 3) THE BORINGS AND PROBES WERE OBSERVED BY A KLEINFELDER REPRESENTATIVE ON A FULL-TIME BASIS.



VICINITY MAP
NOT TO SCALE

NOTE:
 BASE MAPPING AND VICINITY MAP CREATED FROM LAYERS COMPILED BY ESRI PRODUCTS AND 2023 MICROSOFT CORPORATION.
 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE CONNECTICUT FIPS 0600

| LEGEND | |
|---|---|
|  | B-1 INDICATES APPROXIMATE LOCATION OF SOIL BORINGS PERFORMED BETWEEN SEPTEMBER 14 AND SEPTEMBER 15, 2023, BY SOIL TESTING INC. OF OXFORD, CONNECTICUT |
|  | P-1 INDICATES APPROXIMATE LOCATION OF PROBES PERFORMED ON SEPTEMBER 15, 2023, BY SOIL TESTING INC. OF OXFORD, CONNECTICUT |



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PROJECT NO.
24001774.001A

 DRAWN BY: spanda
 CHECKED BY: N. Keenan
 DATE: 11-29-2023

**EXPLORATION LOCATION PLAN
AND VICINITY MAP**

 Parcels A & B Major Hub Development Concept Design
 6 Rubber Avenue
 Naugatuck, CT

FIGURE

2-2

Tables



Table 1
The Borough of Naugatuck
Parcels A&B Major Hub Development Concept Design, Naugatuck, CT
Summary of Subsurface Conditions

| Boring ID | Top of Boring El. (ft) | Bottom of Boring El. (ft) | Boring Depth (ft) | GW Depth. (ft) | GW El. (ft) | Pavement | | Fill | | Sand and Gravel | | clayey SILT and SAND | | Sand | | Silty Sand | |
|-----------|------------------------|---------------------------|-------------------|----------------|-------------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|
| | | | | | | Stratum Top El. (ft) | Stratum Thickness (ft) | Stratum Top El. (ft) | Stratum Thickness (ft) | Stratum Top El. (ft) | Stratum Thickness (ft) | Stratum Top El. (ft) | Stratum Thickness (ft) | Stratum Top El. (ft) | Stratum Thickness (ft) | Stratum Top El. (ft) | Stratum Thickness (ft) |
| B-101 | 190.4 | 182.8 | 7.6 | - | - | 190.4 | 0.5 | 189.9 | 7.1 | - | - | - | - | - | - | - | - |
| B-102 | 188.9 | 181.7 | 7.2 | - | - | 188.9 | 0.5 | 188.4 | 6.7 | - | - | - | - | - | - | - | - |
| B-103* | 187.3 | 160.3 | 27.0 | 12.5 | 174.8 | 187.3 | 1.0 | 186.3 | 8.5 | 177.8 | 17.5 | - | - | - | - | - | - |
| B-104** | 185.8 | 153.8 | 32.0 | 9.0 | 176.8 | 185.8 | 1.0 | 184.8 | 8.5 | - | - | 176.3 | 9.0 | 167.3 | 13.5 | - | - |
| B-105A | 186.4 | 182.9 | 3.5 | - | - | 186.4 | 0.5 | 185.9 | 3.0 | - | - | - | - | - | - | - | - |
| B-105 | 186.4 | 177.9 | 8.5 | - | - | 186.4 | 0.5 | 185.9 | 4.0 | - | - | - | - | - | - | 181.9 | 4.0 |
| B-106 | 184.5 | 176.0 | 8.5 | - | - | 184.5 | 0.4 | 184.1 | 4.1 | - | - | - | - | - | - | 180.0 | 4.0 |

Notes:

"-": Indicates stratum or groundwater was not encountered

Soil strata in the general order of their occurrence in the borings are presented from left to right in this table

The groundwater levels herein only represent the conditions encountered at the location and time indicated. Water is introduced in the boreholes during drilling using drive and wash drilling techniques. Therefore, the groundwater measurements may not be representative of actual field groundwater conditions. Furthermore, groundwater levels fluctuate due to local and regional factors including seasonal changes, well pumping, and periods of wet or dry weather, nearby construction dewatering, infiltration basins, etc.

Boring ground surface elevations (El.) are based on a plan titled "Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans" published by Martinez, Couch and Associates LLC dated October 07, 2023

Borings drilled by Soil Testing Inc. of Oxford, CT between September 14, 2023 and September 15, 2023 using Hollow Stem Auger drilling techniques

Borings were terminated in Fill, Sand & Gravel, Sand, or Silty Sand strata. Therefore, the thickness of these strata may be greater than penetrated strata thickness indicated on this table

* The pavement layer comprised of a 4-in thick asphalt over a 8-in thick reinforced concrete slab

** The pavement layer comprised of 6-in thick asphalt pavement over a 6-in thick concrete slab

Table 2
The Borough of Naugatuck
Parcels A & B Major Hub Development Concept Design, Naugatuck, CT
Summary of Chemical Test Results

| Sample ID | Corrosivity Suite | | | | | Electrical Resistivity Suite | |
|---------------|---------------------|--------------------|--------------------|----------------------------|-----|--|--|
| | Chloride (mg/kg) | Sulfate (mg/kg) | Sulfide (mg/kg) | Redox Potential (mV) | pH | Electrical Resistivity: As- is at 60 °F (ohm- cm) | Electrical Resistivity: Saturated at 60 °F (ohm-cm) |
| | EPA | | | | | ASTM G57 | |
| Composite - 1 | 7 | 20 | ND | 285.9 | 6.9 | 27000 | 13700 |

Note:

1. ND stands for "Non Detectable" Concentrations.

Appendix A – Previous Boring Logs

SAMPLE/SAMPLER TYPE GRAPHICS



AUGER
STANDARD PENETRATION SPLIT SPOON SAMPLER
 (2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after exploration completion)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, i.e., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

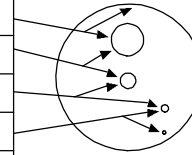
| | | | | | | |
|--|--|---|--|--|---|---|
| GRAVELS (More than half of coarse fraction is larger than the #200 sieve) | CLEAN GRAVEL WITH <5% FINES | Cu ≥ 4 and 1 ≤ Cc ≤ 3 | | GW | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES | |
| | | Cu < 4 and/or 1 > Cc > 3 | | GP | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES | |
| | GRAVELS WITH 5% TO 12% FINES | Cu ≥ 4 and 1 ≤ Cc ≤ 3 | | GW-GM | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES | |
| | | | | GW-GC | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES | |
| | | Cu < 4 and/or 1 > Cc > 3 | | GP-GM | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES | |
| | | | | GP-GC | POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES | |
| | GRAVELS WITH > 12% FINES | | | GM | SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES | |
| | | | | GC | CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES | |
| | | | | GC-GM | CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES | |
| | COARSE GRAINED SOILS (More than half of material is smaller than the #4 sieve) | CLEAN SANDS WITH <5% FINES | Cu ≥ 6 and 1 ≤ Cc ≤ 3 | | SW | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES |
| | | | Cu < 6 and/or 1 > Cc > 3 | | SP | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES |
| | | SANDS WITH 5% TO 12% FINES | Cu ≥ 6 and 1 ≤ Cc ≤ 3 | | SW-SM | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES |
| | | | | SW-SC | WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES | |
| Cu < 6 and/or 1 > Cc > 3 | | | | SP-SM | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES | |
| | | | | SP-SC | POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES | |
| SANDS WITH > 12% FINES | | | | SM | SILTY SANDS, SAND-GRAVEL-SILT MIXTURES | |
| | | | | SC | CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES | |
| | | | | SC-SM | CLAYEY SANDS, SAND-SILT-CLAY MIXTURES | |
| FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve) | | SILTS AND CLAYS (Liquid Limit less than 50) | | ML | INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY | |
| | | | | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS | |
| | | | | CL-ML | INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS | |
| | SILTS AND CLAYS (Liquid Limit 50 or greater) | | OL | ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY | | |
| | | | MH | INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT | | |
| | | | CH | INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS | | |
| | | OH | ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY | | | |

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

| | | |
|--|--|--|
| KLEINFELDER <i>Bright People. Right Solutions.</i> | PROJECT NO.: 20225069.002A | GRAPHICS KEY Downtown Sanitary and Sewer improvements Downtown Naugatuck Naugatuck, CT |
| | DRAWN BY: NJ CHECKED BY: MR DATE: 11/22/2022 | |

GRAIN SIZE

| DESCRIPTION | SIEVE SIZE | GRAIN SIZE | APPROXIMATE SIZE |
|-------------|---------------------------------------|--------------------------------------|--------------------------------|
| Boulders | >12 in. (304.8 mm.) | >12 in. (304.8 mm.) | Larger than basketball-sized |
| Cobbles | 3 - 12 in. (76.2 - 304.8 mm.) | 3 - 12 in. (76.2 - 304.8 mm.) | Fist-sized to basketball-sized |
| Gravel | coarse 3/4 - 3 in. (19 - 76.2 mm.) | 3/4 - 3 in. (19 - 76.2 mm.) | Thumb-sized to fist-sized |
| | fine #4 - 3/4 in. (#4 - 19 mm.) | 0.19 - 0.75 in. (4.8 - 19 mm.) | Pea-sized to thumb-sized |
| Sand | coarse #10 - #4 | 0.079 - 0.19 in. (2 - 4.9 mm.) | Rock salt-sized to pea-sized |
| | medium #40 - #10 | 0.017 - 0.079 in. (0.43 - 2 mm.) | Sugar-sized to rock salt-sized |
| | fine #200 - #40 | 0.0029 - 0.017 in. (0.07 - 0.43 mm.) | Flour-sized to sugar-sized |
| Fines | Passing #200 | <0.0029 in. (<0.07 mm.) | Flour-sized and smaller |



SECONDARY CONSTITUENT

| Term of Use | AMOUNT | |
|-------------|---------------------------------------|---|
| | Secondary Constituent is Fine Grained | Secondary Constituent is Coarse Grained |
| Trace | <5% | <15% |
| With | ≥5 to <15% | ≥15 to <30% |
| Modifier | ≥15% | ≥30% |

MOISTURE CONTENT

| DESCRIPTION | FIELD TEST |
|-------------|---|
| Dry | Absence of moisture, dusty, dry to the touch |
| Moist | Damp but no visible water |
| Wet | Visible free water, usually soil is below water table |

CEMENTATION

| DESCRIPTION | FIELD TEST |
|-------------|--|
| Weakly | Crumbles or breaks with handling or slight finger pressure |
| Moderately | Crumbles or breaks with considerable finger pressure |
| Strongly | Will not crumble or break with finger pressure |

CONSISTENCY - FINE-GRAINED SOIL

| CONSISTENCY | SPT - N ₆₀ (# blows / ft) | Pocket Pen (tsf) | UNCONFINED COMPRESSIVE STRENGTH (Q _u)(psf) | VISUAL / MANUAL CRITERIA |
|--------------|--------------------------------------|------------------|--|--|
| Very Soft | <2 | PP < 0.25 | <500 | Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed. |
| Soft | 2 - 4 | 0.25 ≤ PP <0.5 | 500 - 1000 | Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure. |
| Medium Stiff | 4 - 8 | 0.5 ≤ PP <1 | 1000 - 2000 | Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure. |
| Stiff | 8 - 15 | 1 ≤ PP <2 | 2000 - 4000 | Can be imprinted with considerable pressure from thumb. |
| Very Stiff | 15 - 30 | 2 ≤ PP <4 | 4000 - 8000 | Thumb will not indent soil but readily indented with thumbnail. |
| Hard | >30 | 4 ≤ PP | >8000 | Thumbnail will not indent soil. |

REACTION WITH HYDROCHLORIC ACID

| DESCRIPTION | FIELD TEST |
|-------------|--|
| None | No visible reaction |
| Weak | Some reaction, with bubbles forming slowly |
| Strong | Violent reaction, with bubbles forming immediately |

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

| APPARENT DENSITY | SPT-N ₆₀ (# blows/ft) | MODIFIED CA SAMPLER (# blows/ft) | CALIFORNIA SAMPLER (# blows/ft) | RELATIVE DENSITY (%) |
|------------------|----------------------------------|----------------------------------|---------------------------------|----------------------|
| Very Loose | <4 | <4 | <5 | 0 - 15 |
| Loose | 4 - 10 | 5 - 12 | 5 - 15 | 15 - 35 |
| Medium Dense | 10 - 30 | 12 - 35 | 15 - 40 | 35 - 65 |
| Dense | 30 - 50 | 35 - 60 | 40 - 70 | 65 - 85 |
| Very Dense | >50 | >60 | >70 | 85 - 100 |

FROM TERZAGHI AND PECK, 1948

PLASTICITY

| DESCRIPTION | LL | PI |
|-------------|---------|---------|
| Non-Plastic | NP | NP |
| Low | < 30 | < 15 |
| Medium | 30 - 50 | 15 - 25 |
| High | > 50 | > 25 |

LL is from Casagrande, 1948. PI is from Holtz, 1959.

STRUCTURE

| DESCRIPTION | CRITERIA |
|--------------|---|
| Stratified | Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness. |
| Laminated | Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness. |
| Fissured | Breaks along definite planes of fracture with little resistance to fracturing. |
| Slickensided | Fracture planes appear polished or glossy, sometimes striated. |
| Blocky | Cohesive soil that can be broken down into small angular lumps which resist further breakdown. |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness. |

ANGULARITY

| DESCRIPTION | CRITERIA |
|-------------|---|
| Angular | Particles have sharp edges and relatively plane sides with unpolished surfaces. |
| Subangular | Particles are similar to angular description but have rounded edges. |
| Subrounded | Particles have nearly plane sides but have well-rounded corners and edges. |
| Rounded | Particles have smoothly curved sides and no edges. |



PROJECT NO.:
20225069.002A

 DRAWN BY: NJ
 CHECKED BY: MR
 DATE: 11/22/2022

SOIL DESCRIPTION KEY

Downtown Sanitary and Sewer improvements
 Downtown Naugatuck
 Naugatuck, CT

PLOTTED: 11/22/2022 11:30 AM BY: Njamba

| | | |
|---|---|--|
| Date Begin - End: 11/04/2022 | Drilling Company: NEBC | BORING LOG B-1 |
| Logged By: N. Jamba | Drill Crew: R. Posa | |
| Hor.-Vert. Datum: NAD83 - NAVD88 | Drilling Equipment: CME-53 | Hammer Type - Drop: 140 lb. Auto - 30 in. |
| Plunge: -90 degrees | Drilling Method: Hollow Stem Auger | |
| Weather: Clear, 60°F | Auger Diameter: 4 in. I.D. | |

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|--|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | Lithologic Description | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | Ground Surface Elevation (ft.): 189.00 Surface Condition: Bituminous Pavement | | | | | | | | | | | |
| | | 5" BITUMINOUS PAVEMENT | | | | | | | | | | | |
| | | Dark gray, dense, fine to coarse SAND and GRAVEL, little silt, trace asphalt, PID = 0.1 | 188.4 | BC=29 20 18 28 | 16" | | | | | | | | |
| | | Light gray, dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.2 | 187.0 | BC=26 20 17 11 | 12" | | | | | | | | |
| 185 | | Light gray, medium dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.1 | | BC=10 7 9 22 | 22" | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 180 | | Dark gray, very dense, GRAVEL and SAND, little silt, PID = 0.1 | | BC=100/2" | 4" | | | | | | | | |
| 10 | | | 179.5 | | | | | | | | | | |
| | | <p>The boring was terminated at approximately 9.5 ft. below ground surface. The boring was backfilled with cuttings and sand on November 04, 2022.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: 1- Ground surface elevations based on a survey titled "Right of way / topographic survey- existing conditions plan" prepared by Kleinfelder. 2- A PID (ppmv) was used for environmental field screening. 3- Where strata breaks are not observed in the split spoon samples, strata breaks are inferred based on observation of drill rig behavior (rig bouncing and chattering), change in auger/rollerbit penetration resistance, drill cuttings and changes in drilling water color.</p> | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | |

PROJECT NUMBER: 20225069.002A OFFICE FILTER: ROCKY HILL GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.:
20225069.002A

DRAWN BY: NJ

CHECKED BY: MR

DATE: 11/22/2022

BORING LOG B-1

Downtown Sanitary and Sewer improvements
Downtown Naugatuck
Naugatuck, CT

PLOTTED: 11/22/2022 11:30 AM BY: Njamba

| | | |
|---|---|--|
| Date Begin - End: 11/04/2022 | Drilling Company: NEBC | BORING LOG B-2 |
| Logged By: N. Jamba | Drill Crew: R. Posa | |
| Hor.-Vert. Datum: NAD83 - NAVD88 | Drilling Equipment: CME-53 | Hammer Type - Drop: 140 lb. Auto - 30 in. |
| Plunge: -90 degrees | Drilling Method: Hollow Stem Auger | |
| Weather: Clear, 60°F | Auger Diameter: 4 in. I.D. | |


| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|---|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | Lithologic Description | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | Ground Surface Elevation (ft.): 190.00 Surface Condition: Bituminous Pavement | | | | | | | | | | | |
| | | 5" BITUMINOUS PAVEMENT | | | | | | | | | | | |
| | | Light gray, very dense, fine to coarse SAND and GRAVEL, little silt, trace asphalt, PID = 0.6 | 189.4 | BC=28 48 40 29 | 19" | | | | | | | | |
| | | Dark brown, very dense, fine to coarse SAND and GRAVEL, little silt, PID = 7.4 | 188.0 | BC=30 38 26 20 | 20" | | | | | | | | |
| 185 | | Dark brown, dense, fine to coarse SAND and GRAVEL, some silt, PID = 1.3 | | BC=23 17 18 19 | 20" | | | | | | | | |
| | | Dark gray, very dense, GRAVEL and SAND, little silt, PID = 0.1 | 180.5 | BC=100/5" | 5" | | | | | | | | |

The boring was terminated at approximately 9.5 ft. below ground surface. The boring was backfilled with cuttings and sand on November 04, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
1- Ground surface elevations based on a survey titled "Right of way / topographic survey- existing conditions plan" prepared by Kleinfelder.
2- A PID (ppmv) was used for environmental field screening.
3- Where strata breaks are not observed in the split spoon samples, strata breaks are inferred based on observation of drill rig behavior (rig bouncing and chattering), change in auger/rollerbit penetration resistance, drill cuttings and changes in drilling water color.

PROJECT NUMBER: 20225069.002A
OFFICE FILTER: ROCKY HILL
GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|---|--|---|
|  | PROJECT NO.: 20225069.002A | BORING LOG B-2 |
| | DRAWN BY: NJ CHECKED BY: MR DATE: 11/22/2022 | Downtown Sanitary and Sewer improvements Downtown Naugatuck Naugatuck, CT |

PLOTTED: 11/22/2022 11:30 AM BY: Njamba

| | | |
|---|---|--|
| Date Begin - End: 11/04/2022 | Drilling Company: NEBC | BORING LOG B-3 |
| Logged By: N. Jamba | Drill Crew: R. Posa | |
| Hor.-Vert. Datum: NAD83 - NAVD88 | Drilling Equipment: CME-53 | Hammer Type - Drop: 140 lb. Auto - 30 in. |
| Plunge: -90 degrees | Drilling Method: Hollow Stem Auger | |
| Weather: Clear, 60°F | Auger Diameter: 4 in. I.D. | |

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|--|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | Lithologic Description | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | Ground Surface Elevation (ft.): 189.00 Surface Condition: Bituminous Pavement | | | | | | | | | | | |
| | | 5" BITUMINOUS PAVEMENT | | | | | | | | | | | |
| | | Light gray, very dense, fine to coarse SAND and GRAVEL, little silt, trace asphalt, PID = 0.0 | 188.4 | BC=29 29 35 26 | 17" | | | | | | | | |
| | | Light brown, very dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.0 | 187.0 | BC=21 31 48 41 | 17" | | | | | | | | |
| 185 | | Light gray, very dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.0 | | BC=85 40 70 50 | 20" | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 180 | | Light gray, very dense, GRAVEL and SAND, little silt, PID = 29.0 | 179.5 | BC=100/5" | 5" | | | | | | | | |
| 10 | | <p>The boring was terminated at approximately 9.5 ft. below ground surface. The boring was backfilled with cuttings and sand on November 04, 2022.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: 1- Ground surface elevations based on a survey titled "Right of way / topographic survey- existing conditions plan" prepared by Kleinfelder. 2- A PID (ppmv) was used for environmental field screening. 3- Where strata breaks are not observed in the split spoon samples, strata breaks are inferred based on observation of drill rig behavior (rig bouncing and chattering), change in auger/rollerbit penetration resistance, drill cuttings and changes in drilling water color.</p> | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | |

PROJECT NUMBER: 20225069.002A
OFFICE FILTER: ROCKY HILL
GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.:
20225069.002A

DRAWN BY: NJ

CHECKED BY: MR

DATE: 11/22/2022

BORING LOG B-3


Downtown Sanitary and Sewer improvements
Downtown Naugatuck
Naugatuck, CT

PLOTTED: 11/22/2022 11:30 AM BY: Njamba

| | | |
|---|---|--|
| Date Begin - End: 11/04/2022 | Drilling Company: NEBC | BORING LOG B-4 |
| Logged By: N. Jamba | Drill Crew: R. Posa | |
| Hor.-Vert. Datum: NAD83 - NAVD88 | Drilling Equipment: CME-53 | Hammer Type - Drop: 140 lb. Auto - 30 in. |
| Plunge: -90 degrees | Drilling Method: Hollow Stem Auger | |
| Weather: Clear, 60°F | Auger Diameter: 4 in. I.D. | |

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|---|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | Lithologic Description | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | Ground Surface Elevation (ft.): 202.00 Surface Condition: Bituminous Pavement | | | | | | | | | | | |
| | | 5" BITUMINOUS PAVEMENT | | | | | | | | | | | |
| 200 | | Dark brown, very dense, fine to coarse SAND and GRAVEL, little silt, trace asphalt, PID = 0.1 | 201.4 | BC=19 29 28 30 | 13" | | | | | | | | |
| | | Light gray, very dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.1 | 200.0 | BC=20 23 30 40 | 18" | | | | | | | | |
| 5 | | Light gray, very dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.0 | | BC=38 100/5" | 12" | | | | | | | | |
| 195 | | | | | | | | | | | | | |
| 10 | | Dark gray, very dense, GRAVEL and SAND, little silt, PID = 0.1 | | BC=7 32 100/5" | 19" | | | | | | | | |
| 190 | | The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with cuttings and sand on November 04, 2022. | | | | | | | | | | | |
| 185 | | <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: 1- Ground surface elevations based on a survey titled "Right of way / topographic survey- existing conditions plan" prepared by Kleinfelder. 2- A PID (ppmv) was used for environmental field screening. 3- Where strata breaks are not observed in the split spoon samples, strata breaks are inferred based on observation of drill rig behavior (rig bouncing and chattering), change in auger/rollerbit penetration resistance, drill cuttings and changes in drilling water color.</p> | | | | | | | | | | | |

PROJECT NUMBER: 20225069.002A
OFFICE FILTER: ROCKY HILL
GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|---|--|---|
|  KLEINFELDER <i>Bright People. Right Solutions.</i> | PROJECT NO.: 20225069.002A | BORING LOG B-4 |
| | DRAWN BY: NJ CHECKED BY: MR DATE: 11/22/2022 | Downtown Sanitary and Sewer improvements Downtown Naugatuck Naugatuck, CT |

PLOTTED: 11/22/2022 11:30 AM BY: Njamba

| | | |
|---|---|--|
| Date Begin - End: 11/04/2022 | Drilling Company: NEBC | BORING LOG B-5 |
| Logged By: N. Jamba | Drill Crew: R. Posa | |
| Hor.-Vert. Datum: NAD83 - NAVD88 | Drilling Equipment: CME-53 | Hammer Type - Drop: 140 lb. Auto - 30 in. |
| Plunge: -90 degrees | Drilling Method: Hollow Stem Auger | |
| Weather: Clear, 60°F | Auger Diameter: 4 in. I.D. | |

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|---|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | Lithologic Description | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | Ground Surface Elevation (ft.): 201.00 Surface Condition: Bituminous Pavement | | | | | | | | | | | |
| | | 5" BITUMINOUS PAVEMENT | | | | | | | | | | | |
| 200 | | Dark gray, medium dense, fine to coarse SAND and GRAVEL, little silt, trace asphalt, PID = 0.0 | 200.4 | BC=23 13 10 11 | 14" | | | | | | | | |
| | | Light gray, medium dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.0 | 199.0 | BC=15 15 12 15 | 8" | | | | | | | | |
| 5 | | Light gray, medium dense, fine to coarse SAND and GRAVEL, little silt, PID = 0.0 | | BC=22 17 9 11 | 7" | | | | | | | | |
| 195 | | | | | | | | | | | | | |
| | | Dark gray, very dense, GRAVEL and SAND, little silt, PID = 0.0 | 194.5 | BC=100/5" | 4" | | | | | | | | |
| 10 | | The boring was terminated at approximately 9.5 ft. below ground surface. The boring was backfilled with cuttings and sand on November 04, 2022. | | | | | | | | | | | |
| 190 | | <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: 1- Ground surface elevations based on a survey titled "Right of way / topographic survey- existing conditions plan" prepared by Kleinfelder. 2- A PID (ppmv) was used for environmental field screening. 3- Where strata breaks are not observed in the split spoon samples, strata breaks are inferred based on observation of drill rig behavior (rig bouncing and chattering), change in auger/rollerbit penetration resistance, drill cuttings and changes in drilling water color.</p> | | | | | | | | | | | |
| 185 | | | | | | | | | | | | | |

PROJECT NUMBER: 20225069.002A
OFFICE FILTER: ROCKY HILL
GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.:
20225069.002A

DRAWN BY: NJ

CHECKED BY: MR

DATE: 11/22/2022

BORING LOG B-5

Downtown Sanitary and Sewer improvements
Downtown Naugatuck
Naugatuck, CT

Appendix B – Recent Boring Logs

DRILLING METHOD/SAMPLER TYPE GRAPHICS



GRAB SAMPLE

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

GROUND WATER GRAPHICS

- WATER LEVEL (level where first observed)
- WATER LEVEL (level after stabilizing period)
- WATER LEVEL (additional levels after exploration)
- OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Solid lines separating strata on the logs represent approximate boundaries only, dashed lines are inferred or extrapolated boundaries. Actual transitions may be gradual or differ from those represented.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (ASTM D2488/D2487) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, i.e., CL-ML, GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS

- C_u** - Coefficients of Uniformity
- C_c** - Coefficients of Curvature
- WOH** - Weight of Hammer
- WOR** - Weight of Rod

REFERENCES

1. American Society for Materials and Testing (ASTM), 2011, ASTM D2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System).

UNIFIED SOIL CLASSIFICATION SYSTEM¹

| | | | | | | |
|--|--|---|--|--|---|---|
| GRAVELS (More than 50% of coarse fraction retained on No. 200 Sieve) | GRAVELS WITH <5% FINES | | GW | WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND | | |
| | | | GP | POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND | | |
| | | GRAVELS WITH 5% TO 12% FINES | | GW-GM | WELL-GRADED GRAVEL WITH SILT, WELL-GRADED GRAVEL WITH SILT AND SAND | |
| | | | | GW-GC | WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY), WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILT CLAY AND SAND) | |
| | | | | GP-GM | POORLY GRADED GRAVEL WITH SILT, POORLY GRADED GRAVEL WITH SILT AND SAND | |
| | | | | GP-GC | POORLY GRADED GRAVEL WITH CLAY (OR SILTY CLAY), POORLY GRADED GRAVEL WITH CLAY AND (OR SILTY CLAY AND SAND) | |
| | GRAVELS WITH > 12% FINES | | GM | SILTY GRAVEL, SILTY GRAVEL WITH SAND | | |
| | | | GC | CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND | | |
| | | | GC-GM | SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL WITH SAND | | |
| | | SANDS (50% or more of coarse fraction passes the No. 4 Sieve) | CLEAN SANDS WITH <5% FINES | | SW | WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL |
| | | | | | SP | POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL |
| | | | SANDS WITH 5% TO 12% FINES | | SW-SM | WELL-GRADED SAND WITH SILT, WELL-GRADED SAND WITH SILT AND GRAVEL |
| | SW-SC | | | WELL-GRADED SAND WITH CLAY (OR SILTY CLAY), WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL) | | |
| | SP-SM | | | POORLY GRADED SAND WITH SILT, POORLY GRADED SAND WITH SILT AND GRAVEL | | |
| | SP-SC | | | POORLY GRADED SAND WITH CLAY, POORLY GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL) | | |
| SANDS WITH > 12% FINES | | SM | SILTY SAND, SILTY SAND WITH GRAVEL | | | |
| | | SC | CLAYEY SAND, CLAYEY SAND WITH GRAVEL | | | |
| | | SC-SM | SILTY, CLAYEY SAND, SILTY, CLAYEY SAND WITH GRAVEL | | | |
| FINE GRAINED SOILS (50% or more passes the No. #200 sieve) | SILTS AND CLAYS (Liquid Limit less than 50) | | ML | SILT, SILT WITH SAND, SILT WITH GRAVEL | | |
| | | | CL | LEAN CLAY, LEAN CLAY WITH SAND, LEAN CLAY WITH GRAVEL | | |
| | | | CL-ML | SILTY CLAY, SILTY CLAY WITH SAND, SILTY CLAY WITH GRAVEL | | |
| | SILTS AND CLAYS (Liquid Limit 50 or greater) | | OL | ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL | | |
| | | | MH | ELASTIC SILT, ELASTIC SILT WITH SAND, ELASTIC SILT WITH GRAVEL | | |
| | | | CH | FAT CLAY, FAT CLAY WITH SAND, FAT CLAY WITH GRAVEL | | |
| | | | OH | ORGANIC CLAY, ORGANIC CLAY WITH SAND, ORGANIC CLAY WITH GRAVEL, ORGANIC SILT, ORGANIC SILT WITH SAND, ORGANIC SILT WITH GRAVEL | | |

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

| | | |
|--|---|---|
| KLEINFELDER <i>Bright People. Right Solutions.</i> | PROJECT NO.: 24001774.001A | GRAPHICS KEY Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | |

GRAIN SIZE¹

| DESCRIPTION | | SIEVE SIZE | GRAIN SIZE |
|-------------|--------|--------------|--------------------------------------|
| Boulders | | >12 in. | >12 in. (304.8 mm.) |
| Cobbles | | 3 - 12 in. | 3 - 12 in. (76.2 - 304.8 mm.) |
| Gravel | coarse | 3/4 - 3 in. | 3/4 - 3 in. (19 - 76.2 mm.) |
| | fine | #4 - 3/4 in. | 0.19 - 0.75 in. (4.8 - 19 mm.) |
| Sand | coarse | #10 - #4 | 0.079 - 0.19 in. (2 - 4.9 mm.) |
| | medium | #40 - #10 | 0.017 - 0.079 in. (0.43 - 2 mm.) |
| | fine | #200 - #40 | 0.0029 - 0.017 in. (0.07 - 0.43 mm.) |
| Fines | | Passing #200 | <0.0029 in. (<0.07 mm.) |

SECONDARY CONSTITUENT¹

| Term of Use | AMOUNT | |
|-------------|---------------------------------------|---|
| | Secondary Constituent is Fine Grained | Secondary Constituent is Coarse Grained |
| Trace | <5% | <15% |
| With | ≥5 to <15% | ≥15 to <30% |
| Modifier | ≥15% | ≥30% |

PLASTICITY¹

| DESCRIPTION | CRITERIA |
|-------------|--|
| Non-Plastic | A 1/8 in. (3 mm) thread cannot be rolled at any water content. |
| Low | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit. |
| Medium | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit. |
| High | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit. |

MOISTURE CONTENT¹

| DESCRIPTION | FIELD TEST |
|-------------|---|
| Dry | Absence of moisture, dusty, dry to the touch |
| Moist | Damp but no visible water |
| Wet | Visible free water, usually soil is below water table |

CONSISTENCY - FINE-GRAINED SOIL^{2,3}

| CONSISTENCY | SPT - N (# blows / ft) | Pocket Pen (tsf) | UNCONFINED COMPRESSIVE STRENGTH (Q _u)(psf) | VISUAL / MANUAL CRITERIA |
|--------------|------------------------|------------------|--|---|
| Very Soft | <2 | PP < 0.25 | <500 | Easily penetrated several inches by fist |
| Soft | 2 - 4 | 0.25 ≤ PP < 0.5 | 500 - 1,000 | Easily penetrated several inches by thumb |
| Medium Stiff | 4 - 8 | 0.5 ≤ PP < 1 | 1,000 - 2,000 | Can be penetrated several inches by thumb with moderate effort |
| Stiff | 8 - 15 | 1 ≤ PP < 2 | 2,000 - 4,000 | Readily indented by thumb but penetrated only with great effort |
| Very Stiff | 15 - 30 | 2 ≤ PP < 4 | 4,000 - 8,000 | Readily indented by thumbnail |
| Hard | >30 | 4 ≤ PP | >8,000 | Indented by thumbnail with difficulty |

APPARENT DENSITY - COARSE-GRAINED SOIL²

| APPARENT DENSITY | SPT-N (# blows / ft) |
|------------------|----------------------|
| Very Loose | <4 |
| Loose | 4 - 10 |
| Medium Dense | 10 - 30 |
| Dense | 30 - 50 |
| Very Dense | >50 |

STRUCTURE¹

| DESCRIPTION | CRITERIA |
|--------------|---|
| Stratified | Alternating layers of varying material or color with layers at least 1/4-in. (6mm) thick, note thickness. |
| Laminated | Alternating layers of varying material or color with the layers less than 1/4-in. (6 mm) thick, note thickness. |
| Fissured | Breaks along definite planes of fracture with little resistance to fracturing. |
| Slickensided | Fracture planes appear polished or glossy, sometimes striated. |
| Blocky | Cohesive soil that can be broken down into small angular lumps which resist further breakdown. |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness. |
| Homogeneous | Same color and appearance throughout |

ANGULARITY¹

| DESCRIPTION | CRITERIA |
|-------------|---|
| Angular | Particles have sharp edges and relatively plane sides with unpolished surfaces. |
| Subangular | Particles are similar to angular description but have rounded edges. |
| Subrounded | Particles have nearly plane sides but have well-rounded corners and edges. |
| Rounded | Particles have smoothly curved sides and no edges. |

REACTION WITH HYDROCHLORIC ACID¹


| DESCRIPTION | FIELD TEST |
|-------------|--|
| None | No visible reaction |
| Weak | Some reaction, with bubbles forming slowly |
| Strong | Violent reaction, with bubbles forming immediately |

CEMENTATION¹

| DESCRIPTION | FIELD TEST |
|-------------|--|
| Weakly | Crumbles or breaks with handling or little finger pressure |
| Moderately | Crumbles or breaks with considerable finger pressure |
| Strongly | Will not crumble or break with finger pressure |

REFERENCES

- American Society for Materials and Testing (ASTM), 2017, ASTM D2488: Standard Practice for Description and Identification of Soils (Visual Manual Procedures).
- Terzaghi, K and Peck, R., 1948, Soil Mechanics in Engineering Practice, John Wiley & Sons, New York.
- United States Department of the Interior Bureau of Reclamation (USBR), 1998, Earth Manual, Part I.

| | | |
|---|--|--|
|  | PROJECT NO.: 24001774.001A DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | SOIL DESCRIPTION KEY (For additional tables, see ASTM D2488) Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | | |

PLOTTED: 10/30/2023 12:41 AM BY: SPanda


Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-101**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 60s to 70s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | Additional Tests/Remarks | |
|------------------|--------------|---|------------------------|-------------------------|-------------|---|------------------------------|----------------|----------------------|--------------------|----------------|------------------|--------------|---|-------------------------------------|
| | | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | | Plasticity Index (NP=NonPlastic) |
| 190 | | 6" Asphalt Pavement | | | | | | | | | | | | | |
| | | 189.94 Light-brown, very dense, GRAVEL and fine to coarse SAND, trace silt, moist [FILL] | S-1 | BC=35 50 50/4" | 15" | | | | 61 | 11 | | | | Concrete and boulder fragments observed in spoon | |
| | | Grey-white, very dense, GRAVEL and fine to coarse SAND, trace silt, dry [FILL] | S-2 | BC=32 47 47 50 | 10" | | | | 61 | 9.0 | | | | Concrete and boulder fragments observed in spoon | |
| | 5 | Grey, very dense, GRAVEL, some fine to coarse sand, trace silt, dry [FILL] | S-3 | BC=20 37 63/4" | 10" | | | | | | | | | Concrete and boulder fragments observed in spoon | |
| 185 | | Grey, very dense, GRAVEL and fine to coarse SAND, trace silt, dry [FILL] | S-4 | BC=65 94 6/0.5" | 6" | | | | | | | | | Powdered concrete and boulder fragments observed in spoon | |

The boring was terminated because of split spoon refusal (↑) at approximately 7.5 ft. below ground surface on potential concrete slab. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023.

GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.)
 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023.

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT LIBRARY: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]


| | | |
|---|---|---|
|  | PROJECT NO.: 24001774.001A | BORING LOG B-101 Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | |

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-102**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 60s to 70s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | Additional Tests/Remarks | |
|------------------|--------------|---------------|--|---------------|------------------------|---------------------------|--------------------|-------------------|--------------------|----------------|------------------|--------------|----------------------------------|--------------------------|--|
| | | | Lithologic Description | Sample Number | Sample Type | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | | |
| | | | 6" Asphalt Pavement | | | | | | | | | | | | |
| | | | Connecticut State Plane Coordinate System Ground Surface Elevation (ft.): 188.90 Surface Condition: Asphalt | | | | | | | | | | | | |
| | | | 188.4 | S-1 | BC=8 35 44 29 | 10" | | | | 54 | 10 | | | | |
| | | | White, very dense, GRAVEL, some fine to coarse sand, trace silt, dry [FILL] | | | | | | | | | | | | |
| | | | 185 | S-2 | BC=9 29 71/4" | 4" | | | | 59 | 13 | | | | |
| | | | Brown, very dense, GRAVEL and fine to coarse SAND, some silt, dry [FILL] | | | | | | | | | | | | |
| | | | 5 | S-3 | BC=8 40 53 80 | 9" | | | | 39 | 5.0 | | | | |
| | | | Brown, very dense, GRAVEL, some fine to coarse sand, trace silt, dry [FILL] | | | | | | | | | | | | |
| | | | 181.7 | S-4 | BC=19 100/2" | 2" | | | | | | | | | |
| | | | Brown, very dense, fine to coarse SAND, liilte gravel, dry [FILL] | | | | | | | | | | | | |
| | | | <p>The boring was terminated because of split spoon refusal (↑) at approximately 7 ft. below ground surface on potential concrete slab. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023.</p> <p>GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion.</p> <p>GENERAL NOTES: 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.) 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023.</p> | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | Drill rig chattered |
| | | | | | | | | | | | | | | | Refusal due to bouncing of SPT hammer at 7.17 ft bgs |

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT LIBRARY: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|---|---|---|
|  | PROJECT NO.: 24001774.001A | BORING LOG B-102 Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | |

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/15/2023
Logged By: S. Panda
Hor.-Vert. Datum: NAD83 - NAVD88
Plunge: -90 degrees
Weather: 60s to 70s Overcast

Drilling Company: Soil Testing Inc.
Drill Crew: J. Kneepel
Drilling Equipment: Diedrich D-50
Drilling Method: Hollow Stem Auger
Exploration Diameter: 4.25 in. I.D.

BORING LOG B-103

Hammer Type - Drop: 140 lb. Cathead - 30 in.

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | | LABORATORY RESULTS | | | | | | | |
|----------------------------------|---------------|--|---------------|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|--|
| | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | 4" Asphalt pavement | | | | | | | | | | | | |
| | | 8" Reinforced concrete slab | | | 186.99 | | | | | | | | | |
| 185 | | Black, medium dense, fine to coarse SAND and GRAVEL, some silt, dry [FILL] | S-1 | | 186.32 | BC=20 10 14 18 | 8" | | | 53 | 10 | | | Reinforced concrete fragments observed in spoon |
| | | Dark brown, medium dense, fine to coarse SAND and GRAVEL, some silt, trace roots, dry [FILL] | S-2 | | | BC=17 9 7 11 | 9" | | | 67 | 15 | | | |
| 5 | | Dark brown, medium dense, fine to coarse SAND and GRAVEL, some silt and clay, dry [FILL] | S-3 | | | BC=9 11 8 10 | 9" | | | 66 | 15 | | | |
| 180 | | Dark brown, medium dense, fine to coarse SAND and GRAVEL, little silt, dry [FILL] | S-4 | | | BC=16 12 11 11 | 6" | | | | | | | |
| 10 | | Yellow, medium dense, fine to coarse SAND, some gravel, trace silt, dry | S-5 | | 177.82 | BC=9 9 8 12 | 15" | | | | | | | Drill rig chattered, dry reddish rounded stones and cobbles observed in auger spoils. Rounded gravel particles. |
| 175 | | | | | | | | | | | | | | Drill rig chattered |
| 15 | | Brown, very dense, GRAVEL, some fine to coarse sand, little silt and clay, wet | S-6 | | | BC=30 100/5" | 9" | | | | | | | Drilling method changed from Hollow Stem Auger to Drive and wash with casing (4" ID) Rounded gravel particles. Refusal due to bouncing of hammer |
| 170 | | | | | | | | | | | | | | Drill rig chattered, rounded stones and cobbles observed in auger spoils |
| 20 | | Brown, medium dense, coarse SAND and GRAVEL, little silt, wet | S-7 | | | BC=6 9 10 20 | 20" | | | | | | | |
| 165 | | | | | | | | | | | | | | |

PROJECT NUMBER: 24001774.001A
 OFFICE FILTER: BOSTON
 GINT LIBRARY: 2024.GLB [KLF_BORING/TEST PIT SOIL LOG]
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY



PROJECT NO.: 24001774.001A
 DRAWN BY: SP
 CHECKED BY: MR
 DATE: 9/19/2023


BORING LOG B-103
 Parcels A & B Major Hub Development Concept Design
 6 Rubber Avenue
 Naugatuck, CT

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/15/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-103**
Logged By: S. Panda **Drill Crew:** J. Kneepel
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-50 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 60s to 70s Overcast **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | | LABORATORY RESULTS | | | | | | | |
|------------------|--------------|---------------|--|---------------|-------------|---|------------------------------|--------------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|
| | | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| | | | Connecticut State Plane Coordinate System Ground Surface Elevation (ft.): 187.32 Surface Condition: Asphalt | | | | | | | | | | | | |
| | | | Yellow/brown, medium dense, coarse SAND and GRAVEL, some silt, wet | S-8 | | BC=4 9 11 15 | 11" | | | | | | | | |
| 160 | | | <p style="text-align: center;">160.32</p> <p>The boring was terminated at approximately 27 ft. below ground surface. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 15, 2023.</p> <p><u>GROUNDWATER LEVEL INFORMATION:</u> <input checked="" type="checkbox"/> Groundwater was observed at approximately 13.5 ft. below ground surface during drilling. <input checked="" type="checkbox"/> Groundwater was observed at approximately 12.5 ft. below ground surface at the end of drilling.</p> <p><u>GENERAL NOTES:</u> 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.) 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023.</p> | | | | | | | | | | | | |

GINT FILE: KLF_gint_master_2024
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]
 PROJECT NUMBER: 24001774.001A
 OFFICE FILTER: BOSTON

| | | |
|---|---|--|
|  | PROJECT NO.: 24001774.001A | BORING LOG B-103 |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-104**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 70s to 80s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | | |
|----------------------------------|---------------|--|---------------|-------------|---|------------------------------|----------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|---|
| | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks |
| 185 | | 6" Asphalt pavement | | | | | | | | | | | | |
| 185.25 | | 6" Concrete slab | | | | | | | | | | | | |
| 184.75 | | Brown, GRAVEL and fine to coarse SAND, some silt, dry [FILL] | G-1 | | | | | | | | | | | 0 ft to 5 ft below ground surface had drilled to pre-clear utilities. Concrete fragments observed during hand drilling |
| 180 | | Brown, very dense, fine to coarse SAND, some silt, little gravel, dry | S-1 | | BC=10 35 22 28 | 6" | | | 55 | 11 | | | | |
| 176.25 | | Brown, dense, fine to coarse SAND and GRAVEL, some silt, dry | S-2 | | BC=14 10 23 15 | 6" | | | 60 | 11 | | | | |
| 175 | | Top (A): Brown, SILT and CLAY, little gravel, little sand, wet | S-3A | | BC=3 13 | 4" | | | | | | | | |
| | | Bottom (B): Brown, SILT and fine to medium SAND, little gravel, wet | S-3B | | BC=11 12 | 8" | | | | | | | | |
| 170 | | Brown, medium dense, GRAVEL and fine to coarse SAND, some silt and clay, wet | S-4 | | BC=12 14 13 12 | 8" | | | | | | | | |
| 167.25 | | Brown, medium dense, fine to coarse SAND, little gravel, trace silt, wet | S-5 | | BC=4 9 14 12 | 12" | | | | | | | | |

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT LIBRARY: 2024.GLB [KLF_BORING/TEST PIT SOIL LOG]
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY



PROJECT NO.: 24001774.001A
 DRAWN BY: SP
 CHECKED BY: MR
 DATE: 9/19/2023

BORING LOG B-104
 Parcels A & B Major Hub Development Concept Design
 6 Rubber Avenue
 Naugatuck, CT

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-104**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 70s to 80s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | | | |
|------------------|--------------|---------------|--|---------------|-------------|---|---|----------------|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|------------------------------|--|
| | | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | Additional Tests/ Remarks | |
| 160 | | | Brown, loose, fine to coarse SAND and SILT, little gravel, wet | S-6 | | BC=9 4 4 6 | 15" | | | | | | | | | |
| 155 | | | Brown, dense, fine to coarse SAND, some gravel, little silt, wet | S-7 | | BC=21 20 15 73/5" | 23" | | | | | | | | | |
| 153.75 | | | The boring was terminated at approximately 32 ft. below ground surface. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023. | | | | GROUNDWATER LEVEL INFORMATION: ☒ Groundwater was observed at approximately 9 ft. below ground surface during drilling. GENERAL NOTES: 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.) 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023. | | | | | | | | | |

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.:
24001774.001A

 DRAWN BY: SP
 CHECKED BY: MR
 DATE: 9/19/2023

BORING LOG B-104

 Parcels A & B Major Hub Development Concept Design
 6 Rubber Avenue
 Naugatuck, CT


PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-105**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 70s to 80s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | Additional Tests/ Remarks | |
|------------------|--------------|---------------|---|---------------|-------------|---|------------------------------|----------------|----------------------|--------------------|----------------|------------------|--------------|------------------------------|-------------------------------------|
| | | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | | Plasticity Index (NP=NonPlastic) |
| | | | Connecticut State Plane Coordinate System Ground Surface Elevation (ft.): 186.36 Location Offset: 31 ft East of Stake Surface Condition: Asphalt and Gravel | | | | | | | | | | | | |
| | | | 6" loose gravel and asphalt | | | | | | | | | | | | |
| 185 | | | 185.86 Grey, dense, GRAVEL and fine to coarse SAND, little silt, dry [FILL] | S-1 | | BC=2 23 20 8 | 9" | | | | 54 | 7.0 | | | |
| | | | Brown, loose, fine to coarse SAND and GRAVEL, some silt, dry [FILL] | S-2 | | BC=8 4 6 24 | 8" | | | | 67 | 7.0 | | | |
| 5 | | | 181.86 Brown, loose, fine to coarse SAND and SILT, some gravel, dry | S-3 | | BC=7 5 4 6 | 6" | | | | | | | | |
| 180 | | | Brown, dense, fine to coarse SAND, some silt, little gravel, dry | S-4 | | BC=12 16 19 14 | 14" | | | | | | | | |
| | | | 177.86 The boring was terminated at approximately 8.5 ft. below ground surface. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023. | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |
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| 15 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |



GROUNDWATER LEVEL INFORMATION:
 Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.)
 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023.

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|---|---|---|
|  | PROJECT NO.: 24001774.001A | BORING LOG B-105 Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | |

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-105A**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 70s to 80s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) | Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | | LABORATORY RESULTS | | | | | | | Additional Tests/Remarks | | |
|------------------|--------------|---|---|---------------|-------------|---|------------------------------|--|----------------------|--------------------|----------------|------------------|--------------|-------------------------------------|--------------------------|--|---|
| | | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | Plasticity Index (NP=NonPlastic) | | | |
| | | | 6" loose gravel and asphalt | | | | | | | | | | | | | | |
| 185 | |  | 185.91 Reddish brown, medium dense, GRAVEL and fine to coarse SAND, some silt, dry [FILL] | S-1 | | BC=3 11 10 8 | 7" | | | | | | | | | | Red brick fragments observed in spoon |
| | | | 182.91 Reddish brown, very dense, GRAVEL, some fine to coarse sand, little silt, dry [FILL] | S-2 | | BC=13 16 50/0" | 10" | | | | | | | | | | Brick fragments observed in split spoon. Refusal due to bouncing of hammer. |
| 5 | |  | The boring was terminated because of practical auger refusal (↑) at approximately 3.5 ft. below ground surface on potential concrete slab. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023. | | | | | GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: 1. Boring was offset to B-105 by approximately 31 ft eastwards. 2. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.) 3. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023. | | | | | | | | | |

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT FILE: KLF_gint_master_2024 GINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]



PROJECT NO.: 24001774.001A
 DRAWN BY: SP
 CHECKED BY: MR
 DATE: 9/19/2023


BORING LOG B-105A
 Parcels A & B Major Hub Development Concept Design
 6 Rubber Avenue
 Naugatuck, CT

PLOTTED: 10/30/2023 12:42 AM BY: SPanda

Date Begin - End: 9/14/2023 **Drilling Company:** Soil Testing Inc. **BORING LOG B-106**
Logged By: S. Panda **Drill Crew:** S. DeAngelis
Hor.-Vert. Datum: NAD83 - NAVD88 **Drilling Equipment:** Diedrich D-120 **Hammer Type - Drop:** 140 lb. Cathead - 30 in.
Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger
Weather: 70s to 80s Sunny **Exploration Diameter:** 4.25 in. I.D.

| Elevation (feet) Depth (feet) | Graphical Log | FIELD EXPLORATION | | | | LABORATORY RESULTS | | | | | | | Additional Tests/ Remarks | |
|----------------------------------|---------------|---|---------------|-------------|---|---|----------------|----------------------|--------------------|----------------|------------------|--------------|------------------------------|-------------------------------------|
| | | Lithologic Description | Sample Number | Sample Type | Blow Counts(BC)= Uncorr. Blows/6 in. | Recovery (NR=No Recovery) | USCS Symbol | Water Content (%) | Dry Unit Wt. (pcf) | Passing #4 (%) | Passing #200 (%) | Liquid Limit | | Plasticity Index (NP=NonPlastic) |
| | | 5" loose gravel and asphalt pavement | | | | | | | | | | | | |
| 184.12 | | Black, dense, fine to coarse SAND, some silt, little gravel, dry [FILL] | S-1 | | BC=1 15 25 14 | 14" | | | | 66 | 14 | | | |
| | | No recovery | S-2 | | BC=8 6 6 4 | NR | | | | | | | | |
| 180.04 | | Brown, loose, fine to medium SAND, some silt, dry | S-3 | | BC=2 3 3 2 | 17" | | | | 100 | 20 | | | |
| | | Top (A): Brown, SILT and fine to coarse SAND, trace gravel, dry | S-4A | | BC=10 7 | 8" | | | | | | | | |
| | | Bottom (B): Yellow, fine to coarse SAND, trace silt, dry | S-4B | | BC=4 13 | 8" | | | | | | | | |
| 176.04 | | The boring was terminated at approximately 8.5 ft. below ground surface. The boring was backfilled with auger cuttings, bentonite and cold-patched with asphalt at surface on September 14, 2023. | | | | GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GENERAL NOTES: 1. When strata breaks are not observed in the split spoon, strata breaks are inferred based on rig behavior (bouncing, chattering, penetration resistance, drilling water color, etc.) 2. Ground surface elevation based on plan titled "Right of Way/Topographic Survey - Existing Conditions Plans", prepared by Martinez, Couch and Associates LLC, dated October 7, 2023. | | | | | | | | |

PROJECT NUMBER: 24001774.001A OFFICE FILTER: BOSTON
 GINT LIBRARY: E:KLF_STANDARD_GINT_LIBRARY_2024.GLB [KLF_BORING/TEST PIT SOIL LOG]

| | | |
|---|---|---|
|  | PROJECT NO.: 24001774.001A | BORING LOG B-106 Parcels A & B Major Hub Development Concept Design 6 Rubber Avenue Naugatuck, CT |
| | DRAWN BY: SP CHECKED BY: MR DATE: 9/19/2023 | |

Appendix C – Geotechnical Laboratory Results



195 Frances Avenue
 Cranston RI, 02910
 Phone: (401)-467-6454
 Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:
 Kleinfelder
 Boston, MA
 Project Manager: Shradha Panda
 Assigned By: Client
 Collected By: Client

Project Information:
Parcel A & B Major Hub Development
Naugatuck, CT
 Client Project Number: 24001774.001A
 Summary Page: 1 of 2
 Report Date: 10.12.23

LABORATORY TESTING DATA SHEET, Report No.: 7423-K-B003

| Boring No. | Sample ID | Depth (ft) | Laboratory No. | Identification Tests | | | | | | | | | | Proctor / CBR / Permeability Tests | | | | | | | Laboratory Log and Soil Description | | |
|------------|-----------|------------|----------------|----------------------------|-------|------|-------|----------|--------|---------|--------|-------|-------------------------------|---------------------------------------|--------------------|-------------------------|-----------------------------------|------------|------------|---------------------|-------------------------------------|--|---|
| | | | | As Rcvd Moisture Content % | LL % | PL % | OD LL | Gravel % | Sand % | Fines % | Org. % | pH | g_d MAX (pcf) W_{opt} (%) | g_d MAX (pcf) W_{opt} (%) (Corr.) | Dry unit wt. (pcf) | Test Moisture Content % | Target Test Setup as % of Proctor | CBR @ 0.1" | CBR @ 0.2" | Permeability cm/sec | | | |
| | | | | D2216 | D4318 | | | D6913 | | | D2974 | D4792 | D1557 | | | | | | | | | | |
| B-101 | S-1 | 0.5-2.5 | 23-S-B767 | | | | | 39.3 | 49.4 | 11.3 | | | | | | | | | | | | | Brown poorly graded sand with silt and gravel |
| B-101 | S-2 | 2.5-4.5 | 23-S-B768 | | | | | 39.1 | 51.5 | 9.4 | | | | | | | | | | | | | Brown poorly graded sand with silt and gravel |
| B-102 | S-1 | 0.5-2.5 | 23-S-B769 | | | | | 46.3 | 43.6 | 10.1 | | | | | | | | | | | | | Brown poorly graded gravel with silt and sand |
| B-102 | S-2 | 2.5-4.5 | 23-S-B770 | | | | | 41.4 | 45.8 | 12.8 | | | | | | | | | | | | | Brown silty sand with gravel |
| B-102 | S-3 | 4.5-6.5 | 23-S-B771 | | | | | 60.9 | 34.4 | 4.7 | | | | | | | | | | | | | Brown well-graded gravel with sand |
| B-103 | S-1 | 1-3 | 23-S-B772 | | | | | 47.0 | 43.2 | 9.8 | | | | | | | | | | | | | Brown poorly graded gravel with silt and sand |
| B-103 | S-2 | 3-5 | 23-S-B773 | | | | | 33.5 | 51.6 | 14.9 | | | | | | | | | | | | | Brown silty sand with gravel |
| B-103 | S-3 | 5-7 | 23-S-B774 | | | | | 34.5 | 51.0 | 14.5 | | | | | | | | | | | | | Brown silty sand with gravel |
| B-104 | S-1 | 5-7 | 23-S-B775 | | | | | 45.1 | 44.1 | 10.8 | | | | | | | | | | | | | Brown poorly graded gravel with silt and sand |
| B-104 | S-2 | 7-9 | 23-S-B776 | | | | | 40.4 | 48.9 | 10.7 | | | | | | | | | | | | | Brown poorly graded sand with silt and gravel |
| B-105 | S-1 | 0.5-2.5 | 23-S-B777 | | | | | 45.9 | 46.8 | 7.3 | | | | | | | | | | | | | Brown poorly graded sand with silt and gravel |
| B-105 | S-2 | 2.5-4.5 | 23-S-B778 | | | | | 33.0 | 60.5 | 6.5 | | | | | | | | | | | | | Brown poorly graded sand with silt and gravel |

Date Received: 10.4.23

Reviewed By: 

Date Reviewed: 10.13.23



195 Frances Avenue
 Cranston RI, 02910
 Phone: (401)-467-6454
 Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:
 Kleinfelder
 Boston, MA
 Project Manager: Shradha Panda
 Assigned By: Client
 Collected By: Client

Project Information:
 Parcel A & B Major Hub Development
 Naugatuck, CT
 Client Project Number: 24001774.001A
 Summary Page: 2 of 2
 Report Date: 10.12.23

LABORATORY TESTING DATA SHEET, Report No.: 7423-K-B003

| Boring No. | Sample ID | Depth (ft) | Laboratory No. | Identification Tests | | | | | | | | | | Proctor / CBR / Permeability Tests | | | | | | | Laboratory Log and Soil Description | | | |
|------------|-----------|------------|----------------|----------------------------|-------|------|-------|----------|--------|---------|--------|-------|-------------------------------|---------------------------------------|--------------------|-------------------------|-----------------------------------|------------|------------|---------------------|-------------------------------------|------------------------------|--|--|
| | | | | As Rcvd Moisture Content % | LL % | PL % | OD LL | Gravel % | Sand % | Fines % | Org. % | pH | g_d MAX (pcf) W_{opt} (%) | g_d MAX (pcf) W_{opt} (%) (Corr.) | Dry unit wt. (pcf) | Test Moisture Content % | Target Test Setup as % of Proctor | CBR @ 0.1" | CBR @ 0.2" | Permeability cm/sec | | | | |
| | | | | D2216 | D4318 | | | D6913 | | | D2974 | D4792 | D1557 | | | | | | | | | | | |
| B-106 | S-1 | 0.5-2.5 | 23-S-B779 | | | | | 34.5 | 51.3 | 14.2 | | | | | | | | | | | | Brown silty sand with gravel | | |
| B-106 | S-3 | 4.5-6.5 | 23-S-B780 | | | | | 0.0 | 80.0 | 20.0 | | | | | | | | | | | | Brown silty sand | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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Date Received: 10.4.23

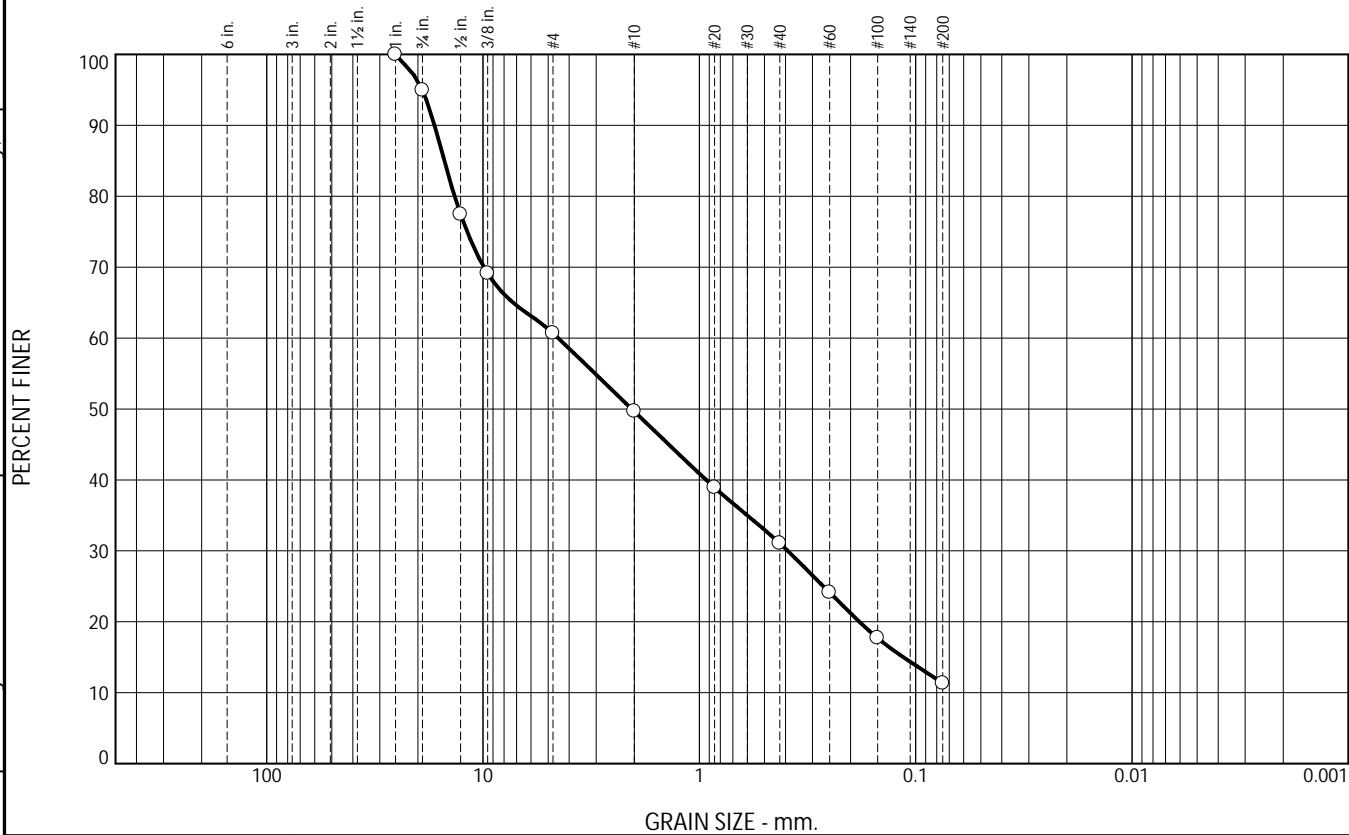
Reviewed By: 

Date Reviewed: 10.13.23

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 This report shall not be reproduced, except in full, without prior written approval from the Agency, as defined in ASTM E329.

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspected and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 5.1 | 34.2 | 11.0 | 18.6 | 19.8 | 11.3 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 94.9 | | |
| 1/2" | 77.4 | | |
| 3/8" | 69.1 | | |
| #4 | 60.7 | | |
| #10 | 49.7 | | |
| #20 | 38.9 | | |
| #40 | 31.1 | | |
| #60 | 24.1 | | |
| #100 | 17.7 | | |
| #200 | 11.3 | | |

* (no specification provided)

Soil Description

Brown poorly graded sand with silt and gravel

| | | |
|---------------------------|-----------------------------------|--------------------------|
| PL= NP | <u>Atterberg Limits</u> LL= NV | PI= NP |
| <u>Coefficients</u> | | |
| D ₉₀ = 16.7636 | D ₈₅ = 15.0828 | D ₆₀ = 4.4955 |
| D ₅₀ = 2.0542 | D ₃₀ = 0.3905 | D ₁₅ = 0.1140 |
| D ₁₀ = | C _u = | C _c = |
| <u>Classification</u> | | |
| USCS= SP-SM | AASHTO= | A-1-b |
| <u>Remarks</u> | | |

Source of Sample: Boring Depth: 0.5-2.5'
 Sample Number: B-101 / S-1

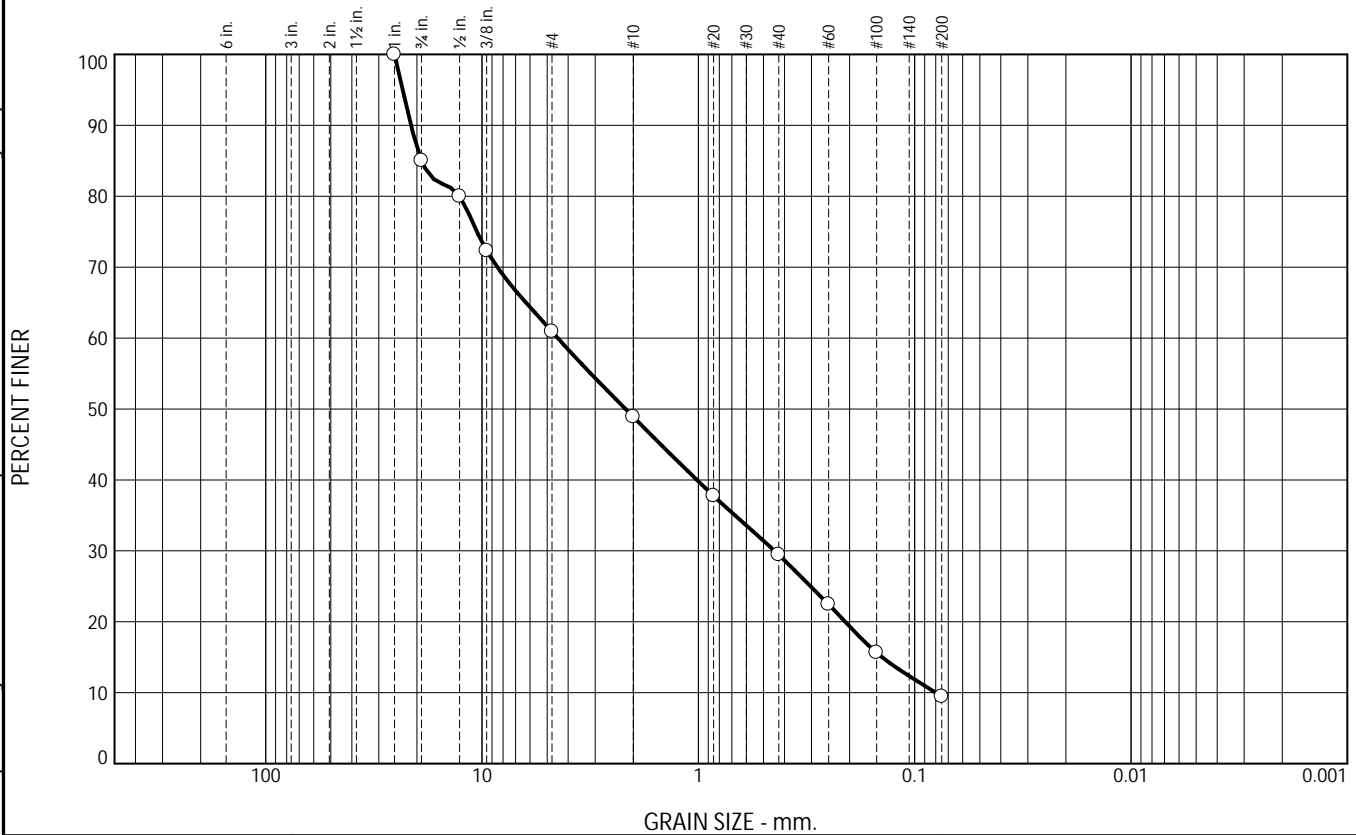
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B767 | |

Tested By: SF Checked By: Andrew Flanagan

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspected and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 15.0 | 24.1 | 12.0 | 19.5 | 20.0 | 9.4 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 85.0 | | |
| 1/2" | 80.0 | | |
| 3/8" | 72.3 | | |
| #4 | 60.9 | | |
| #10 | 48.9 | | |
| #20 | 37.8 | | |
| #40 | 29.4 | | |
| #60 | 22.4 | | |
| #100 | 15.6 | | |
| #200 | 9.4 | | |

Soil Description

Brown poorly graded sand with silt and gravel

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 21.3038 D₈₅= 19.0392 D₆₀= 4.4652
 D₅₀= 2.1706 D₃₀= 0.4449 D₁₅= 0.1414
 D₁₀= 0.0801 C_u= 55.74 C_c= 0.55

Coefficients

Classification

USCS= SP-SM AASHTO= A-1-a

Remarks

Sample contains urban debris.

* (no specification provided)

Source of Sample: Boring Depth: 2.5-4.5'
 Sample Number: B-101 / S-2

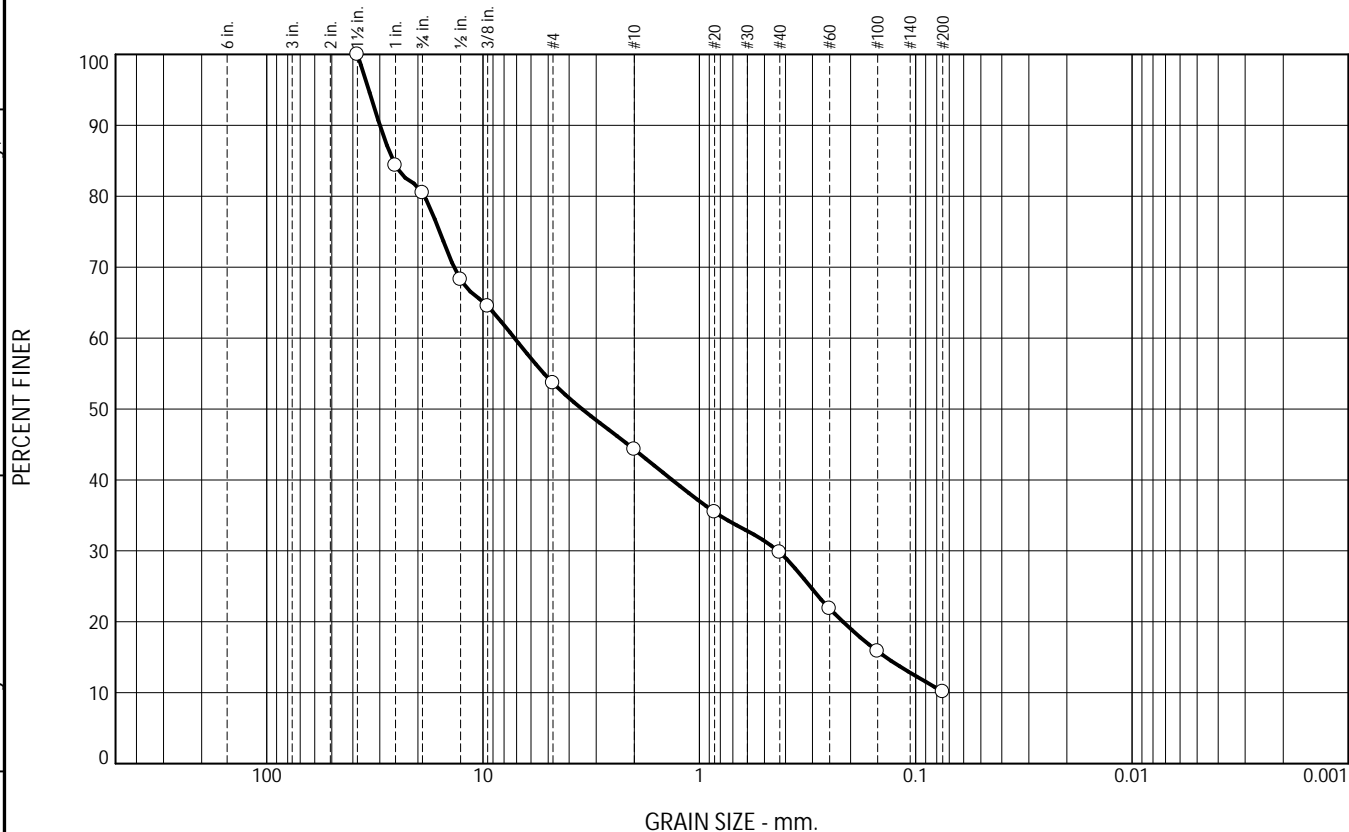
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B768 | |

Tested By: SF Checked By: Andrew Flanagan

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspected and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 19.5 | 26.8 | 9.4 | 14.5 | 19.7 | 10.1 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 84.3 | | |
| 3/4" | 80.5 | | |
| 1/2" | 68.2 | | |
| 3/8" | 64.5 | | |
| #4 | 53.7 | | |
| #10 | 44.3 | | |
| #20 | 35.5 | | |
| #40 | 29.8 | | |
| #60 | 21.8 | | |
| #100 | 15.8 | | |
| #200 | 10.1 | | |

* (no specification provided)

Soil Description

Brown poorly graded gravel with silt and sand

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 29.9640 D₈₅= 26.0093 D₆₀= 7.1484
 D₅₀= 3.4863 D₃₀= 0.4339 D₁₅= 0.1375
 D₁₀= C_u= C_c=

Classification
 USCS= GP-GM AASHTO= A-1-a

Remarks

Source of Sample: Boring Depth: 0.5-2.5'
 Sample Number: B-102 / S-1

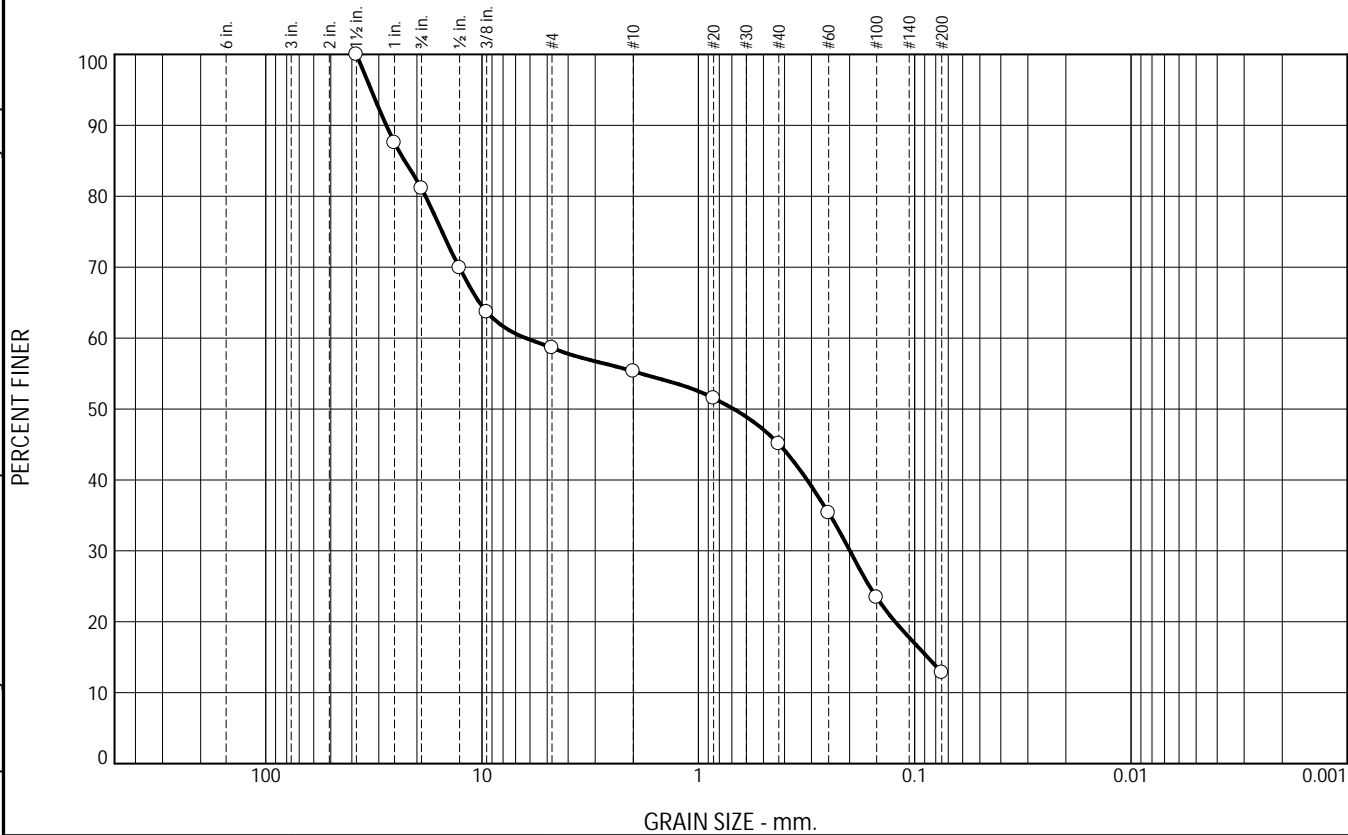
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B769 | |

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 18.9 | 22.5 | 3.3 | 10.2 | 32.3 | 12.8 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 87.5 | | |
| 3/4" | 81.1 | | |
| 1/2" | 69.9 | | |
| 3/8" | 63.7 | | |
| #4 | 58.6 | | |
| #10 | 55.3 | | |
| #20 | 51.5 | | |
| #40 | 45.1 | | |
| #60 | 35.4 | | |
| #100 | 23.4 | | |
| #200 | 12.8 | | |

Soil Description

Brown silty sand with gravel

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 27.7184 D₈₅= 22.7860 D₆₀= 6.2825
 D₅₀= 0.6867 D₃₀= 0.1992 D₁₅= 0.0871
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO= A-1-b

Remarks

* (no specification provided)

Source of Sample: Boring Depth: 2.5-4.5'
 Sample Number: B-102 / S-2

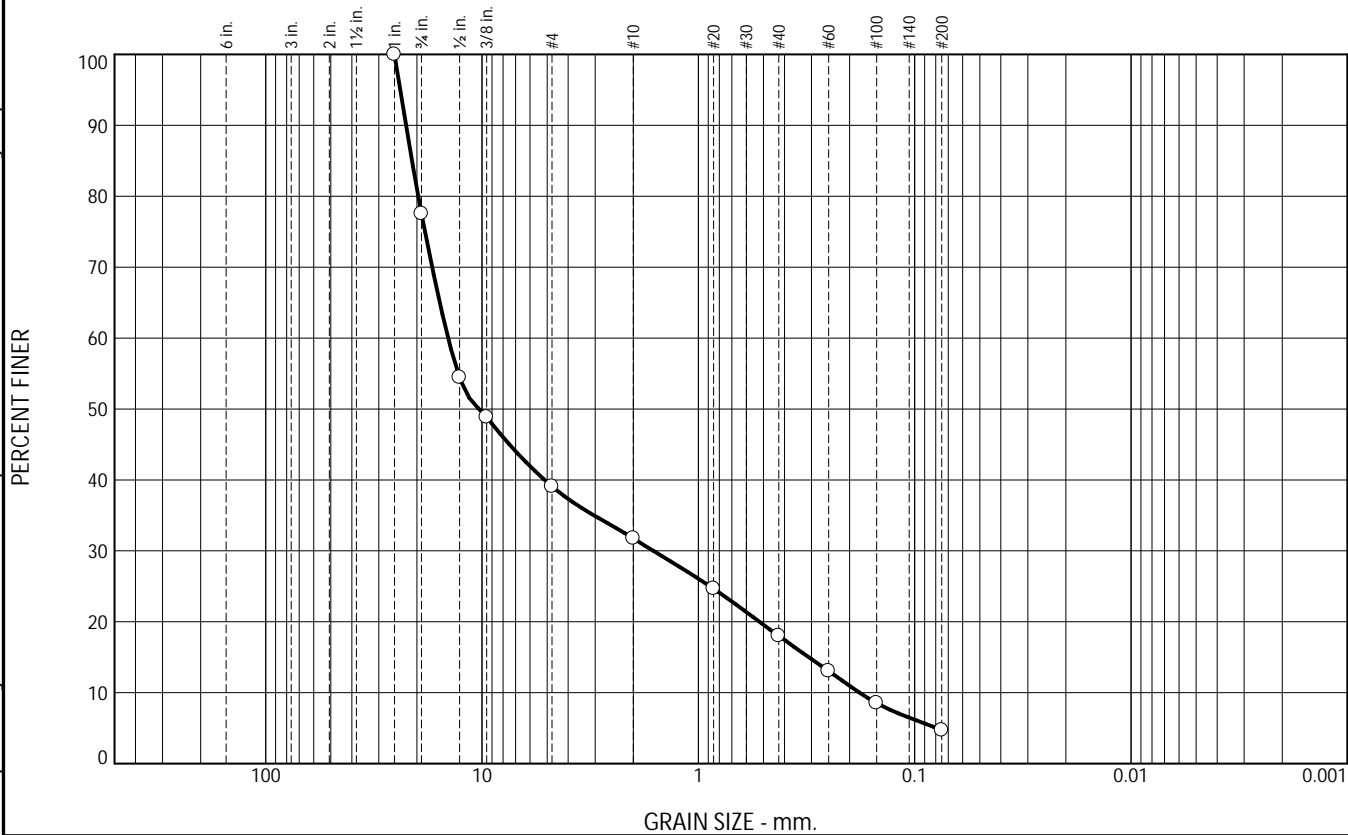
Date: 10.10.23

| | | |
|--|--|------------------|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A | Figure 23-S-B770 |
|--|--|------------------|

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 22.5 | 38.4 | 7.3 | 13.8 | 13.3 | 4.7 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 77.5 | | |
| 1/2" | 54.4 | | |
| 3/8" | 48.8 | | |
| #4 | 39.1 | | |
| #10 | 31.8 | | |
| #20 | 24.7 | | |
| #40 | 18.0 | | |
| #60 | 13.0 | | |
| #100 | 8.5 | | |
| #200 | 4.7 | | |

Soil Description

Brown well-graded gravel with sand

Atterberg Limits
 PL= NP LL= NV PI= NP

Coefficients
 D₉₀= 22.4407 D₈₅= 21.0843 D₆₀= 14.3477
 D₅₀= 10.3284 D₃₀= 1.6156 D₁₅= 0.3090
 D₁₀= 0.1798 C_u= 79.79 C_c= 1.01

Classification
 USCS= GW AASHTO= A-1-a

Remarks
 Sample contains urban debris.

* (no specification provided)

Source of Sample: Boring Depth: 4.5-6.5'
 Sample Number: B-102 / S-3

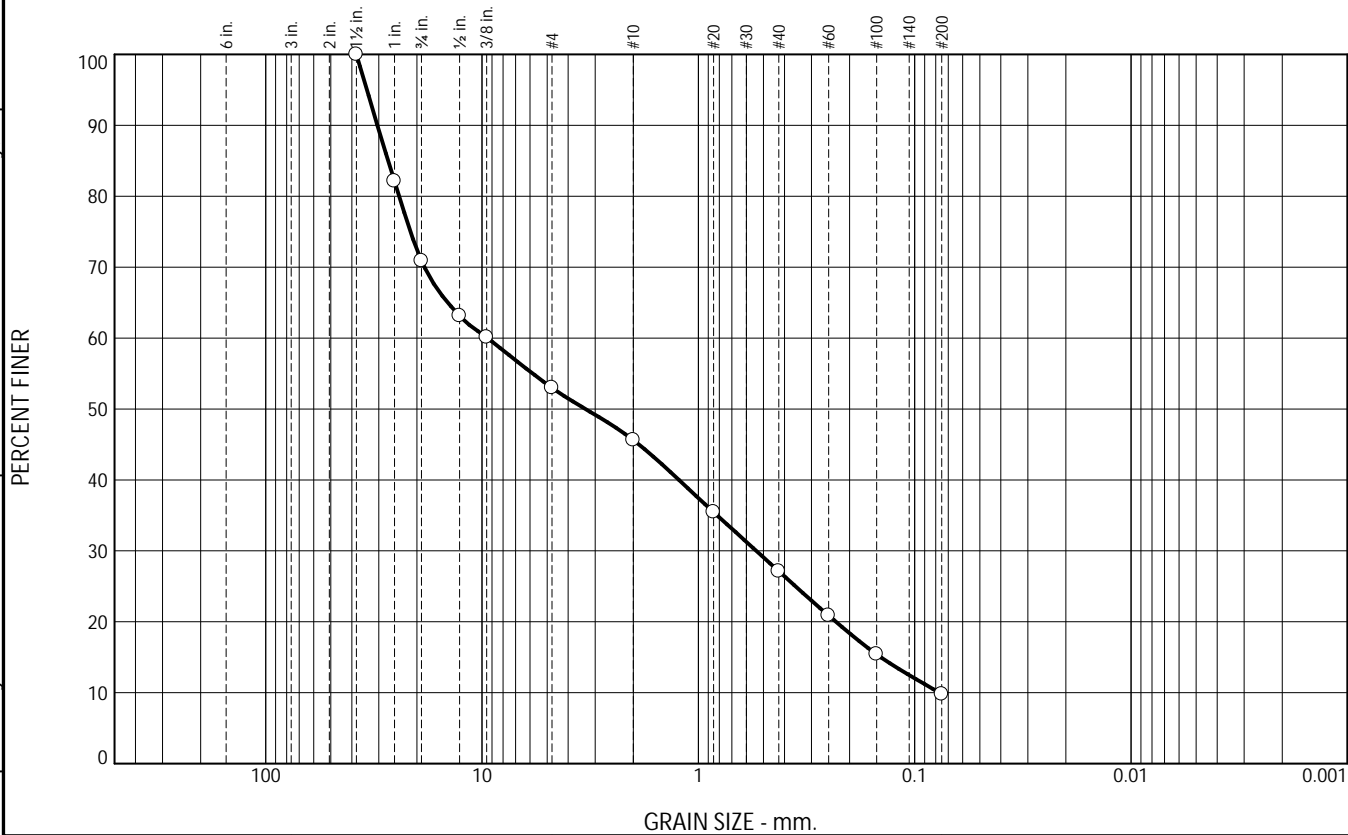
Date: 10.10.23

| | | |
|--|--|------------------|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A | Figure 23-S-B771 |
|--|--|------------------|

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 29.1 | 17.9 | 7.4 | 18.5 | 17.3 | 9.8 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 82.1 | | |
| 3/4" | 70.9 | | |
| 1/2" | 63.1 | | |
| 3/8" | 60.1 | | |
| #4 | 53.0 | | |
| #10 | 45.6 | | |
| #20 | 35.5 | | |
| #40 | 27.1 | | |
| #60 | 20.9 | | |
| #100 | 15.4 | | |
| #200 | 9.8 | | |

Soil Description

Brown poorly graded gravel with silt and sand

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 30.4534 D₈₅= 27.1720 D₆₀= 9.4242
 D₅₀= 3.3261 D₃₀= 0.5402 D₁₅= 0.1435
 D₁₀= 0.0772 C_u= 122.13 C_c= 0.40

Coefficients

Classification

USCS= GP-GM AASHTO= A-1-a

Remarks

* (no specification provided)

Source of Sample: Boring Depth: 1-3'
 Sample Number: B-103 / S-1

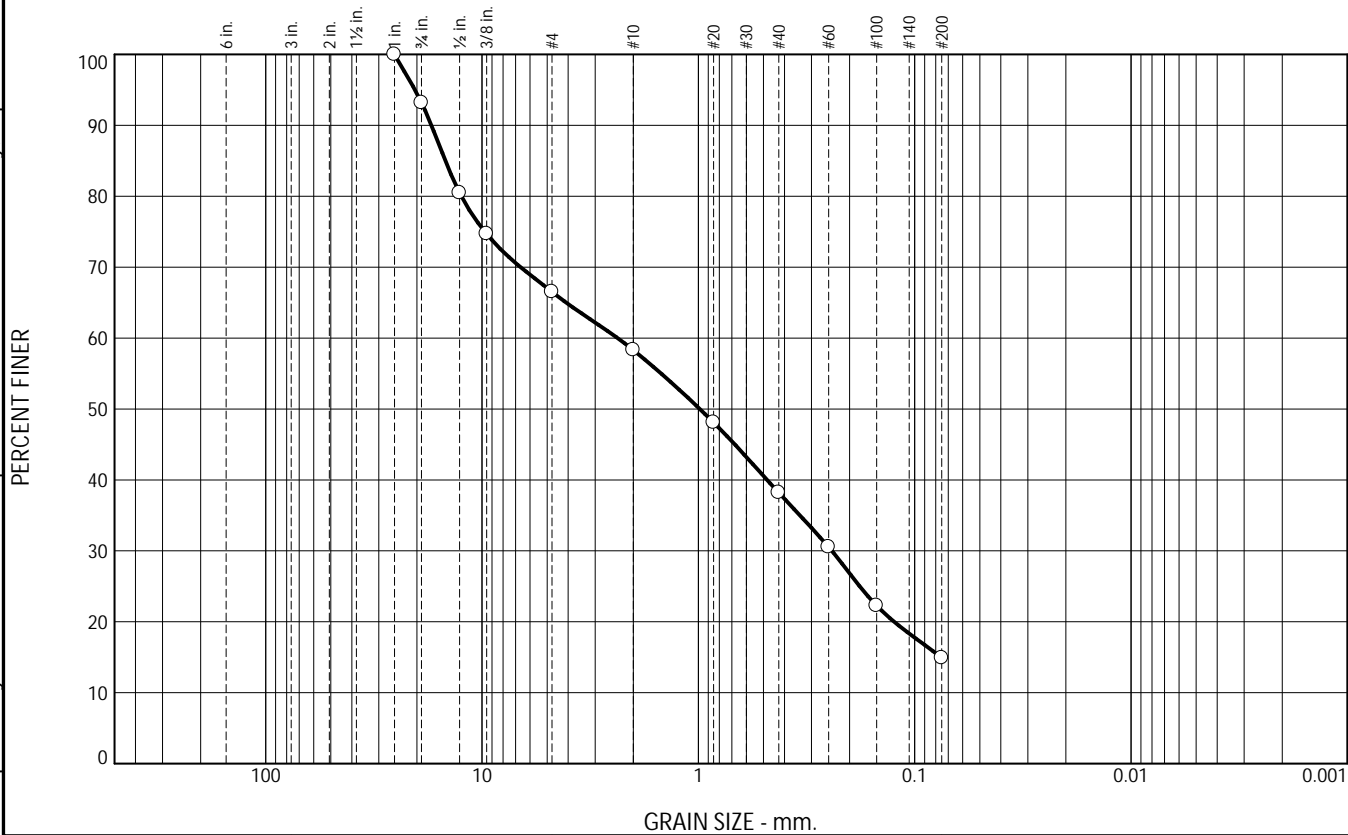
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B772 | |

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 6.8 | 26.7 | 8.2 | 20.1 | 23.3 | 14.9 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 93.2 | | |
| 1/2" | 80.5 | | |
| 3/8" | 74.7 | | |
| #4 | 66.5 | | |
| #10 | 58.3 | | |
| #20 | 48.1 | | |
| #40 | 38.2 | | |
| #60 | 30.5 | | |
| #100 | 22.3 | | |
| #200 | 14.9 | | |

Soil Description

Brown silty sand with gravel

PL= NP Atterberg Limits LL= NV PI= NP

Coefficients

D₉₀= 17.1435 D₈₅= 14.7613 D₆₀= 2.3631
D₅₀= 0.9850 D₃₀= 0.2417 D₁₅= 0.0757
D₁₀= C_u= C_c=

USCS= SM Classification AASHTO= A-1-b

Remarks

* (no specification provided)

Source of Sample: Boring Depth: 3-5'
Sample Number: B-103 / S-2

Date: 10.10.23

| | | |
|--|---------------------------------|---|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: | Project No: 24001774.001A Figure 23-S-B773 |
|--|---------------------------------|---|

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 11.8 | 22.7 | 10.9 | 19.4 | 20.7 | 14.5 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 88.2 | | |
| 1/2" | 84.2 | | |
| 3/8" | 77.3 | | |
| #4 | 65.5 | | |
| #10 | 54.6 | | |
| #20 | 43.5 | | |
| #40 | 35.2 | | |
| #60 | 28.5 | | |
| #100 | 21.5 | | |
| #200 | 14.5 | | |

Soil Description

Brown silty sand with gravel

PL= NP Atterberg Limits LL= NV PI= NP

Coefficients

D₉₀= 20.2144 D₈₅= 13.5121 D₆₀= 3.1280
D₅₀= 1.4001 D₃₀= 0.2797 D₁₅= 0.0788
D₁₀= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Sample contains trace amounts of asphalt.

* (no specification provided)

Source of Sample: Boring Depth: 5-7'
Sample Number: B-103 / S-3

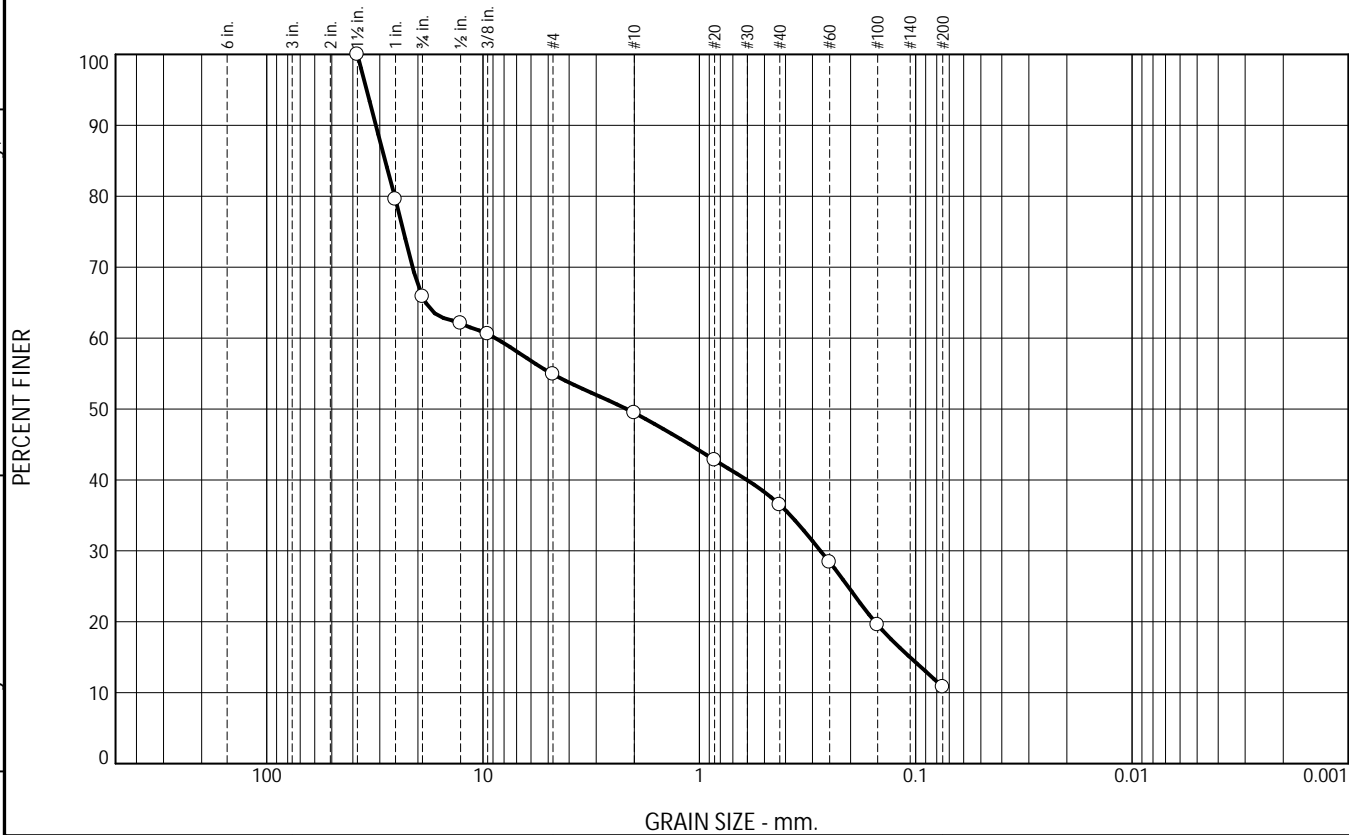
Date: 10.10.23

| | | |
|--|--|------------------|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A | Figure 23-S-B774 |
|--|--|------------------|

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 34.2 | 10.9 | 5.5 | 12.9 | 25.7 | 10.8 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 79.6 | | |
| 3/4" | 65.8 | | |
| 1/2" | 62.1 | | |
| 3/8" | 60.6 | | |
| #4 | 54.9 | | |
| #10 | 49.4 | | |
| #20 | 42.8 | | |
| #40 | 36.5 | | |
| #60 | 28.4 | | |
| #100 | 19.6 | | |
| #200 | 10.8 | | |

Soil Description

Brown poorly graded gravel with silt and sand

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 31.2801 D₈₅= 28.3311 D₆₀= 8.7756
 D₅₀= 2.1686 D₃₀= 0.2757 D₁₅= 0.1063
 D₁₀= C_u= C_c=

Coefficients

USCS= GP-GM Classification AASHTO= A-1-b
 Remarks

* (no specification provided)

Source of Sample: Boring Depth: 5-7'
 Sample Number: B-104 / S-1

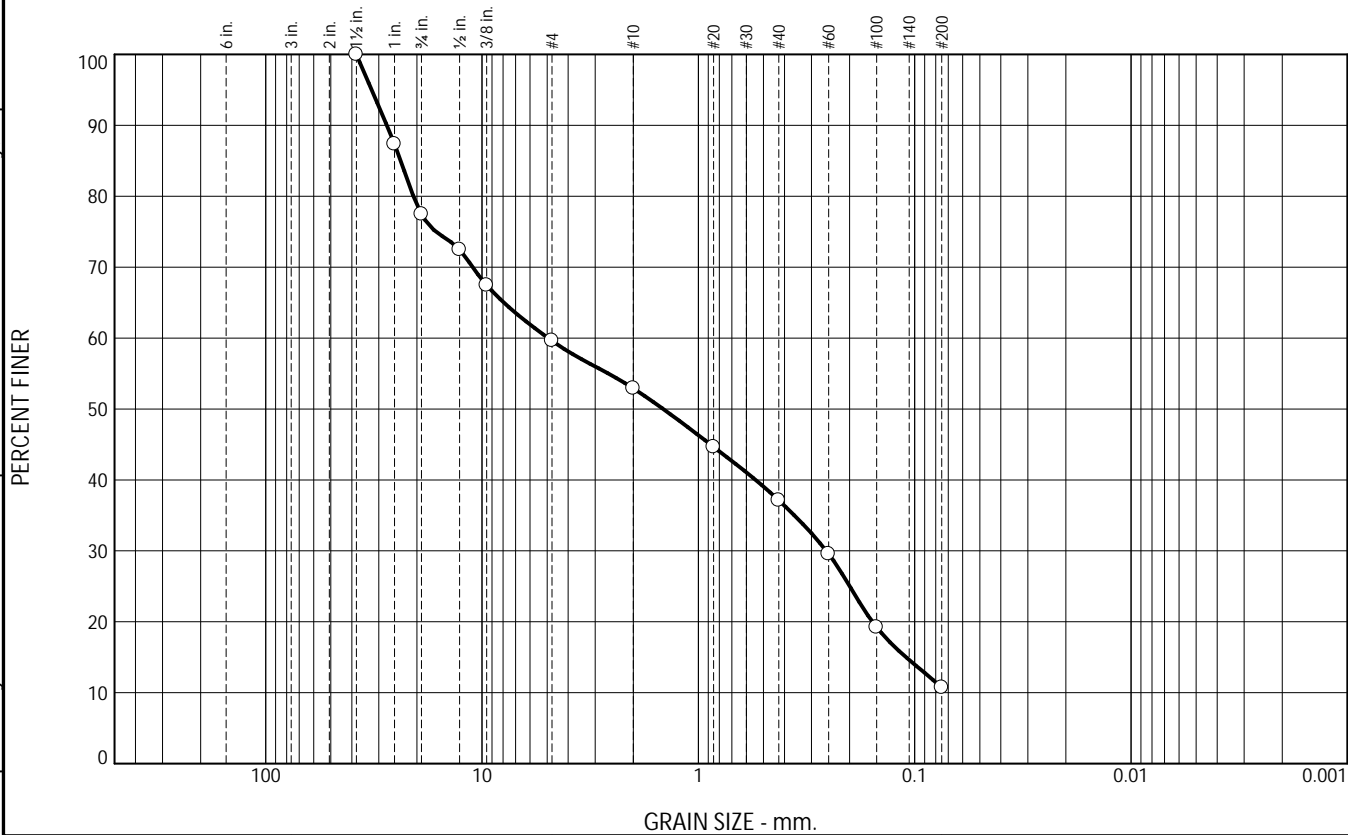
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B775 | |

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 22.5 | 17.9 | 6.7 | 15.8 | 26.4 | 10.7 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 87.4 | | |
| 3/4" | 77.5 | | |
| 1/2" | 72.5 | | |
| 3/8" | 67.4 | | |
| #4 | 59.6 | | |
| #10 | 52.9 | | |
| #20 | 44.6 | | |
| #40 | 37.1 | | |
| #60 | 29.6 | | |
| #100 | 19.2 | | |
| #200 | 10.7 | | |

Soil Description

Brown poorly graded sand with silt and gravel

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 27.5614 D₈₅= 23.7576 D₆₀= 4.9413
 D₅₀= 1.4544 D₃₀= 0.2565 D₁₅= 0.1097
 D₁₀= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

Sample contains urban debris.

* (no specification provided)

Source of Sample: Boring Depth: 7-9'
 Sample Number: B-104 / S-2

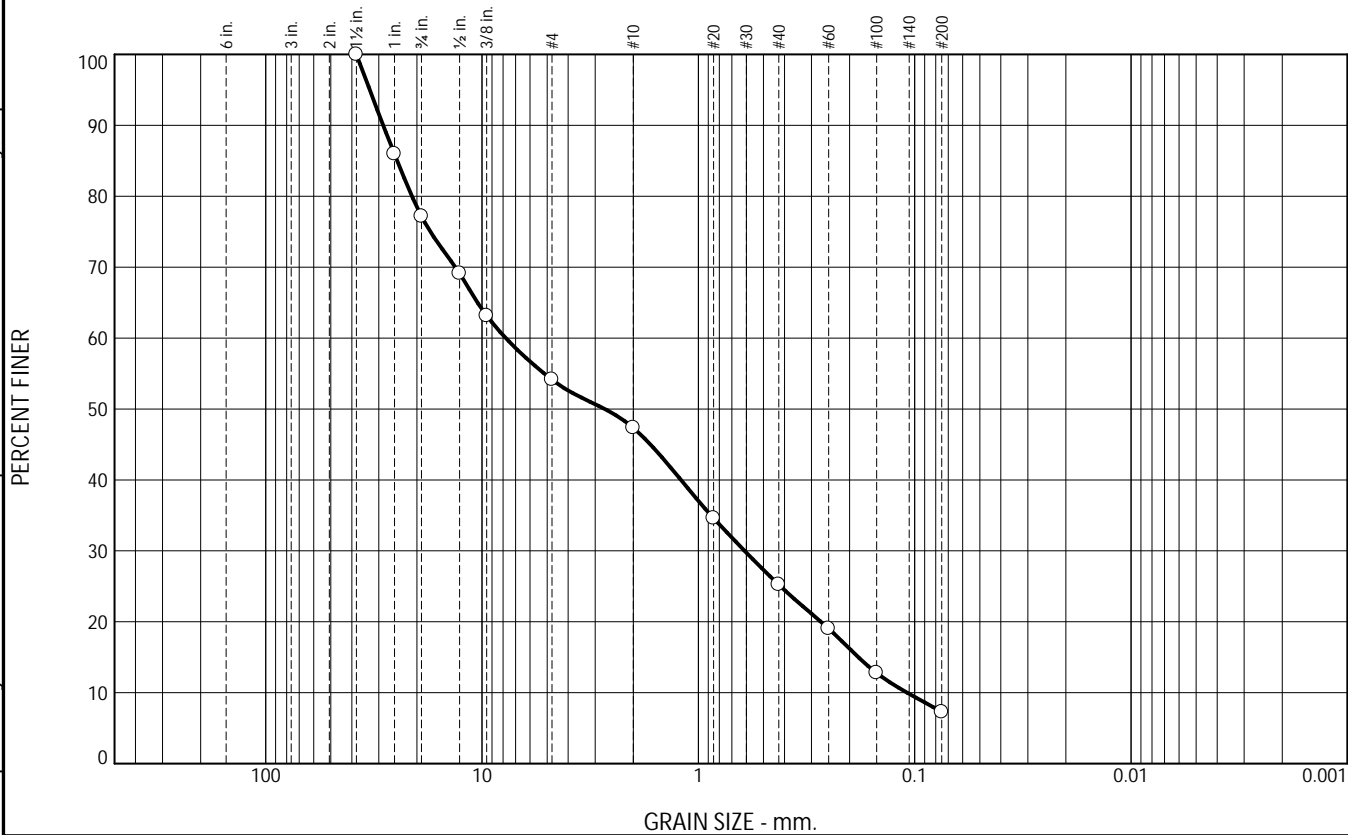
Date: 10.10.23

| | | |
|--|--|------------------|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A | Figure 23-S-B776 |
|--|--|------------------|

Tested By: SF Checked By: Andrew Flanagan

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspected and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 22.8 | 23.1 | 6.8 | 22.1 | 17.9 | 7.3 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 86.0 | | |
| 3/4" | 77.2 | | |
| 1/2" | 69.1 | | |
| 3/8" | 63.2 | | |
| #4 | 54.1 | | |
| #10 | 47.3 | | |
| #20 | 34.6 | | |
| #40 | 25.2 | | |
| #60 | 19.0 | | |
| #100 | 12.8 | | |
| #200 | 7.3 | | |

Soil Description

Brown poorly graded sand with silt and gravel

Atterberg Limits
 PL= NP LL= NV PI= NP

Coefficients
 D₉₀= 28.6326 D₈₅= 24.6549 D₆₀= 7.7650
 D₅₀= 2.7076 D₃₀= 0.6112 D₁₅= 0.1821
 D₁₀= 0.1084 C_u= 71.60 C_c= 0.44

Classification
 USCS= SP-SM AASHTO= A-1-a

Remarks
 Sample contains urban debris.

* (no specification provided)

Source of Sample: Boring Depth: 0.5-2.5'
 Sample Number: B-105 / S-1

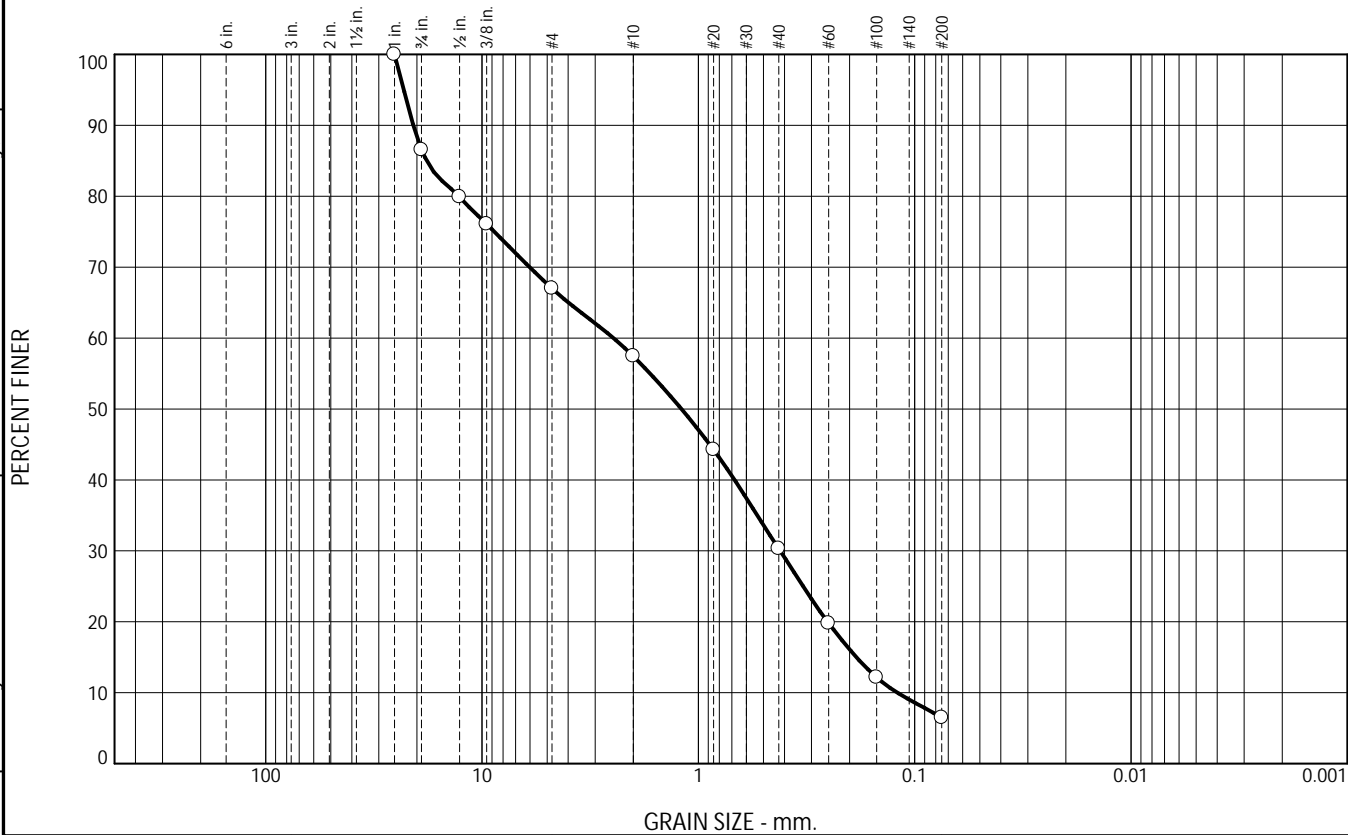
Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B777 | |

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 13.5 | 19.5 | 9.6 | 27.1 | 23.8 | 6.5 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1" | 100.0 | | |
| 3/4" | 86.5 | | |
| 1/2" | 79.9 | | |
| 3/8" | 76.1 | | |
| #4 | 67.0 | | |
| #10 | 57.4 | | |
| #20 | 44.2 | | |
| #40 | 30.3 | | |
| #60 | 19.8 | | |
| #100 | 12.2 | | |
| #200 | 6.5 | | |

Soil Description

Brown poorly graded sand with silt and gravel

PL= NP Atterberg Limits LL= NV PI= NP
 D₉₀= 20.7944 D₈₅= 18.0235 D₆₀= 2.4688
 D₅₀= 1.1972 D₃₀= 0.4188 D₁₅= 0.1860
 D₁₀= 0.1203 C_u= 20.52 C_c= 0.59

Classification

USCS= SP-SM AASHTO= A-1-b

Remarks

* (no specification provided)

Source of Sample: Boring Depth: 2.5-4.5'
 Sample Number: B-105 / S-2

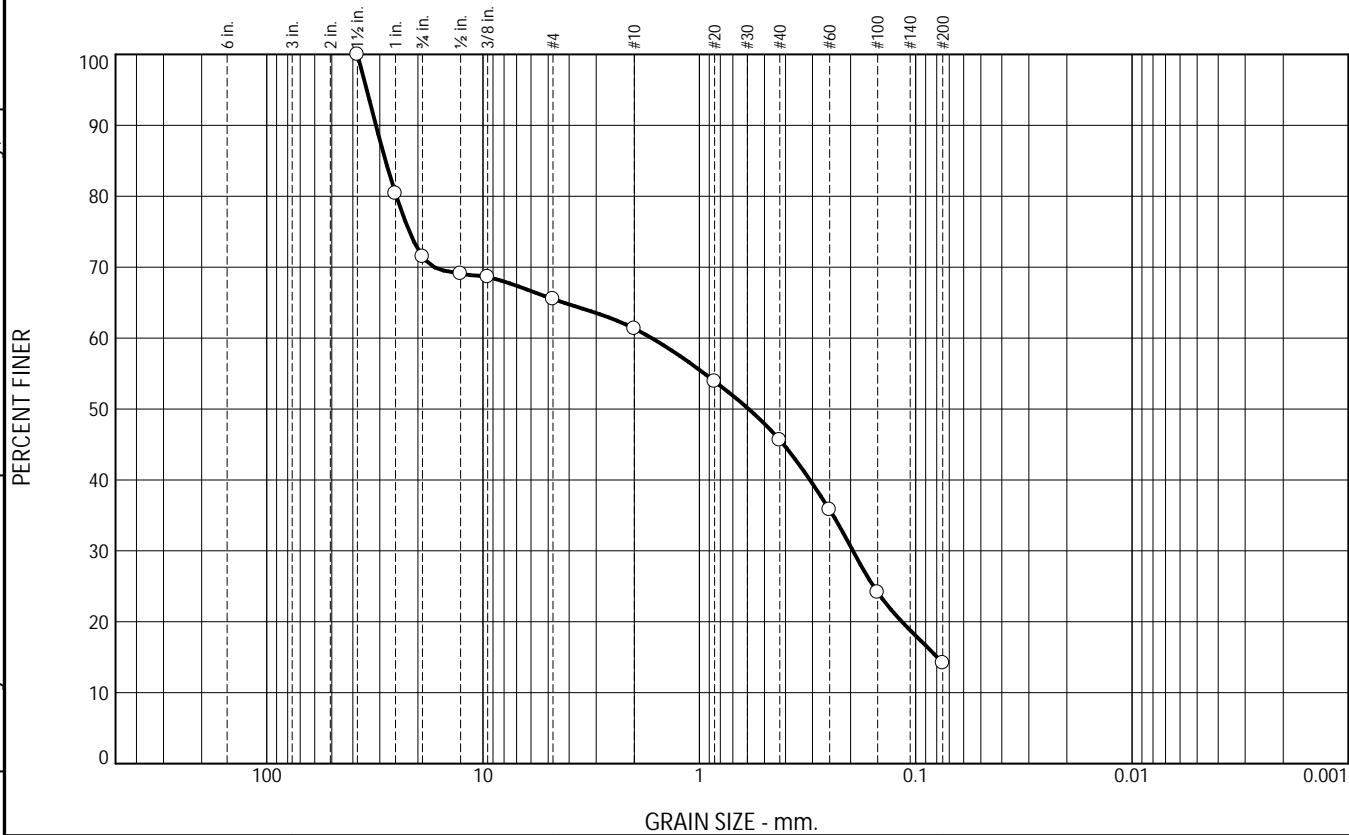
Date: 10.10.23

| | | |
|--|--|------------------|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A | Figure 23-S-B778 |
|--|--|------------------|

Tested By: SF Checked By: Andrew Flanagan

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Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | |
|-------|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| 0.0 | 28.5 | 6.0 | 4.2 | 15.7 | 31.4 | 14.2 | |

| SIEVE SIZE OR DIAMETER | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|---------------------------|------------------|-------------------|-----------------|
| 1 1/2" | 100.0 | | |
| 1" | 80.4 | | |
| 3/4" | 71.5 | | |
| 1/2" | 69.1 | | |
| 3/8" | 68.6 | | |
| #4 | 65.5 | | |
| #10 | 61.3 | | |
| #20 | 53.9 | | |
| #40 | 45.6 | | |
| #60 | 35.8 | | |
| #100 | 24.1 | | |
| #200 | 14.2 | | |

* (no specification provided)

Soil Description

Brown silty sand with gravel

Atterberg Limits
 PL= NP LL= NV PI= NP

Coefficients
 D₉₀= 31.2555 D₈₅= 28.2255 D₆₀= 1.6609
 D₅₀= 0.5915 D₃₀= 0.1950 D₁₅= 0.0795
 D₁₀= C_u= C_c=

Classification
 USCS= SM AASHTO= A-1-b

Remarks
 Sample contains trace amounts of asphalt.

Source of Sample: Boring Depth: 0.5-2.5'
 Sample Number: B-106 / S-1

Date: 10.10.23

| | |
|--|--|
| Thielsch Engineering Inc. Cranston, RI | Client: Kleinfelder Project: Project No: 24001774.001A |
| Figure 23-S-B779 | |

Tested By: SF Checked By: Andrew Flanagan



CERTIFICATE OF ANALYSIS

Kris Roland
Thielsch Engineering, Inc.
CTS Cranston
Cranston, RI 02910

RE: Parcel A and B Major Hub Development CT (24001774.001A)
ESS Laboratory Work Order Number: 23J0139

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 7:18 pm, Oct 13, 2023

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: Thielsch Engineering, Inc.

Client Project ID: Parcel A and B Major Hub Development CT

ESS Laboratory Work Order: 23J0139

SAMPLE RECEIPT

The following samples were received on October 05, 2023 for the analyses specified on the enclosed Chain of Custody Record.

The cooler temperature was not within the acceptance criteria of $\leq 6^{\circ}\text{C}$.

| Lab Number | Sample Name | Matrix | Analysis |
|-------------------|--------------------|---------------|-----------------|
| 23J0139-01 | Composite-1 | Soil | 9030B, D4327 |



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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

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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: Thielsch Engineering, Inc.
Client Project ID: Parcel A and B Major Hub Development CT
Client Sample ID: Composite-1
Date Sampled: 10/05/23 14:05
Percent Solids: 99

ESS Laboratory Work Order: 23J0139
ESS Laboratory Sample ID: 23J0139-01
Sample Matrix: Soil

Classical Chemistry

| <u>Analyte</u> | <u>Results (MRL)</u> | <u>MDL</u> | <u>Method</u> | <u>Limit</u> | <u>DF</u> | <u>Analyst</u> | <u>Analyzed</u> | <u>Units</u> | <u>Batch</u> |
|----------------|----------------------|------------|---------------|--------------|-----------|----------------|-----------------|--------------|--------------|
| Chloride | WL 7 (5) | | D4327 | | 1 | EEM | 10/11/23 18:54 | mg/kg dry | DJ31124 |
| Sulfate | WL 20 (5) | | D4327 | | 1 | EEM | 10/11/23 18:54 | mg/kg dry | DJ31124 |
| Sulfide | ND (0.5) | | 9030B | | 1 | EEM | 10/10/23 16:35 | mg/kg dry | DJ31023 |



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ESS Laboratory Work Order: 23J0139

Quality Control Data

| Analyte | Result | MRL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Qualifier |
|---------|--------|-----|-------|-------------|---------------|------|-------------|-----|-----------|-----------|
|---------|--------|-----|-------|-------------|---------------|------|-------------|-----|-----------|-----------|

Classical Chemistry

Batch DJ31023 - General Preparation

Blank

| | | | | | | | | | | |
|---------|----|------|-----------|--|--|--|--|--|--|--|
| Sulfide | ND | 0.05 | mg/kg wet | | | | | | | |
|---------|----|------|-----------|--|--|--|--|--|--|--|

LCS

| | | | | | | | | | | |
|---------|-----|--|------|--------|--|-----|--------|--|--|--|
| Sulfide | 0.5 | | mg/L | 0.5000 | | 101 | 85-115 | | | |
|---------|-----|--|------|--------|--|-----|--------|--|--|--|

Batch DJ31124 - General Preparation

Blank

| | | | | | | | | | | |
|----------|----|---|-----------|--|--|--|--|--|--|--|
| Chloride | ND | 5 | mg/kg wet | | | | | | | |
|----------|----|---|-----------|--|--|--|--|--|--|--|

| | | | | | | | | | | |
|---------|----|---|-----------|--|--|--|--|--|--|--|
| Sulfate | ND | 5 | mg/kg wet | | | | | | | |
|---------|----|---|-----------|--|--|--|--|--|--|--|

LCS

| | | | | | | | | | | |
|----------|----|--|------|-------|--|-----|--------|--|--|--|
| Chloride | 10 | | mg/L | 10.00 | | 100 | 85-115 | | | |
|----------|----|--|------|-------|--|-----|--------|--|--|--|

| | | | | | | | | | | |
|---------|----|--|------|-------|--|----|--------|--|--|--|
| Sulfate | 10 | | mg/L | 10.00 | | 99 | 80-120 | | | |
|---------|----|--|------|-------|--|----|--------|--|--|--|



CERTIFICATE OF ANALYSIS

Client Name: Thielsch Engineering, Inc.

Client Project ID: Parcel A and B Major Hub Development CT

ESS Laboratory Work Order: 23J0139

Notes and Definitions

| | |
|--------|---|
| WL | Results obtained from a deionized water leach of the sample. |
| 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 Probable Number |
| TNTC | Too numerous to Count |
| CFU | Colony Forming Units |



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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

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Thielsch Engineering, Inc - ESS
 Shipped/Delivered Via: Client

ESS Project ID: 23J0139
 Date Received: 10/5/2023
 Project Due Date: 10/13/2023
 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: 23 Iced with: None
- 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/Acid Lot#: _____
 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: _____

Resolution: _____

| Sample Number | Container ID | Proper Container | Air Bubbles Present | Sufficient Volume | Container Type | Preservative | Record pH (Cyanide and 608 Pesticides) |
|---------------|--------------|------------------|---------------------|-------------------|----------------|--------------|--|
| 1 | 480166 | Yes | N/A | Yes | 8 oz jar | NP | |
| 1 | 480167 | Yes | N/A | Yes | 8 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: 10/5/23 1410
 Reviewed By: [Signature] Date & Time: 10/5/23 1430

