TOWN OF GLASTONBURY
ENGINEERING DIVISION
PW-E20 ANNUAL PAVING PROGRAM

CONTRACT DOCUMENTS

FOR

STORM DRAINAGE AND SANITARY SEWER REHABILITATION AT VARIOUS LOCATIONS GL-2022-28

INCLUDING

ADDISON ROAD (PW-2119)
CEDAR RIDGE TERRACE (PW-2124)
CONCORD, MEDFORD & MELROSE STREET (PW-2106)
NAUBUC AVENUE (PW-2118 & PW-2713)

AND CATCH BASIN REHABILITATION AT THE FOLLOWING LOCATIONS:
ASPEN DRIVE, HIGH WOOD DRIVE, LIBERTY DRIVE, SUMMIT CREST DRIVE
BRENTWOOD DRIVE, PARTRIDGE LANDING, PHEASANT CROSSING
AND FIELDSTONE DRIVE

ADVERTISED ON: FEBRUARY 8, 2022

BID DUE DATE: MARCH 1, 2022

TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2022-28	Storm Drainage and Sanitary Sewer Rehabilitation at Various Locations	March 1, 2022 at 11:00 A.M.

The Town of Glastonbury will receive on-line bids for storm drainage and sanitary sewer rehabilitation at various locations including Addison Road, Cedar Ridge Terrace, Concord, Melrose & Medford Street and Naubuc Avenue in Glastonbury.

Bidders wishing to submit a bid proposal for this solicitation are directed to respond online through a secure e-Procurement portal. Responses can be submitted at the following link: https://app.negometrix.com/buyer/2832, under the bid title **"*GL-2022-28 - Storm Drainage and Sanitary Sewer Rehabilitation at Various Locations*"**. All bids will be publicly opened and read aloud. **No late bids will be accepted**.

This Invitation to Bid, Instructions to Bidders, Drawings, Specifications and other Bidding Documents (as defined in the Instruction to Bidders) are available for viewing and downloading on the Town of Glastonbury website www.glastonburyct.gov or the State's website at www.das.state.ct.us at no cost.

Each Bid must be accompanied by a bid security in the form of a Bid Bond, certified in an amount not less than 10% of the base bid except as otherwise expressly provided in the Instruction to Bidders. The successful bidder will be required to provide performance and labor and material payment bonds in the full amount of the agreed contract price.

Bidders are further advised that this project is subject to the prevailing wage requirements of Connecticut General Statutes Section 31-53.

This contract is subject to State set-aside and contract compliance requirements.

Bidders are also hereby alerted to the schedule requirements as outlined in Special Conditions Section 11.00.

The Town of Glastonbury is An Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged to bid.

The Town reserves the right to amend or withdraw this Invitation to Bid for any reason, to accept or reject any or all Bids, to waive any informalities or non-material deficiencies in any Bid, and to make such award (or make no award) of a contract in connection with this Invitation to Bid all as determined by the Town, in its discretion, to be in the best interest of the Town. A Bid may be rejected for irregularities of any kind, including without limitation, alteration of form, additions not called for, conditional proposals, and incomplete Bids. A Bid may also be rejected if, in the opinion of the Town, the Bid does not meet the standard of quality established by the Bidding Documents. Any or all Bids may be rejected if there is any reason to believe that collusion exists among two or more Bidders. The foregoing provisions are for illustrative purposes and shall in no way limit the right of the Town to reject any and all Bids, in whole or in part.

Mary F. Visone

Purchasing Agent

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1. Bidders submitting a response for this solicitation are directed to respond online through a secure e-Procurement portal. Bids can be submitted at the following link: https://app.negometrix.com/buyer/2832 under the bid title ***"GL-2022-28 - Storm Drainage and Sanitary Sewer Rehabilitation at Various Locations"***. Bidders will be required to create a profile before submitting their bid. Step-by-step instructions on how to register as a vendor are available at this website:

   https://help.negometrix.com/en/support/solutions/articles/9000177626-register-on-negometrix4

   Bidders will be required to upload their bid response in **one consolidated pdf document** in the following file located in the bid portal:

   - Bid Response & Related Documents

2. Whenever it is deemed to be in the best interest of the Town, the Town Manager, Purchasing Agent or designated representative shall waive informalities in any and all bids. The right is reserved to reject any bid when such action is deemed to be in the best interest of the Town of Glastonbury.

3. The award will be on the basis of bid total cost of the lowest qualified, responsible, and responsive bidder unless otherwise specified. The bid total cost shall be arrived at by the mathematical calculation of the unit price multiplied times the number of units specified for each line item, and the total sum of all line items in the bid. In the event that the Town finds computational errors in a respondent's bid proposal, the bid total cost shall be recalculated by the Town based on the unit prices contained in the bid proposal.

4. Bids will be carefully evaluated as to conformance with stated specifications.

6. Specifications must be submitted complete in every detail and, when requested, samples shall be provided. If a bid involves any exception from stated specifications, they must be clearly noted as exceptions, underlined, and attached to the bid.

7. The Bid Documents contain the provisions required for the requested item. Information obtained from an officer, agent, or employee of the Town or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him/her from fulfilling any of the conditions of the bid.

8. Each Bidder is held responsible for the examination and/or to have acquainted themselves with any conditions at the job site which would affect their work before submitting a bid. Failure to meet this criteria shall not relieve the Bidder of the responsibility of completing the bid without extra cost to the Town of Glastonbury.

9. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof. Should there be reasons why a bid cannot be awarded within the specified period, the time may be extended by mutual agreement between the Town and the Bidder.

10. Each electronic bid submission must be accompanied by a COPY of the bid bond payable to the Town for ten percent (10%) of the total amount of the bid. Original bid bonds from all respondents must be mailed to the attention of the Purchasing Agent immediately (within 24 hours) following the virtual bid opening at the following address: Town of Glastonbury, PO Box 6523, Glastonbury, CT 06033-6523, Attn: Mary F. Visone, Purchasing Agent. The bid bond of the successful Bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned.

11. A 100% Performance and a 100% Payment bond are required of the successful bidder. This bond shall cover all aspects of the specification and shall be delivered to the Purchasing Agent prior to the issuance of a purchase order. The Performance and Payment Bond will be returned upon the delivery and acceptance of the bid items.

12. The Bidder agrees and warrants that in the submission of this sealed Bid, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such Bidder that such disability prevents performance of that which must be done to successfully fulfill the terms of this sealed Bid or in any manner which is prohibited by the laws of the United States or the State of Connecticut: and further agrees to provide the Connecticut Human Relations Commission with such information requested by the Commission concerning the employment practices and procedures of the Bidder. An Affirmative Action Statement will be required by the successful Bidder.

13. Bidder agrees to comply with all of the latest Federal and State Safety Standards and Regulations and certifies that all work required in this bid will conform to and comply with said standards and regulations. Bidder further agrees to indemnify and hold harmless the Town for all damages assessed against the Town as a result of Bidder's failure to comply with said standards and/or regulations.

14. All correspondence regarding any purchase made by the Town of Glastonbury shall reference the Town's purchase order number. Each shipping container shall clearly indicate both Town purchase order number and item number.

15. Bidder is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003 and revised October 29, 2013 and effective November 28, 2013. Bidder shall acknowledge that they have reviewed the document in the area provided on the bid/proposal response page (BP-1). The selected Bidder will also be required to complete and sign an Acknowledgement Form prior to award. The Code of Ethics and the Acknowledgement Form can be accessed at the Town of Glastonbury website at www.glastonburyct.gov. Upon entering the website scroll down to click on Bids & Proposals Icon which will bring you to the links for the Code of Ethics and the Acknowledgement Form.

16. **Non-Resident Contractors:** (if applicable)
Upon award the Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. **A single surety bond for 5% of the entire contract price is required to be filed with DRS by any unverified nonresident prime or general contractor (if awarded) where the contract price for the project is $250,000 or more.** The contractor will be required to promptly furnish to the Town a copy of the **Form AU-968 - Certificate of Compliance** issued by the State of Connecticut, DRS. See State of Connecticut **Notice SN 2012 (2).**

17. Bidder shall include on a sheet(s) attached to its proposal a complete disclosure of all past and pending mediation, arbitration and litigation cases that the bidder or its principals (regardless of their place of employment) have been involved in for the most recent five years. Please include a statement of the issues in dispute and their resolution. Acceptability of Bidder based upon this disclosure shall lie solely with the Town.

18. Bidder or its principals, regardless of their place of employment, shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable or criminally responsible for any criminal offense or civil action. Bidder shall not be in violation of any State or local ethics standards or other offenses arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

19. **State Prevailing Wage Rates:**

Respondents shall comply with State Statutes concerning Employment and Labor Practices, if applicable, and Section 31-53 of the Connecticut General Statutes, as amended (Prevailing Wages). Wage Rate Determination for this project from the State of Connecticut is included in the Bid Documents. Certified payrolls for site labor shall be submitted weekly to the Town's Representative or his designee on the correct State of Connecticut form (see RFP). The Town reserves the right to, without prior notice, audit payroll checks given to workers on site in order to ascertain that wages and fringe benefits are being paid as required by the State of Connecticut. Please make special note of the State requirement to adjust wage and fringe benefit rates on each July 1st following the original published rates.

NOTE that respondent is to include in its proposal all costs required by such annual increases in the PREVAILING RATES. NO escalation clauses are to be included in the respondent's proposal and NO escalation clauses will be in the Contract Agreement. Respondent is to anticipate any future increases and include these costs in the proposal response. Contractor's invoices will not be paid if certified payrolls are incomplete, incorrect or not received in a timely manner.

All Apprentices must be registered with the State of Connecticut and their number shall not exceed the number allowed by law. Otherwise, all workers must be paid at least the Journeyman rate listed including benefits.

OSHA SAFETY AND HEALTH CERTIFICATION
Effective July 1, 2009: Any Mechanic, Laborer, or Worker, who performs work in a classification listed on the prevailing wage rate schedule on any public works project covered under C.G.S. Section 31-53, both on site and on or in the public building, must have completed a federal OSHA Safety and Health course within the last 5 years.

20. Each bid shall also include a description of three similar (3) projects completed by the bidder with references to demonstrate successful experience with similar projects. Please provide project name, contact information and contract value.

21. Commission on Human Rights and Opportunities (CHRO) 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 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 work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts and quasi-public agency projects, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities. Forms can be found at:
http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806

As stated above, the work for this project falls under the provisions of CONN. GEN. STAT. Sections 46a-68c and 46a-68d which require that prior to the award of this contract, you must have your company affirmative action plan approved by CHRO. A copy of your plan must be submitted to the CHRO within 30 days of your receipt of award. Should you have any questions regarding the

preparation of your plan, please contact the Contract Compliance Unit at the Commission on Human Rights and Opportunities at (860) 541-4709.

Affirmative action plans can be sent to:
Commission on Human Rights and Opportunities
25 Sigourney Street Hartford, CT 06106
Attn: Contract Compliance Unit

22. **Compliance with Town Ordinance Prohibiting Natural Gas Waste & Oil Waste From Natural Gas Extraction Activities or Oil Extraction Activities:** If this bid is for the construction, repair or maintenance of Town owned and/or maintained roads or real property within the Town related to either (a) the purchase or acquisition of materials by the Town to be used to construct, repair or maintain any Town owned and/or maintained road or real property within the Town or (b) the performance of services for the Town to construct, repair or maintain any Town owned and/or maintained road or real property within the Town, the Bidder shall provide the following signed statement to the Town in its bid response, which shall be a certification under penalty of perjury by the Bidder:

"The undersigned Bidder, _____, hereby submits a bid for materials, equipment and/or services for the Town of Glastonbury. The bid is for bid documents titled ***"GL-2022-28 Storm Drainage and Sanitary Sewer Rehabilitation at Various Locations".***

The undersigned Bidder hereby certifies under penalty of perjury that in connection with the bid and, if it is awarded the purchase order or contract by the Town, in connection with any purchase order or contract: (1) no materials containing natural gas waste or oil waste from natural gas extraction activities or oil extraction activities shall be provided to the Town or shall be used in providing any services to the Town by the undersigned Bidder or any contractor, sub-contractor or agent of the undersigned Bidder; (b) nor will the undersigned Bidder or any contractor, subcontractor or agent of the undersigned Bidder apply any natural gas waste or oil waste from natural gas extraction activities or oil extraction activities to any publicly owned and/or maintained road or real property within the Town of Glastonbury in performing its obligations under the purchase order or contract.

The undersigned Bidder hereby agrees and acknowledges that this requirement shall be a term of the purchase order or contract, if it awarded the purchase order or contract by the Town, and any breach of this provision shall be a breach of the purchase order or contract."

23. Any technical questions regarding this bid shall be made in writing (email acceptable) and directed to Stephen Braun, Assistant Town Engineer, 2155 Main Street, PO Box 6523, Glastonbury, CT 06033; stephen.braun@glastonbury-ct.gov. Telephone (860) 652-7743 between the hours of 8:00 a.m. – 4:30 p.m. For administrative questions concerning this bid/proposal, please contact Mary F. Visone, Purchasing Agent, by email to the Purchasing Department at purchasing@glastonbury-ct.gov. All questions, answers, and/or addenda, as applicable, will be posted on the Town's website at www.glastonbury-ct.gov (Upon entering the website scroll down to click on Bids & Proposals Icon, then scroll down page to see the active bid table. You must click the Bid Title to view all bid details and document links). The request must be received at least five (5) business days prior to the advertised response deadline**. It is the respondent's responsibility to check the website for addenda prior to submission of any bid/proposal.**

IMPORTANT:

- Failure to comply with general rules may result in disqualification of the Bidder.
- Municipal projects are exempt from Federal Excise Taxes, as well as, State of Connecticut Sales, Use and Service Taxes and should not be include in the Bidder's proposal.

01.00 WORKMANSHIP, MATERIALS AND EMPLOYEES

01.01 Wherever in this contract the word “Engineer” is used, it shall be understood as referring to the Town Engineer/Manager of Physical Services of the Town of Glastonbury acting personally or through any assistants duly authorized.

01.02 The entire work described herein shall be completed in accordance with the plans and specifications to the full intent and meaning of the same. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and material shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

01.03 The wording “furnish”, “install”, “construct”, “furnish and install”, or any similar terms, unless specifically noted to the contrary, shall include all labor, materials, water, tools, equipment, light, power, transportation, and any other services required for the completion of the work.

01.04 The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

02.00 SUPERINTENDENT

02.01 The Contractor shall keep on the work during its progress, in the absence of the Contractor, a competent Superintendent. The Superintendent shall be acceptable to the Engineer and shall fully represent the Contractor. All directions given to the Superintendent shall be binding as if given to the Contractor.

03.00 PRECONSTRUCTION MEETING

03.01 A Preconstruction Meeting will be held with the Engineer, Contractor, and any private utility company prior to commencing any work. The Engineer shall arrange the meeting based on a mutually convenient time.

04.00 PERMITS

04.01 Other than local permits, all permits, licenses, and fees required for the performance of the Contract work shall be secured and paid for by the Contractor.

05.00 PROPERTY ACCESS

05.01 The Contractor shall take all proper precautions to protect from injury or unnecessary interference, and provide proper means of access to abutting property where the existing access is cut off by the Contractor.

05.02 The Contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places for travelers, vehicles, and access to hydrants.

05.03 The Contractor shall make arrangements with the adjacent property owners for such trespass as he may reasonably anticipate in the performance of the work. All such arrangements shall be reported, in writing, to the Engineer.

06.00 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

06.01 The Contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with the Contract. Such barriers including temporary construction fence as directed by the Engineer, shall not be measured for payment, but rather included in the general cost of the work. Temporary signage shall be measured for payment under the Construction Signs pay item.

06.02 The Contractor shall adequately protect adjacent private and public property as provided by law and the Contract Documents.

06.03 The Contractor shall make good any damage, injury, or loss of his work and to the property of the Town resulting from lack of reasonable protective precautions.

07.00 EXISTING IMPROVEMENTS

07.01 The Contractor shall conduct his work so as to minimize damage to existing improvements. Except where specifically stated otherwise in the specifications, drawings, or as directed by the Engineer, it will be the responsibility of the Contractor to restore to their original condition, as near as practical, all improvements on public or private property. This shall include:

a. Property within and adjacent to the side of installation such as shrubs, walks, driveways, fences, etc.

b. Utility mains, ducts, poles, and services. The Contractor is hereby notified that utilities, if/where shown on the plans, are at approximate locations. These locations are subject to possible errors in the source of information and errors in transcription. The Contractor shall make certain of the exact location of all mains, ducts, poles, and services prior to excavation.

08.00 SEPARATE CONTRACTS

08.01 The Engineer reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. Wherever work being done by the Town of Glastonbury forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work.

09.00 INSPECTION OF WORK

09.01 The Town shall provide sufficient personnel for the inspection of the work.

09.02 The Engineer shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.

09.03 If the specifications or the Engineer's instructions require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by another authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be made promptly. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense.

09.04 Re-inspection of any work may be ordered by the Engineer. If such work is found to be in accordance with the Contract Documents, the Town shall pay the cost of re-inspection and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

10.00 RIGHT TO INCREASE OR DECREASE WORK

10.01 The Town shall have the right to increase or decrease the amount of work herein specified as may be required.

11.00 RIGHT OF ENGINEER TO STOP WORK FOR WEATHER CONDITIONS

11.01 Should the work, in the opinion of the Engineer, be in danger by reason of inclemency of weather, or could not be finished in time to prevent such danger, the Contractor shall cease operations upon order of the Engineer, and shall not resume them until ordered to do so by the Engineer when the weather conditions are favorable. The Contractor shall, upon such orders, discontinue work, remove all materials or appliances for or in use upon the work, and place the streets in proper condition for use by the public during the time the work is suspended as herein provided, without cost to the Town.

12.00 CONTRACTOR TO BE RESPONSIBLE FOR IMPERFECT WORK OR MATERIALS

12.01 Any faithful work or imperfect material that may be discovered before the acceptance and the payment of the work shall be corrected upon the order of the Engineer. The acceptance and payment of the work does not in any manner relieve the Contractor of his obligation to construct work in the proper manner and the use of materials herein specified.

13.00 TOWN MAY NOTIFY CONTRACTOR IF WORK IS NOT CARRIED ON SATISFACTORILY

13.01 If, in the opinion of the Engineer, the Contractor is not proceeding with the work at a sufficient rate of progress so as to finish in the time specified, or has abandoned said work, or is not complying with the terms and stipulations or the Contract and specifications, the Engineer may serve notice on the Contractor to adopt such methods as will ensure the completion of the work in the time specified.

13.02 If, within five days after the Engineer has notified the Contractor that his work is not being carried on satisfactorily as before mentioned, the Engineer shall have the right to annul the Contract and manage the work under the direction of the Engineer, or re-let, for the very best interest of the Town as a new contract, the work under said new Contract shall be considered the responsibility of the defaulting Contractor.

13.03 Additional costs incurred over and above the original Contract shall be borne by the Contractor.

14.00 DEDUCTIONS FOR UNCORRECTED WORK

14.01 If the Engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor.

14.02 The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Town, and shall bear the expense of making good all work by other contractors destroyed or damaged by such removal or replacement.

14.03 If the Contractor does not remove such condemned work and materials as promptly as possible after written notice, the Engineer may remove them and store the materials at the expense of the Contractor.

15.00 CLEANING UP

15.01 The Contractor must remove all debris of every description as the work progresses and leave the surroundings in a neat and orderly condition to the satisfaction of the Engineer.

15.02 Upon completion, and before acceptance and final payment, the Contractor shall remove from the site all equipment, forms, surplus material, rubbish and miscellaneous debris and leave the site in a neat and presentable condition.

16.00 ROYALTIES AND PATENTS

16.01 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of Glastonbury harmless from loss on account thereof, except that the Town of Glastonbury shall be responsible for all such loss when a particular manufacturer, product, or process is specified by the Town of Glastonbury.

01.00 NOTICE TO CONTRACTOR

01.01 **Intent of Contract:** The intent of the Contract is to prescribe a complete work or improvement that the Contractor undertakes to do, in full compliance with the specifications, plans, special provisions, proposal, and Contract. The Contractor shall perform all work in close conformity with the lines, grades, typical cross-sections, dimensions, and other data shown on the plans or as modified by written orders, including the furnishing of all materials, implements, machinery, equipment, tools, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the project.

Much time and effort has gone into this project in an effort to minimize impact on trees and adjacent properties. Extreme care shall be taken by the Contractor to honor commitments made by the Town. Prior to doing any work, the Contractor should meet with the Engineer to become familiar with the conditions encountered and commitments made.

01.02 The Contractor is hereby alerted to the fact that the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 818 (Form 818) 2020 latest edition including supplements thereto dated July 2021, are the governing specifications and are to be considered part of the Contract Documents. The Form 818 shall not be provided by the Town and any cost associated therewith shall be the responsibility of the Contractor. In case of any discrepancy between the Contract Drawings or Specifications and the Form 818, the matter shall immediately be submitted to the Engineer. The Engineer shall have sole authority in resolving any discrepancies.

01.03 This Contract includes storm and sanitary sewer rehabilitation work at 12 locations within the Town of Glastonbury. Detailed construction plans are provided for work at the following four (4) locations:

1. **ADDISON ROAD (PW-2119)**
2. **CEDAR RIDGE TERRACE (PW-2124)**
3. **CONCORD, MEDFORD & MELROSE STREET (PW-2106)**
4. **NAUBUC AVENUE (PW-2118 & PW-2713)**

Detailed construction plans are not provided for Catch Basin Rehabilitation work at the following eight (8) locations:

5. **ASPEN DRIVE**
6. **HIGH WOOD DRIVE**
7. **LIBERTY DRIVE**
8. **SUMMIT CREST DRIVE**
9. **BRENTWOOD DRIVE**
10. **PARTRIDGE LANDING**
11. **PHEASANT CROSSING**
12. **AND FIELDSTONE DRIVE**

The Town of Glastonbury reserves the right to increase or decrease the scope of work included in this bid as described in Special Conditions Section 14 based on the availability of Town crews to perform portions of this work and as required for the Town to meet schedule obligations and available funding. The additional contract time needed to support any increase in Scope of Work will be negotiated with the Contractor.

01.04 Sanitary sewer improvements on Addison Road are being funded from a separate Town account and costs associated with this work must be tracked separately. As such, two separate purchase orders will be issued to the selected contractor. One purchase order will cover all of the improvements at the Addison Road work area (work area 1 above), and the second purchase order will cover all of the remaining contracted work (work areas 2 through 12 above) in order to allow the costs to be tracked and invoiced separately.

1.05 Storm drainage rehabilitation improvements located on the various streets outlined within this contract are being performed in preparation for milling and paving work to be completed by others under a separate contract. Completion date described under Section 11 is **required** in order to meet paving schedules obligated under these other contracts. Contractor shall be prepared to mobilize all resources necessary to comply with the completion date stipulated.

The Town also reserves the right to expand the scope of work to include additional storm drainage improvements on other roads at the unit prices indicated in this contract. The required completion date for any such extra work would be determined based on mutual agreement with the contractor.

01.06 **Reset Catch Basins:** All catch basins identified for reset shall have the existing tops removed for re-use or disposal as determined by the Engineer. The structure shall be demolished to the limits of deteriorated concrete as determined in the field or as directed by the Engineer. New concrete brick and/or block shall then be installed as required to replace the deteriorated portion of the structure and the interior of the structure shall be repointed to repair all other interior defects. Reconstruction of demolished portions of catch basins utilizing pre-cast components is acceptable.

The new catch basin top, frame, and grate will be paid for separately at the contract unit price each for such "(Type) Catch Basin Top" complete in place.

01.07 **Catch Basin Tops:** All replacement catch basin tops within the project limits are for bituminous concrete lip curbing unless otherwise denoted on the plans. All replacement catch basin tops shall be reset to its original elevation. Vertical layout elevation control for each catch basin top replacement is the responsibility of the contractor. Re-use of an existing catch basin top shall be determined by the Engineer.

01.08 **Pipe Abandonment Using Controlled Low Strength Material:** Work related to this item shall be performed as outlined within the contract provisions. Contractor is required to submit a Maintenance and Protection of Traffic Plan for review and approval by the Glastonbury Police Department prior to the commencement of this work.

01.09 **Manhole Abandonment Using Controlled Low Strength Material:** Work related to this item shall be performed as outlined within the contract provisions. Contractor is required to submit a Maintenance and Protection of Traffic Plan for review and approval by the Glastonbury Police Department prior to the commencement of this work.

01.10 Contractor is required to confine their work area to a single street unless otherwise approved by the Engineer. Catch Basin rehabilitation work area shall be confined to a single lane in the same direction progressing up one side and down the other to complete one street at a time.

01.11 At the end of each day, the contractor is required to have each work area location completely stabilized for safe passage of traffic. This includes securing the new catch basin frame and grate to the structure and installation of full depth bituminous patch installed to grade. Overnight plating of any open excavation(s) will not be allowed.

01.12 Municipal police officers will be required for each work area on the following streets: Addison Road and Naubuc Avenue. Contractor is required to submit Maintenance and Protection of Traffic Plans for review and approval of the Glastonbury Police Department.

01.13 The Contractor shall ensure that suitable temporary access is provided to all residential and commercial driveways at all times as described in the Special Provision for Maintenance and Protection of Traffic.

01.14 Limitations on work hours are described in Special Conditions Section 17.00 and in the Special Provisions. The Contractor shall understand and strictly comply with these limitations.

02.00 COMMUNICATIONS

02.01 All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

02.02 Any notice to, or demand upon, the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may, from time to time, designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

02.03 All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Town Engineer/Manager of Physical Services, 2155 Main Street, Glastonbury, CT 06033, and any notice to, or demand upon, the Town shall be delivered at the above address in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office or to such other representatives of the Town, or to such other address as the Town may subsequently specify in writing to the Contractor for such purpose.

02.04 Any such notice shall be deemed to have been given as of the time of actual delivery or, in case of mailing, when the same should have been received in due course of post or, in the case of telegrams, at the time of actual receipt, as the case may be.

03.00 PARTIAL USE OF IMPROVEMENTS

03.01 The Town may, at its election, give notice to the Contractor and place in use those sections of the work that have been completed, inspected and can be accepted as complying with the Contractor Documents and if, in its opinion, each such section is reasonably safe and fit for the use and accommodation for which it was intended, provided:

a. The use of such sections of the work shall not materially impede the completion of the remainder of the work by the Contractor.

b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

c. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or to poor workmanship.

d. The period of guarantee shall not begin until the date of the final acceptance of all work required under this Contract.

04.00 INSURANCE

04.01 The Bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the **Town of Glastonbury and the State of Connecticut and their employees and agents as an Additional Insured** on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. **These requirements shall be clearly stated in the remarks section on the Bidders Certificate of Insurance.** Insurance shall be written with insurance carriers approved in the State of Connecticut and with a minimum Best's Rating of A-VIII. In addition, all carriers are subject to approval by the Town. Minimum Limits and requirements are stated below:

a. Worker's Compensation Insurance:
- Statutory Coverage
- Employer's Liability
- $1,000,000 each accident/$1,000,000 disease-policy limit/$1,000,000 each employee
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and the State of Connecticut and their employees and agents

b. Commercial General Liability:
- Including Premises and Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors
- Limits of Liability for Bodily Injury and Property Damage
  Each Occurrence: $1,000,000
  Aggregate: $2,000,000
  (The Aggregate Limit shall apply separately to each job.)
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and the State of Connecticut and their employees and agents

c. Automobile Insurance:
- Including all owned, hired, borrowed, and non-owned vehicle
- Limit of Liability for Bodily Injury and Property Damage
  Per Accident: $1,000,000
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and the State of Connecticut and their employees and agents

d. Umbrella of Excess Liability:
- State in the Remarks Section that coverage is follow form.
- Limit of Liability Each Occurrence $1,000,000
  Aggregate $1,000,000

e. Owner's and Contractor's Protective Liability Insurance:

With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the State and the Town of Glastonbury, insurance which shall provide coverage of at least $1,000,000 for each accident or occurrence resulting in damages from (1) bodily injury to or death of persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide an aggregate coverage of at least $2,000,000 for all pertinent damages arising during the policy period

04.02 The Bidder shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. The Contractor shall be responsible to notify the Town **60 days** in advance with written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage. The Bidder shall provide the Town copies of any such insurance policies upon request.

04.03 INDEMNIFICATION: To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Town and the State of Connecticut and its consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Contractor's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Contractor, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Contractor to perform or furnish either of the services, or anyone for whose acts the Contractor may be liable.

05.00 WORK BY OTHERS

05.01 Private utilities, contractors, developers or other parties may be expected to be working within the Contract area during this Contract. It shall be the responsibility of the Contractor to coordinate his work with the work being done by others in order that the construction shall proceed in an efficient and logical manner. The Contractor shall have no claim or claims whatever against the Town, the Engineer, or other parties due to delays or other reasons caused by the work by others or his failure to coordinate such work.

06.00 CONTRACTOR'S WORK AND STORAGE AREA

06.01 The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at no cost to the Town.

07.00 DISPOSAL AREA

07.01 The Tryon Street Bulky Waste Facility will be available to the Contractor, at no charge, for disposal of materials that are accepted at that facility. Prior to any disposal, the Contractor is required to register all vehicles being utilized for disposal and obtain a permit for each vehicle from the Sanitation Department. Waste disposal guidelines for the Bulky Waste facility are published on the Town web site at the addresses shown below. Each bidder shall have reviewed and understand these guidelines prior to submitting a bid for the project.

Bulky Waste Facility | Glastonbury, CT (glastonburyct.gov)

WASTE DISPOSAL GUIDELINES (glastonburyct.gov)

Refuse Disposal Permits | Glastonbury, CT (glastonburyct.gov)

Holiday Schedule: 637545170591670000 (glastonburyct.gov)

Acceptable materials generally include such materials as brush, stumps, demolition materials, and excess excavated earth materials. Unacceptable materials generally include such items as carpet, appliances, upholstered furniture; hazardous wastes such as pesticides, oil based paints and thinners; or other wastes as designated by the State Department of Energy and Environmental Protection. Demolition material cannot contain asbestos or other hazardous materials.

The Contractor shall obtain a disposal area for all other unsuitable or surplus materials at no cost to the Town.

08.00 DUST CONTROL

08.01 During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use water or calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed, without additional compensation.

09.00 MAINTENANCE / GUARANTEE PERIOD

09.01 The Contractor shall be held responsible to the Town for maintenance with respect to defects, settlements, etc. for a minimum period of one-year following the date of final acceptance of the project by the Town.

10.00 PROTECTION OF EXISTING UTILITIES

10.01 Prior to opening an excavation, effort shall be made to determine whether underground installations, (i.e., sewer, water, fuel, electric lines, etc.) will be encountered and, if so, where such underground installations are located. Before starting any excavation, the Contractor shall submit to the Engineer plans or details showing the proposed method the Contractor will use to support and protect all existing utilities during construction. The furnishing of such plans and details shall not serve to relieve the Contractor of any responsibility for the proper conduct of the work.

10.02 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.

10.03 There will be no extra payment for submitting plans or details or for any work related to supporting and protecting all existing utilities during construction.

11.00 TIME FOR COMPLETION/NOTICE TO PROCEED

11.01 The work under this Contract shall commence on or around April 1, 2022 or on the date ordered by the Engineer in the Notice to Proceed. All contract work shall be complete by June 30, 2022.

Within five (5) business days after the date of the Notice of Award, the Contractor must provide the appropriate bond and insurance certificates to the Town Purchasing Agent and must be issued a Notice to Proceed and Purchase Order for the Project prior to initiating any work.

11.02 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, excluding the time period from

each December 1 through the following March 31 (the "winter shutdown period"). The time will be computed as herein provided on a consecutive-day basis, including all Saturdays, Sundays, holidays, and non-work days from April 1 through November 30 of each included year. Time will not be charged for days in the winter shutdown period. If the Engineer so approves, the Contractor may work on certain tasks of the Project during the winter shutdown period with no charge being made against the Contract time. **If work during winter shut down is approved by the Town, approval may be granted with the condition that work under the items Trafficperson (Municipal Police Officer) or Trafficperson (Uniformed Flagger) will not be measured for payment, at the discretion of the Town.**

12.00 LIQUIDATED DAMAGES

12.01 As actual damages for any delay in completion of the work that the Contractor is required to perform under this Contract are impossible to determine, the Contractor and the Sureties shall be liable for and shall pay to the Town the sum of $500.00 as fixed, agreed and liquidated damages for each calendar day of delay from the above-stipulated completion, or completion as modified in writing by both parties, until such work is satisfactorily completed and accepted.

13.00 SCHEDULE OF DRAWINGS

13.01 The Contractor is hereby alerted that the plan set entitled "Storm Drainage and Sanitary Sewer Rehabilitation Project located on Addison Road (PW-2119), Cedar Ridge Terrace (PW-2124), Concord, Melrose & Medford Street (PW-2106), and Naubuc Avenue (PW-2118 & PW-2713)", including Thirteen (13) sheets prepared by the Town of Glastonbury Engineering Division is to be considered part of these specifications.

14.00 CHANGES IN THE WORK

14.01 The Town reserves the right to remove portions of the work indicated on the plans and specifications from the Contract or to self-perform portions of the work in order to meet schedule or funding obligations as may be required. The reduction in the scope work to be performed by the Contractor shall be made without invalidating the Contract or the unit prices there-in. Whenever work is done by the Town contiguous to other work covered by this Contract, the Contractor shall provide reasonable opportunity for the execution of the work and shall properly coordinate his work with that of the Town.

15.00 LAYOUT OF WORK

15.01 The Contractor is responsible to provide stake-out of the work in accordance with the plans and specification under the item for "Construction Surveying".

16.00 REMOVAL AND STORAGE OF MATERIALS AND STRUCTURES FOUND ON THE WORK

16.01 All salvable materials, including traffic signal equipment, topsoil, gravel, fill materials, etc. and structures, including drainage pipes, catch basins and manhole frames and covers, guide railing, etc. that are not to remain in place or that are not designated for use in the work, shall be carefully removed by the Contractor and delivered to the Town Highway Garage located at 2380 New London Turnpike. All salvable materials removed and stored shall remain the property of the Town. The Engineer shall determine the materials or structures to be salvaged.

17.00 PROSECUTION AND PROGRESS

17.01 ADVANCE NOTICE: The Contractor shall give the Engineer a seven-day advance written notice of construction activities that will alter traffic patterns that result in lane shifts, detours, temporary closures of lane(s), permanent closure of lane(s), or lane reductions. This advance notification will allow the Town to publish news releases and/or provide public radio announcements to inform the public of revised traffic patterns or possible traffic delays. Failure of the Contractor to provide such timely notice shall be considered a breach of Contract and will subject the Contractor to stop work orders until such time as the seven-day notice has been satisfied.

17.02 Work hour limitations are described in the Special Provision for Section 1.08 Prosecution and Progress. Work on weekends or during time periods other than those described will not be permitted. No work will be allowed on designated Town Holidays unless permission is granted by the Town.

18.00 EXTRA WORK AND RETAINAGE

18.01 Extra and cost plus work shall be governed by Article 1.04.05 and Article 1.09.04 of the Form 818.

18.02 Article 1.09.06, Part A, Item 1 of the Form 818 is hereby modified as follows: Retainage shall be withheld in the amount of five (5) percent. Release of retainage shall be made upon final acceptance of the project by the Town.

19.00 SUBMITTALS AND MATERIALS TESTING

19.01 Contractor shall provide shop drawings, materials certificates, material samples, and other submittals for material testing in conformance with these specifications. A list of required submittals is located in Section 1.06- Control of Materials of these specifications.

STORM DRAINAGE AND SANITARY SEWER REHABILITATION AT VARIOUS LOCATIONS
BID PROPOSAL

BID #GL-2022-28

TOWN OF GLASTONBURY			
BID / PROPOSAL	**GL # 2022-28**		
DATE ADVERTISED	**FEBRUARY 8, 2022**	**DATE / TIME DUE**	**MARCH 1, 2022 at 11:00 A.M.**
NAME OF PROJECT	**STORM DRAINAGE AND SANITARY SEWER REHABILITION AT VARIOUS LOCATIONS**		

IT IS THE RESPONSIBILITY OF THE BIDDER TO CHECK THE TOWN'S WEBSITE BEFORE SUBMITTING BID FOR ADDENDA POSTED PRIOR TO BID OPENING.

THE BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA, AS REQUIRED:

Addendum #1 _____ (initial/date) Addendum #2 _____ (initial/date) Addendum #3 _____ (initial/date)

OTHER ITEMS REQUIRED WITH SUBMISSION OF BID PROPOSAL:

The following bid checklist describes items required for inclusion with the above-referenced bid proposal package. It is provided for the convenience of the bidders and, therefore, should not be assumed to be a complete list.

_____ 1. Included a copy of the Bid Bond as per Section 10 of the Information for Bidders. Original Bond to be mailed as specified herein.

_____ 2. Included Disclosure of Past and Pending Mediation, Arbitration, and Litigation cases against the Bidder or its Principals as per Section 17 of the Information for Bidders.

_____ 3. Included Qualifications Statement as per Section 20 of the Information for Bidders.

_____ 4. Included Required CHRO documentation as per Section 21 of the Information for Bidders.

_____ 5. Provided certification for Compliance with Town Ordinance Prohibiting Natural Gas Waste & Oil Waste From Natural Gas Extraction Activities or Oil Extraction Activities as per Section 22 of the Information for Bidders

_____ 6. Checked Town web site for Addenda and acknowledged Addenda on page BP-1.

_____ 7. Acknowledged Code of Ethics on page BP-5.

_____ 8. Prepared ONE consolidated pdf file for on-line bid submission.

BIDDER NAME:_____

STORM DRAINAGE AND SANITARY SEWER REHABILITATION AT VARIOUS LOCATIONS **BID #GL-2022-28**
BID PROPOSAL

BIDDER NAME:_____

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
1	0202001 A	Earth Excavation (Naubuc Storm Disconnect)	CY	67		
2	0216131 A	Pipe Abandonment Using CLSM	CY	71		
3	0216132 A	Manhole Abandonment Using CLSM	CY	12		
4	0219011 A	Sediment Control System at Catch Basin	EA	14		
5	0404000 A	Temporary Pavement Repair	SY	217		
6	0404100 A	Bituminous Concrete Patching- Full Depth	SY	419		
7	0586001.10	Type “C” Catch Basin- 0’-10’ Deep	EA	14		
8	0586040.10	Type “C-L” Catch Basin- 0’-10’ Deep	EA	2		
9	0586500.10	Manhole- Storm- 0’-10’ Deep	EA	4		
10	0586601	Reset Type "C' Catch Basin	EA	86		
11	0586605	Reset Type “C” Catch Basin Double Grate Type 2	EA	12		
12	0586620	Reset Type "C-L" Catch Basin	EA	1		
13	0586750	Type “C” Catch Basin Top	EA	86		
14	0586752	Type “C” Catch Basin Top Double Grate Type 2	EA	12		
15	0586760	Type “C-L” Catch Basin Top	EA	1		
16	0586781	Manhole Frame & Cover	EA	4		
17	0586790.10 A	Remove Drainage Structure- 0’10’ Deep	EA	15		
18	0686000.15 A	15” R.C. Pip 0’-10’ Deep	LF	542		

BIDDER NAME:_____

LINE NO.	ITEM NO.		ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
19	0686000.18	A	18" R.C. PIPE 0'-10' Deep	LF	982		
20	0686002.12	A	12" R.C. Pipe (Class V)- 0'-10- Deep	LF	91		
21	0686260.12	A	12" Ductile Iron Pipe- 0'-10' Deep	LF	56		
22	0815001		Bituminous Concrete Lip Curbing	LF	1,060		
23	0922500	A	Bituminous Concrete Driveway- (Commercial)	SY	45		
24	0944000	A	Furnish and Placing Topsoil	SY	201		
25	0950005	A	Turf Establishment	SY	201		
26	0970006	A	Trafficperson (Municipal Police Officer)	EST	1	$23,000.00	$ 23,000.00
27	0970007	A	Trafficperson (Uniformed Flagger)	HR	560		
28	0971001	A	Maintenance and Protection of Traffic	LS	1		
29	0975004		Mobilization and Project Closeout	LS	1		
30	0977001		Traffic Cone	EA	80		
31	0980020		Construction Surveying	LS	1		
32	1220013		Construction Signs- Bright Florescent Sheeting	SF	124		
33	1400102	A	8" Polyvinyl Chloride Pipe (Sanitary Sewer)	LF	140		
34	1400111	A	Sanitary Sewer- Pressure Testing	LF	140		
35	1401637	A	Sanitary Sewer Lateral Connections (PVC)	LF	86		

BIDDER NAME:_____

LINE NO.	ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT PRICE	EXT
36	1401662 A	Sanitary Manhole- 0'-10' Deep	EA	1		
37	1401948 A	Cut and Plug Abandoned Sanitary Sewer Lateral	LF	30		
38	1403010	Manhole Frame and Cover (Sanitary Sewer)	EA	1		

TOTAL BID AMOUNT: $_____
(Numeric)

WRITTEN TOTAL BID AMOUNT:_____

Note:
In the event that the Town finds computational errors in a respondent's bid proposal, the bid total cost shall be recalculated by the Town based on the **unit prices** contained in the bid proposal

BIDDER NAME:_____

CODE OF ETHICS:
I/We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I/We are selected. Yes_____ No_____*

***Bidder is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any bid or proposal where the Bidder has not agreed to the above statement.**

NON-COLLUSION AFFIDAVIT:
By submission of this bid, the Bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

Respectfully submitted:

Type or Print Name of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Title	**City, State, Zip Code**
Date	**Telephone Number/Fax Number**
E-Mail Address	**SS# or TIN#**

(Seal – If bid is by a Corporation)

Attest

SPECIAL PROVISIONS

INDEX TO SPECIAL PROVISIONS

This index has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this index shall not be considered part of the contract.

NOTICE TO CONTRACTOR - PROTECTION AND COORDINATION OF EXISTING UTILITIES

Existing utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. The Contractor shall verify the location of underground, structure mounted and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

The Contractor shall notify "Call Before You Dig", telephone: 8-1-1 or 1-800-922-4455 for the location of public utility, in accordance with Section 16-345 of the Regulations of the Department of Utility Control.

Representatives of the various utility companies shall be provided access to the work, by the Contractor.

Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features, as actual conditions may differ from the information shown on the plans or contained elsewhere in the specifications.

The Contractor shall notify the Engineer prior to the start of work and shall be responsible for all coordination with the Town. The Contractor shall allow the Engineer complete 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 private and public utility, as a result of the Contractors operations, shall be repaired to the utility's and Engineer's satisfaction at no cost to the Town or the Utilities, including ail materials, labor, etc., required to complete the repairs.

The Contractor's attention is directed to the requirements of Section 1.07.13 - "Contractor's Responsibilities for Adjacent Property and Services".

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., water, sanitary, gas, electric ducts, communication ducts, 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, as noted above.

The Contractor shall coordinate all utility relocations with the respective utility company. The Contractor shall notify Connecticut Natural Gas two weeks in advance of the required gas valve box adjustments as shown on the plans.

NOTICE TO CONTRACTOR – UTILITY COMPANIES

It is understood that any references in the contract documents to Northeast Utilities, CL&P and/or Yankee Gas are meant to refer to Eversource.

It is understood that any references in the contract documents to AT&T is meant to refer to Frontier Communications.

NOTICE TO CONTRACTOR – RESET CATCH BASINS

All catch basins identified for reset shall have the existing tops removed for re-use or disposal as determined

by the Engineer. The structure shall be demolished to the limits of deteriorated concrete as determined in the field or as directed by the Engineer. New concrete brick and/or block shall then be installed as required to replace the deteriorated portion of the structure and the interior of the structure repointed. Reconstruction utilizing pre-cast component is also acceptable.

The new catch basin top, frame, and grate will be paid for separately at the contract unit price each for such "(Type) Catch Basin Top" complete in place

NOTICE TO CONTRACTOR – CATCH BASIN TOPS

All replacement catch basin tops within the project limits are for bituminous concrete lip curbing unless otherwise denoted on the plans. All replacement catch basin tops shall be reset to the original elevation. Vertical layout elevation control for each catch basin top replacement is the responsibility of the contractor. Re-use of an existing catch basin top shall be determined by the Engineer.

NOTICE TO CONTRACTOR – PIPE ABANDONMENT USING CLSM

Work related to this item shall be performed using an approved controlled low strength material (CLSM) as outlined within the contract provisions. Contractor is required to submit a Maintenance and Protection of Traffic Plan for review and approval by the Glastonbury Police Department prior to the commencement of this work.

NOTICE TO CONTRACTOR – MANHOLE ABANDONMENT USING CLSM

Work related to this item shall be performed using an approved controlled low strength material (CLSM) as outlined within the contract provisions. Contractor is required to submit a Maintenance and Protection of Traffic Plan for review and approval by the Glastonbury Police Department prior to the commencement of this work.

NOTICE TO CONTRACTOR – GENERAL PROJECT REQUIREMENTS

Contractor is required to confine their work area to a single street unless otherwise approved by the Engineer. Catch Basin rehabilitation work area shall be confined to a single lane in the same direction progressing up one side and down the other to complete one street at a time.

At the end of each day, the contractor is required to have each work area location completely stabilized for safe passage of traffic. This includes securing the new catch basin frame and grate to the structure and installation of full depth bituminous patch installed to grade. Overnight plating of any open excavation(s) will not be allowed.

Municipal police officers will be required for each work area on the following streets: Addison Road and Naubuc Avenue. Contractor is required to submit Maintenance and Protection of Traffic Plans for review and approval of the Glastonbury Police Department.

The Contractor shall ensure that suitable temporary access is provided to all residential and commercial driveways at all times as described in the Special Provision for Maintenance and Protection of Traffic.

Limitations on work hours are described in Special Conditions Section 17.00. The Contractor shall understand and strictly comply with these limitations.

SECTION 1.04 SCOPE OF WORK

Article 1.04.01 – Intent of Contract **is supplemented as follows:**

The work under this contract consists of the removal and replacement of existing catch basin structures and frames, remove and reset new catch basin tops, remove and replace existing storm drainage pipe, grout fill abandonment of a portion of existing 12" and 15" VCP abandoned combined sewer system along with a sanitary sewer lateral relocation, installation of 140 linear feet of 8" sanitary sewer main, new sewer manhole, and 6" sewer laterals located on the list of streets below and more precisely shown on the construction plans included in these contract documents.

The work under this contract is a portion of a town administered pavement rehabilitation program performed by a State of Connecticut Vendor In-Place Bid contractor and must be completed in advance of the commencement of any reclamation or milling and paving operations. Coordination with the town project manager and scheduling will be essential.

List of Roadways:

1. Addison Road– #249 Addison Road to #235 Addison Road
- Furnish and install 140 L.F. extension of 8" PVC sanitary sewer main
- Furnish and install a new sanitary sewer manhole
- Furnish and install two (2)- 6" sanitary sewer laterals to service existing houses

2. Cedar Ridge Terrace – Cedar Ridge Drive to #126 Cedar Ridge Terrace
- Remove and replace existing drainage structures
- Remove and replace existing storm drainage pipe

3. Concord, Melrose & Medford Street – Hebron Avenue to Medford Street
- Remove and replace existing drainage structures
- Remove and replace existing storm drainage pipe
- Furnish and install new storm drainage structures

4. Naubuc Avenue – Main Street to 240' West of Welles Street
- Abandon and relocate an existing 6" sanitary sewer lateral
- Grout fill abandonment of existing 12" and 15" VCP abandoned combined sewer system
- Furnish and install new storm drainage structures
- Furnish and install storm drainage pipes to an existing storm drainage system

Work at all of the following eight (8) locations listed below will include:
- Remove and dispose of existing catch basin tops
- Furnish and Install new catch basin tops
- Furnish and install bituminous concrete patching

5. **Aspen Drive –** High Wood Drive to Cul-de-sac
6. **Brentwood Drive –** Hebron Avenue to Partridge Landing
7. **Fieldstone Drive –** Country Lane to Old Farms Road
8. **High Wood Drive –** Thompson Street to Cul-de-sac
9. **Liberty Drive –** Aspen Drive to Summit Crest Drive
10. **Partridge Landing –** Brentwood Drive to Marlborough Road
11. **Pheasant Crossing –** Partridge Landing to Cul-de-sac
12. **Summit Crest Drive –** High Wood Drive to Cul-de-sac

SECTION 1.05 CONTROL OF WORK

Article 1.05.05 – Cooperation by Contractor

Add the following:

Agents of various public service agencies, municipal and State Departments, and private site contractors may be entering on the work site to remove existing utilities, to construct or place new facilities or to make alterations to existing facilities.

The Contractor shall perform the work in cooperation with the various agencies in a manner which causes the least interference with the operations of the aforementioned agencies and shall have no claim for delay which may be due to, or result from, said work of these agents.

Article 1.05.06 – Cooperation with Utilities

Add the following:

Written notice shall be given by the Contractor to all public service corporations or municipal and State Officials owning or having charge of publicly or privately-owned utilities 30 days in advance of the commencement of operations that will affect the utilities. The Contractor shall, at the same time, file a copy of such notice with the Engineer.

The utility company representatives listed in Section 1.07 shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities.

The Contractor shall make his/her own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of construction operations. The Contractor shall notify “Call Before You Dig” at 1-800-922-4455, 72 hours prior to disturbing ground in any way.

SECTION 1.06 CONTROL OF MATERIALS

Article 1.06.01 - Source of Supply and Quality:

Add the following:

For the following items the contractor shall submit a complete description of the item, working drawings, catalog cuts and other descriptive literature which completely illustrates such items presented for formal approval. Such approval shall not change the requirements for a certified test report and materials certificate as may be called for. All shop drawings shall be submitted at one time, unless otherwise approved by the Engineer.

1. Controlled Low Strength Material
2. Sediment Control System at Catch Basin
3. Type “C” Catch Basin Components
4. Type “C-L” Catch Basin Components
5. 4’ Diameter Manhole Components (Storm)
6. Type “C” Catch Basin Top
7. Type “C” Catch Basin Top Double Grate Type 2
8. Type “C-L” Catch Basin Top
9. Manhole Frame and Cover (Storm)
10. 15” R.C. Pipe
11. 18” R.C. Pipe
12. 12” R.C. Pipe (Class V)
13. 12” Ductile Iron Pipe
14. 8” Polyvinyl Chloride Pipe (Sanitary Sewer)
15. 6” Polyvinyl Chloride Pipe
16. 6” and 8” Polyvinyl Chloride Pipe Fittings
17. Sanitary Sewer Manhole Components
18. Manhole Frame and Cover (Sewer)
19. Bituminous Concrete for patching

Article 1.07.07 – Safety and Public Convenience

Add the following:

The Contractor shall provide the necessary access for emergency vehicles through the work zones to abutting properties at all times.

Sweeping and cleaning of surfaces beyond the limits of construction required for dust control or to clean up material caused by spillage or vehicular tracking during various phases of the work shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation which will provide less than a 12 foot travel lane along any project roadway.

Article 1.07.13 - Contractor's Responsibility for Adjacent Property, Facilities and Services

Supplemented as follows:

The Contractor, in constructing or installing facilities alongside or near sewers, drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults, or other structures shall sustain them securely in place. The Contractor shall coordinate with the officers and agents of the various utility companies and municipal departments to assure that the services of these structures are maintained. The Contractor shall also be responsible for the repair or replacement, at no additional cost to the Town, of any damage to such structures caused by construction operations. The Contractor is responsible to leave them in the same condition as they existed prior to commencement of the work. In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Engineer, furnish labor and equipment to work temporarily under the utility owner’s direction. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility owner which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation from the Town.

If during construction there is an existing utility and/or structure found to be in conflict with the proposed work under this Contract, the Contractor shall protect and maintain the services to the utilities and structures and shall notify the Engineer of the conflict. The Engineer will, as soon as possible, identify the utilities to be relocated or other such activities deemed suitable for resolution.

If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all of the work involved in protecting or repairing property as specified in this Section shall be included in the price paid for the various Contract items of work, and no additional compensation will be allowed.

Prior to opening an excavation, effort shall be made to determine whether underground installations, (i.e. sewer, water, fuel, 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’s 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.

UTILITY COMPANIES WITHIN THE PROJECT AREA

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Connecticut Natural Gas Corporation, Engineering Department
Mr. Jonathan Gould,
Gas Engineer
76 Meadow Street, 2nd Floor
East Hartford, CT 06108
(860) 727-3044
jgould@ctgcorp.com

Algonquin Gas Transmission Company dba Enbridge
Mr. Kenneth Ruel,
Area Supervisor
252 Shunpike Road
Cromwell, CT 06416
Phone: (860) 894-1600 EXT: 1608
kenneth.ruel@enbridge.com

Frontier Communications
Ms. Lynne DeLucia,
Manager – Engineering & Construction
1441 North Colony Road
Meriden, CT 06450-4101
Phone: 203-238-5000
Mobile: 860-967-4389
Lynne.m.delucia@ftr.com

CoxCom, Inc.
Ms. Denise Mazzoli,
Project Planner
170 Utopia Road
Manchester, CT 06042
Phone: (860) 432-5041
denise.mazzoli@cox.com

Eversource Energy - Electric Distribution
Mr. Thomas Woronik
Supervisor - Construction Engineering
22 East High Street
East Hampton, CT 06424
Phone: (860) 267-3891
thomas.woronik@eversource.com

Lightower Fiber Networks dba Crown Castle Fiber
Mr. Eric Clark,
Manager Fiber Construction
1781 Highland Avenue, Suite 102
Cheshire, CT 06410
Phone: (203) 649-3904
Mobile: 860-863-8311
Eric.clark@crowncastle.com

Metropolitan District Commission-(MDC)
Water Distribution
Mr. Richard Norris
Utility Coordinator/Project Manager
555 Main Street
P.O. Box 800
Hartford, CT. 06142
Phone: (860) 278-7850 Extension 3450
rnorris@themdc.com

Connecticut Natural Gas Corporation
Inspections
John Bonville
76 Meadow Street, 1st Floor
East Hartford, CT 06108
Phone: (860) 982-3815

TOWN OF GLASTONBURY

Engineering Division 2155 Main Street Glastonbury, CT. 06033	Daniel A. Pennington, P.E. Director of Physical Services/Town Engineer Phone: (860) 652-7736 Email: Daniel.pennington@glastonbury-ct.gov
Engineering Division 2155 Main Street Glastonbury, CT. 06033	Stephen M. Braun, P.E. Assistant Town Engineer Phone: (860) 652-7743 Email: Stephen.braun@glastonbury-ct.gov
Glastonbury Police Department 2108 Main Street Glastonbury, CT. 06033	Watch Commander Phone: (860) 633-8301
Glastonbury Park & Recreation 2143 Main Street Glastonbury, CT. 06033	Lisa Zerio Director of Parks & Recreation Phone: (860) 652-7687 Email: lisa.zerio@glastonbury-ct.gov
Glastonbury Tree Warden 2143 Main Street Glastonbury, CT. 06033	Gregory Foran Superintendent of Parks and Recreation/Tree Warden Phone: (860) 652-7686 Email: Gregory.foran@glastonbury-ct.gov
Glastonbury Highway Department 2380 New London Turnpike Glastonbury, CT. 06033	Charles Mahan Physical Services Operations Manager Phone: (860) 652-7750 Email: charles.mahan@glastonbury-ct.gov
Glastonbury Sanitation Department 2149 Main Street Glastonbury, CT. 06033	Michael J. Bisi Superintendent of Sanitation Phone: (860) 652-7774 Email: charles.mahan@glastonbury-ct.gov

SECTION 1.08 PROSECUTION AND PROGRESS

Article 1.08.03 – Prosecution of Work

Add the following:

GENERAL: Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for approval, a minimum of 30 days in advance, a plan illustrating the Typical Traffic Management Plan for the roadway during construction. The Contractor will also be required to submit, and obtain approval from the Engineer, specific plans detailing the proposed Staging/Maintenance and Protection of Traffic Plans for the roadway in this Contract.

The Contractor must obtain approval of the Typical Traffic Management Plans and Staging/Maintenance and Protection of Traffic Plans from the Engineer prior to commencing work on the roadway.

All appropriate Maintenance and Protection of Traffic devices are to be installed prior to commencing construction operations.

Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation which will provide less than a 12- foot travel lane along any project roadway.

ADVANCE NOTICE: The Contractor shall give the Engineer a seven-day advance written notice of construction activities that will alter traffic patterns that result in lane shifts, detours, temporary closures of lane(s), permanent closure of lane(s), or lane reductions. This advance notification will allow the Town to publish news releases and/or provide public radio announcements to inform the public of revised traffic patterns or possible traffic delays. Failure of the Contractor to provide such timely notice shall be considered a breach of Contract and will subject the Contractor to stop work orders until such time as the seven-day notice has been satisfied.

ALLOWABLE HOURS OF OPERATION (WORK PERIOD):
All work within this contract shall be performed Monday through Friday between the hours of 7:00AM and 5:00PM using appropriate shoulder closures or lane closure as deemed necessary for the work by the Engineer.

Work on weekends or during time periods other than those described above will not be permitted. No work will be allowed on designated Town Holidays unless permission is granted by the Town.

SEQUENCE OF CONSTRUCTION OPERATIONS: Work shall be sequenced as follows:

Contractor is required to confine their work area to a single street unless otherwise approved by the Engineer. Catch Basin rehabilitation work area shall be confined to a single lane in the same direction progressing up one side and down the other to complete one street at a time.

At the end of each day, the contractor is required to have each work area location completely stabilized for safe passage of traffic. This includes securing the new catch basin frame and grate to the structure and installation of full depth bituminous patch installed to grade. Overnight plating of any open excavation(s) will not be allowed.

Municipal police officers will be required for each work area on the following streets: Naubuc Avenue, Sycamore Street, and Welles Street.

Any open excavations left overnight related to the construction of concrete sidewalks and/or concrete sidewalk ramps shall have appropriate “Sidewalk Closed” signage installed at the limits along with the entire work area cordoned off with appropriate high visibility warning tape.

The Contractor shall ensure that suitable temporary access is provided to all residential and commercial driveways at all times as described in the Special Provision for Maintenance and Protection of Traffic.

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:

On the following State observed Legal Holidays:
New Year's Day
Good Friday, Easter*
Memorial Day
Independence Day
Labor Day
Thanksgiving Day**
Christmas Day

The following restrictions also apply:
On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday, and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday, and Monday immediately following any of the above Holidays celebrated on a Friday.

* From 6:00 a.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.
** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

ITEM # 0202001A EARTH EXCAVATION (NAUBUC STORM DISCONNECT)

Work under this item shall conform to the applicable provisions of Section 2.02 ROADWAY EXCAVATION, FORMATION OF EMBANKMENT AND DISPOSAL OF SURPLUS MATERIAL of the Standard Specifications Form 818 amended as follows:

Description: Add the following:

The work included under this item shall consist of saw cutting, removal and disposal of existing bituminous pavement, removal and disposal of existing concrete sidewalks, all excavation, backfill, compaction and disposal of surplus material required to perform the Naubuc Storm Disconnection work only under this contract.

Method of Measurement:

The work will be measured for payment by the accepted number of cubic yards of "Earth Excavation (Naubuc Storm Disconnect)", complete in place and accepted. Measurement limits shall be the field excavation horizontal and vertical limits mutually agreed upon by the contractor and approved by the Engineer.

There will be no separate direct measurement for payment of saw cutting, removal and disposal of existing bituminous pavement, removal and disposal of existing concrete sidewalks, all excavation, backfill, compaction and disposal of surplus material. This work and material required under this item shall be considered included in the unit price for "Earth Excavation (Naubuc Storm Disconnect)".

Earth or trench excavation other than that described above for the Naubuc Avenue Storm disconnect will not be measured for payment. Rather it shall be considered to be included with the item associated therewith.

Basis of Payment:

This work will be paid at the contract unit price per cubic yard "Earth Excavation (Naubuc Storm Disconnect)" which price shall include saw cutting, removal and disposal of existing bituminous pavement, removal and disposal of existing concrete sidewalks, all excavation, backfill, compaction and disposal of surplus material all materials, equipment, tools and labor incidental thereto.

There will be no separate payment for saw cutting, removal and disposal of existing bituminous pavement, removal and disposal of existing concrete sidewalks, all excavation, backfill, compaction and disposal of surplus material. This work and material required under this item shall be considered included in the unit price for "Earth Excavation (Naubuc Storm Disconnect)".

Item No.	Description	Unit
0202001A	EARTH EXCAVATION (NAUBUC STORM DISCONNECT)	CY

ITEM # 0216131A PIPE ABANDONMENT USING CLSM

ITEM # 0216132A MANHOLE ABANDONMENT USING CLSM

Description:

The work included in these items shall consist of the abandonment of existing storm drain or sanitary sewer pipes and manholes by an approved contractor using an approved controlled low strength material (CLSM). Controlled Low Strength Material (CLSM) is a self-consolidating, rigid setting, flowable material to be used for pipe and manhole abandonment, and includes both flowable fill and cellular concrete. The flow and set time characteristics of CLSM shall be designed to meet the specific job conditions. All CLSM material covered by this specification 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. Placement of CLSM may be by pressurized grouting techniques in sewer pipes or other restricted areas, or as mass placement by chutes or tremie methods in unrestricted locations with open access.

Ballast shall consist of large aggregate either replaced with the voids subsequently filled with CLSM injected by grouting method; or in areas with open access, placed individually and sequentially at the same time as the CLSM placement.

Manhole demolition work, other than placement of CLSM, including saw cutting pavement, removal of frames and covers, demolition of the top 24 inches of the precast structure below grade, backfill, compaction, and pavement patching shall be performed by the Town.

Submittals:

Contractor Qualifications Statement: The background and experience record for the proposed crew performing the CLSM installation showing a minimum of 5 similar projects using the proposed or similar equipment and methods.

CLSM Installation Plan: At least 10 days prior to commencing any abandonment activities, submit a plan for CLSM installation and pipe abandonment, describing the proposed grouting sequence, bypass pumping requirements and plugging, if any, and other information pertinent to completion of the work. Provide technical information for equipment and operational procedures including projected slurry injection rate, grout pressure, method of controlling grout pressure, bulkhead and vent design, and number of stages of grout application.

CLSM mix design report:

1. CLSM type and production method.
2. Use of ballast. Provide percentage of ballast of the total placement and size limits for the ballast if fill is intended to be used with ballast.
3. Aggregate gradation of fill. The aggregate gradation of the mix (excluding ballast) shall be used as a pilot curve for quality control during production (not required for cellular concrete).
4. Fill mix constituents and proportions including materials by weight and volume, and air content but excluding ballast. Give types and amounts of admixtures including air entrainment or air generating compounds.
5. Fill densities including wet density at the point of placement.
6. Initial time of set.
7. Bleeding and shrinkage.
8. Minimum and Maximum Compressive strength.

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 sections 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.

Design Mix Criteria. Provide design of one or more mixes to meet the design criteria and conditions for placement. Present the information in the mix design report including the following:

1. Cement: ASTM C150 Type I or II. Volume and weight per cubic yard of fill. Provide minimum cement content of 100 pounds per cubic yard.
2. Fly ash: ASTM C618 Class C or F. Volume and weight per cubic yard of fill. Provide minimum Fly ash content of 200 pounds per cubic yard.
3. Potable water: Volume and weight per cubic yard of fill. Amount of water determined by mix design testing.
4. Aggregate gradation: 100 percent passing the 3/8 inch sieve and not more than 10 percent passing the #200 sieve. The mix design report shall define a pilot gradation based on the following sieve sizes 3/8-inch, Nos. 4, 8, 16, 30, 50, 100 and 200. Do not deviate from the pilot gradation by more than +/- 10 percentage points for any sieve for the production material. (For flowable fill only, not required for cellular concrete)
5. Aggregate source material: Screened or crushed aggregate, pit or bank run fine gravels or sand, or crushed concrete. If crushed concrete is used, at least 30 percent of natural aggregate shall be added as necessary to provide workability. (For flowable fill only, not required for cellular concrete)
6. Admixtures: Use admixtures meeting ASTM C494 and ASTM C107 as needed to improve pumpability, to control time of set, and reduce bleeding.
7. Fluidifier: Use a fluidifier meeting ASTM C397 as necessary to hold the solid constituents in suspension. Add a shrinkage compensator if necessary.
8. Performance additive: Use a CLSM performance additive, such as Darafill or approved equal, to control the fill properties.
9. Foaming Agent: Use agent that meets ASTM C869 and ASTM C796 (for cellular concrete only).

B. CLSM Requirements

1. Unconfined compressive strength: minimum 30 pounds per square inch (psi) and maximum of 200 pounds per square inch (psi) (for mixes with minimum wet density of 30 PCF) when tested in accordance with ASTM D4832 after 56 days as determined based on an average of three tests for the same placement. Present at least three acceptable strength tests for the proposed mix design in the mix design report. Cellular Concrete shall be tested in accordance with ASTM C495.
2. Placement characteristics: self-leveling.
3. Shrinkage characteristics: non-shrink.
4. Water bleeding for fill to be placed by grouting method in sewers: not to exceed 2 percent according to ASTM C940.
5. Minimum wet density: 90 pounds per cubic foot for flowable fill, or 30 pounds per cubic foot for cellular concrete.
6. 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 of the project specifications if applicable. The use of chloride accelerators is not permitted.
7. 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.

BALLAST

Ballast material: natural rock or concrete pieces with a minimum size equal to at least 10 times the maximum aggregate size of the CLSM and a maximum size of 24 inches. The maximum dimension shall not be more than 20 percent of the minimum dimension of the space to be filled. Ballast shall be free of any regulated waste material.

Construction Methods:

PREPARATION

A. Have fill mix design reports and other submittals accepted by the Engineer prior to start of placement. Notify the Engineer at least 24 hours in advance of grouting with CLSM.
B. CLSM shall only be placed when the ambient temperature is at least 32° F and rising. CLSM material shall be deposited within 2 hours of initial mixing.
C. Select fill placement equipment and follow procedures with sufficient safety and care to avoid damage to existing underground utilities and structures. Operate equipment at a pressure that will not distort or imperil any portion of the work, new or existing.
D. Review previously recorded video of pipeline inspection (provided by the Town) to identify connections, locate obstructions, and assess the condition of the pipe. Locate previously unidentified connections, which have not been redirected and reconnected as a part of this project, and report them to the Engineer for resolution by the Town. During placement of the fill, compensate for any irregularities in the sewer pipe, such as obstructions, open joints, or broken pipe to ensure no voids remain unfilled.
E. Remove free water prior to starting fill placement as necessary.
F. The Town has performed the following demolition and preparation work prior to starting fill placement: Clean placement areas of sewers and manholes of debris that may hinder fill placement. Remove excessive amounts of sludge and any other substances that may degrade performance of the fill. If upon inspection additional cleaning is necessary, Contractor shall report this to the Engineer and such work will be performed by the Town.

EQUIPMENT

A. Mix CLSM in an automated batch plant and deliver it to the site in ready-mix trucks. Performance additives may be added at the placement site if required by mix design.
B. Use concrete or grout pumps capable of continuous delivery at the planned placement rate.

DEMOLITION OF ABANDONED MANHOLES

A. Sawcut pavement around manhole frames and covers to be removed. Excavate as required to perform demolition work.
B. Remove manhole frames and covers and any castings from other existing pipeline structures. Deliver these castings to the Owner’s storage yard.
C. Demolish and remove precast concrete adjustment rings and corner section, or brick and mortar corbel and chimney, or other pipeline structure, to a minimum depth of 2 feet below finished grade. The structure may be removed to a greater depth, but not deeper than 18 inches above the crown of the abandoned sanitary sewer or storm pipe.

INSTALLATION

A. CLSM may be placed 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 of 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.
B. Abandon storm drain or sanitary sewer pipes by completely filling the pipe line with CLSM. Abandon manholes and other structures by filling with CLSM, together with ballast as applicable, within the depth of structures left in place. If the adjacent pipe lines are not to be filled, place temporary plugs in each line connecting to the manhole in preparation for filling the manhole.

C. Place CLSM to fill the volume between the manholes as completely as practicable. Continuously place CLSM from manhole to manhole with no intermediate pour points, but not exceeding 525 feet in length unless otherwise approved by the Engineer.
D. Have the filling operation performed by experienced crews with equipment to monitor density of the CLSM and to control pressure.
E. Temporarily plug pipes which are to remain in operation during pouring/pumping to keep the lines free of CLSM.
F. Pump CLSM through bulkheads constructed for placement of two 2-inch PVC pipes with valves and threaded connection fittings or use other suitable construction methods to contain the CLSM in lines to be abandoned. These pipes will act as injection points or vents for placement of CLSM.
G. Place CLSM under pressure flow conditions into a properly vented open system until CLSM emerges from the vent pipes. Pump CLSM with sufficient pressure to overcome friction and to fill the pipe line to be abandoned from the downstream end, to discharge at the upstream end. Alternatively, CLSM can be pumped from the upstream end with vent pipes at both ends.
H. Inject CLSM through replaced ballast using grouting equipment and a series of grout pipes discharging at the bottom of the placement, allowing the fill to rise through the ballast effectively filling all voids. Alternatively, sequentially place individual pieces of ballast at the same time as CLSM is placed. Do not fill with ballast more than 50 percent of the volume at any level to prevent nesting and void formation.
I. Remediate placement of CLSM which does not fill voids in a pipe, in manhole or other structures, or where voids develop due to excessive shrinkage or bleeding of the fill by using pressure grouting either from inside the sewer or from the surface.
J. Backfill to the surface, above the pipe or structures left in place, with CLSM in restricted areas, compacted bank run gravel in unrestricted areas to be paved or select fill in unrestricted areas outside of pavement. Place and compact backfill, other than CLSM, in compliance with these specifications. Install an 18” thick layer of processed stone base as the top layer of backfill material to match finished grade in all areas where pavement restoration is required. Pavement restoration will be performed by the Town.
K. Collect and dispose of excess CLSM material and other debris in accordance with all sections of these specifications.

FIELD QUALITY CONTROL

A. Provide batch plant tickets for each truck delivery of CLSM. Note on the tickets addition of admixtures at the site.
B. Check flow characteristics and workability of the fill as the placement proceeds.
C. The Town will obtain at least three test cylinders for each placement area for determination of 56 day compressive strength and bleeding. The acceptance of the placement will be based on the average strength of the three tests. Cellular Concrete shall be tested in accordance with ASTM C495.
D. Record the volume of ballast together with the CLSM placement for the same space to demonstrate that voids have been filled.

PROTECTION OF PERSONS AND PROPERTY

A. Provide safe working conditions for employees throughout demolition and removal operations. Observe safety requirements for work below grade.
B. Maintain safe access to adjacent property and buildings. Do not obstruct roadways, sidewalks or passageways adjacent to the work.

Method of Measurement:

Measurement for Pipe Abandonment Using CLSM shall be made on a cubic yard basis through computation of the pipe cross sectional area multiplied by the length of pipe being abandoned.

Measurement for Manhole Abandonment Using CLSM shall be made on a cubic yard basis through computation of the cross-section area of the manhole multiplied by the depth of the manhole to be abandoned.

Payment will be full compensation for all material, equipment, and labor required for complete abandonment grouting, including air venting, testing, temporary plugs, pipes and all incidentals.

No separate payment will be made for plugging and abandoning pipe lines. Include the cost of such abandonment in related work.

Acceptability of CLSM is based on achieving the required average strength noted elsewhere.

Manhole demolition work, other than placement of CLSM, including saw cutting pavement, removal of frames and covers, demolition of the top 24 inches of the precast structure below grade, backfill, and compaction, shall not be measured for payment. Rather this work shall be considered to be included as part of the Contract Unit Price for this item.

Pavement repair work associated with manhole abandonment shall be measured and paid for under the appropriate contract item.

Basis of Payment:

This work will be paid at the contract unit price per cubic yard “Pipe Abandonment Using Controlled Low Strength Material,” or “Manhole Abandonment Using Controlled Low Strength Material” which price shall include all materials, equipment, tools and labor incidental thereto.

Item No.	Description	Unit
0216131A	PIPE ABANDONMENT USING CLSM	C.Y.
0216132A	MANHOLE ABANDONMENT USING CLSM	C.Y.

ITEM # 0219011A SEDIMENT CONTROL SYSTEM AT CATCH BASIN

Description:

This work shall consist of furnishing, installing, maintaining, cleaning, and removing a sediment control sack for control of sediment entering catch basins within the project area as directed by the Engineer or as shown on the contract drawings.

Materials:

Sediment control sacks shall be the "Siltsack" product as manufactured by ACF Environmental or approved equal. Curb inlet (Type 'C') catch basins shall use a "Type B – High Flow" siltsack (with gutter deflector) without the optional overflow. Flat top (Type C-L) catch basin shall use a "Type A – High Flow" siltsack without the optional overflow.

Sediment control sack shall be manufactured from a specially designed woven polypropylene geotextile and sewn using high strength nylon thread. The sediment control sack shall be manufactured to fit the opening of the catch basin or drop inlet to be protected. Sediment control sack shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops shall be included as an integral part of the system to be used to lift the sedimentation control sack from the basin; sediment control sack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this yellow cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, sediment control sack should be emptied, cleaned and placed back into the basin.

Construction Methods:

To install the sediment control sack in the catch basin, remove the grate and place the sack in the opening. Hold out approximately six inches of the sack outside the frame. This is the area of the lifting straps. Replace the grate to hold the sack in place.

When the restraint cord is no longer visible, the sediment control sack is full and should be emptied.

To remove the sediment control sack, take two pieces of 1" diameter rebar and place through the lifting loops on each side of the sack.

To empty the sediment control sack, place it where the contents will be collected. Place the rebar through the lift straps (connected to the bottom of the sack) and lift. This will turn the sedimentation control sack inside out and empty the contents which shall be properly disposed of by the Contractor. Return the sedimentation control sack to its original shape and place back in the basin.

The sediment control sack is reusable. Once the construction cycle is complete, the sedimentation control sack shall be removed from the basin and cleaned.

Basis of Payment:

Sediment control sacks shall be paid for at the contract unit price for "Sedimentation Control System at Catch Basin" as listed in the Bid Proposal for each unit provided and installed. Maintenance of the sediment control sacks, removal and proper disposal of accumulated sediment, and cleaning after completion of construction as described herein shall also to be included in this bid price.

Item No.	Description	Unit
0219011A	SEDIMENT CONTROL SYSTEM AT CATCH BASIN	EA.

ITEM # 0404000A TEMPORARY PAVEMENT REPAIR

Description:

Work under this item shall be the construction of temporary pavement within the limits of excavation in the roadway or where ordered by the Engineer. Such work shall be performed as ordered by the Engineer. Temporary pavement shall be installed as shown in the Standard Details.

Materials:

HMA Courses: Material for the surface course shall conform to the requirements of HMA S0.375", as per the requirements of Section 4.06 of the Standard Specifications Form 818.

Only if bituminous plants are closed and it is not possible to obtain hot mix asphalt may "cold patch" be used, with the approval of the Engineer.

Processed Stone Base: The material for this item shall be **crushed trap rock** conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 818, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Subbase: The requirements of Section M.02 Grading C Gravel shall apply except that reclaimed miscellaneous aggregate shall not be used.

Construction Methods:

Wherever sections of existing bituminous pavement are to be removed and new temporary pavement abutted, the Contractor shall make such removals to neat lines. At the line of delineation, the Contractor shall cut the bituminous pavement with a saw or asphalt cutting wheel so as to form a straight line where new pavement will be placed against old. Care shall be exercised in removing the existing pavement to avoid "break-backs" beyond the cut line.

Excavation shall consist of the removal and disposal of all excavated materials, the removal of which is necessary for the proper completion of the work, to a depth as required to make the temporary pavement repair as shown on the typical pavement repair detail or as directed by the Engineer.

No open excavations or partially completed patches shall be left open or uncompleted overnight.

Eighteen (18) inches of processed stone base shall be installed in 3 lifts of 6-inch depth and compacted as required to achieve 95% of maximum theoretical density.

Two (2) inches of HMA 0.375" shall be placed as the temporary pavement surface course in a single lift using approved methods and compacted to a minimum of 92% of the maximum theoretical specific gravity using power rollers or other mechanical methods to achieve satisfactory results.

Method of Measurement:

The work will be measured for payment by the accepted number of square yards of "Temporary Pavement Repair", of the type specified, complete in place. Measurement limits shall be to the allowable trench repair width shown on the construction plans or as approved by the Engineer.

There will be no direct measurement for payment of saw cutting, excavation, disposal of surplus materials, subbase, processed stone base, compaction, or HMA. This work and material will be included in the unit price for "Temporary Pavement Repair".

Basis of Payment:

The furnishing and installing of "Temporary Pavement Repair" shall be paid for at the contract price per square yard. The unit price shall include saw cutting, excavation, disposal of surplus materials, subbase, processed stone base, compaction, and preparation of the HMA patch, in accordance with the specifications and as directed by the Engineer. Payment shall include all labor, materials, equipment, cleaning of pavement surface, material disposal and incidentals necessary to complete the work described.

Item No.	Description	Unit
0404000A	TEMPORARY PAVEMENT REPAIR	S.Y.

ITEM # 0404100A BITUMINOUS CONCRETE PATCHING – FULL DEPTH

Description:

The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall construct full depth pavement patches in areas as shown on the plans and as directed by the Engineer. Pavement shall be installed per the typical pavement repair detail shown on the plans. Prior to excavation in paved areas, the Contractor shall cut the surface of the existing pavement with a pneumatic cutter or it's equal. The pavement shall be cut in as straight a line as possible on both sides of the proposed patch for the entire length of the job.

The required pavement repairs for various classifications of roadway are outlined below. The Contractor shall perform repairs using the materials and associated minimum compacted depths as shown below for the classification of the road being repaired **or to the compacted depth as required to match the existing pavement thickness** and as directed by the Engineer.

Town of Glastonbury Local/Collector Roadway-Typical Section:

Existing Hot Mix Asphalt (HMA):	1.5"	(minimum)	HMA S0.375"
	2"	(minimum)	HMA S0.5"
Process Stone Base	4"		
Gravel Subbase:	12"		

Town of Glastonbury Arterial Roadway-Typical Section:

Existing Hot Mix Asphalt (HMA):	3" (Minimum, In Two Lifts)	HMA S0.5"
	6" (Minimum, In Two Lifts)	HMA S1.0"
Gravel Subbase:	10"	

Materials:

HMA Courses: The requirements of Section 4.06 of the Standard Specifications Form 817 apply.

Processed Stone Base: The material for this item shall be **crushed trap rock** conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 817, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Subbase: The requirements of Section M.02 Grading C Gravel shall apply except that reclaimed miscellaneous aggregate shall not be used.

Construction Methods:

The following procedure shall be followed when making a full depth pavement patch:

Excavation: Excavation shall consist of the removal and disposal of all excavated materials, the removal of which is necessary for the proper completion of the work, to a depth as required to make the pavement repair as shown on the typical pavement repair detail for the type of road indicated.

1. Make the excavation square or rectangular with faces straight and vertical.

2. Limits of pavement saw cutting shall be a minimum of 2' around the outside perimeter of any drainage structure to be reset or replaced. Drainage trench excavation saw cutting limits shall conform to the required limits outlined in Section 2.86.3 (1) – Drainage Trench Excavation, Rock in Drainage Trench Excavation.

3. The Contractor shall use pavement saw cutting or equipment approved by the Engineer which will not damage adjacent pavement. A jack hammer and compressor will not be allowed for cutting the pavement surface.

Earth Excavation and Subbase: Where the soil in the bottom of the patch is found to be unsuitable, the Engineer shall order it removed and replaced with Grading "C" Gravel Subbase. The subbase shall be placed in lifts not to exceed 6" and shall be constructed to allow proper placement and thickness of the HMA materials. The subbase materials shall be compacted to a minimum of 95% of laboratory modified proctor, AASHTO T-180. This additional excavation and construction of the granular subbase shall be considered included if required.

HMA: Swab or paint the existing vertical faces of the pavement with approved emulsified asphalt such that a uniform film or asphalt will remain when cured.

Place the intermediate binder course(s) using approved methods and compact to a minimum of 92% of the maximum theoretical specific gravity using power rollers or other mechanical methods to achieve satisfactory results. The perimeter of the patch shall be painted with tack coat or approved equal such that a 4" wide strip will be equally spaced on the new and existing pavement. The tack coat material shall be dusted with stone screenings or stone dust such that no tracking or pick-up of the seal will occur.

No open excavations or partially completed patches shall be left open or uncompleted overnight.

One-Year Warranty: Bituminous Concrete Patching- Full Depth shall be warranted for one (1) year after final acceptance.

The Contractor will perform all warranty work, including but not limited to, replacement, traffic Control and incidentals, at NO cost to the Town as long as written notification is provided within the warranty period, even if the repair work extends beyond the warranty period. Failure to perform the warrantee work, when notified, will limit the Contractor from future work in the Town.

The Contractor shall perform all required repairs, including replacement, to meet the requirements of this specification. Temporary repairs will be replaced with permanent repairs as weather allows.

All depth measurements shall be considered to be compacted depths. Bituminous material shall be compacted to a minimum 90% density.

The Contractor shall remove and acceptably dispose of all excavated material before proceeding with the remainder of the work.

Method of Measurement:

"Bituminous Concrete Patching-Full Depth" will be measured by the accepted number of square yards complete in place. Measurement limits shall be to the allowable trench repair width shown on the construction plans or as approved by the Engineer.

There will be no direct payment for saw cutting, removal of pavement, removal of existing curbing, excavation, formation of subgrade, subbase, process aggregate base, fine grading, compaction, furnishing and placing bituminous concrete, tack coat.

Basis of Payment:

"Bituminous Concrete Patching-Full Depth" shall be paid for at the contract price per square yard. The unit price shall include saw cutting, removal of pavement, removal of existing curbing, excavation, formation of subgrade, subbase, fine grading, compaction, furnishing and placing bituminous concrete, tack coat, and all other labor, equipment, and materials incidentals necessary to complete the work described.

Item No.	Description	Unit
0404100A	BITUMINOUS CONCRETE PATCHING-FULL DEPTH	S.Y.

ITEM # 0586790.10A REMOVE DRAINAGE STRUCTURE- 0'-10' DEEP

Work under this item shall conform to the applicable provisions of Section 5.86 CATCH BASINS, MANHOLES AND DROP INLETS of the Standard Specifications Form 818 amended as follows:

Description:

This item shall apply to the complete removal of an entire drainage structure such as a catch basin or manhole, including the sump. Partial removal of drainage structures related to reset of a catch basin is included under other contract items.

Construction Methods:

Drainage trench excavation required for this item shall be performed in accordance with Section 2.86.03 of the Standard Specifications Form 818 and the requirements of the plans.

Method of Measurement:

There will be no measurement for excavation required for the removal of the various drainage structure appurtenances.

Basis of Payment:

The work associated with removal and disposal of existing drainage structures shall be measured and paid for each drainage structure removed under the item "Remove Drainage Structure- 0'-10' Deep" as listed in the bid proposal. When existing drainage pipes associated with a catch basin are also identified to be removed on the plans, this work will not be measured and paid for separately, but rather shall be included in the cost of the removal of the catch basin associated therewith. The payment for removal and disposal of existing drainage structures shall include all excavation, removal and disposal of drainage structures, materials, tools, equipment, and labor necessary to complete the excavation and removal of these units, including associated drainage pipes, in conformity with the plans, or as specified.

Item No.	Description	Unit
0586790.10A	REMOVE DRAINAGE STRUCTURE- 0'-10' DEEP	EA.

ITEM # 0686000.15A 15" R.C. PIPE- 0'-10' DEEP

ITEM # 0686000.18A 18" R.C. PIPE- 0'-10' DEEP

ITEM # 0686002.12A 12" R.C. PIPE- (CLASS V)- 0'-10' DEEP

ITEM # 0686260.12A 12" DUCTILE IRON PIPE- 0'- 10' DEEP

This item shall conform to Section 6.86 DRAINAGE PIPES, DRAINAGE PIPE ENDS of the Form 818, modified as follows:

Materials: Materials for this work shall conform to the following requirements:

Reinforced Concrete Pipe:

Reinforced Concrete Pipe (RCP) shall be Class IV or Class V as shown on the plans or as directed by the Engineer.

Ductile Iron Pipe:

Ductile iron pipe shall conform to ANSI A21.51 (AWWA C151) class to thickness designed per ANSI 21.50 (AWWA C150), Tar (Seal) coated and cement mortar lined per ANSI A21.4 (AWWA C104) unless otherwise specified, with push-on joints.

Ductile iron pipe shall be a minimum thickness Class 50 unless otherwise noted.

Rubber-gasketed joints for push-on ductile iron pipe shall conform to ANSI A21-11 (AWWA C111).

Construction Methods:

Drainage trench excavation required for this item shall be performed in accordance with Section 2.86.03 of the Standard Specifications Form 818 and the requirements of the plans and details.

Method of Measurement:

There will be no direct measurement for drainage trench excavation and there will be no measurement for payment for gravel fill, bedding material, or for the cost of modifications required to existing manholes or catch basins as required for connecting proposed drainage pipes with existing drainage structures, but the cost thereof shall be included in the contract unit price per linear foot for the size and type of pipe being installed.

Drainage trench excavation, dewatering, backfilling and consolidation will not be measured for payment, but its cost shall be included in the bid price per linear foot for the size and type of pipe being installed.

If rock in trench excavation is required such work will be measured for payment as extra work.

Basis for Payment:

The work under these items will be paid for at the contract unit price as listed in the Bid Proposal per linear foot for the size and type of pipe specified, complete in place including drainage trench excavation, dewatering, gravel fill, bedding material, backfilling and consolidation, and all other materials, equipment, tools, and labor incidental thereto.

Rock excavation, when encountered during the course of this work, will be paid for as Extra Work in accordance with the provisions of 1.04.05.

Item No.	Description	Unit

0686000.15A	15” R.C. PIPE-0’-10’ DEEP	LF.
0686000.18A	18” R.C. PIPE-0’-10’ DEEP	LF.
0686002.12A	12” R.C. PIPE (CLASS V)--0’-10’ DEEP	LF.
0686260.12A	12” DUCTILE IRON PIPE - 0’-10’ DEEP	LF.

ITEM # 0922500A BITUMINOUS CONCRETE DRIVEWAY (COMMERCIAL)

This item shall conform to Section 9.22 BITUMINOUS CONCRETE SIDEWALK, BITUMINOUS CONCRETE DRIVEWAY, of the Form 818, amended as follows:

Description:

This item shall consist of bituminous concrete surfaced sidewalk or driveway constructed on a processed stone base course in the locations and to the dimensions and details shown on the plans or as directed by the Engineer and in accordance with these specifications. This item shall also include the saw cutting, removal and disposal of existing bituminous pavement necessary for driveway replacement work.

Materials: Materials for this work shall conform to the following requirements:

Processed Stone Base Course: The material for this item shall be **crushed trap rock** conforming to the requirements of Article M.05.01 Processed Aggregate Base and Pavement of the Form 818, except that coarse aggregate shall be broken stone, and fine aggregate shall be stone sand, screenings, or a combination thereof. Gravel or reclaimed miscellaneous aggregate shall not be used.

Bituminous Concrete Surface: Materials for this surface shall conform to the requirements of the Special Provision for Section M.04, HMA S0.375".

Construction Methods:

Saw cutting: Portions of the driveway or driveway aprons to be replaced shall be saw cut, and the existing pavement removed and disposed of by the Contractor.

Excavation: Excavation, including removal of any existing concrete sidewalk, concrete sidewalk ramp, bituminous sidewalk or driveway, shall be made to the required depth below the finished grade, as shown on the plans or as directed by the Engineer. All soft and yielding material shall be removed and replaced with suitable material.

Forms: When the bituminous concrete is spread by hand, forms shall be used. Forms shall be of metal or wood, straight, free from warp and of sufficient strength to resist springing from the impact of the roller. If made of wood, they shall be of 2-inch (38-millimeter) surfaced plank except that at sharp curves thinner material may be used; if made of metal, they shall be of an approved section. All forms shall be of a depth equal to the depth of the sidewalks or driveways and shall be securely staked, braced, and held firmly to the required line and grade. All forms shall be cleaned and oiled each time they are used.

Processed Stone Base Course: Processed stone base course shall be uniformly spread to the required depth and thoroughly compacted with a roller with a mass of not less than 500 pounds (226 kilograms).

Bituminous Concrete Surface: The edges of existing pavement shall be painted with an asphalt emulsion prior to the placement of permanent pavement. Hot laid bituminous concrete shall be placed so as to give a three-inch compacted surface, or a surface that has a depth equal to the existing driveway surface, whichever is greater.

This surface shall be constructed in accordance with the requirements of the Special Provision for Section 4.06, except that the material may be spread by hand and thoroughly compacted by multiple passes of a power-driven roller weighing (with a mass) of not less than 500 pounds (226 kilograms). The finished surface shall be free from waves or depressions.

Backfilling and Removal of Surplus Material: The sides of the sidewalk or driveway shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the sidewalk or driveway. All surplus material shall be removed and the site left in a neat and presentable condition to the satisfaction of the Engineer. In sections inaccessible to the roller, the base course, surface course and backfill shall be hand-

tamped with tampers weighing not less than 12 pounds (with a mass of not less than 5.5 kilograms), the face of which shall not exceed 50 square inches (32,000 square millimeters) in area.

Method of Measurement: This work will be measured for payment as follows:

Bituminous Concrete Driveway (Commercial): This work will be measured by the actual number of square yards of completed and accepted "Bituminous Concrete Driveway (Commercial)".

Excavation: Excavation, including removal and disposal of existing bituminous concrete, backfilling, and disposal of all surplus materials will not be measured for payment; but the cost shall be included in the price bid for "Bituminous Concrete Driveway (Commercial)".

Processed Stone Base Course: This work will not be measured for payment but the cost shall be included in the price bid for "Bituminous Concrete Driveway (Commercial)".

Basis of Payment:

This work will be paid for at the contract unit price per square yard for "Bituminous Concrete Driveway (Commercial)" complete in place, which price shall include all excavation as specified above, backfill, saw cutting, disposal of surplus material, processed stone base, and all equipment, tools, labor and materials incidental thereto.

Item No.	Description	Unit
0922500A	BITUMINOUS CONCRETE DRIVEWAY (COMMERCIAL)	S.Y.

ITEM # 0944000A FURNISHING AND PLACING TOPSOIL

Work under this item shall conform to the applicable provisions of Section 9.44 TOPSOIL of the Standard Specifications Form 818 amended as follows:

Basis of Payment:

This work will be measured for payment by the number of square yards of area on which the placing of the topsoil has been completed and the work accepted.

The limits of payment shall be to the slope limits as shown on the plans. In the absence of slope limits, the maximum area of measurement shall be the area extending two feet behind the sidewalk and the area between the sidewalk and edge of pavement. No payment shall be made outside of these limits unless the disturbance was directed or approved by the Engineer. No payment shall be made for areas disturbed for staging, storage of materials, or other area disturbed for the convenience of the Contractor.

This work will be paid for at the Contract unit price per square yard for “Furnishing and Placing Topsoil”, which price shall include all materials, equipment, tools, labor, and work incidental thereto.

Item No.	Description	Unit
0944000A	FURNISHING AND PLACING TOPSOIL	S.Y.

ITEM # 0950005A TURF ESTABLISHMENT

Description:

The work included in this item shall consist of providing an accepted uniform stand of established perennial turf grasses by furnishing and placing fertilizer, seed, and mulch on all areas to be treated as shown on the plans or where designated by the Engineer.

Materials:

The materials for this work shall conform to the requirements of Section M.13 of the Form 818, except as noted below.

Seed mix for lawn areas shall consist of 30% Crest Kentucky Bluegrass, 30% Baron Kentucky Bluegrass, 20% Victory II Chewings Fescue, and 20% Perennial Rye Grass.

Seed mix for other roadside areas designated for turf establishment shall consist of 70% Red Fescue, 20% Kentucky Blue Grass, and 10% Perennial Rye Grass.

Erosion Control Matting shall be a product approved by the Connecticut Department of Transportation for the intended application as described in the “Qualified Products List” publication, latest edition.

Hydroseeding, when required by the Engineer, shall be performed using a homogenous slurry consisting of wood fiber mulch, fertilizer, live seed, and organic tackifiers conforming to Section M.13 of the Form 818.

Material certificates shall be provided for all materials supplied under this item.

Construction Methods:

Construction Methods shall be those established as agronomically acceptable and feasible and which are approved by the Engineer.

1. Preparation of the Seedbed:
(a) Level areas, medians, interchanges and lawns: These areas shall be made friable and receptive for seeding by disking or by other approved methods to the satisfaction of the Engineer. In all cases the final prepared and seeded soil surface shall meet the lines and grades for such surface as shown in the plans, or as directed by the Engineer.

(b) Slope and Embankment Areas: These areas shall be made friable and receptive to seeding by approved methods which will not disrupt the line and grade of the slope surface. In no event will seeding be permitted on hard or crusted soil surface.

(c) All areas to be seeded shall be reasonably free from weeds taller than 3 inches. Removal of weed growth from the slope areas shall be by approved methods, including hand-mowing, which do not rut or scar the slope surface, or cause excessive disruption of the slope line or grade. Seeding on level areas shall not be permitted until substantially all weed growth is removed. Seeding on slope areas shall not be permitted without removal or cutting of weed growth except by written permission of the Engineer.

2. Seeding Season: The calendar dates for seeding shall be:
Spring—March 15 to June 15
Fall—August 15 to October 15

All disturbed soil areas shall be treated during the seeding seasons as follows:
(a) Areas at final grade: Seeding will be accomplished.

(b) "Out-of-season" seedings shall be performed in the same manner as "in-season" seedings. Since acceptable turf establishment is less likely, the Contractor shall be responsible for "in-season" reseeding until the turf stand conforms to this specification.

(c) During "out-of-season" periods unseeded areas shall be treated in accordance with Section 2.10, Water Pollution Control.

3. Seeding Methods: The seed mixture shall be applied by any agronomically acceptable procedure. The rate of application shall be no less than 175 pounds per acre or according to manufacturer instructions. Fertilizer conforming to M.13.03 shall be initially applied at a rate of 320 pounds per acre during or preceding seeding. When wood fiber mulch is used, it shall be applied in a water slurry at a rate of 2,000 pounds per acre with or immediately after the application of seed, fertilizer and limestone.

When hydroseeding is required by the Engineer, it shall be performed by a qualified Contractor who has a minimum of three-year experience in the successful performance of this work and has been approved by the Engineer. Hydroseed mix shall be applied in a slurry consisting of wood fiber mulch, fertilizer, live seed, and organic tackifiers with each component applied at the rate described above. The slurry shall be hydraulically sprayed on the soil surface as required to form a blotter-like ground cover with a uniform coating. Contractor shall exercise special care as required to prevent slurry from being sprayed onto adjacent paved areas, sidewalks, buildings, or signs. All slurry sprayed onto adjacent surfaces shall be cleaned at the Contractor's expense.

When the grass seeding growth has attained a height of 6 inches, the specified areas designated herein shall be mowed to a height of 3 inches. Following mowing, all seeding grass areas (mowed and un-mowed) shall receive a uniform application of fertilizer hydraulically placed at the rate of 320 pounds per acre.

4. Compaction: The Contractor shall keep all equipment and vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants. Where such compaction has occurred, the Contractor shall rework the soil to make a suitable seedbed; then re-seed and mulch such areas with the full amounts of the specified materials, at no extra expense to the Town.

5. Stand of Perennial Turf Grasses: The Contractor shall provide and maintain a uniform stand of established turf grass or wetland vegetation having attained a height of 6 inches consisting of no less than 100 plants per square foot throughout the seeded areas until the entire project has been accepted.

6. Establishment: The Contractor shall keep all seeded areas free from weeds and debris, such as stones, cables, baling wire, and he shall mow at his own expense, on a one-time-only basis, all slopes 4:1 or less (flatter) and level turf established (seeded) areas to a height of 3 inches when the grass growth attains a height of 6 inches. Clean-up shall include, but not be limited to, the removal of all debris from the turf establishment operations on the shoulders, pavement, and/or elsewhere on adjacent properties publicly and privately owned.

7. Erosion Control Matting: Erosion control matting shall be installed following seeding where called for on the plans or as directed by the Engineer. Staples shall be installed as per Manufacturer's recommendations. Where two lengths of matting are joined, the end of the up-grade strip shall overlap the down-grade strip. The Contractor shall maintain and protect the areas with erosion control matting until such time as the turf grass is established. The Contractor shall replace or repair at his own expense any and all erosion control matting areas damaged by fire, water or other causes including the operation of construction equipment. No mowing will be required in the locations where erosion control matting is installed.

Method of Measurement:

This work will be measured for payment by the number of square yards of surface area of accepted established perennial turf grass or wetland vegetation as specified or by the number of square yards surface area of seeding actually covered and as specified.

Restoration of areas disturbed for staging, storage of materials, or other area disturbed for the convenience of the Contractor will not be measured for payment.

Basis of Payment:

This work will be paid for at the contract unit price per square yard for "Turf Establishment", which price shall include all materials, mowing, maintenance, equipment, tools, labor, and work incidental thereto. Partial payment of up to 60% may be made for work completed, but not accepted.

Item No.	Description	Unit
0950005A	TURF ESTABLISHMENT	S.Y.

ITEM # 0970006A TRAFFICPERSON (MUNICIPAL POLICE OFFICER)

ITEM # 0970007A TRAFFICPERSON (UNIFORMED FLAGGER)

Work under this item shall conform to the applicable provisions of Section 9.70 of the Standard Specifications Form 818 supplemented as follows:

Description: Add the following to the first paragraph of Section 9.70.01

"Trafficpersons shall consist of uniformed flaggers meeting acceptable criteria or extra duty officers of the Glastonbury Police Department. The Contractor shall provide Uniformed Flaggers meeting the requirements of this specification as required for safe traffic operations in the project area. Extra-duty police officers will be used only when specifically required by the Police Chief, as the Local Traffic Authority, who will make this determination based on the Contractor's proposed operations, traffic volumes, and traffic conditions."

"All work under this item shall be paid only for the duration of the Contract as contained in the Special Conditions under 'Time for Completion/Notice to Proceed' and for any time extensions granted in writing by the Town. Payment for police officers required after the duration of the Contract and approved time extensions shall be made directly by the Town and such costs deducted from future payments due the Contractor."

Basis of Payment: Replace Section 9.70.05 with the following:

"There will be no direct payment for safety garments or STOP/SLOW paddles. All costs associated with furnishing safety garments and STOP/SLOW paddles shall be considered included in the general cost of the item.

1. Trafficperson - Uniformed Flagger: Uniformed flaggers will be paid for at the contract unit price per hour for "Trafficperson (Uniformed Flagger)" as listed in the bid proposal, which price shall include all compensation, insurance benefits, and any other cost or liability incidental to the furnishing of the traffic persons ordered."

2. Trafficperson - Police Officer: The sum of money shown on the bid proposal as "Estimated Cost" for this work will be considered the bid price even though payment will be made as described below. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figures will be disregarded and the original price will be used to determine the total amount for the contract.

Police Officers will be paid for at the actual hourly rate charged for extra-duty police officers services by the Town (monthly statement or receipted bills) plus a 5% markup. Use of a Town police vehicle requested by the Engineer will be paid at the actual rate charged by the Town plus a 5% markup. The rate charged by the Town for use of a Uniformed Town Police Officer and/or an official Town Police vehicle shall not be greater than the rate it normally charges others for similar services.

Item No.	Description	Unit
0970006A	TRAFFICPERSON (MUNICIPAL POLICE OFFICER)	EST.
0970007A	TRAFFICPERSON (UNIFORMED FLAGGER)	HOUR

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 "Prosecution and Progress":

The Town of Glastonbury CHIEF OF POLICE, acting in the capacity of the LOCAL TRAFFIC AUTHORITY, shall be the sole and final authority for the Maintenance and Protection of Traffic.

All Other Roadways

The Contractor shall maintain and protect a minimum of one lane of traffic in each direction, each lane on a travel path not less than 11 feet in width.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor is actively working, at which time the Contractor shall maintain and protect at least an alternating one-way traffic operation, on a travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet and there shall be no more than one alternating one-way traffic operation on Other Roadways within the project limits without prior approval of the Engineer.

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 allowed to close said driveways to perform the required work during those periods when the businesses are closed, unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

Article 9.71.03 - Construction Method is supplemented as follows:

General

The Contractor shall schedule operations such that all open excavations are backfilled or steel plated by the end of each active work period. The installation of steel plates shall be approved by the Town of Glastonbury Public Works Department prior to installation. Trenches and other excavations within the travel way that are backfilled shall be brought up to finished grade and paved with bituminous concrete pavement prior to reopening the roadway to vehicular traffic.

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 workday, if the vertical drop-off exceeds 3 inches, the Contractor shall provide a temporary traversable slope of 4:1 or flatter that is acceptable to the Engineer.

The Contractor, during the course of active construction work on overhead signs and structures, 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.

If applicable, when an existing sign is removed, it shall be either relocated or replaced by a new sign during the same working day.

The Contractor shall not store any material on-site which would present a safety hazard to motorists or pedestrians (e.g. fixed object or obstruct sight lines).

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed, except during the allowable periods.

Existing Signing

The Contractor shall maintain all existing overhead and side-mounted signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate signs and sign supports as many times as deemed necessary, and install temporary sign supports if necessary and as directed by the Engineer.

Signing Patterns

The Contractor shall provide such safety measures, pavement markings, traffic control devices, incidental flagmen, and signs deemed necessary to safeguard and guide the traveling public through the work zones as ordered by the Engineer, included in the approved maintenance scheme, or as shown on the plan. The Contractor shall erect, maintain, move, adjust, clean, relocate, store all signs, barricades, drums, traffic cones, and delineators when, where, and as directed by the Engineer. The use of unauthorized or unapproved signs, barricades, drums, traffic cones, or delineators will not be permitted.

All signs in any one signing pattern shall be mounted at the same height above the pavement. The Contractor shall keep all signs in proper position, clean and legible at all times. The Contractor shall maintain the site so that no weeds, shrubbery, construction materials, equipment or soil will obscure any sign, light, or barricade. Signs that no longer pertain to the project conditions shall be removed or adjusted from the view of traffic. Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration. Traffic drums shall be used to delineate raised catch basins and other hazards.

Requirements for Winter

The Contractor shall schedule a meeting with representatives from the Town of Glastonbury to determine what interim traffic control measures the Contractor shall accomplish for the winter to provide safety to the motorists and permit adequate snow removal procedures. This meeting shall be held prior to October 31 of each year and will include, but not be limited to, discussion of the status and schedule of the following items: lane and shoulder widths, pavement restoration, traffic signal work, pavement markings, and signing.

Pavement Markings

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

NOTE: Painted pavement markings will not be allowed as a substitution for either the permanent pavement markings or the Temporary Plastic Pavement Marking Tape on the final course of bituminous concrete pavement.

Dust Control

The Contractor shall be responsible for taking all steps necessary to minimize dust emanating from the project and for keeping the street free of accumulations of sand or similar materials. When ordered by the Engineer, the Contractor shall remove snow and take care of ice on temporary, new and existing sidewalks within the limits of the project. No additional payment will be made for this work.

Pavement Markings -Non-Limited Access Multilane Roadways

Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install painted pavement markings, which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The painted pavement markings will be paid under the appropriate items.

If the Contractor will install another course of bituminous concrete pavement within 24 hours, the Contractor may install Temporary Plastic Pavement Marking Tape in place of the painted pavement markings by the end of the work day/night. These temporary pavement markings shall include centerlines, lane lines (broken lines) and stop bars; shoulder edge lines are not required. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

The Contractor should install painted pavement markings on the final course of bituminous concrete pavement by the end of the work day/night. If the painted pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the painted pavement markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the painted pavement markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled "Epoxy Resin Pavement Markings, Symbols, and Legends" after such time as determined by the Engineer.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

TRAFFIC CONTROL PATTERNS

Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation

Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and the equipment can be contained within the shoulder. Flashing lights and appropriate trafficperson shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS

Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs shall be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

ALLOWABLE ADJUSTMENT OF SIGNS AND DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations.

Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of the Engineer, Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the Engineer. The agenda should include:

- Review Project scope of work and time
- Review Section 1.08, Prosecution and Progress
- Review Section 9.70, Trafficpersons
- Review Section 9.71, Maintenance and Protection of Traffic
- Review Contractor's schedule and method of operations.
- Review areas of special concern: ramps, turning roadways, medians, lane drops, etc.
- Open discussion of work zone questions and issues
- Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL

2.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available; the traffic control pattern shall not be installed.

2.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.

2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the Engineer for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

3.c) Stopping traffic may be allowed:

- As per the contract for such activities as blasting, steel erection, etc.
- During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
- To move slow moving equipment across live traffic lanes into the work area.

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or State Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, traffic slowing techniques may be used and shall include the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the TMAs and sign crew shall continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

3.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travelpath prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

3.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

3.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

SECTION 6. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

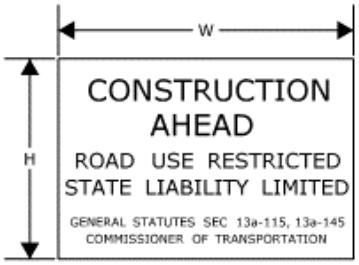
6.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

6.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.

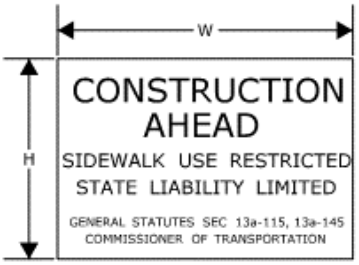
6.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

6.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SERIES 16 SIGNS



		W H
16-E	80-1605	84" x 60"
16-H	80-1608	60" x 42"
16-M	80-1613	30" x 24"



		W H
16-S	80-1619	48" x 30"

SIGN 16-S SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS. SERIES 16 SIGNS SHOULD BE LOCATED TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE. SERIES 16 SIGNS SHOULD BE INSTALLED ON MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE. ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHOULD BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.

SIGN 16-E SHALL BE USED ON ALL FREEWAYS AND EXPRESSWAYS.

SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS AND MAJOR TOWN/CITY ROADWAYS.

SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

CONSTRUCTION TRAFFIC CONTROL PLAN
SERIES 16 SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

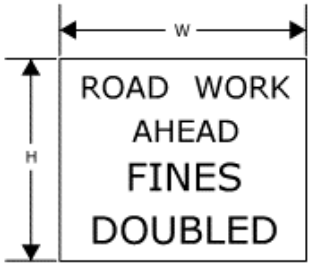
APPROVED Tracy L. Fogarty, P.E. 2019.10.09 16:30:32-04'00'
PRINCIPAL ENGINEER

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY AND MUNICIPAL ROAD IN CONNECTICUT WHERE THERE ARE WORKERS PRESENT ON THE HIGHWAY.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

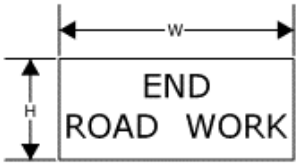
	W	H
31-1906	48"	42"
31-1907	60"	54"



"END ROAD WORK" SIGN

THE LAST SIGN IN THE PATTERN SHALL BE THE "END ROAD WORK" SIGN.

	W	H
80-9606	36"	18"
80-9612	48"	24"



CONSTRUCTION TRAFFIC CONTROL PLAN
ROAD WORK AHEAD SIGNS

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Tracy L. Fogarty, P.E. 2019.09.12 15:54:44 -04'00'
PRINCIPAL ENGINEER

NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (AA), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED IN ADVANCE TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. TRAFFIC CONES AND PORTABLE CONSTRUCTION SIGNS SHALL NOT BE LEFT UNATTENDED.

5. ALL CONFLICTING SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 48 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT $\leqslant$ 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION FROM SUNSET TO SUNRISE, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF MILE TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

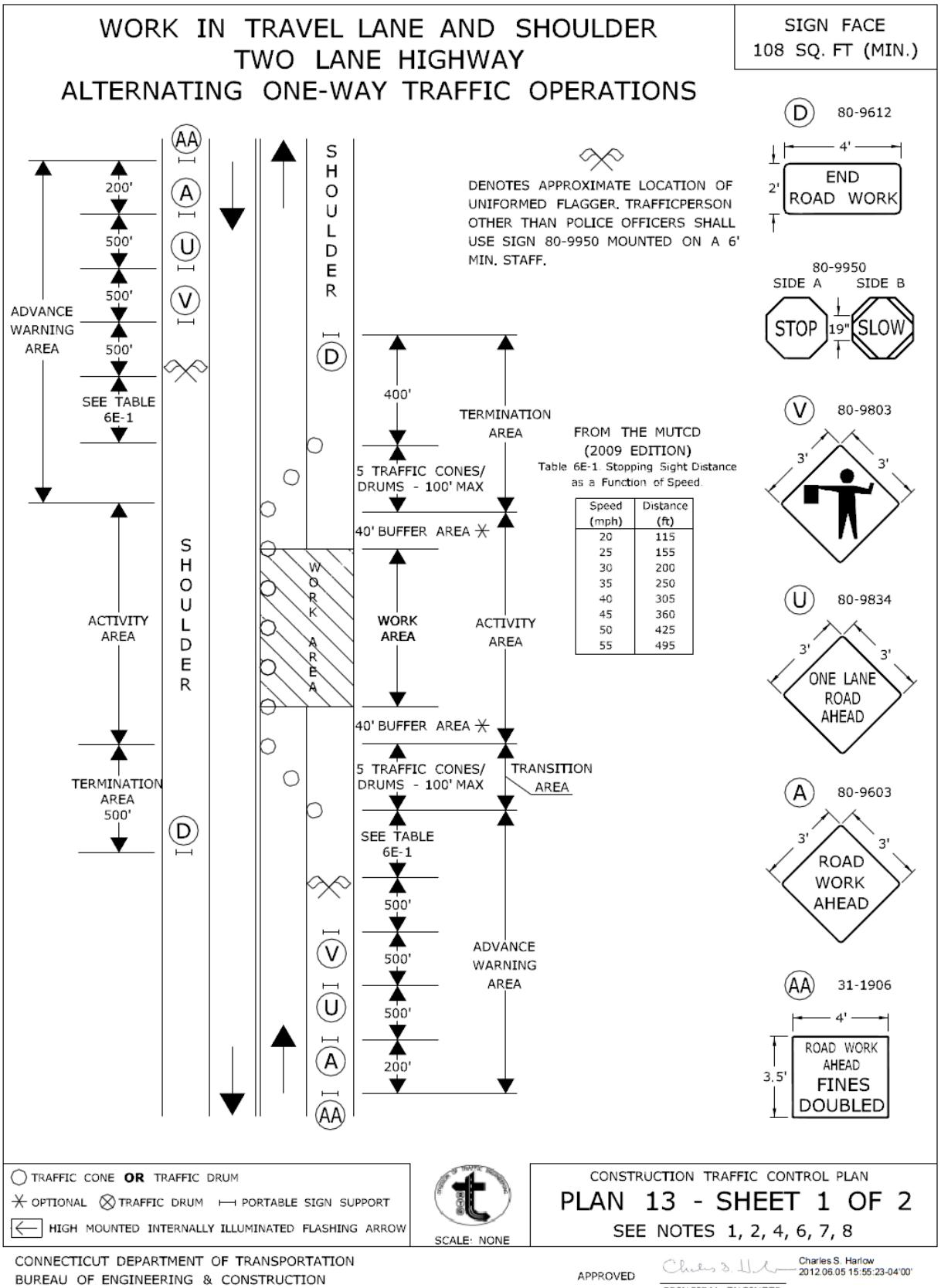
POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180'
35	245'
40	320'
45	540'
50	600'
55	660'
65	780'

CONSTRUCTION TRAFFIC CONTROL PLAN
NOTES

SCALE: NONE

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Tracy L. Fogarty, P.E. 2019.09.13 08:47:47-04'00'
PRINCIPAL ENGINEER


WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS
SIGN FACE
108 SQ. FT (MIN.)
DENOTES APPROXIMATE LOCATION OF UNIFORMED FLAGGER. TRAFFICPERSON OTHER THAN POLICE OFFICERS SHALL USE SIGN 80-9950 MOUNTED ON A 6' MIN. STAFF.
ADVANCE WARNING AREA
200'
500'
500'
500'
SEE TABLE 6E-1
ACTIVITY AREA
TERMINATION AREA 500'
SHOULDER
WORK AREA
400'
5 TRAFFIC CONES/ DRUMS - 100' MAX
40' BUFFER AREA
WORK AREA
ACTIVITY AREA
TERMINATION AREA
FROM THE MUTCD (2009 EDITION)
Table 6E-1. Stopping Sight Distance as a Function of Speed
Speed (mph) | Distance (ft)
20 | 115
25 | 155
30 | 200
35 | 250
40 | 305
45 | 360
50 | 425
55 | 495
TRANSITION AREA
SEE TABLE 6E-1
ADVANCE WARNING AREA
D 80-9612
4'
2'
END ROAD WORK
80-9950
SIDE A SIDE B
STOP 19" SLOW
V 80-9803
3' 3'
U 80-9834
ONE LANE ROAD AHEAD
A 80-9603
ROAD WORK AHEAD
AA 31-1906
ROAD WORK AHEAD
FINES DOUBLED
3.5'
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL TRAFFIC DRUM PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 1 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
PRINCIPAL ENGINEER
Charles S. Harlow
2012.06.05 15:55:23-04'00'

WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE
108 SQ. FT (MIN.)

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.

◯ TRAFFIC CONE **OR** TRAFFIC DRUM
✳ OPTIONAL ⊗ TRAFFIC DRUM ⊢⊣ PORTABLE SIGN SUPPORT
⟵ HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

SCALE: NONE

CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 13 - SHEET 2 OF 2
SEE NOTES 1, 2, 4, 6, 7, 8

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

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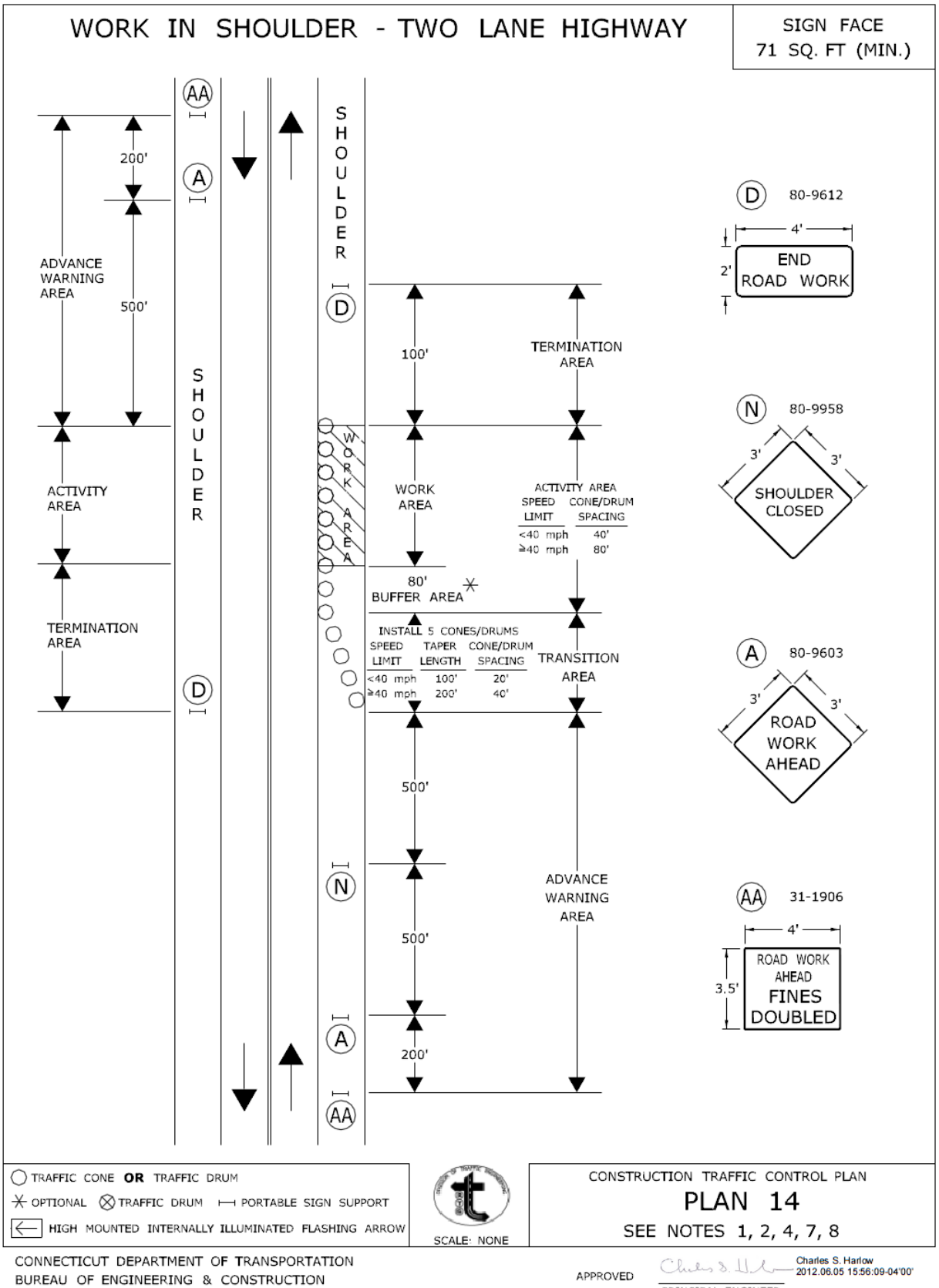
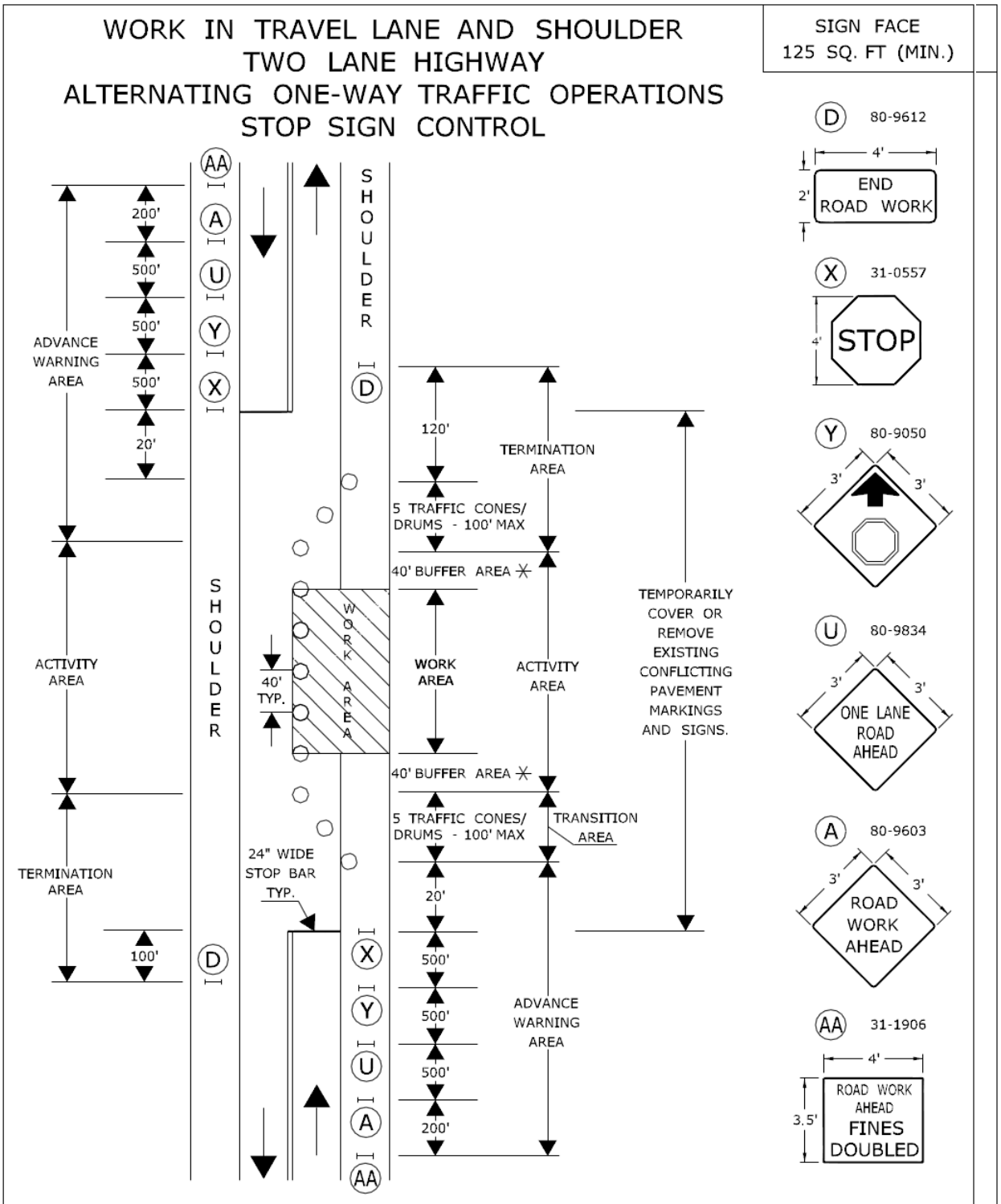
PRINCIPAL ENGINEER


WORK IN SHOULDER - TWO LANE HIGHWAY
SIGN FACE
71 SQ. FT (MIN.)
AA
A
D
N
200'
500'
ADVANCE WARNING AREA
ACTIVITY AREA
TERMINATION AREA
SHOULDER
SHOULDER
WORK AREA
100'
WORK AREA
80' BUFFER AREA
INSTALL 5 CONES/DRUMS
SPEED LIMIT | TAPER LENGTH | CONE/DRUM SPACING
<40 mph | 100' | 20'
≥40 mph | 200' | 40'
TERMINATION AREA
ACTIVITY AREA
SPEED LIMIT | CONE/DRUM SPACING
<40 mph | 40'
≥40 mph | 80'
TRANSITION AREA
500'
500'
200'
ADVANCE WARNING AREA
D 80-9612
4'
2'
END ROAD WORK
N 80-9958
3'
3'
SHOULDER CLOSED
A 80-9603
3'
3'
ROAD WORK AHEAD
AA 31-1906
4'
3.5'
ROAD WORK AHEAD
FINES DOUBLED
TRAFFIC CONE OR TRAFFIC DRUM
OPTIONAL
TRAFFIC DRUM
PORTABLE SIGN SUPPORT
HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW
SCALE: NONE
CONSTRUCTION TRAFFIC CONTROL PLAN
PLAN 14
SEE NOTES 1, 2, 4, 7, 8
CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION
APPROVED
Charles S. Harlow
2012.06.05 15:56:09-04'00'
PRINCIPAL ENGINEER



CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED Charles S. Harlow 2012.06.05 15:57:37-04'00'
PRINCIPAL ENGINEER

Article 9.71.05 – Basis of Payment

When the item of "Maintenance and Protection of Traffic" appears in the contract, this work will be paid for at the contract lump sum price for "Maintenance and Protection of Traffic." This price shall include all material, equipment, tools, labor, transportation, operations and all work incidental thereto. The amount of the lump sum paid in any given period shall be proportional to the percentage of the total of all other work completed. All costs for labor, equipment and services involved in the erection, maintenance, moving, adjusting, cleaning, relocating and storing of signs, barricades, drums, traffic cones and delineators furnished by the Contractor as well as all costs of labor and equipment involved in the maintenance of traffic lanes and detours, except for pavement markings, ordered or included in the approved scheme for maintenance of traffic shall be included in the lump sum cost for this item.

Should the Contractor fail to perform any of the work required under this item, the Town may perform or arrange for others to perform such work. In those instances, the Town will deduct money due or money to become due to the contractor all expenses connected with the execution of this work. This money shall be deducted even if the Town expense exceeds the price bid for this work by the Contractor.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the project.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include the cost of all materials, tools, equipment and labor incidental thereto. No separate payments will be made for materials, excavation and disposal of materials, furnishing, placing, compacting the subbase, preparing the subgrade, or removal and disposal of the temporary bituminous curb and temporary walking paths and restoration of the disturbed areas.

ITEM # 1400102A 8" POLYVINYL CHLORIDE PIPE (SANITARY SEWER)

Description:

The Contractor shall furnish all materials, labor, tools and equipment and shall construct the 8" polyvinyl chloride sanitary sewer mains as indicated on the drawings and as herein specified.

Materials:

The requirements of this specification are to provide pipe and fittings suitable for non-pressure drainage or sewage and certain other liquid wastes where toughness, resistance to deterioration from the action of water and chemicals, dimensional stability, resistance to aging and tight joints are required.

Pipe shall be manufactured from virgin rigid PVC (polyvinyl chloride) vinyl compounds with a cell class of 12364 as identified in ASTM D 1784.

The polyvinyl chloride pipe and fittings, including also those required for stubs, shall conform to one of the following:
1. ASTM D3034 for diameters 4-inch through 15-inch,
2. ASTM F679 (Wall thickness T- 1) for diameters 18-inch through 27-inch,
3. ASTM F949 for 4 to 36 inch diameter polyvinyl chloride (PVC) pipe with a smooth interior.
4. Closed profile pipe conforming to ASTM F1803 for diameters 18-inches through 48-inches.
5. ASTM F794 for diameters 18-inches through 48-inches.

The pipe shall have pipe diameter to wall thickness ratio (SDR) of a maximum of 35, unless otherwise indicated and/or approved by the Engineer, as manufactured by Diamond, Ipex USA, National Pipe, North American Pipe Corporation, Royal Pipe Systems or equal. Closed profile pipe shall have a minimum stiffness of 46 psi for 18 inch to 27-inch PVC sewer pipe and minimum stiffness of 50 psi for 30-inch and larger diameter PVC pipe.

Joints for the polyvinyl chloride pipe shall be push-on bell and spigot joints using elastomeric ring gaskets conforming to ASTM F477. The gaskets shall be securely fixed into place in the bells so that they cannot be dislodged during joint assembly. The gaskets shall be of a composition and texture which is resistant to common ingredients of sewage and industrial wastes, including oils and groundwater, and which will endure permanently under the conditions.

Straight pipe shall be furnished in lengths of not more than 13 feet, and Y-branches shall be furnished in lengths of not more than 3 feet, unless otherwise permitted by the Engineer. Saddle Y-branches will not be allowed.

Fittings and special pipe pieces (specials) shall conform to the specifications for straight pipe insofar as applicable and to the Standard Details.

Foundation, base, haunching, backfill and bedding shall be as shown in the Standard Details.

Water stops: The manufacturer shall provide water stops acceptable to the Engineer which shall be applied to the outside of plastic pipe when the pipe is to be enclosed in a structure where concrete or mortar is used which will prevent leakage along the outer wall of the barrel of the pipe.

Construction Methods:

Trench excavation, backfill and dewatering required for this item shall be performed in accordance with Section 2.86.03 of the Standard Specifications Form 818 and the requirements of the plans and details.

Allowable Pipe Deflection: Plastic pipe provided under this specification shall be so installed in the ground that a deflection of no more than five percent can be anticipated. Such deflection shall be computed by

dividing the amount of deflection (nominal diameter less minimum diameter when measured) by the nominal diameter of the pipe. However, between any two adjacent manholes, the average deflection shall not exceed six percent and no deflection at any point in the pipe shall exceed seven percent, computed in the manner described herein.

After an initial inspection and, if in the opinion of the Engineer the deflection may be excessive, the Engineer may order the Contractor to arrange for and take accurate measurements of the pipe at whatever intervals and at whatever locations between such adjacent manholes the Engineer deems advisable.

All costs involved in taking measurements ordered by the Engineer following the initial inspection shall be borne by the Contractor if the deflection in the pipe exceeds either of the maximum limits specified herein. If neither of the maximum limits are exceeded, all costs shall be borne by the Town.

Pipe Straightness: No single piece of pipe shall be laid on any project covered by these detailed specifications unless it is found to be generally straight. Such pipe shall have a maximum ordinate as measured from the concave side of the pipe not to exceed 1/16-inches per foot of length. If the deviation from straightness exceeds this requirement, then the particular piece of pipe shall be rejected for use until it can comply with this provision. This molded bell of each pipe section shall be concentric and true with the wall and theoretical center lien axis of the pipe barrel. If the deviation from straightness exceeds these requirements and/or the molded configuration of the bell with respect to the pipe axis is questionable, then the particular piece of pipe shall be rejected for use.

Certification: At the time of shipment, a copy of the manufacturer's test report or a statement by the seller accompanied by a copy of the test report shall be included with the pipe. The seller's statement or the manufacturer's report shall state that the material has been sampled, tested, and inspected in accordance with the applicable ASTM Specifications.

Handling Pipe: All pipe shall be stored at the site until installation in a manner acceptable to the Engineer which will keep the pipe at ambient outdoor temperatures. Temporary shading shall be provided as required to meet this requirement. Simply covering the pipe or structures which allows temperature build-up when exposed to direct sunlight will not be permitted.

Each pipe unit shall be handled into its position in the trench only in such manner and by such means as acceptable to the Engineer. Care shall be taken to avoid damaging the pipe and fittings.

Installation: Each pipe unit shall be inspected before being installed. No single piece of pipe shall be laid unless it is generally straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-inch per foot of length. If a piece of pipe fails to meet this requirement for straightness, it shall be rejected and removed from the site. Any pipe unit or fitting discovered to be defective either before or after installation shall be removed and replaced with a sound unit.

Suitable bell holes shall be provided so that after placement, only the barrel of the pipe receives bearing pressure from the supporting material.

All pipe and fittings shall be cleared of all debris, dirt, etc. before being installed and shall be kept clean until accepted in the complete work.

Pipe and fittings shall be installed to the lines and grades indicated on the drawings or as required by the Engineer. Care shall be taken to ensure true alignments and gradients.

Before any joint is made, the previously installed unit shall be checked to assure that a close joint with the adjoining unit has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to the required grade by striking it with a shovel handle, timber, or other unyielding object.

All joint surfaces shall be cleaned. Immediately before jointing the pipe, the bell or groove shall be lubricated in accordance with the manufacturer's recommendation. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. Suitable devices shall be used to force the pipe units together so that they will fit with a minimum open recess inside and outside and have tightly sealed joints. Care shall be taken not to use such force as to wedge apart and split the bell or groove ends.

Joints shall not be "pulled" or "cramped" unless permitted by the Engineer.

Where any two pipe units do not fit each other closely enough to enable them to be properly jointed, they shall be removed and replaced with suitable units and new gaskets.

Details of gasket installation and joint assembly shall follow the direction of the manufacturers of the joint material and of the pipe, all subject to review by the Engineer. The resulting joints shall be water tight and flexible.

All pre-molded gasket joint polyvinyl chloride pipe of a particular manufacturer may be rejected if there are more than five unsatisfactory joint assembly operations or "bell breaks" in 100 consecutive joints, even though the pipe and joint conform to the appropriate ASTM Specifications as hereinbefore specified. If the pipe is unsatisfactory as determined above, the Contractor shall, if required, remove all pipe of that manufacturer of the same shipment from the work and shall furnish pipe from another manufacturer which will conform to all of the requirements of these specifications.

Open ends of pipe and branches shall be closed with polyvinyl chloride stoppers secured in place in an acceptable manner.

After each pipe has been properly bedded, enough crushed stone shall be placed between the pipe and the sides of the trench and thoroughly compacted to hold the pipe in correct alignment. Bell holes provided for jointing shall be filled with crushed stone and compacted and then crushed stone shall be placed and compacted to complete the pipe bedding as indicated on the drawings.

The Contractor shall take all necessary precautions to prevent flotation of the pipe in the trench.

At all times when pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs, or by other acceptable means. If water is in trench when work is to be resumed, the plug shall not be removed until suitable provisions have been made to prevent water, earth, or other substances from entering the pipe. Pipelines shall not be used as conductors for trench drainage during construction.

Cleaning: Care shall be taken to prevent earth, water, and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall cleanout the pipeline and manholes, being careful to prevent soil, water, and debris from entering any existing sewer.

Method of Measurement:

8" Polyvinyl Chloride Pipe (Sanitary Sewer) will be measured by the actual number of linear feet of sanitary sewer pipe complete and accepted in place of the size specified. The measurement shall be along the horizontal projection of the centerline of the completed sewer, the length of manhole inverts (as measured between the inside walls of the manholes) being deducted.

Saw cutting, removal and disposal of existing bituminous pavement, trench excavation, dewatering, backfilling and consolidation will not be measured for payment, but its cost shall be included in the bid price per linear foot for "8" Polyvinyl Chloride Pipe (Sanitary Sewer)".

Basis of Payment:

8" Polyvinyl Chloride Pipe (Sanitary Sewer) shall be paid for at the contract unit price per linear foot installed, completed and accepted by the Engineer, which price shall include furnishing and installing 8" polyvinyl chloride pipe, crushed stone bedding; fittings; and making of connection to existing pipes; pipe tests; sand

backfilling and consolidation, saw cutting, removal and disposal of existing bituminous pavement, trench excavation, dewatering, and backfilling with suitable material; compaction, disposal of surplus excavated material; cleaning pipelines and appurtenances; resetting; replacing or rebuilding items removed; and other work associated with the furnishing and laying of the pipe, all materials, equipment, tools and labor incidental thereto.

Item No.	Description	Unit
1400102A	8” POLYVINYL CHLORIDE PIPE (SANITARY SEWER)	L.F.

ITEM # 1400111A SANITARY SEWER- PRESSURE TESTING

Description:

The pipeline shall be made as nearly watertight as practicable, and pipe tests and measurements shall be made after the pipeline has been backfilled.

Where the groundwater is less than one foot above the top of the pipe at its upper end, the contractor shall conduct either exfiltration or low-pressure air tests as determined by the Engineer.

Where the groundwater level is more than one foot above the top of the pipe at its upper end, the Contractor shall conduct an infiltration test. However, if the groundwater level is four feet or less at this point, a low-pressure air test may be performed instead.

Tests will be made after the pipe installation is complete including all laterals as indicated on the plan, manholes are installed, and backfill in the trench has been placed and compacted or consolidated as required by the Engineer.

Visual Alignment Test:

Upon completion of a section of pipe, a visual inspection will be made by the Engineer. All associated appurtenances installed in conjunction with the installation of the pipeline will also be examined for compliance with these specifications.

Prior to the visual inspection, the contractor shall ensure that the line has been properly cleaned of all foreign materials that might have entered the pipeline.

The visual alignment test will include the mirroring of all pipelines, and if, in the opinion of the Engineer, the installed pipe does not conform to the alignment indicated on the drawings, or does not satisfy the requirements outlined under “Allowable Pipe Deflection”, the Contractor shall take accurate measurements as outlined elsewhere within these specifications. All pipeline determined to be outside the noted tolerances shall be corrected to the satisfaction of the Engineer at no cost to the Town.

Low Pressure Air Test:

a. General: When the Engineer specifies or directs that pipe tests shall be made using the low-pressure air test method, the Contractor will be required to provide all equipment, test plugs in the required sizes, appurtenances, connecting hose or pipe, labor, and materials necessary to conduct and control the test as herein specified.

The tests may be conducted by the Contractor using the contractor’s equipment, or a subcontractor approved by the Engineer. All equipment proposed for use in conducting the low-pressure air test shall be subject to the approval of the Engineer. The Contractor shall submit shop drawings on the proposed equipment for review by the Engineer. These shop drawings must be in sufficient detail to show the details, set-up, and proposed operation of the low-pressure air test equipment, and no testing will be permitted without prior approval of the proposed equipment by the Engineer.

b. Procedure: The Contractor shall determine the elevation of the groundwater table in the area of the pipeline being subjected to the low-pressure air test in a manner approved by the Engineer.

After cleaning and flushing the line, test plugs will be installed in the pipeline being subjected to the low-pressure air test, and braced as necessary to secure the plugs in place.

Utilizing the approved equipment, air at low pressure will be slowly introduced into the pipeline until the pressure within the pipeline being tested increases to 4 PSIG greater than the back pressure exerted by the groundwater table over the pipe being tested (back pressure = 1 PSIG per 2.31 feet of water), as determined

above. If the water table is not a level above the pipe, the test pressure should be brought up to 4 PSIG. Allow at least two minutes to elapse prior to starting the test. If necessary, allow a small amount of air to slowly enter into the pipeline in order to maintain a pressure of 4 PSIG above the back pressure due to the water table, or 4 PSIG if there is no back pressure to compensate for.

At this point, start measuring the time for the pressure in the pipeline to drop 1 PSIG.

The time necessary to drop 1 PSIG shall not be less than that indicated in the table below for the size and length of pipeline being tested. If the time is less than that indicated, the line will be considered as having failed the test.

LOW PRESSURE AIR TEST SPECIFICATIONS
MINIMUM TIME REQUIRED (MINUTES:SECONDS)
FOR A PRESSURE DROP OF 1 PSIG
(BASED ON 0.003 CFM/SQ.FT. AND 2.0 CFM)

	PIPE DIAMETER D IN INCHES					
LENGTH OF SECTION BEING TESTED IN FEET	6"	8"	10"	12"	15"	18"
25	0:10	0:18	0:28	0:40	1:02	1:29
50	0:20	0:35	0:55	1:19	2:04	2:58
75	0:30	0:53	1:23	1:59	3:06	4:27
100	0:40	1:11	1:50	2:38	4:08	5:56
125	0:50	1:28	2:18	3:18	5:09	7:26
150	0:59	1:46	2:45	3:58	6:11	8:30
175	1:09	2:03	3:13	4:37	7:05	↓
200	1:19	2:21	3:40	5:17	↓	↓
225	1:29	2:38	4:08	5:40	↓	↓
250	1:39	2:56	4:35	↓	↓	↓
275	1:49	3:14	4:43	↓	↓	↓
300	1:59	3:31	↓	↓	↓	↓
350	2:19	3:47	↓	↓	↓	↓
400	2:38	↓	↓	↓	↓	↓
450	2:50	↓	↓	↓	↓	↓
500	2:50	3:47	4:43	5:40	7:05	8:30

Note: if the section of pipe to be tested is composed of both main line and more than a total of 100 feet of laterals, 1 minute 30 seconds must be added to the length of time indicated above for the test required for the main pipe.

Any section of pipeline which fails to meet this test will be repaired or replaced as necessary by the Contractor, and retested at no additional expense to the Town.
No pipeline will be considered acceptable until it successfully passes the requirements of this test.

All testing will be conducted by the Contractor or his approved subcontractor in the presence of the Town's inspector. The contractor or subcontractor shall keep a written record which will show the results of the tests conducted. The records should include sufficient data on length of line, pressure levels, time for pressure

drop, and related features noted during the testing of each segment of the line. A copy of this record shall be given to the Town.

Infiltration Test:

a. Reinforced Concrete Pipe: For making the infiltration tests, the Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the test.

The infiltration tests shall be made at a time when the groundwater is at least one foot above the top of the pipe of the highest section of work being tested.

Leakage into the reinforced concrete pipeline shall not exceed 500 gallons per inch diameter in 24 hours per mile of pipeline.

b. Other Sewer Pipe: The Contractor shall furnish suitable test plugs, water pumps, and appurtenances, and all labor required to properly conduct the pipe tests on the pipeline.

For making the infiltration tests, underdrains, if used, shall be plugged and other groundwater drainage shall be stopped to permit the groundwater to return to its normal level insofar as practicable.

Exfiltration Test:

For making the exfiltration tests, the pipe shall be subjected to an internal pressure by plugging the pipe at the lower end and then filling the pipelines and manholes with clean water to a height of two feet above the top of the pipe at its upper end. Where conditions between manholes may result in test pressures which would cause leakage at the stoppers in branches, provisions shall be made by suitable ties, braces, and wedges to secure the stoppers against leakage resulting from the test pressure.

The rate of leakage from the pipe shall be determined by measuring the amount of water required to maintain the level two feet above the top of the pipe.

Leakage from the pipes under test shall not exceed the requirements for leakage into pipes as hereinbefore specified.

The equipment used to introduce the low-pressure air into the pipeline shall include a safety valve or release device located in the equipment at a point which will ensure that during the build-up of test pressure, the pipeline being tested will not be subjected to an internal pressure that could damage a properly installed pipe.

All tests shall be conducted on the completed pipeline between manholes. Testing of shorter sections of pipeline will only be permitted with the approval of the Engineer.

Immediately prior to testing, all lines will be cleaned and flushed with water. Pipe manufactured in accordance with ASTM Specifications C-76, C-428, C-644 and/or C-700 shall be soaked for a period of 12 hours to saturate the pipe wall prior to testing with low pressure air.

All gages, controls, and appurtenances for equipment used to conduct the test will be located out of manholes. Connections to the line under test, test plugs, and other equipment will be made with hose or pipe extensions which will safely contain the pressures necessary to conduct and control the test.

The gage used to measure the drop in pressure shall have a four-inch diameter face with a scale of 0 to 15 PSI in 0.1 PSI increments, or as approved by the Engineer.

The Contractor is cautioned of the importance of properly installing the end caps used to plug hubs, wyes, bends, ends of laterals, and other inlets, and securing them against movement during the installation of pipe. Failure to take this precaution can cause a properly installed pipeline to fail the low-pressure air test.

The Contractor is cautioned further regarding the safety of personnel during the test. Low pressure air can exert a substantial force on a test plug, even on small diameter pipe plugs. The Contractor will be responsible to ensure that all test plugs utilized are in good condition and that they will not be pressurized beyond the limits recommended by their manufacturer.

No one will be permitted in a manhole containing a test plug while air is under pressure in the pipeline being subjected to the test.

The pipes shall be tested before any connections are made to buildings.

The Contractor shall construct weirs or other means of measurements as may be required.

Suitable bulkheads shall be installed, as required, to permit the test of the pipe.

Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation.

The water used to conduct an exfiltration test shall not be allowed to enter any active sewer.

If, in the judgment of the Engineer, it is impracticable to follow the foregoing procedures for any reason, acceptable modifications in the procedures shall be made as required, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

Where water for the test is to be obtained from the Metropolitan District's water system or the Manchester water system, proper notification must be given them prior to any drawing of water from a hydrant. Refer to the special provision for "EARTH TRENCH EXCAVATION AND BACKFILL" in the section regarding "Puddling" for further information on the proper procedure to follow when using a fire hydrant as a source of water.

High Pressure Water Test:

Except as otherwise directed, all pipelines shall be given combined pressure and leakage tests in sections of approved length. The Contractor shall furnish and install suitable temporary testing plugs or caps, all necessary pressure pumps, pipe connections, meters, gages, and other necessary equipment, and all labor required.

Subject to approval, and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when the Contractor desires.

However, pipelines in excavation or embedded in concrete shall be tested prior to the backfilling of the excavation or placing of the concrete, and exposed piping shall be tested prior to field painting.

Unless it has already been done, the section of the pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If blow-offs are not available at high points for releasing air, the Contractor shall make the necessary excavations and do the necessary backfilling and make the necessary taps at such points and shall plug said holes after completion of the test.

The section under test shall be maintained full of water for a period of 24 hours prior to the combined pressure and leakage test being applied.

The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test and corrected to the gage location) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe, but not to exceed 150 PSI.

While maintaining this pressure, the Contractor shall make a leakage test by metering the flow of water into the pipe. If the average leakage during a two-hour period exceeds a rate of ten gallons per inch of diameter

per 24 hours per mile of pipeline, the section shall be considered as having failed the test. All joints within chambers and all flanged joints shall have no visible leakage.

Method of Measurement:

Work associated with this item will be measured for payment by the actual number of linear feet of new polyvinyl chloride sanitary sewer pipe requiring pressure testing.

Basis of Payment:

Sanitary Sewer-Pressure Testing will be paid for at the contract unit price per linear foot of new polyvinyl chloride sanitary sewer pipe requiring pressure testing, which price shall include all materials, equipment, tools and labor incidental thereto.

The Contractor will be responsible for all costs and delays incurred due to efforts to locate and repair leaks in any pipeline which fails any of the above pipe tests, regardless of whether the failure is due to workmanship, material failure, the result of an improperly installed or braced end cap, or any pipeline damaged due to improper testing procedure. Payment made under the appropriate item shall be considered full compensation for conducting the specified test.

Item No.	Description	Unit
1400111A	SANITARY SEWER – PRESSURE TESTING	L.F.

ITEM # 1401637A SANITARY SEWER LATERAL CONNECTIONS (PVC)

Description:

The work under this item shall consist of the construction of building connection laterals in accordance with details as shown on the plans and as specified herein. Construction shall be at locations shown on the plans or as determined by the Engineer.

Materials:

Pipe shall be manufactured from virgin rigid PVC (polyvinyl chloride) vinyl compounds with a cell class of 12364 as identified in ASTM D 1784.

The pipe shall have pipe diameter to wall thickness ratio (SDR) of a maximum of 35, unless otherwise indicated and/or approved by the Engineer, as manufactured by Diamond, Ipex USA, National Pipe, North American Pipe Corporation, Royal Pipe Systems or equal.

PVC pipe shall conform to ASTM D 3034 for gasket or solvent-weld pipe with a minimum pipe stiffness of 46. Gaskets shall conform to ASTM F 477.

The Contractor shall furnish stoppers for plugging the unconnected ends of laterals. Stopper configuration shall be as recommended by the manufacturer of the lateral pipe as approved by the Engineer. Stoppers shall be watertight once installed.

Construction Methods:

Trench excavation, backfill and dewatering required for this item shall be performed in accordance with Section 2.86.03 of the Standard Specifications Form 818 and the requirements of the plans.

Lateral connections shall be of six-inch or larger pipe laid to the grade and to the points ordered. They will not be laid on a grade flatter than one percent, and will usually have eight feet of cover at the curb or street line in most residential streets or zones. On business streets, or streets adjacent to the business section of the city, or where the adjacent land is low, they will have not less than ten feet of cover at the curb, if possible. If so directed, the whole of the trench shall be dug to the required grade before any pipe is laid herein, and the pipe shall be laid closely to line and grade, using a grade line, hand level, or straight edge as may be ordered.

House lateral connections will generally be laid at right angles to the main sewer from Y-branches on sewers by means of 45-degree bends of approved form, or from inlets built into other sewers. The Contractor shall take proper means to temporarily locate all wyes, etc. in the main sewer before connections are laid and will be responsible for finding wyes, etc. from which the Contractor is to lay connections or laterals.

Extra care shall be taken to make smooth, close-fitting joints at all bends. Pipes shall be trimmed or extra bends used when ordered to accomplish this, without extra charge. So far as possible, every pipe shall be swabbed out inside after being installed. All requirements for laying pipe of this size, as described elsewhere herein, shall be observed in laying lateral connections so far as those requirements apply.

The end of each lateral connection shall be closed with an approved stopper. Stoppers shall be watertight and yet be installed in a manner which would allow them to be removed with reasonable ease without causing damage to any portion of the lateral.

A stout stake to mark the location and elevation of the end of each lateral will be driven as directed by the inspector near the end of each lateral. This stake will be protected and maintained undisturbed until the Engineer has completed all his measurements and, if so ordered, will thereafter be removed by the Contractor.

Sheeting at Branches: Sheeting shall be cut away and removed from in front of capped wyes and other branches or inlets in sewer for future connections to permit conveniently finding them and making future connections with them. If required by drawings or directed by the Engineer, a 45-degree bend will be set in Y-branches or a short piece of pipe set into inlets left in the sewer, the end of the bend or pipe stub being capped in the manner described previously so that a future connection can be made thereto without excavating against the side of the main sewer.

Markers at Branches: A piece of lumber not less than two-inch by four-inch will be set vertically and left in place, extending from a point directly in front of, but not in contact with, the capped end of the lateral connection to a point about two feet below the ground surface or finished street grade to guide persons who in future years may have occasion to excavate to find the connections, and to protect the end of the lateral connection from damage when making such excavation.

Existing House or Catch Basin Drains Relayed: When connections or laterals are indicated to be connected to existing drains at the side of the road, they shall be of the same size as that drain. Whenever the Engineer shall consider it necessary in order to maintain the flow of the old drain or to properly drain the connection trench while relaying the drain, the Contractor shall place a six-inch Y-branch near the main sewer to provide temporary drainage. Any such wye shall be closed and capped when the connection is complete.

Drains re-laid and connected to existing house drain or catch basin at the side of the road will be measured as described for new lateral connections.

Drains Connected at Trench: Where existing drains are encountered and are to be reconnected to the new sewer at the side of the main trench, they shall be connected as directed by the Engineer, either by means of a chimney with suitable pipe and fittings at the top to make connection to the old drain, or by cutting slightly into the bank at the side of the trench, setting a Y-branch, or suitable fitting in the new line, and installing such pipe, bends and fittings as may be needed to make a satisfactory connection. Pipe and fittings set into the bank of the trench must be supported and secured in place by concrete or selected, well-compacted fill, as may be directed.

Pipe and fittings used for such work shall, so far as possible, be of the same size as the old drain to be connected, but in no case less than six inches in size. Special care must be exercised to be sure that all joints are smooth inside, and tight, and that all pipes, bends, etc. are well-fitted and securely held in place and supported. Connections to the sanitary sewer shall not be made for pipe lines which carry storm or ground water.

Method of Measurement:

Sanitary Sewer Lateral Connections (PVC) will be measured for payment by the actual number of linear feet of Sanitary Sewer Lateral Connections (PVC) installed and accepted. The stated length thereof is the horizontal distance from the center of the sewer to the curb, street, or other line within which the pipe must be laid.

The following items will not be measured for payment but should be considered included saw cutting, removal and disposal of existing bituminous pavement, trench excavation, dewatering, backfilling and consolidation, crushed stone bedding, laying and jointing pipe, pipe tests, sand blanket backfill, backfilling with suitable excavated material, disposal of surplus and unsuitable excavated materials, cleaning pipelines and appurtenances, tees, wyes, fittings, caps, markers, and all other work incidental to the construction of sanitary sewer lateral connections. The cost of this work and these materials shall be included in the unit price for this item.

Basis of Payment:

Sanitary Sewer Lateral Connections (PVC) will be paid for at the contract unit price per linear foot installed, completed and accepted by the Engineer, which price shall include saw cutting, removal and disposal of existing bituminous pavement, trench excavation, dewatering, backfilling and consolidation, crushed stone bedding, laying and jointing pipe, pipe tests, sand blanket backfill, trench excavation, dewatering, and

backfilling with suitable material, disposal of surplus and unsuitable excavated materials, cleaning pipelines and appurtenances, tees, wyes, fittings, caps, markers, all materials, equipment, tools and labor incidental thereto.

Item No.	Description	Unit
1401637A	SANITARY SEWER LATERAL CONNECTIONS (PVC)	L.F.

ITEM # 1401662A SANITARY MANHOLE- 0'10' DEEP

Description:

The Contractor shall furnish all materials and shall construct all the sanitary or storm drain manholes required as part of this Contract, including the frames, covers, steps, inverts, and materials necessary for fastening the frame to the concrete manhole structure.

Materials:

Manholes shall conform in shape, size, dimensions, materials, and other respects to the details indicated on the drawings, or as ordered by the Engineer.

All manholes shall have concrete bases. Invert channels will be formed of brick and mortar at the base unless otherwise specified by the Engineer.

Manhole walls (barrels) shall be either of Class A concrete or pre-cast concrete sections. The top three feet of manholes (the dome) shall be built of either Class A concrete or a precast concrete section. Should the Contractor elect to build the domes of manholes in streets with Class A concrete or a precast concrete section, the top six inches of the dome shall be built of brick to permit adjustment of the frame to meet the street surface.

The inverts shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent to the centerlines of adjoining sewers.

The cast-iron frames and covers shall be the standard frame and cover as indicated on the drawings. The frames and covers shall be set by the Contractor to conform accurately to the grade of the finished pavement, existing ground surface, or as shown on the drawings.

Class A concrete shall conform to the requirements specified under the Form 816..

Precast Concrete Sections and Bases:

a) Precast concrete sections, if used, shall conform to the ASTM Tentative Specifications for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe Designation C76-63T, Class III, with the following exceptions and additional requirements:

b) There shall be one line of circular reinforcement having an area of at least 0.25 square inches per linear foot of barrel.

c) The barrel shall be not less than five inches thick.

d) Type II cement shall be used except as otherwise approved.

e) Manhole steps shall be as specified under "Manhole Steps". Steps shall be cast into the section as it is made.

f) Sections shall be steam cured and shall not be shipped until at least seven days after having been cast.

g) Precast manhole bases will have precast rubber boots designed to conform to the changes in the line as specified by the plans.

h) No more than two lift holes may be cast or drilled in each section.

i) The date of manufacture and the name or trademark of the manufacturer shall be clearly marked on the inside of the barrel.

j) Acceptance of the sections will be on the basis of material tests and inspection of the completed product.

k) All precast units shall have O-ring rubber of mastic gasket joints.

l) Domes may be precast eccentric sections of similar construction. If precast concrete sections are used, the tops of the bases shall be suitable shaped by means of accurate bell-ring forms to receive the barrel sections.

Setting Precast Manhole Sections: Precast reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment. Joint surfaces of the base or previously set section shall be covered with lubricant and an O-ring installed before the new section is placed or an equivalent.

All holes in sections used for their handling shall be thoroughly plugged with non-shrink mortar. The non-shrink mortar shall be one-part cement to one and one-half parts sand/mixed slightly damp to the touch (just short of "balling"); hammered into the holes until it is dense and an excess of paste appears on the surface; and then finished smooth and flush with the adjoining surfaces.

The non-shrink mortar for the above-noted use and for use in sealing of sewer pipe at manholes can be Embeco Mortar (premixed) as manufactured by Master Builders or an approved equal product.

Brick: The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size of compact texture and satisfactory to the Engineer.

Brick intended for use below ground level shall conform to ASTM Specifications for sewer brick, Serial Number C-32.

Rejected brick shall be immediately removed from the work and brick satisfactory to the Engineer substituted.

Mortar for Brickwork: The mortar shall be composed of Portland cement, hydrated lime, non-shrink agent, and sand in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense, hard-burned brick to 1:3/4 for softer brick. In general, mortar for Grade SA Brick shall be mixed in the proportions of 1:1/2:4-1/2.

Cement shall be Type II Portland cement as specified for concrete masonry.

Hydrated lime shall be type S conforming to the ASTM Standard Specification for Hydrated Lime for Masonry Purposes, Designation C207-49. 4X Hydrate made by the New England Lime Co. will meet this specification.

The sand shall comply with the specifications for "Fine Aggregate" for concrete masonry except that all of the sand shall pass a No. 8 sieve.

Construction Methods:

Drainage trench excavation, backfill and dewatering required for this item shall be performed in accordance with Section 2.86.03 of the Standard Specifications Form 818 and the requirements of the plans.

Laying Brickwork: Only clean bricks shall be used in brickwork for manholes. The brick shall be moistened by suitable means as directed until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling and shall be thoroughly bonded as directed. All exposed interior brickwork shall be wiped clean once installed.

Manhole water tables are to be slightly sloped toward the invert (3/4-inch per foot).

Plastering and Curing Brick Masonry: Outside faces of brick masonry shall be plastered with mortar from ¼-inch to 3/8-inch thick. If required, the masonry shall be properly moistened prior to application of the mortar. The plaster shall be carefully spread and troweled so that all cracks are thoroughly worked out. After hardening, the plaster shall be carefully checked by being tapped for bond and soundness. Unbonded or unsound plaster shall be removed and replaced.

Brick masonry and plaster shall be protected from too rapid drying by the use of burlaps kept moist, or by other approved methods, and shall be protected from the weather and frost, all as required.

Coating: The exterior surfaces of all manholes shall be given two coats of bituminous waterproofing material. The material shall be Minwax Fibrous Brush Coat made by the Minwax Co., Inc., New York, NY: Tremco 121 Foundation Coating made by the Tremco Manufacturing Co., Cleveland, OH: Inertol No. 7 made by the Inertol Co., Inc., Newark 5, NJ: or approved equal products. The waterproofing material shall be applied by brush or spray and in accordance with the instruction of the manufacturer. Time shall be allowed between coats to permit sufficient drying so that the application of the second coat has no effect on the first coat.

Alterations of Existing Manholes or Pipe: Where called for on the plans, directed by the Engineer, or necessary for the new construction, existing manholes and pipes shall be altered as required. Alterations shall include, but not be limited to, cutting new entrances into manhole for pipe, cutting or plugging existing pipe, making necessary changes in invert or steps, adjusting frames by raising or lowering, and proper control of waste material in active lines. Payment for this item will be made at the contract unit price. Payment shall include all costs and labor incidental to altering the structure to the required end result.

Manhole Frames and Covers: The Contractor shall furnish all cast-iron manhole frames and covers conforming to the details shown on the drawings, or as herein specified. The castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sand holes, and defects of every nature which would render them unfit for the service for which they are intended.

Contact surfaces of covers and frames seats shall be machined to prevent rocking of covers.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Sanitary sewer manhole covers shall have the word “SEWER” embossed in three-inch letters as shown on the standard details.

Storm drainage manhole covers shall have the word “STORM” and “DRAIN” embossed in three-inch letters as shown on the standard details.

Castings shall be at least Class 25 Conforming to the ASTM Specification for gray Iron Castings, Designation A48 as amended to date.

Setting Manhole Frames and Covers: Manhole frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the drawings as directed. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around the bottom and over the top of the flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

Manhole covers shall be left in place in the frames on completion of other work at the manholes. Manholes located off of the traveled roadway shall have their frames lagged to the manhole wall.

Stubs in Manholes: Stubs placed as specified and indicated on the drawings shall be either short pieces cut from the bell ends or shall be four feet, zero inch-length of reinforced concrete pipe with bulkheads. Stubs shall be set accurately to the required line and elevation and encased in the manhole masonry as shown on the drawings. Where booted-type manholes are used, no stub will be necessary. The boot shall be properly plugged. Any un-called for boot shall be removed and the hole properly sealed with brick or a boot may be plugged if the Engineer so directs.

Drop Inlet to Manhole: Drops for sanitary sewer manholes shall be accomplished in conformity with the details found elsewhere within these documents and in accordance with the provisions of these specifications for the various materials and work which constitute the complete structure.

Manhole Steps: Unless otherwise indicated, manhole steps shall be installed as shown within the Town of Glastonbury details for plastic manhole steps or an approved equal product. The steps shall be thoroughly clean and dry before being built into the masonry.

Method of Measurement:

Sanitary Manhole- 0'-10' Deep will be measured for payment by the actual number of each completed and accepted Sanitary Manhole- 0' -10' Deep.

No measurement for payment will be made for excavation, backfilling, compaction, crushed stone base, sheeting, shoring and bracing ordered left in place, concrete, damp-proofing, manhole steps, forming of the inverts, items incidental to the construction, but costs associated with these items shall be included in the contract unit price bid for each "Sanitary Manhole- 0'- 10' Deep".

Basis of Payment:

Sanitary Manhole- 0'- 10' Deep will be paid for at the contract unit price for each "Sanitary Manhole- 0'- 10' Deep" as listed in the Bid Proposal, which shall include excavation, backfilling, compaction, crushed stone base, sheeting, shoring and bracing ordered left in place, concrete, damp-proofing, manhole steps, forming of the inverts all materials, equipment, tools and labor incidental thereto.

Item No.	Description	Unit
1401662A	SANITARY MANHOLE- 0'- 10' DEEP	EA.

ITEM # 1401948A CUT AND PLUG ABANDONED SANITARY SEWER LATERAL

Description:

Work associated with this item shall consist of the abandonment of an existing sewer lateral connection. Contractor is required to cut and cap the end of the abandoned sewer lateral with a watertight seal, abandoned, remove and dispose of the remaining length of existing sanitary sewer lateral to a termination point required for reconnection to the active existing sanitary sewer lateral connection point in the locations shown on the plans or as directed by the Engineer.

Construction Methods:

Prior to commencement of work associated with this item, the Contractor is required to notify and coordinate the anticipated work schedule with all tenant businesses within the building located at 2713 Main Street with regards to the required work area, parking and sanitary sewer interruption timeline. Contractor shall implement construction means and methods that provide minimal sanitary sewer service interruption as practical.
Contractor shall excavate in the field marked location at the Naubuc Avenue right of way location to the depth of the existing sanitary sewer lateral connection completely exposing the sewer lateral.

Contractor is required to cut and cap the end of the existing abandoned sanitary sewer lateral with a watertight seal. Capping and sealing of the existing abandoned sanitary sewer lateral means and methods shall be approved by the Engineer in the field based on the existing sanitary sewer lateral pipe material.

Contractor is required to further excavate and expose the remaining sanitary sewer lateral to be abandoned to a point vertically that will facilitate the reconnection of the sanitary sewer lateral to the active sewer lateral connection as depicted on the plans or as directed by the Engineer.

Method of Measurement:

Cut and Plug Abandoned Sanitary Sewer Lateral will be measured for payment by the actual number of linear feet of completed and accepted “Cut and Plug Abandoned Sanitary Sewer Lateral”.

Saw cutting, excavation, backfill, compaction and removal and disposal of existing pavement required in conjunction with this work shall be measured for payment under Item # 0202001A – EARTH EXCAVATION (NAUBUC STORM DISCONNECT) contained within the specifications.

Basis of Payment:

Cut and Plug Abandoned Sanitary Sewer Lateral will be paid for at the contract unit price per linear foot of “Cut and Plug Abandoned Sanitary Sewer Lateral” as listed in the Bid Proposal, which shall include coordination, cutting and capping of the abandoned sanitary sewer lateral with a watertight seal, removal and disposal of the remaining required length of abandoned sanitary sewer lateral, all materials, equipment, tools and labor incidental thereto.

Saw cutting, excavation, backfill, compaction and removal and disposal of existing pavement required in conjunction with this work shall be paid for under Item # 0202001A – EARTH EXCAVATION (NAUBUC STORM DISCONNECT) contained within the specifications.

Item No.	Description	Unit
1401948A	CUT AND PLUG ABANDONED SANITARY SEWER LATERAL	L.F.

SECTION M.04 BITUMINOUS CONCRETE MATERIALS

Section M.04 is being deleted in its entirety and replaced with the following:

M.04.01—Bituminous Concrete Materials and Facilities
M.04.02—Mix Design and Job Mix Formula (JMF)
M.04.03—Production Requirements

M.04.01—Bituminous Concrete Materials and Facilities: Each source of component material, Plant and laboratory used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. AASHTO or ASTM Standards noted with an (M) have been modified and are detailed in Table M.04.03-6.

Aggregates from multiple sources of supply must not be blended or stored in the same stockpile.

1. Coarse Aggregate: All coarse aggregate shall meet the requirements listed in Section M.01.

2. Fine Aggregate: All fine aggregate shall meet the requirements listed in Section M.01

3. Mineral Filler: Mineral filler shall conform to the requirements of AASHTO M 17.

4. Performance Graded (PG) Asphalt Binder:

a. General:
   i. PG asphalt binder shall be uniformly mixed and blended and be free of contaminants such as fuel oils and other solvents. Binder shall be properly heated and stored to prevent damage or separation.

   ii. The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77ºF; rotational viscosity at 275ºF and 329ºF and the mixing and compaction viscosity-temperature chart for each shipment.

   iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped, and, that the binder is free of contamination from any residual material, along with two (2) copies of the bill of lading.

   iv. The blending or combining of PG binders in one storage tank at the Plant from different suppliers, grades, or additive percentages is prohibited.

b. Basis of Approval:
   The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved “Quality Control Plan for Performance Graded Binders” formatted in accordance with AASHTO R 26(M) may supply PG binders to Department projects.

c. Standard Performance Grade (PG) Binder:
   i. Standard PG binder shall be defined as “Neat”. Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid

modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and certified test report.

ii. The standard asphalt binder grade shall be PG 64S-22.

d. Modified Performance Grade (PG) Binder:

The modified asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR G*/sin(δ) results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

e. Warm Mix Additive or Technology:

i. The warm mix additive or technology must be listed on the North East Asphalt User Producer Group (NEAUPG) Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at http://www.neaupg.uconn.edu.

ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer's recommendations.

iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer's suggested rate for the WMA additive, the water injection rate (when applicable) and the WMA Technology manufacturer's recommended mixing and compaction temperature ranges.

5. Emulsified Asphalts:

a. General:

i. The emulsified asphalt shall meet the requirements of AASHTO M 140 or AASHTO M 208 as applicable.

ii. The emulsified asphalts shall be free of contaminants such as fuel oils and other solvents.

iii. The blending at mixing plants of emulsified asphalts from different suppliers is prohibited.

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b. Basis of Approval

i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO PP 71. Only suppliers that have an approved "Quality Control Plan for Emulsified Asphalt" formatted in accordance with AASHTO PP 71 and submit monthly split samples per grade to the Engineer may supply emulsified asphalt to Department projects.

ii. Each shipment of emulsified asphalt delivered to the project site shall be accompanied with the corresponding Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 77°F and Material Certificate.

iii. Anionic emulsified asphalts shall conform to the requirements of AASHTO M-140. Materials used for tack coat shall not be diluted and meet grade RS-1 or RS-1H. When ambient temperatures are 80˚F and rising, grade SS-1 or SS-lH may be substituted if permitted by the Engineer.

iv. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80˚F and rising, grade CSS-1 or CSS-lh may be substituted if permitted by the Engineer.

6. Reclaimed Asphalt Pavement (RAP):

a. General: RAP is a material obtained from the cold milling or removal and processing of bituminous concrete pavement. RAP material shall be crushed to 100% passing the ½ inch sieve and free from contaminants such as joint compound, wood, plastic, and metals.

b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:

i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a Materials Certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.

ii. When the RAP material source or quality is not known, the Contractor shall request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a Material Certificate and applicable test results stating that the RAP consists of aggregates that meet the specification requirements of sub articles M.04.01-1 through 3, and, that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
2. A 25-pound sample of the extracted aggregate from the RAP.

7. Crushed Recycled Container Glass (CRCG):

a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.

b. Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:

CRCG Grading Requirements	
Sieve Size	Percent Passing
3/8-inch	100
No. 4	35-100
No. 200	0.0-10.0

The Contractor shall submit a Materials Certificate to the Engineer stating that the CRCG complies with all the applicable requirements in this specification.

8. Joint Seal Material:

a. Requirements: Joint seal material must meet the requirements of ASTM D 6690 – Type 2. The Contractor shall submit a Material Certificate in accordance with Article 1.06.07 or 1.20 – 1.06.07 certifying that the joint seal material meets the requirements of this specification.

9. Recycled Asphalt Shingles (RAS)

a. Requirements: RAS shall consist of processed asphalt roofing shingles from post-consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

The producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The producer shall take necessary action to prevent contamination of RAS stockpiles.

The Contractor shall submit a Materials Certificate to the Engineer stating that the RAS complies with all the applicable requirements in this specification.

10. Plant Requirements:

a. General: The Plant producing bituminous concrete shall comply with AASHTO M 156.

b. Storage Silos: The Contractor may use silos for short-term storage with the approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. When multiple silos are filled, the Contractor shall discharge one silo at a time. Simultaneous discharge of multiple silos for the same Project is not permitted.

Type of silo cylinder	Maximum storage time for all classes (hr)	
	HMA	WMA/PMA
Open Surge	4	Mfg Recommendations*
Unheated – Non-insulated	8	Mfg Recommendations*
Unheated – Insulated	18	Mfg Recommendations*
Heated – No inert gas	TBD by the Engineer	TBD by the Engineer

*Not to exceed HMA limits

c. Documentation System: The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each Plant ticket, as specified herein.

If recycled materials are used, the Plant tickets shall include their dry weight, percentage and daily moisture content.

If a WMA Technology is added at the Plant, the Plant tickets shall include the actual dosage rate.

For drum Plants, the Plant ticket shall be produced at 5 minute intervals and maintained by the vendor for a period of three years after the completion of the project.

For batch Plants, the Plant ticket shall be produced for each batch and maintained by the vendor for a period of three years after the completion of the project. In addition, an asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding the following tolerances:

Each Aggregate Component	±1.5% of individual or cumulative target weight for each bin
Mineral Filler	±0.5% of the total batch
Bituminous Material	±0.1% of the total batch
Zero Return (Aggregate)	±0.5% of the total batch
Zero Return (Bituminous Material)	±0.1% of the total batch

The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

The scales shall not be manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed

character (m) shall automatically be printed on the ticket when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning.

d. Aggregates: Aggregate stockpiles shall be managed to prevent segregation and cross contamination. For drum plants only, the percent moisture content at a minimum prior to production and half way through production shall be determined.

e. Mixture: The dry and wet mix times shall be sufficient to provide a uniform mixture and a minimum particle coating of 95% as determined by AASHTO T 195(M) .

Bituminous concrete mixtures shall contain no more than 0.5% moisture when tested in accordance with AASHTO T 329.

f. RAP: RAP moisture content shall be determined a minimum of twice daily (prior to production and halfway through production).

g. Asphalt Binder: A binder log shall be submitted to the Department's Central Lab on a monthly basis.

h. Warm mix additive: For mechanically foamed WMA, the water injection rate shall be monitored during production and not exceed 2.0% by total weight of binder. For additive added at the Plant, the dosage rate shall be monitored during production.

i. Plant Laboratory: The Contractor shall maintain a laboratory at the production facility to test bituminous concrete mixtures during production. The laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as with a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the PC shall have internet connection and a functioning web browser with unrestricted access to https://ctmail.ct.gov. This equipment shall be maintained in working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Sufficient light and ventilation must be provided. During summer months, adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature.

The laboratory testing apparatus, supplies, and safety equipment shall be capable of performing all tests in their entirety that are referenced in AASHTO R 35and AASHTO M 323. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing supplies and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the laboratory. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

M.04.02—Mix Design and Job Mix Formula (JMF)

1. Curb Mix:

a. Requirements: The Contractor shall use bituminous concrete that meets the requirements of Table M.04.02-1. RAP may be used in 5% increments by weight up to 30%.

b. Basis of Approval: Annually, an approved JMF based on a mix design for curb mix must be on file with the Engineer prior to use. .
Any change in component source of supply or consensus properties must be approved by the Engineer. A revised JMF shall be submitted prior to use.

TABLE M.04.02 – 1:
Control Points for Curb Mix Mixtures

Notes: (a) Compaction Parameter 50gyration N_{des}. (b) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder.		
Mix	**Curb Mix**	**Production Tolerances from JMF target**
Grade of PG **Binder content %**	**PG 64S-22** **6.5 - 9.0**	**0.4**
Sieve Size		
# 200	3.0 – 8.0 (b)	2.0
# 50	10 - 30	4
# 30	20 - 40	5
# 8	40 - 70	6
# 4	65 - 87	7
¼"		
3/8 "	95 - 100	8
½ "	100	8
¾"		8
1"		
2"		
Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%		
Mixture Temperature		
Binder	325°F maximum	
Aggregate	280-350° F	
Mixtures	265-325° F	
Mixture Properties		
Air Voids (VA) %	0 – 4.0 (a)	

2. Superpave Design Method – S0.25, S0.375, S0.5, and S1

a. Requirements: All designated mixes shall be designed using the Superpave mix design method in accordance with AASHTO R 35. A JMF based on the mix design shall meet the requirements of Tables M.04.02-2 through Table M.04.02-5. Each JMF must be submitted no less than seven (7) days prior to production and must be approved by the Engineer prior to use. All approved JMFs expire at the end of the calendar year.

All aggregate component consensus properties and tensile strength ratio (TSR) specimens shall be tested at an AASHTO Materials Reference Laboratory (AMRL) by NETTCP certified technicians.
All bituminous concrete mixes shall be tested for stripping susceptibility by performing the tensile strength ratio (TSR) test procedure in accordance with AASHTO T 283(M) at a minimum every 36 months. The

compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. TSR specimens, and corresponding JMF shall be submitted with each test report.

i. Superpave Mixtures with RAP: RAP may be used with the following conditions:

- RAP amounts up to 15% may be used with no binder grade modification.
- RAP amounts up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance with AASHTO M 323 Appendix X1, or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
    - Two representative samples of RAP shall be obtained. Each sample shall be split and one split sample shall be tested for binder content in accordance with AASHTO T 164 and the other in accordance AASHTO T 308.
- RAP material shall not be used with any other recycling option.

ii. Superpave Mixtures with RAS: RAS may be used solely in HMA S1 mixtures with the following conditions:

- RAS amounts up to 3% may be used.
- RAS total binder replacement up to 15% may be used with no binder grade modification.
- RAS total binder replacement up to 20% may be used provided a new JMF is approved by the Engineer. The JMF submittal shall include the grade of virgin binder added. The JMF shall be accompanied by a blending chart and supporting test results in accordance to AASHTO M 323 appendix X1 or by testing that shows the combined binder (recovered binder from the RAP, virgin binder at the mix design proportions, warm mix asphalt additive and any other modifier if used) meets the requirements of the specified binder grade.
- Superpave Mixtures with RAS shall meet AASHTO PP 78 design considerations. The RAS asphalt binder availability factor (F) used in AASHTO PP 78 shall be 0.85.

iii. Superpave Mixtures with CRCG: CRCG may be used solely in HMA S1 mixtures. One percent of hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

b. Basis of Approval: The following information must be included with the JMF submittal:
    - Gradation, consensus properties and specific gravities of the aggregate, RAP or RAS.
    - Average asphalt content of the RAP or RAS by AASHTO T 164.
    - Source of RAP or RAS, and percentage to be used.
    - Warm mix Technology, manufacturer's recommended additive rate and tolerances and manufacturer recommended mixing and compaction temperatures.
    - TSR test report and anti-strip manufacturer and recommended dosage rate if applicable.
    - Mixing and compaction temperature ranges for the mix with and without the warm-mix technology incorporated.
    - JMF ignition oven correction factor by AASHTO T 308.

With each JMF submittal, the following samples shall be submitted to the Division of Materials Testing:

- 4 - one quart cans of PG binder, with corresponding Safety Data Sheet (SDS)
- 1 - 50 lbs bag of RAP
- 2 – 50 lbs bag of plant blended virgin aggregate

A JMF may not be approved if any of the properties of the aggregate components or mix do not meet the verification tolerances as described in the Department's current QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures.

Any material based on a JMF, once approved, shall only be acceptable for use when it is produced by the designated plant, it utilizes the same components, and the production of material continues to meet all criteria as specified herein, and component aggregates are maintained within the tolerances shown in Table M.04.02-2. A new JMF must be submitted to the Engineer for approval whenever a new component source is proposed.

Only one mix with one JMF will be approved for production at any one time. Switching between approved JMF mixes with different component percentages or sources of supply is prohibited.

c. Mix Status: Each facility will have each type of mixture rated based on the results of the previous year's production. Mix Status will be provided to each bituminous concrete producer annually prior to the beginning of the paving season.

The rating criteria are based on compliance with Air Voids and Voids in Mineral Aggregate (VMA) as indicated in Table M.04.03-4 and are calculated as follows:

Criteria A: Percentage of acceptance test results with compliant air voids.

Criteria B: The average of the percentage of acceptance test results with compliant VMA, and percentage of acceptance test results with compliant air voids.

The final rating assigned will be the lower of the rating obtained with Criteria A or B.

Mix status is defined as:

"A" – Approved:
Assigned to each mixture type from a production facility with a current rating of 70% or greater, or to each mixture type completing a successful PPT.

"PPT" – Pre-Production Trial:
Temporarily assigned to each mixture type from a production facility when:

1. there are no compliant acceptance production test results submitted to the Department from the previous year;
2. there is a source change in one or more aggregate components
3. there is a component percentage change of more than 5% by weight;
4. there is a change in RAP percentage;
5. the mixture has a rating of less than 70% from the previous season;
6. a new JMF not previously submitted.

Bituminous concrete mixtures with a "PPT" status cannot be used on Department projects. Testing shall be performed by the Producer with NETTCP certified personnel on material under this status. Test results must confirm that specifications requirements in Table M.04.02-2 and Table M.04.02-5 are met before material can be used. One of the following methods must be used to verify the test results:

Option A: Schedule a day when a Department Inspector can be at the facility to witness testing or,

Option B: When the Contractor or their representative performs testing without being witnessed by an Inspector, the Contractor shall submit the test results and a split sample including 2 gyratory molds, 5,000 grams of boxed bituminous concrete, and 5,000 grams of cooled loose bituminous concrete for verification testing and approval.

Option C: When the Contractor or their representative performs testing without being witnessed by a Department Inspector, the Engineer may verify the mix in the Contractor's laboratory.

Witnessing or verifying by the Department of compliant test results will change the mix's status to an "A".

The differences between the Department's test results and the Contractor's must be within the "C" tolerances included in the Department's QA Program for Materials, Acceptance and Assurance Testing Policies and Procedures in order to be verified.

"U" – Not Approved:

Status assigned to a type of mixture that does not have an approved JMF. Bituminous concrete mixtures with a "U" status cannot be used on Department projects.

TABLE M.04.02– 2: Superpave Mixture Design Criteria

Notes: (1) For all mixtures using a WMA technology, the mix temperature shall meet PG binder and WMA manufacturer's recommendations.

	S0.25		**S0.375**		**S0.5**		**S1**	
Sieve	CONTROL POINTS		CONTROL POINTS		CONTROL POINTS		CONTROL POINTS	
inches	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)	Min (%)	Max (%)
2.0	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	100	-
1.0	-	-	-	-	-	-	90	100
3/4	-	-	-	-	100	-	-	90
1/2	100	-	100	-	90	100	-	-
3/8	97	100	90	100	-	90	-	-
#4	75	90	-	75	-	-	-	-
#8	32	67	32	67	28	58	19	45
#16	-	-	-	-	-	-	-	-
#30	-	-	-	-	-	-	-	-
#50	-	-	-	-	-	-	-	-
#100	-	-	-	-	-	-	-	-
#200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0
VMA (%)	16.5 ± 1		16.0 ± 1		15.0 ± 1		13.0 ± 1	
VA (%)	4.0 ± 1		4.0 ± 1		4.0 ± 1		4.0 ± 1	
Gse	JMF value		JMF value		JMF value		JMF value	
Gmm	JMF ± 0.030		JMF ± 0.030		JMF ± 0.030		JMF ± 0.030	
Dust / binder	0.6 – 1.2		0.6 – 1.2		0.6 – 1.2		0.6 – 1.2	
Mix Temp(1)	265 – 325°F		265 – 325°F		265 – 325°F		265 – 325°F	
TSR	≥ 80%		≥ 80%		≥ 80%		≥ 80%	
T-283 Stripping	Minimal, as determined by the Engineer							

TABLE M.04.02–3: Superpave Consensus Properties Requirements For Combined Aggregate

Notes: (1) 95/90 denotes that a minimum of 95% of the coarse aggregate, by mass, shall have one fractured face and that a minimum of 90% shall have two fractured faces.. (2) Criteria presented as maximum Percent by mass of flat and elongated particles of materials retained on the #4 sieve, determined at 5:1 ratio.

Traffic Level	Design ESALs (80 kN), Millions	Coarse Aggregate Angularity (1) ASTM D 5821, Minimum %	Fine Aggregate Angularity AASHTO T 304, Method A Minimum %	Flat and Elongated Particles (2) ASTM D 4791, Maximum %	Sand Equivalent AASHTO T 176, Minimum %
1	< 0.3	55/- -	40	10	40
2	0.3 to < 3.0	75/- -	40	10	40
3	≥ 3.0	95/90	45	10	45

TABLE M.04.02– 4: Superpave Traffic Levels and Design Volumetric Properties

Traffic Level	Design ESALs	Number of Gyrations by Superpave Gyratory Compactor			Percent Density of Gmm from HMA/WMA specimen			Voids Filled with Asphalt (VFA) Based on Nominal mix size – inch			
	(million)	Nini	Ndes	Nmax	Nini	Ndes	Nmax	0.25	0.375	0.5	1
1	< 0.3	6	50	75	≤ 91.5	96.0	≤ 98.0	70 - 80	70 - 80	70 - 80	67 - 80
2	0.3 to < 3.0	7	75	115	≤ 90.5	96.0	≤ 98.0	65 - 78	65 - 78	65 - 78	65 - 78
3	≥ 3.0	8	100	160	≤ 90.0	96.0	≤ 98.0	65 – 77	73 - 76	65 - 75	65 - 75

TABLE M.04.02– 5:
Superpave Minimum Binder Content by Mix Type and Level

Mix Type	Level	Binder Content Minimum
S0.25	1	5.70
S0.25	2	5.60
S0.25	3	5.50
S0.375	1	5.70
S0.375	2	5.60
S0.375	3	5.50
S0.5	1	5.10
S0.5	2	5.00
S0.5	3	4.90
S1	1	4.60
S1	2	4.50
S1	3	4.40

M.04.03— Production Requirements:

1. Standard Quality Control Plan (QCP) for Production:

The QCP for production shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts: percent passing #4 sieve, percent passing #200 sieve, binder content, air voids, Gmm and VMA. The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

2. Acceptance Requirements:

i. General:

For those mixes with a total estimated tonnage over 500 tons, a Contractor representative shall obtain a field sample of the material placed at the project site in accordance with AASHTO R 97 or an alternate procedure approved by the Engineer. Sampling from the truck at the Plant in accordance with AASHTO R 97 will be allowed for those mixes with a total estimated project tonnage equal to or less than 500 tons. The Contractor's representative obtaining mix samples must be certified NETTCP HMA Paving Inspector, NETTCP HMA Plant Technician, or has successfully completed the HMA Field Sampling Course administered by the Connecticut Advanced Pavement Laboratory. Regardless of sampling location, the sample shall be quartered by the Contractor in accordance with AASHTO R 47 and placed in an approved container. For samples obtained at the project site, a Type A Mechanical Splitter shall be used to quarter the sample in accordance with AASHTO R 47. The container shall be sealed with a security tape provided by the Department and labelled to include the project number, date of paving, mix type, lot and sublot numbers and daily tonnage. The minimum weight of each quartered sample shall be 14000 grams. The Contractor shall transport one of the containers to the Departments Central Laboratory in Rocky Hill, retain one of the sealed containers for potential use in dispute resolution and test the remaining samples for acceptance in accordance with past practice.

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day's production. All acceptance test specimens and supporting documentation must be retained by the Contractor and may be disposed of with the approval of the Engineer. All quality control specimens shall be clearly labeled and separated from the acceptance specimens.

Contractor personnel performing acceptance sampling and testing must be present at the facility prior to, during, and until completion of production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on State projects must be suspended by the Contractor if such personnel are not present. Technicians found by the Engineer to be non-compliant with NETTCP policies and procedures or Department policies may be removed by the Engineer from participating in the acceptance testing process for Department projects until their actions can be reviewed.

Verification testing will be performed by the Engineer in accordance with the Department's QA Program for Materials.

Should the Department be unable to validate the Contractor's acceptance test result(s) for a lot of material, the Engineer will use results from verification testing and re-calculate the pay adjustment for that lot. The Contractor may request to initiate the dispute resolution process in writing within 24 hours of receiving the adjustment and must include supporting documentation or test results to justify the request.

ii. Curb Mix Acceptance Sampling and Testing Procedures:

Curb Mix shall be tested in accordance to Table M.04.03-1 by the Contractor at a frequency of one test per every 250 tons of cumulative production, regardless of the day of production.

TABLE M.04.03 – 1: Curb Mix Acceptance Test Procedures

Protocol	Reference	Description
1	**AASHTO T 30(M)**	Mechanical Analysis of Extracted Aggregate
2	**AASHTO R 97**	Sampling of Bituminous Concrete
3	**AASHTO T 308**	Binder content by Ignition Oven method (adjusted for aggregate correction factor)
4	**AASHTO T 209(M)[(2)]**	Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
5	**AASHTO T 312[(2)]**	[(1)]Superpave Gyratory molds compacted to N_{des}
6	**AASHTO T 329**	Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method

Notes: [(1)] One set equals two six-inch molds. Molds to be compacted to 50 gyrations
[(2)] Once per year or when requested by the Engineer

a. Determination of Off-Test Status:

i. Curb Mix is considered "off test" when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1. If the mix is "off test", the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.

ii. When multiple silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the "off test" status.

iii. The Engineer may cease supply from the plant when test results from three consecutive samples are not within the JMF tolerances or the test results from two consecutive samples not within the control points indicated in Table M.04.02-1 regardless of production date.

b. JMF revisions

i. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF revision as allowed by the Engineer prior to any additional testing. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

ii. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

iii. Superpave Mix Acceptance:

a. Sampling and Testing Procedures

Production Lot: The Lot will be defined as one of the following types:
- Non-PWL Production Lot for total estimated project quantities per mixture less than 3500 tons: All mixture placed during a single continuous paving operation.
- PWL Production Lot for total estimated project quantities per mixture of 3500 tons or more: Each 3500 tons of mixture produced within 30 calendar days.

Production Sub Lot:
- For Non-PWL: As defined in Table M.04.03 – 2
- For PWL: 500 tons (the last Sub Lot may be less than 500 tons)

Partial Production Lots (For PWL only): A Lot with less than 3500 tons due to:

- completion of the Course
- a Job Mix Formula revision due to changes in:
  - cold feed percentages over 5%
  - target combined gradation over 5%
  - target binder over 0.15%
  - any component specific gravity
- a Lot spanning 30 calendar days

The acceptance sample(s) location(s) shall be selected using stratified – random sampling in accordance with ASTM D 3665 based on:

- the total daily estimated tons of production for non-PWL lots, or
- the total lot size for PWL lots.

One acceptance sample shall be obtained and tested per Sub Lot. The Engineer may direct that additional acceptance samples be obtained. For non-PWL lots, one acceptance test shall always be performed in the last sub-lot based on actual tons of material produced.
For Non-PWL lots, quantities of the same mixture per plant may be combined daily for multiple State projects to determine the number of sub lots.

The payment adjustment will be calculated as described in 4.06.

Table M.04.03 – 2:
Superpave Acceptance Testing Frequency per Type/Level/Plant for Non-PWL lots

Daily quantity produced in tons (lot)	Number of Sub Lots/Tests
0 to 150	0, Unless requested by the Engineer
151 to 500	1
501 to 1,000	2
1,001 to 2,000	3
2,001 or greater	1 per 500 tons or portions thereof

The following test procedures shall be used for acceptance:

TABLE M.04.03– 3: Superpave Acceptance Testing Procedures

Protocol	Procedure	Description
1	AASHTO R 97	Sampling of bituminous concrete
2	AASHTO R 47	Reducing samples to testing size
3	AASHTO T 308	Binder content by ignition oven method (adjusted for aggregate correction factor)
4	AASHTO T 30(M)	Gradation of extracted aggregate for bituminous concrete mixture
5	AASHTO T 312	(1)Superpave gyratory molds compacted to N_{des}
6	AASHTO T 166	(2)Bulk specific gravity of bituminous concrete
7	AASHTO R 35	(2)Air voids, VMA
8	AASHTO T 209(M)	Maximum specific gravity of bituminous concrete (average of two tests)
9	AASHTO T 329	Moisture content of bituminous concrete

Notes: (1) One set equals two six-inch molds. Molds to be compacted to Nmax for PPTs and to Ndes for production testing. The first sublot of the year will be compacted to N_{max} (2) Average value of one set of six-inch molds.

If the average ignition oven corrected binder content differs by 0.3% or more from the average of the Plant ticket binder content in five (5) consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause

and correct the issue. When two consecutive moving average differences are 0.3% or more and no assignable cause has been stablished, the Engineer may require a new ignition oven aggregate correction factor to be performed or to adjust the current factor by the average of the differences between the corrected binder content and production Plant ticket for the last five (5) acceptance results.

The test specimen must be placed in an ignition oven for testing in accordance with AASHTO T 308 within thirty minutes of being obtained from the hauling vehicle and the test shall start immediately after.

The Contractor shall perform TSR testing within 30 days after the start of production for all design levels of HMA- and PMA- S0.5 plant-produced mixtures, in accordance with AASHTO T 283(M). The TSR test shall be performed at an AMRL certified laboratory by NETTCP certified technicians. The compacted specimens may be fabricated at the Plant and then tested at an AMRL accredited facility. The test results and specimens shall be submitted to the Engineer for review. Superpave mixtures that require anti-strip additives (either liquid or mineral) shall continue to meet all requirements specified herein for binder and bituminous concrete. The Contractor shall submit the name, manufacturer, percent used, technical datasheet and SDS for the anti-strip additive (if applicable) to the Engineer.

b. Determination of Off-Test Status:

i. Superpave mixes shall be considered *"off test"* when any Control Point Sieve, binder content, VA, VMA, or Gmm value is outside of the limits specified in Table M.04.03-4 or the target binder content at the Plant is below the minimum binder content stated in Table M.04.02-5. Note that further testing of samples or portions of samples not initially tested for this purpose cannot be used to change the status.

ii. Any time the bituminous concrete mixture is considered Off-test:

1. The Contractor shall notify the Engineer when the Plant is *"off test"* for any mix design that is delivered to the project in any production day. When multiple silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the *"off test"* determination.

2. The Contractor must take immediate actions to correct the deficiency, minimize *"off test"* production to the project, and obtain an additional Process Control (PC) test after any corrective action to verify production is in conformance to the specifications. A PC test will not be used for acceptance and is solely for the use of the Contractor in its quality control process.

c. Cessation of Supply for Superpave Mixtures in non-PWL lots:

A mixture shall not be used on Department's projects when it is "off test" for:

i. four (4) consecutive tests in any combination of VA, VMA or Gmm, regardless of date of production, or,
ii. two (2) consecutive tests in the Control Point sieves in one production shift.

As a result of cessation of supply, the mix status will be changed to PPT.

d. JMF revisions:

JMF revisions are only permitted prior to or after a production shift. A JMF revision is effective from the time it was submitted and is not retroactive to the previous test(s).

JMF revisions shall be justified by a documented trend of test results.

Revisions to aggregate and RAP specific gravities are only permitted when testing is performed at an AMRL certified laboratory by NETTCP certified technicians.

A JMF revision is required when the Plant target RAP and/or bin percentage deviates by more than 5% and/or the Plant target binder content deviates by more than 0.15% from the active JMF.

TABLE M.04.03– 4: Superpave Mixture Production Requirements

Notes: (1) 300°F minimum after October 15. (2) JMF tolerances shall be defined as the limits for production compliance. (3) For all mixtures with WMA technology, changes to the minimum aggregate temperature will require Engineer's approval. (4) For PMA and mixtures with WMA technology, the mix temperature shall meet manufacturer's recommendations. In addition, for all mixtures with WMA technology, the maximum mix temperature shall not exceed 325°F.(5) 0.4 for PWL lots (6) 1.3 for PWL lots (7) 1.2 for PWL lots

	S0.25		**S0.375**		**S0.5**		**S1**		**Tolerances**
Sieve	CONTROL POINTS		CONTROL POINTS		CONTROL POINTS		CONTROL POINTS		**From JMF Targets** (2)
inches	Min(%)	Max(%)	Min(%)	Max(%)	Min(%)	Max(%)	Min(%)	Max(%)	±Tol
1.5	-	-	-	-	-	-	100	-	
1.0	-	-	-	-	-	-	90	100	
3/4	-	-	-	-	100	-	-	90	
1/2	100	-	100	-	90	100	-	-	
3/8	97	100	90	100	-	90	-	-	
#4	75	90	-	75	-	-	-	-	
#8	32	67	32	67	28	58	19	45	
#16	-	-	-	-	-	-	-	-	
#200	2.0	10.0	2.0	10.0	2.0	10.0	1.0	7.0	
Pb	JMF value		JMF value		JMF value		JMF value		0.3(5)
VMA (%)	16.5		16.0		15.0		13.0		1.0(6)
VA (%)	4.0		4.0		4.0		4.0		1.0(7)
Gmm	JMF value		JMF value		JMF value		JMF value		0.030
Agg. Temp (3)	280 – 350F		280 – 350F		280 – 350F		280 – 350F		
Mix Temp (4)	265 – 325 F (1)		265 – 325 F (1)		265 – 325 F (1)		265 – 325 F (1)		
Prod. TSR	N/A		N/A		≥80%		N/A		
T-283 Stripping	N/A		N/A		Minimal as determined by the Engineer		N/A		

Table M.04.03-5:
Modifications to Standard AASHTO and ASTM Test Specifications and Procedures

AASHTO Standard Method of Test	
Reference	**Modification**
T 30	Section 7.2 thru 7.4 Samples are not routinely washed for production testing
T 209	Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements. 8.3 Omit Pycnometer method.
T 283	When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufactures recommended compaction temperature prior to fabrication of the specimens.

AASHTO Standard Recommended Practices	
Reference	**Modification**
R 26	All laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL). Sources interested in being approved to supply PG-binders to the Department by use of an "in-line blending system," must record properties of blended material, and additives used. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required. All AASHTO M 320 references shall be replaced with AASHTO M 332. Once a month, one split sample and test results for each asphalt binder grade and each lot shall be submitted by the PG binder supplier to the Department's Central Lab. Material remaining in a certified lot shall be re-certified no later than 30 days after initial certification. Each April and September, the PG binder supplier shall submit test results for two (2) BBR tests at two (2) different temperatures in accordance with AASHTO R 29.

ATTACHMENT A:
PREVAILING WAGE RATES

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 22-31070

Connecticut Department of Labor
Wage and Workplace Standards Division

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: Glastonbury
Project Town: Glastonbury
State#: Glastonbury
FAP#: Glastonbury
Project: Storm Drainage and Sanitary Sewer Rehabilitation (Glastonbury)

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	38.27	34.47
2) Carpenters, Piledrivermen	35.57	25.65
2a) Diver Tenders	35.57	25.65
3) Divers	44.03	25.65
03a) Millwrights	35.64	26.49
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	54.0	22.90
4a) Painters: Brush and Roller	36.42	22.90
4b) Painters: Spray Only	39.42	22.90
4c) Painters: Steel Only	38.42	22.90
4d) Painters: Blast and Spray	39.42	22.90
4e) Painters: Tanks, Tower and Swing	38.42	22.90

As of: January 25, 2022

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)	40.75	30.47+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	38.17	38.02 + 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)	45.83	33.50
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.5	23.25
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.75	23.25
10) Group 3: Pipelayers	32.0	23.25
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	32.0	23.25
12) Group 5: Toxic waste removal (non-mechanical systems)	33.5	23.25
13) Group 6: Blasters	33.25	23.25
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.5	23.25
Group 8: Traffic control signalmen	18.0	23.25
Group 9: Hydraulic Drills	32.25	23.25
----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	33.73	23.25 + a
13b) Brakemen, Trackmen	32.76	23.25 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

14) Concrete Workers, Form Movers, and Strippers	32.76	23.25 + a
15) Form Erectors	33.09	23.25 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.76	23.25 + a
17) Laborers Topside, Cage Tenders, Bellman	32.65	23.25 + a
18) Miners	33.73	23.25 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	40.22	23.25 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	40.02	23.25 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	38.04	23.25 + a
21) Mucking Machine Operator	40.81	23.25 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	30.16	27.16 + a
Three axle trucks; two axle ready mix	30.27	27.16 + a
Three axle ready mix	30.33	27.16 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.39	27.16 + a
Four axle ready-mix	30.44	27.16 + a
Heavy duty trailer (40 tons and over)	30.66	27.16 + a

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.44	27.16 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	43.88	25.80 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	43.53	25.80 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), 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)	42.72	25.80 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	42.3	25.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	41.65	25.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	41.65	25.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	41.31	25.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	40.94	25.80 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	40.51	25.80 + 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).	40.04	25.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	37.81	25.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	37.81	25.80 + a
Group 12: Wellpoint Operator.	37.74	25.80 + a

Group 13: Compressor Battery Operator.	37.11	25.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	35.87	25.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	35.43	25.80 + a
Group 16: Maintenance Engineer/Oiler	34.72	25.80 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	39.42	25.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	36.77	25.80 + a
**NOTE: SEE BELOW		
----LINE CONSTRUCTION----(Railroad Construction and Maintenance)--- -		
20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
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
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

As of: January 25, 2022

Project: Storm Drainage and Sanitary Sewer Rehabilitation (Glastonbury)

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*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

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 journeyperson 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

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

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.

As of: January 25, 2022

Project: Storm Drainage and Sanitary Sewer Rehabilitation (Glastonbury)

~~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.

As of: January 25, 2022

Important Information:

For use with Building, Heavy/Highway, and Residential

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.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
3) Cranes (under 100 ton rated capacity)

Crane with boom including jib, 150 feet - $1.50 extra.

Crane with boom including jib, 200 feet - $2.50 extra.

Crane with boom including jib, 250 feet - $5.00 extra.

Crane with boom including jib, 300 feet - $7.00 extra.

Crane with boom including jib, 400 feet - $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 journeyperson instructing and supervising the work of one 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.ctdol.state.ct.us.
- 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.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage.

- All Persons 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.

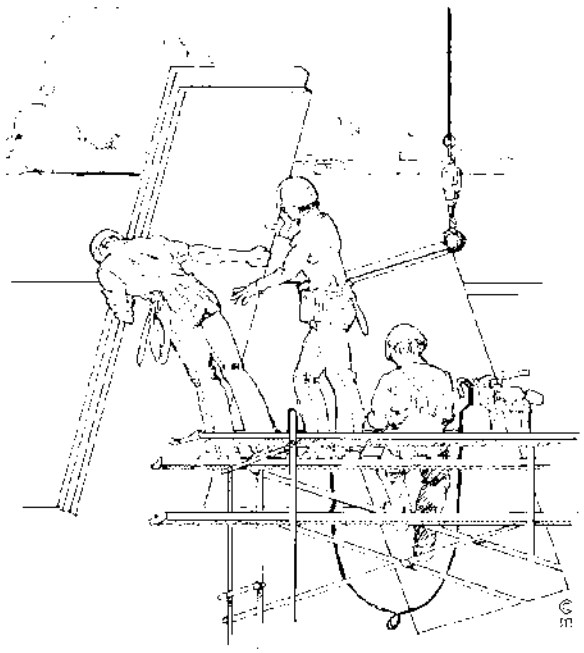
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

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

Date Issued: _____

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***<u>CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS</u>***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages <u>are not required</u>. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***<u>ELECTRICIANS</u>***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____ _____ _____

(Signature) (Title) Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

Week-Ending Date:

Contractor or Subcontractor Business Name:

WEEKLY PAYROLL

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof 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 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.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

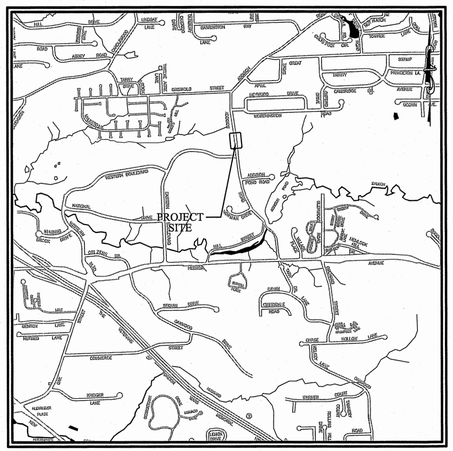
History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

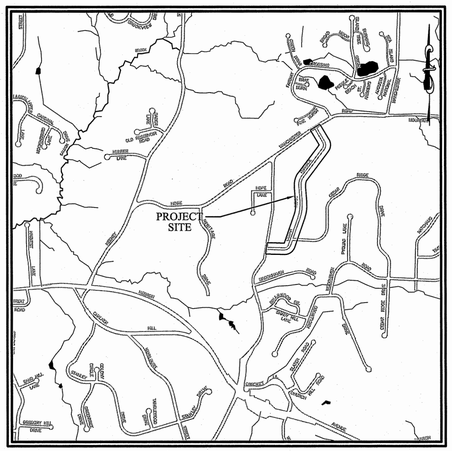
ATTACHMENT B:
CONSTRUCTION PLANS

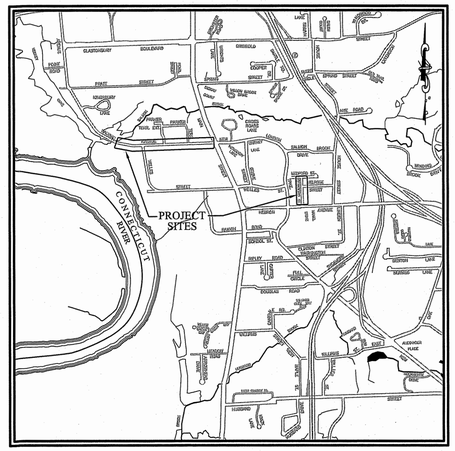
TOWN OF GLASTONBURY
Storm Drainage and Sanitary Sewer Rehabilitation
located on

ADDISON ROAD (PW-2119), CEDAR RIDGE TERRACE (PW-2124), CONCORD, MEDFORD & MELROSE STREET (PW-2106) AND NAUBUC AVENUE (PW-2118 & PW-2713)

BID NO. GL-2022-28







LOCATION MAPS
N.T.S.

RICHARD J. JOHNSON
TOWN MANAGER

DANIEL A. PENNINGTON, P.E.
MANAGER OF PHYSICAL SERVICES/TOWN ENGINEER

JANUARY 2022

ISSUED FOR BID

SHEET INDEX

GENERAL NOTES:

1. THESE PLANS HAVE BEEN PREPARED BY THE TOWN GLASTONBURY ENGINEERING DIVISION.
2. ALL WORK UNDER THIS CONTRACT IS TO BE COVERED BY AND IN CONFORMITY WITH THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 818 2020, INCLUDING SUPPLEMENT DATED JULY 2021 GOVERN.
3. DESIGN CLASSIFICATION:
   - ADDISON ROAD: LOCAL
   - CEDAR RIDGE TERRACE: LOCAL
   - CONCORD STREET: LOCAL
   - NAUBUC AVENUE: MINOR ARTERIAL
4. PROJECT OWNER IS THE TOWN OF GLASTONBURY. ALL FUTURE MAINTENANCE AFTER CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE TOWN OF GLASTONBURY.
5. PROJECT AREA IS ZONED:
   - ADDISON ROAD: RESIDENCE A/PLANNED EMPLOYMENT
   - CEDAR RIDGE TERRACE: RURAL RESIDENCE
   - CONCORD STREET: TOWN CENTER/RESIDENCE A
   - NAUBUC AVENUE: TOWN CENTER/TOWN CENTER MIXED USE
6. THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREIN ARE BASED ON INFORMATION PROVIDED BY OTHERS AND SHOULD BE CONSIDERED APPROXIMATE. THE ACTUAL LOCATIONS MAY VARY FROM THAT INDICATED ON THE PLANS AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. CONTRACTOR SHALL CONTACT CALL BEFORE YOU DIG TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION.

ALL UTILITY INFORMATION AND DATA SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS ARE COMPILED FROM MAPS AND DATA FURNISHED BY OTHERS, ANY SUCH INFORMATION SHOULD NOT BE CONSTRUED AS ACCURATE OR COMPLETE AND THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION.

STATE OF CONNECTICUT — DANIEL A. PENNINGTON — 20101 — LICENSED PROFESSIONAL ENGINEER

Certified to be substantially correct

DANIEL A. PENNINGTON P.E. Reg. No. 20101

2/2/2022
DATE:

SHEETS 1 - 13 DESIGNED BY
TOWN OF GLASTONBURY ENGINEERING DIVISION
PER: DANIEL A. PENNINGTON, P.E.
LICENSE NO. 20101

PW-2119
PW-2124
PW-2106
PW-2118
PW-2713

NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	
1.	-----	----

TOWN OF GLASTONBURY — CAD — ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: G.J.M.	12/23/2021
CHECKED BY: S.M.B.	12/23/2021
APPROVED BY: D.A.P.	12/23/2021
ST. FILE:	

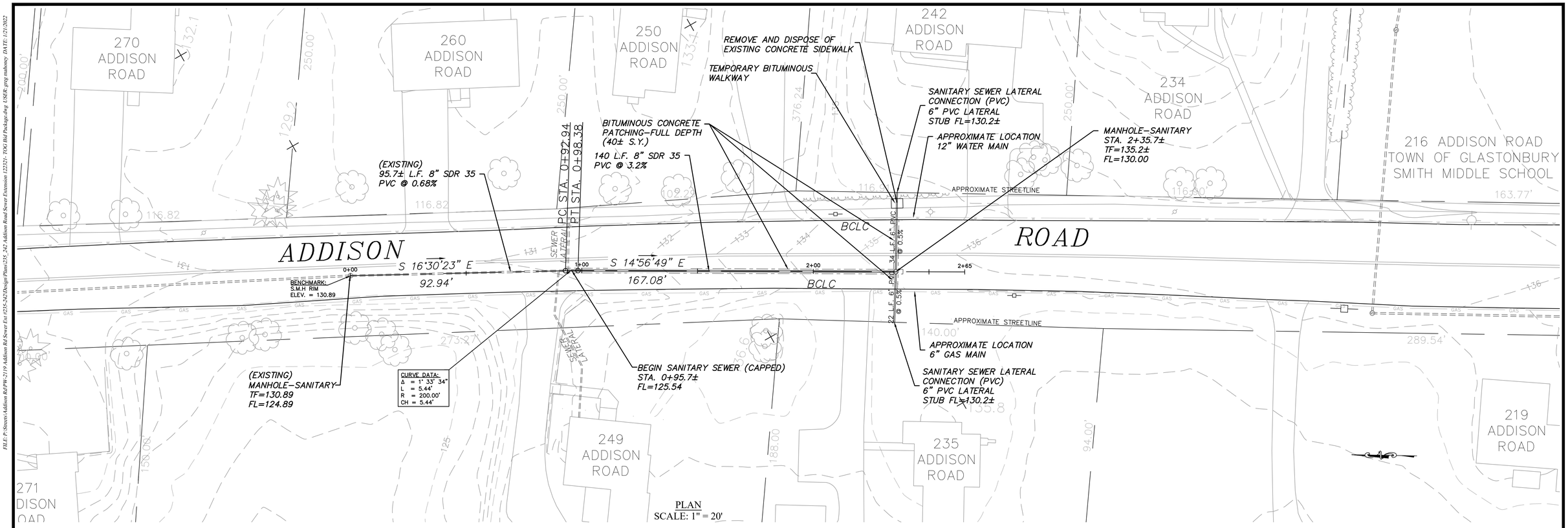
DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

TOWN OF GLASTONBURY — INCORPORATED 1693 — SEAL — CONNECTICUT

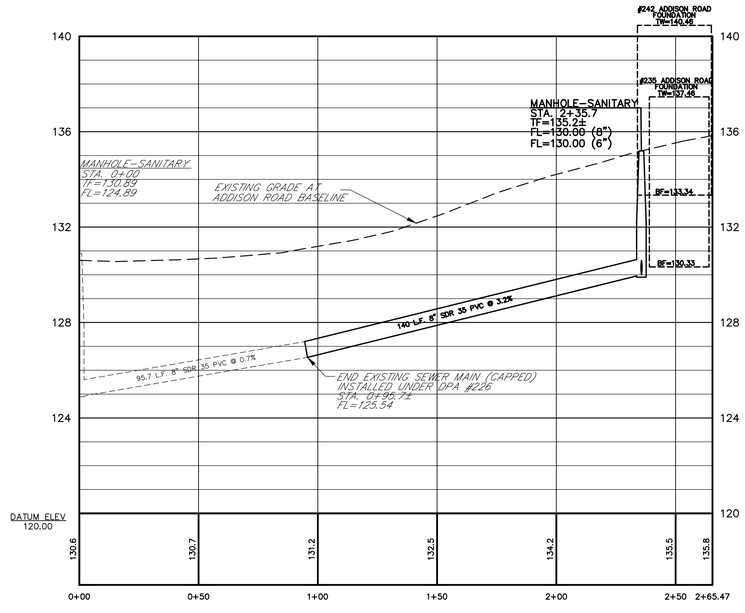
Storm Drainage and Sanitary Sewer Rehabilitation
located on
ADDISON ROAD, CEDAR RIDGE TERRACE, CONCORD STREET AND NAUBUC AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 1 OF 13



PLAN
SCALE: 1" = 20'

BASELINE GEOMETRY TABLE:		
STATION:	NORTHING:	EASTING:
0+00.00	824,829.66	1,046,166.20
0+92.94 (PC)	824,740.56	1,046,192.61
0+98.38 (PT)	824,735.32	1,046,194.08
2+35.70 (SMH)	824,602.68	1,046,229.49
2+65.00	824,573.88	1,046,237.18



PROFILE
SCALE: 1" = 30' HORZ.
SCALE: 1" = 3' VERT.

THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREON ARE BASED ON FIELD LOCATIONS AND BY INFORMATION PROVIDED BY OTHERS. THEIR TRUE LOCATIONS MAY VARY FROM THOSE INDICATED, AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. IF APPLICABLE, UTILIZE THE "CALL BEFORE YOU DIG" NUMBER (1–800–922–4455). TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION, REPAIR OR DESIGN.

GENERAL CONSTRUCTION NOTES:

1. *UPON THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL MAKE THE NECESSARY CONSTRUCTION NOTIFICATIONS, APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH OBTAINING PERMITS SHALL BE INCLUDED IN THE OVERALL COST OF THE PROJECT.*
2. *ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE CONDITIONS OF APPROVAL OUTLINED IN ALL STATE AND LOCAL PERMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THIS INFORMATION PRIOR TO CONSTRUCTION AND FOR CONFORMING TO THE CONDITIONS AS REQUIRED DURING CONSTRUCTION.*
3. *THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. ALL CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDENCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.*
4. *IN ADDITION TO COMPLIANCE WITH CONSTRUCTION SAFETY REQUIREMENTS, THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AND PROVIDE ALL NECESSARY SIGNING, WARNING LIGHTS, DRUMS, CONES, AND CONTINUOUS BARRIERS OF SUFFICENT TYPE, SIZE, AND STRENGTH TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS.*
5. *THE CONTRACTOR SHALL MAINTAIN ALTERNATING ONE WAY TRAFFIC ON ROADWAYS WHERE TWO OPPOSING 11 FOOT LANES ARE NOT AVAILABLE. AT THE COMPLETION OF THE WORKDAY, THE CONTRACTOR SHALL RESTORE THE ROADWAY TO NORMAL TRAFFIC OPERATIONS.*
6. *THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1–800–922–4455 A MINIMUM OF 72–HOURS PRIOR TO ANY EXCAVATION BEING PERFORMED ON SITE.*
7. *ALL SANITARY SEWER PIPE SHALL BE SDR 35 PVC.*
8. *ALL SANITARY SEWER STRUCTURES SHALL BE PRECAST.*
9. *ALL PROPOSED SANITARY SEWER LATERAL STUBS SHALL BE CAPPED AT THE STREETLINE WITH A WATERTIGHT SEAL.*

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2119

SCALE: AS SHOWN	DATE:	
DRAWN BY: G.J.M.	07/08/2021	
CHECKED BY: S.M.B.	07/08/2021	
APPROVED BY: D.A.P.	07/08/2021	
ST. FILE:		

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

TOWN OF GLASTONBURY
WATER POLLUTION CONTROL AUTHORITY
PLAN & PROFILE
ADDISON ROAD SANITARY SEWER EXTENTION
GLASTONBURY, CONNECTICUT

SHEET NO. 2 OF 13

LOCATION MAP
SCALE: 1"=500'

Existing House #28
Existing House #37
Existing House #53
Existing House #61
Existing House #64

CEDAR RIDGE TERRACE
CEDAR RIDGE DRIVE

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=370.07
FL=367.22 (N)
FL=367.32 (E)

BITUMINOUS CONCRETE PATCHING–FULL DEPTH
18" R.C. PIPE– 0'–10' DEEP
6" BITUMINOUS CONCRETE LIP CURB (END)
6" BITUMINOUS CONCRETE LIP CURB (BEGIN–MATCH EXISTING)
6" BITUMINOUS CONCRETE LIP CURB (BEGIN)

MATCH–LINE "A" SEE SHEET 4

Drainage R.O.W. Reserved Map #114

Catch Basin T.F.=369.46' Inv.=366.51'(E)
Catch Basin T.F.=369.74' Inv.=366.14'(E) Inv.=366.24'(W)
Catch Basin T.F.=370.07' Inv.=367.22'(N) Inv.=367.32'(E)
Catch Basin T.F.=369.51' Inv.=366.11'(W) Inv.=366.11'(S) Inv.=366.16(N)
Catch Basin T.F.=369.90' Inv.=367.05'(S) Inv.=367.15'(N) Inv.=367.20'(W)
Catch Basin T.F.=371.65' Inv.=367.15'(S) Inv.=367.15'(E)
Catch Basin T.F.=370.92' Inv.=367.52'(S)

Inv.=365.6' 24" RCP
Inv.=367.1' 30" RCP

SNET #3702
SNET #3701
SNET #3700S
SNET #3700
SNET #3853

LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C–L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

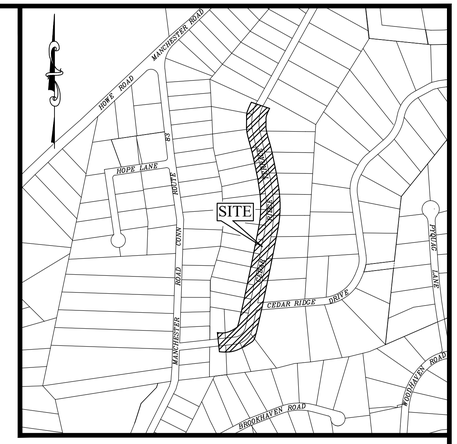
PW-2124

SCALE: AS SHOWN
DATE:
DRAWN BY: S.M.L. 10–20–2021
CHECKED BY: S.M.B. ----
APPROVED BY: D.A.P. ----
ST. FILE:
DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

Storm Drainage Rehabilitation
located on
CEDAR RIDGE TERRACE
GLASTONBURY, CONNECTICUT

SHEET NO. 3 OF 13



LOCATION MAP
SCALE: 1"=500'

MATCH–LINE "A" See Sheet 3

Existing House #73

Existing House #81

Existing House #89

Existing House #97

Existing House #107

Existing House #117

Approximate 15' Drainage R.O.W. "Cedar Ridge Subdivision Map #114"

CEDAR RIDGE TERRACE

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=372.88
FL=369.33 (E)

6" BITUMINOUS CONCRETE LIP CURB (END)

18" R.C. PIPE– 0'–10' DEEP
36 L.F.

BITUMINOUS CONCRETE PATCHING–FULL DEPTH

15" R.C. PIPE– 0'–10' DEEP

BITUMINOUS CONCRETE PATCHING–FULL DEPTH

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=376.05
FL=372.40 (E)

BITUMINOUS CONCRETE PATCHING–FULL DEPTH

15" R.C. PIPE– 0'–10' DEEP

18" R.C. PIPE– 0'–10' DEEP

BITUMINOUS CONCRETE PATCHING–FULL DEPTH

MANHOLE (STORM)–0'–10' DEEP (NEW)
TF=372.75
FL=368.87 (N)
FL=368.87 (S)

6" BITUMINOUS CONCRETE LIP CURB (END)

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=372.90
FL=369.20 (N)
FL=369.10 (S)
FL=369.55 (E)
FL=369.35 (W)

6" BITUMINOUS CONCRETE LIP CURB (BEGIN)

18" R.C. PIPE– 0'–10' DEEP

6" BITUMINOUS CONCRETE LIP CURB (BEGIN)

6" BITUMINOUS CONCRETE LIP CURB (END–MATCH EXISTING)

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=376.21
FL=371.61 (N)
FL=371.61 (S)
FL=372.21 (W)

6" BITUMINOUS CONCRETE LIP CURB (BEGIN–MATCH EXISTING)

6" BITUMINOUS CONCRETE LIP CURB (BEGIN–MATCH EXISTING)

18" R.C. PIPE– 0'–10' DEEP

BITUMINOUS CONCRETE PATCHING–FULL DEPTH

TYPE "C" CATCH BASIN–0'–10' DEEP
TF=376.86
FL=373.26 (N)
FL=373.26 (S)

MATCH–LINE "B" SEE SHEET 5

Drainage R.O.W. Reserved Map #114

Existing House #76

Existing House #88

Existing House #102

Existing House #114

LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- WG Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C–L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2124

TOWN OF GLASTONBURY ENGINEERING CAD

SCALE: AS SHOWN
DRAWN BY: S.M.L. DATE: 10–20–2021
CHECKED BY: S.M.B. ----
APPROVED BY: D.A.P. ----
ST. FILE:

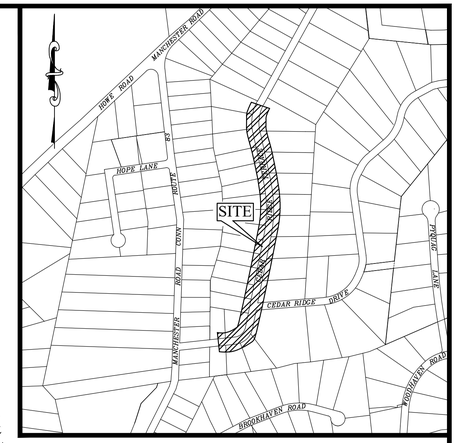
DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

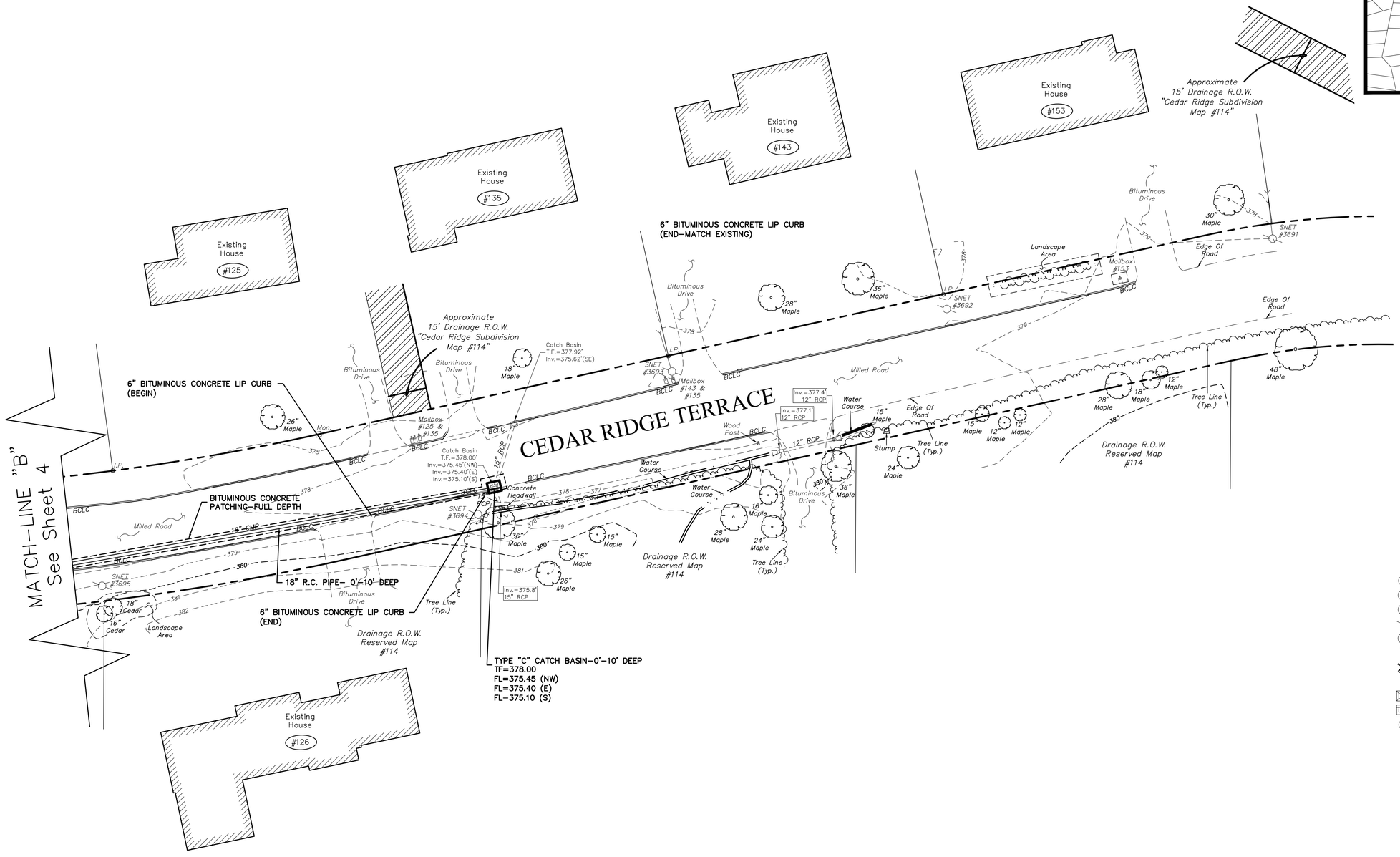
TOWN OF GLASTONBURY INCORPORATED 1693 CONNECTICUT SEAL

Storm Drainage Rehabilitation
located on
CEDAR RIDGE TERRACE
GLASTONBURY,
CONNECTICUT

SHEET NO. 4 OF 13



LOCATION MAP
SCALE: 1"=500'



LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C-L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2124

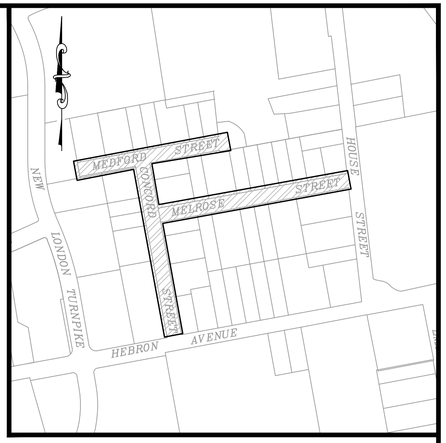
SCALE: AS SHOWN | DATE:
DRAWN BY: S.M.L. | 10-20-2021
CHECKED BY: S.M.B. | ----
APPROVED BY: D.A.P. | ----
ST. FILE:

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

Storm Drainage Rehabilitation
located on
CEDAR RIDGE TERRACE
GLASTONBURY,
CONNECTICUT

SHEET NO. 5 OF 13



LOCATION MAP
SCALE: 1"=250'

"NOT IN CONTRACT"
WORK TO BE PERFORMED BY THE TOWN OF GLASTONBURY

TEMPORARY PAVEMENT REPAIR (TYP.)
REMOVE EXISTING VCP PIPE
CB TYPE "C"
STA. 6+05.3 (17.66' LT)
TF=53.29
FL=49.89 (SE)
FL=49.99 6" PVC (W)
MANHOLE-(STORM)
TF=53.00
FL=45.87 15" (S)
FL=45.87 12" (N)
TOP OF 2" WATER MAIN= 49.14
BOTTOM OF 2" WATER MAIN= 48.97
71 LF 15" RCP @ 1.40%
6" BITUMINOUS CONCRETE LIP CURB (BEGIN)
TOP OF 2" GAS MAIN= 50.62
BOTTOM OF 2" GAS MAIN= 50.45
REMOVE EXISTING 12" VCP PIPE
CB TYPE "C"
STA. 5+88 (12.50' RT)
TF=52.90
FL=46.85 (N,S)
FL=46.85 (NW)
6" BITUMINOUS CONCRETE LIP CURB (BEGIN)
TOP OF 6" WATER MAIN= 48.88
BOTTOM OF 6" WATER MAIN= 48.38
33 LF 15" RCP @ 0.92%
6" BITUMINOUS CONCRETE LIP CURB (END-MATCH EXISTING)
REMOVE DRAINAGE STRUCTURE-0'-10' DEEP
REMOVE EXISTING VCP PIPE
154 LF 15" RCP @ 0.50%
MANHOLE-(STORM)
STA. 4+34 (13.80' RT)
TF=53.89
FL=47.62 (N)
FL=47.62 (S)
FL=47.62 (W)
FL=48.49 (ESE)
FL=48.59 (E)
FL=47.62 (SE)
CB TYPE "C"
STA. 0+31.1 (12.82' LT)
TF=53.59
FL=48.79 (W)
TOP OF 6" WATER MAIN= 50.50
BOTTOM OF 6" WATER MAIN= 50.00
CB TYPE "C"
STA. 4+28 (12.50' LT)
TF=53.31
FL=47.75 (E)
FL=49.92 8" PVC (W)
6" BITUMINOUS CONCRETE LIP CURB (END-MATCH EXISTING)
16 LF 12" CLASS V RCP @ 1.25%
6" BITUMINOUS CONCRETE LIP CURB (MATCH EXISTING)
26 LF 12" CLASS V RCP @ 0.50%
6" BITUMINOUS CONCRETE LIP CURB (END-MATCH EXISTING)
CB TYPE "C"
STA. 0+30.9 (12.87' RT)
TF=53.59
FL=47.75 (NW)
26 LF 12" CLASS V RCP @ 0.50%
238' 15" RCP @ 0.50%
TEMPORARY PAVEMENT REPAIR (TYP.)
23 L.F. 12" CLASS V RCP @ 0.50%
CB TYPE "C"
STA. 1+95 (12.50' LT)
TF=54.20
FL=52.03 (E)
CB TYPE "C"
STA. 1+95 (12.50' RT)
TF=54.20
FL=48.81 (N)
FL=51.91 (W)
6" BITUMINOUS CONCRETE LIP CURB (MATCH EXISTING)
6" BITUMINOUS CONCRETE LIP CURB (BEGIN-MATCH EXISTING)
TOP OF 4" WATER MAIN= 50.93
BOTTOM OF 4" WATER MAIN= 50.60

MEDFORD STREET
MELROSE STREET
HOUSE STREET
HEBRON AVENUE

LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C-L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2106

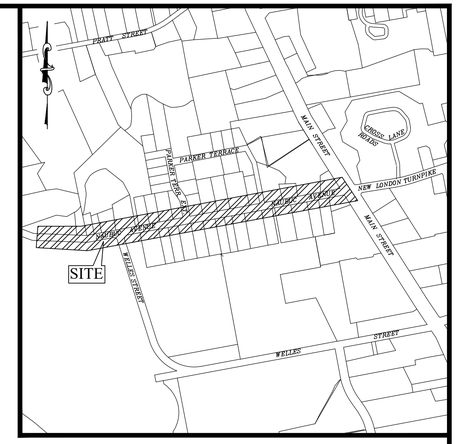
SCALE: AS SHOWN
DRAWN BY: S.M.L.
CHECKED BY: S.M.B.
APPROVED BY: D.A.P.
ST. FILE:
DATE: 03-04-2021

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

Storm Drainage Rehabilitation
located on
CONCORD, MEDFORD & MELROSE STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 6 OF 13



LOCATION MAP
SCALE: 1"=500'

NAUBUC AVENUE

WELLES STREET

Manhole Storm T.F.=24.65' Inv.=12.62'(E&W)
Timber Guard-Rail
Approximate Street Line
Timber Guard-Rail
BCLC
15" RCP
Catch Basin T.F.=24.06' Inv.=20.87'(S)
4" Maple
Wooden Bollard Sign
4" Maple
Belgium Block Curbing
4" Maple
Business Sign
30" ACCMP
15" RCP
Double Yellow Line
Bituminous Drive
Concrete Sidewalk
Approximate 8" Water Main
Approximate 6" Gas Main
Approximate Street Line
Steel Guard-Rail
Catch Basin T.F.=24.19' Inv.=21.37'(N)
Electric Panel
Manhole Storm T.F.=25.94' Inv.=14.85'(E&W)
Fire Hydrant
Catch Basin T.F.=26.13' Inv.=17.23'(NE) Inv.=15.66'(E&W)
Bituminous Millings Drive
Approx. Sewer Lateral
Electric Panel
Bituminous Drive
Approximate Water Main
Approximate 6" Gas Main
Approx. Sewer Lateral
Manhole Sewer T.F.=26.10'
Approximate 8" Water Main
12" Sanitary Main
30" ACCMP
18" RCP
30" RCP
18" RCP
15" RCP
Manhole Sewer T.F.=26.72'
Approx. Sewer Lateral
4" Maple
Ground Lights
Sign
SNET #753
Concrete Drive
Approximate Property Line
Existing House #154
Existing House #150
Existing House #142
Existing House #138
Existing House #132
Existing House #122A
Catch Basin T.F.=26.21' Inv.=24.43'(SW)
Approx. Sewer Lateral
Manhole Storm T.F.=26.79' Inv.=23.59'(NE) Inv.=16.49'(E&W)
Approximate Street Line
Slate Sidewalk
Approx. Sewer Lateral
Bituminous Drive
15" Locust
Catch Basin T.F.=26.61' Inv.=21.11'(S)
Approx. Sewer Lateral
6" Wooden Fence
Edge Of Road
18" RCP
Manhole Sewer T.F.=27.60'
12" Sanitary Main
Bituminous Drive
6" Wooden Fence
Concrete Sidewalk
Business Sign
No Parking Sign
Approximate 6" Gas Main
SNET #756
15" VCP STORM (TO BE ABANDONED)
Catch Basin T.F.=27.01' Inv.=23.81'(E) Inv.=23.61'(SW)
Catch Basin T.F.=27.03' Inv.=24.27'(W)
24" RCP
15" HDPE
Stop Sign
Concrete Sidewalk
Mon.
SNET #755
Concrete Sidewalk
Approximate Street Line
12" Pine
18" Pine
22" Pine
15" Pine
10" Pine
20" Pine
Edge Of Drive
Approx. Sewer Lateral
Manhole Storm T.F.=26.62' Inv.=20.62'(S) Inv.=16.54'(E&W)
Manhole Storm T.F.=27.27' Inaccessible Bit. Over
Catch Basin T.F.=27.05' Inv.=20.60'(N) Inv.=17.05'(E&W) Inv.=22.25'(SE)
15" RCP
Guy Pole
Concrete Sidewalk Ramp
Stop Bar (Typ.)
Double Yellow Line
No Parking Sign
16" Maple
16" Sycamore
12" HDPE
Catch Basin T.F.=27.30' Inv.=23.27'(E) Inv.=23.12'(NW)
Catch Basin T.F.=27.34' Inv.=23.46'(W)
Approximate Street Line
Approximate Water Main

EXISTING MANHOLE TO REMAIN FUNCTIONAL

END PIPE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL

PIPE ABANDONMENT– 15" VCP (HATCHED)

MATCH–LINE "A" SEE SHEET 8

LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- WG Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C–L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

PW-2118

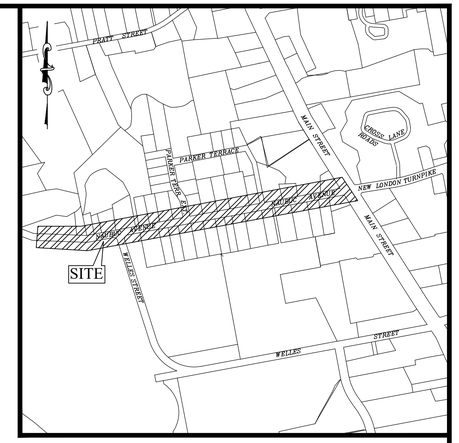
NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	
1.	-----	----

SCALE: AS SHOWN | DATE:
DRAWN BY: S.M.L. | 12-22-2021
CHECKED BY: S.M.B. | ----
APPROVED BY: D.A.P. | ----
ST. FILE:
DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

Storm Drainage Rehabilitation located on NAUBUC AVENUE GLASTONBURY, CONNECTICUT

SHEET NO. 7 OF 13



LOCATION MAP
SCALE: 1"=500'

MATCH–LINE "A" SEE SHEET 7

MATCH–LINE "B" SEE SHEET 9

PARKER TERRACE

NAUBUC AVENUE

MANHOLE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL

MANHOLE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL

PIPE ABANDONMENT– 15" VCP (HATCHED)

PIPE ABANDONMENT– 12" VCP (HATCHED)

Existing House #114
Existing House #106–108
Existing House #98
Existing House #92
Existing House #82–84
Existing House #74
Existing House #105
Existing House #101
Existing House #97
Existing House #91–93
Existing House #83
Existing House #75

LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C–L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.
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DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2118

SCALE: AS SHOWN	DATE:	
DRAWN BY: S.M.L.	12–22–2021	
CHECKED BY: S.M.B.	----	
APPROVED BY: D.A.P.	----	
ST. FILE:		

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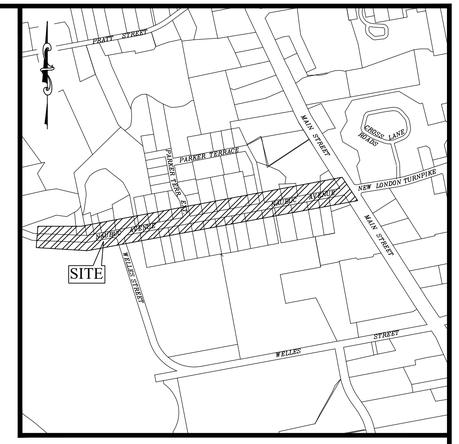
GRID NORTH

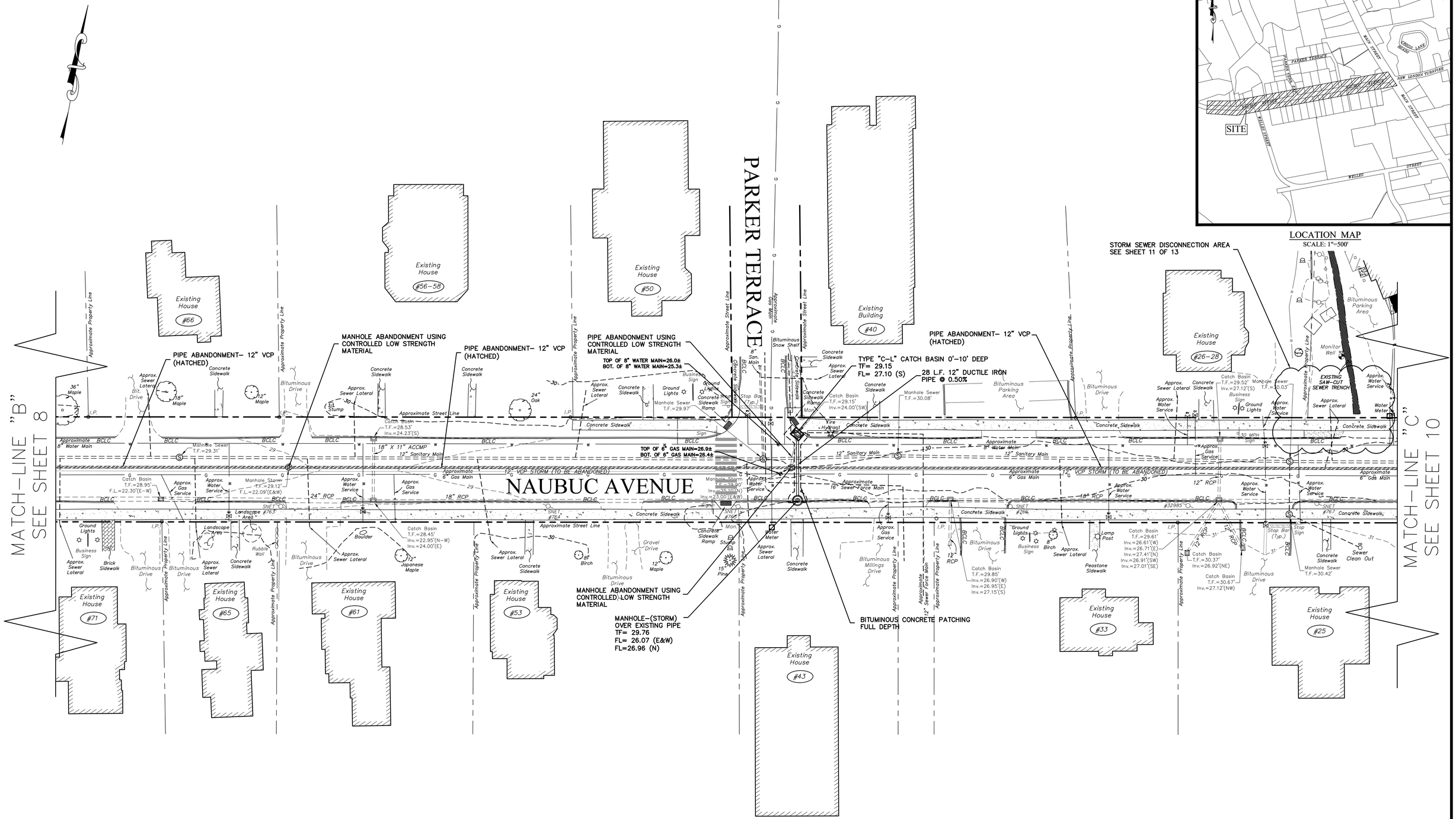
Storm Drainage Rehabilitation located on
NAUBUC AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 8 OF 13



LOCATION MAP
SCALE: 1"=500'

STORM SEWER DISCONNECTION AREA
SEE SHEET 11 OF 13



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2118

TOWN OF GLASTONBURY ENGINEERING CAD

SCALE: AS SHOWN	DATE:
DRAWN BY: S.M.L.	12-22-2021
CHECKED BY: S.M.B.	----
APPROVED BY: D.A.P.	----
ST. FILE:	

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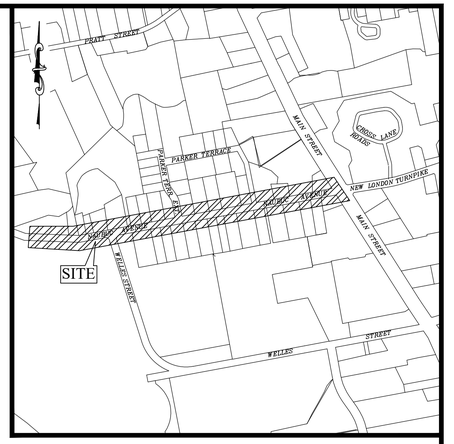
GRID NORTH

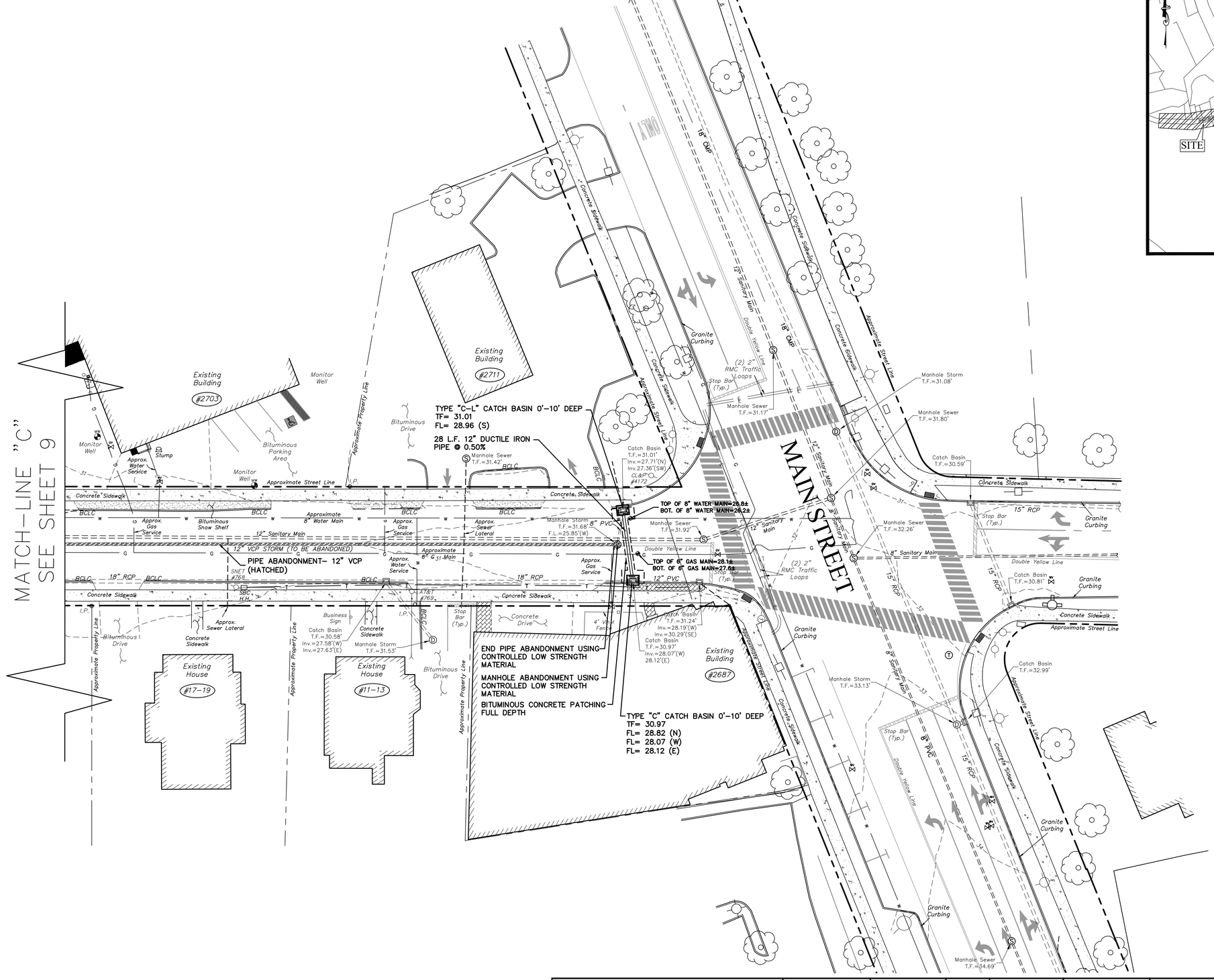
TOWN OF GLASTONBURY INCORPORATED 1693 CONNECTICUT SEAL

Storm Drainage Rehabilitation
located on
NAUBUC AVENUE
GLASTONBURY,
CONNECTICUT

SHEET NO. 9 OF 13



LOCATION MAP
SCALE: 1"=500'



LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C–L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole
- Existing Water Main/Service
- Existing Gas Main/Service
- Existing Telephone Duct
- Existing Electric Duct
- Existing Irrigation Line

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

PW-2118

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

TOWN OF GLASTONBURY CAD ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: S.M.L.	12-22-2021
CHECKED BY: S.M.B.	----
APPROVED BY: D.A.P.	----
ST. FILE:	

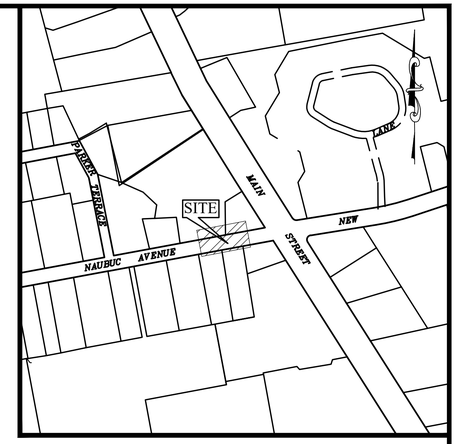
DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

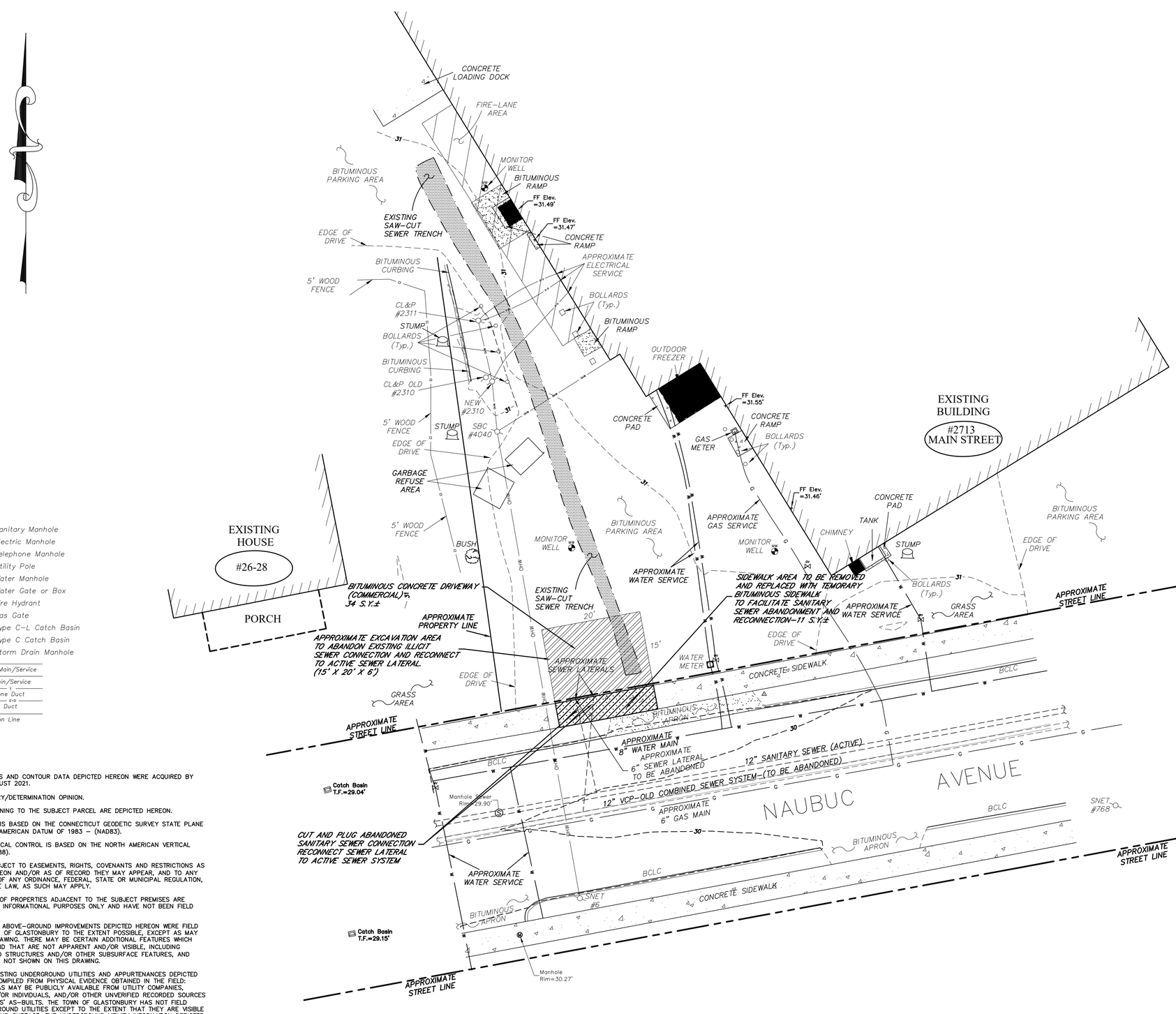
TOWN OF GLASTONBURY INCORPORATED 1693 CONNECTICUT SEAL

Storm Drainage Rehabilitation
located on
NAUBUC AVENUE
GLASTONBURY,
CONNECTICUT

SHEET NO.
10
OF 13



LOCATION MAP
SCALE: 1"=250



LEGEND

- Existing Sanitary Manhole
- Existing Electric Manhole
- Existing Telephone Manhole
- Existing Utility Pole
- Existing Water Manhole
- Existing Water Gate or Box
- Existing Fire Hydrant
- Existing Gas Gate
- Existing Type C-L Catch Basin
- Existing Type C Catch Basin
- Existing Storm Drain Manhole

Existing Water Main/Service
Existing Gas Main/Service
Existing Telephone Duct
Existing Electric Duct
Existing Irrigation Line

NOTE:

LOCATION OF FEATURES AND CONTOUR DATA DEPICTED HEREON WERE ACQUIRED BY FIELD SURVEY ON AUGUST 2021.

THERE IS NO BOUNDARY/DETERMINATION OPINION.

NO EASEMENTS PERTAINING TO THE SUBJECT PARCEL ARE DEPICTED HEREON.

HORIZONTAL CONTROL IS BASED ON THE CONNECTICUT GEODETIC SURVEY STATE PLANE COORDINATES, NORTH AMERICAN DATUM OF 1983 – (NAD83).

ELEVATIONS AND VERTICAL CONTROL IS BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988 – (NAVD88).

THIS PROPERTY IS SUBJECT TO EASEMENTS, RIGHTS, COVENANTS AND RESTRICTIONS AS MAY BE DEPICTED HEREON AND/OR AS OF RECORD THEY MAY APPEAR, AND TO ANY AND ALL PROVISIONS OF ANY ORDINANCE, FEDERAL, STATE OR MUNICIPAL REGULATION, OR PUBLIC OR PRIVATE LAW, AS SUCH MAY APPLY.

THE BOUNDARY LINES OF PROPERTIES ADJACENT TO THE SUBJECT PREMISES ARE DEPICTED HEREON FOR INFORMATIONAL PURPOSES ONLY AND HAVE NOT BEEN FIELD VERIFIED.

THE LOCATION OF THE ABOVE-GROUND IMPROVEMENTS DEPICTED HEREON WERE FIELD VERIFIED BY THE TOWN OF GLASTONBURY TO THE EXTENT POSSIBLE, EXCEPT AS MAY BE NOTED ON THIS DRAWING. THERE MAY BE CERTAIN ADDITIONAL FEATURES WHICH EXIST ON THIS SITE AND THAT ARE NOT APPARENT AND/OR VISIBLE, INCLUDING CERTAIN UNDERGROUND STRUCTURES AND/OR OTHER SUBSURFACE FEATURES, AND WHICH ARE THEREFORE NOT SHOWN ON THIS DRAWING.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES AND APPURTENANCES DEPICTED HEREON HAVE BEEN COMPILED FROM PHYSICAL EVIDENCE OBTAINED IN THE FIELD; MAPPING BY OTHERS AS MAY BE PUBLICLY AVAILABLE FROM UTILITY COMPANIES, OTHER AGENCIES AND/OR INDIVIDUALS, AND/OR OTHER UNVERIFIED RECORDED SOURCES SUCH AS CONTRACTORS' AS-BUILTS. THE TOWN OF GLASTONBURY HAS NOT FIELD LOCATED THE UNDERGROUND UTILITIES EXCEPT TO THE EXTENT THAT THEY ARE VISIBLE AT THE EXISTING GROUND SURFACE. THE UNDERGROUND UTILITY INFORMATION DEPICTED ON THIS DRAWING MUST BE CONSIDERED APPROXIMATE IN NATURE, MAY BE INCOMPLETE, AND MAY NOT REPRESENT ALL UNDERGROUND UTILITIES IN THE AREA, EITHER CURRENTLY IN SERVICE OR ABANDONED.

ALL UTILITY INFORMATION AND DATA SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS ARE COMPILED FROM MAPS AND DATA FURNISHED BY OTHERS. ANY SUCH INFORMATION SHOULD NOT BE CONSTRUED AS ACCURATE OR COMPLETE AND THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION.

THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREON ARE BASED ON FIELD LOCATIONS AND BY INFORMATION PROVIDED BY OTHERS. THEIR TRUE LOCATIONS MAY VARY FROM THOSE INDICATED, AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. IF APPLICABLE, UTILIZE THE "CALL BEFORE YOU DIG" NUMBER (1-800-922-4455). TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION, REPAIR OR DESIGN.

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.
IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

GENERAL NOTES:

1.1. The Town of Glastonbury, Engineering Division is seeking bids to disconnect an illicit sanitary sewer lateral from an old combined sanitary/storm drainage system and reconnect this pipe to the proper sanitary sewer lateral located on the property at 2713 Main Street. Based on a recent CCTV video inspection of the old combined sewer/storm drainage system within Naubuc Avenue performed by Town of Glastonbury Personnel, it appears a sewer discharge coming from the building located at 2713 Main Street remains connected to the abandoned combined system. Contractor will be required to perform excavation down to the depth of both lateral connection points within the property, disconnect and properly abandon the illicit sewer lateral connection and reconnect the illicit sewer connection to the existing sewer lateral. Additional related work includes saw-cut, removal and disposal of existing pavement within the excavation limits, trench excavation including required shoring and dewatering, backfill and consolidation, removal of existing 8" concrete sidewalk and replacement with temporary bituminous sidewalk, permanent pavement repair, and restoration of all disturbed areas to be performed as outlined below.

1.2. Prior to the commencement of any work, Contractor is responsible to coordinate and provide work area mark-out for C.B.Y.D. Contractor is also required to obtain a Sewer Permit from the Engineering Division prior to commencement of any work. Permit fee's will be waived due to the fact this is a Town administered project.

1.3. Prior to commencement of any work, the Contractor is responsible to notify and coordinate the anticipated work schedule with all tenant businesses within the building located at 2713 Main Street with regards to the required work area and parking along with the anticipated sewer service interruption during construction. Contractor shall implement construction means and methods that provide minimal interruption as practical to the existing sewer service.

1.4. Contractor is responsible to saw-cut, remove, and dispose of the existing pavement within the limits of the proposed excavation. Saw-cutting is to be performed utilizing neat, straight lines. All excavated material not to be reused shall be removed off-site and disposed of at a proper facility. Work associated with item "Earth Excavation (Naubuc Storm Disconnect)" will not be measured for payment. Payment for this work will be at the quoted price per cubic yard for "Earth Excavation (Naubuc Storm Disconnect)", which price shall include, pavement saw cutting, removal and disposal of existing pavement, excavation to the depths required and backfilling to pavement structure, compaction, shoring and dewatering, all equipment, tools, and labor incidental to the completion of this work.

1.5. Contractor is responsible to saw-cut, remove, dispose and replace any existing concrete sidewalk located adjacent to the limits of the proposed excavation, if required, to facilitate the abandonment and reconnection of the sewer lateral. Temporary bituminous sidewalk shall be installed upon completion of the required work. Payment for this work will be at the bid price per cubic yard for "Earth Excavation (Naubuc Storm Disconnect)", which price shall include, saw cutting, removal and disposal of existing sidewalk, excavation to the depths required and backfilling, compaction, shoring and dewatering, all equipment, tools, and labor incidental to the completion of this work.

1.6. Contractor is required to perform all excavation necessary to the depth and limits that completely expose the two sewer lateral locations. All required shoring and dewatering (if necessary) shall be included within the cost of the work. Additional depth and limits may be required by the Engineer upon assessment of the disconnection/reconnection horizontal and vertical location.

1.7. Contractor is required to disconnect, cap and abandon the illicit sewer lateral connection point to the old combined sewer/storm system within the property and reconnect the illicit sewer lateral to the proper sewer lateral connection point within the property. Contractor shall be responsible to verify both existing sewer lateral elevations to achieve connection to the proper sewer lateral by gravity. Limits of excavation may be required to be expanded in order to re-lay portions of the illicit sewer lateral connection to make the proper connection to the proper existing sewer lateral connection point located on the property. Contractor is required to furnish and install all required 6" SDR PVC piping, elbows, wyes, fittings, Fernco's, etc to make the proper reconnection to the proper sewer lateral within the property. Work associated with cutting and plugging of the abandoned sewer lateral will be covered under the lump sum item "Cut and Plug Abandoned Sanitary Sewer Lateral". Work associated with the installation of the new 6" PVC sanitary sewer lateral connection to the active sanitary sewer will be covered under the bid price be linear foot of "Sanitary Sewer Lateral Connections (PVC)". Payment for this work will be at the quoted price per linear foot of "Sanitary Sewer Lateral Connections (PVC)", which price shall include, trench excavation, backfilling and consolidation, relaying and reconnection of existing illicit sewer connection to the active sanitary sewer lateral connection, furnishing and installing all 6" SDR PVC piping, elbows, wyes, fittings, Fernco's, etc. to make the proper reconnection , bedding, trench backfill and compaction, all equipment, tools, and labor incidental to the completion of this work.

1.8. Contractor is responsible to furnish and install suitable backfill and provide compaction according to Town standards in conformance with the requirements depicted on the attached "Typical Trench Detail" or as directed by the Engineer. Reuse of the existing excavated material is at the discretion of the Engineer. Suitable backfill shall be placed at a maximum of 2' lifts and compacted to meet 95% density throughout the entire trench/excavation envelope to the existing subgrade elevation.

1.9. Contractor is required to furnish and install process aggregate base and full depth permanent bituminous concrete pavement patch required to match existing parking lot cross section. Work associated with this item will be covered under item "Bituminous Concrete Driveway-(Commercial). Upon completion of the work, Contractor is responsible to leave a clean site free of construction debris. Site is to be restored to its original state.

1.10. The normal work schedule shall be Monday through Friday, 7:00 am – 4:30 pm.

DRAWING ISSUE STATUS		
1.	-----	----
NO.	DESCRIPTION	DATE

PW-2713

TOWN OF GLASTONBURY CAD ENGINEERING

SCALE: AS SHOWN	DATE:
DRAWN BY: S.M.L.	08-10-2021
CHECKED BY: S.M.B.	----
APPROVED BY: D.A.P.	----
ST. FILE:	

DO NOT SCALE THIS DRAWING. USE THE DIMENSIONS GIVEN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE.

GRID NORTH

TOWN OF GLASTONBURY INCORPORATED 1693 CONNECTICUT SEAL

STORM SEWER DISCONNECTION
LOCATED ON THE PROPERTY OF
M K LEVENSON + GLASTONBURY TRUST
#2713 MAIN STREET
GLASTONBURY, CONNECTICUT

SHEET NO. 11 OF 13

PROJECT NARRATIVE:
THIS PROJECT INCLUDES STORM DRAINAGE AND SANITARY SEWER REHABILITATION AND CONSTRUCTION LOCATED ON VARIOUS STREETS UNDER THE PROJECTS LISTED BELOW:

PW-2119-ADDISON ROAD SANITARY SEWER EXTENSION PROJECT:
WORK UNDER THIS PROJECT CONSISTS OF THE INSTALLATION OF 140 L.F OF 8" PVC SANITARY SEWER MAIN TERMINATING AT A NEW SANITARY SEWER MANHOLE INCLUDING THE INSTALLATION OF OF TWO (2) 6" PVC SANITARY SEWER LATERALS TO PROVIDE FUTURE SANITARY SEWER SERVICE TO #235 AND #242 ADDISON ROAD.

PW-2124-CEDAR RIDGE TERRACE DRAINAGE REHABILITATION PROJECT:
WORK UNDER THIS PROJECT CONSISTS OF THE REMOVAL AND REPLACEMENT OF EXISTING CATCH BASINS, INSTALLATION OF A NEW STORM MANHOLE ALONG WITH THE REMOVAL OF THE EXISTING 15" AND 18" C.M.P. STORM DRAINAGE PIPE AND REPLACEMENT WITH 15" AND 18" R.C.P. WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.

PW-2106-CONCORD STREET DRAINAGE REHABILITATION PROJECT:
WORK UNDER THIS PROJECT CONSISTS OF THE REMOVAL AND REPLACEMENT OF EXISTING CATCH BASINS, INSTALLATION OF NEW STORM DRAINAGE STRUCTURES ALONG WITH THE REMOVAL OF THE EXISTING STORM DRAINAGE SYSTEM AND INSTALLATION OF NEW 15" AND 12" R.C.P. WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.

PW-2118-NAUBUC AVENUE DRAINAGE REHABILITATION PROJECT:
WORK UNDER THIS PROJECT CONSISTS OF THE ABANDONMENT OF APPROXIMATELY 2,000 L.F. OF 15" STORM DRAINAGE PIPE/STRUCTURES UTILIZING A CONTROLLED LOW STRENGTH GROUT MATERIAL ALONG WITH THE REMOVAL AND AND RE-INSTALLATION OF TWO (2) STORM DRAINAGE STRUCTURES/LATERAL CROSSINGS DISCHARGING INTO THE EXISTING STORM DRAINAGE SYSTEM WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.

PW-2713-NAUBUC AVENUE SEWER DISCONNECTION PROJECT:
WORK UNDER THIS PROJECT CONSISTS OF THE ABANDONMENT OF AN EXISTING 6" SANITARY SEWER LATERAL CONNECTION DISCHARGING TO THE STORM DRAINAGE SYSTEM AND RE-CONNECTION TO THE EXISTING 8" SANITARY SEWER MAIN WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.

CONSTRUCTION SEQUENCE: PW-2119-ADDISON ROAD SANITARY SEWER EXTENSION PROJECT
1. CONTRACTOR TO SAW-CUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN THE PROJECT LIMITS.
2. CONTRACTOR TO FURNISH AND INSTALL 140 L.F. OF 8" PVC SANITARY SEWER MAIN TERMINATING AT A NEW SANITARY SEWER MANHOLE INCLUDING THE INSTALLATION OF OF TWO (2) 6" PVC SANITARY SEWER LATERALS TO PROVIDE FUTURE SANITARY SEWER SERVICE TO #235 AND #242 ADDISON ROAD.
3. CONTRACTOR TO BACKFILL AND COMPACT TRENCH LIMITS AND PROPOSED SANITARY SEWER MANHOLE AREA OF EXCAVATION TO PAVEMENT SUB-GRADE ELEVATION FOR INSTALLATION OF BITUMINOUS CONCRETE PATCH-FULL DEPTH.
4. CONTRACTOR TO FURNISH AND INSTALL BITUMINOUS CONCRETE PATCHING-FULL DEPTH TO MATCH THE EXISTING PAVEMENT STRUCTURE.
5. TOTAL AREA OF DISTURBANCE FOR THESE IMPROVEMENTS IS 346± S.F./ 0.01± ACRES.

CONSTRUCTION SEQUENCE: PW-2124-CEDAR RIDGE TERRACE DRAINAGE REHABILITATION PROJECT
1. CONTRACTOR TO SAW-CUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN THE PROJECT LIMITS.
2. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING DRAINAGE STRUCTURES AND EXISTING 15" AND 18" C.M.P. STORM DRAINAGE PIPE. CONTRACTOR TO FURNISH AND INSTALL NEW DRAINAGE STRUCTURES AND 15" AND 18" R.C.P. STORM DRAINAGE PIPE WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.
3. CONTRACTOR TO BACKFILL AND COMPACT TRENCH LIMITS AND PROPOSED STORM DRAINAGE STRUCTURE AREAS OF EXCAVATION TO PAVEMENT SUB-GRADE ELEVATION FOR INSTALLATION OF BITUMINOUS CONCRETE PATCH-FULL DEPTH.
4. CONTRACTOR TO FURNISH AND INSTALL BITUMINOUS CONCRETE PATCHING-FULL DEPTH TO MATCH THE EXISTING PAVEMENT STRUCTURE.
5. CONTRACTOR TO FURNISH AND INSTALL 6" BITUMINOUS CONCRETE LIP CURBING WITHIN THE LIMITS DEPICTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
6. TOTAL AREA OF DISTURBANCE FOR THESE IMPROVEMENTS IS 3,128± S.F./ 0.07± ACRES.

CONSTRUCTION SEQUENCE: PW-2106-CONCORD STREET DRAINAGE REHABILITATION PROJECT
1. CONTRACTOR TO SAW-CUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN THE PROJECT LIMITS.
2. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING DRAINAGE STRUCTURES AND EXISTING 10" AND 12" CLAY TILE STORM DRAINAGE PIPE AS DEPICTED ON THE PLANS OR DIRECTED BY THE ENGINEER. CONTRACTOR TO FURNISH AND INSTALL NEW DRAINAGE STRUCTURES AND 12" AND 15" R.C.P. STORM DRAINAGE PIPE WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.
3. CONTRACTOR TO BACKFILL AND COMPACT TRENCH DISTURBANCE LIMITS AND PROPOSED STORM DRAINAGE STRUCTURE AREAS OF EXCAVATION TO PAVEMENT SUB-GRADE ELEVATION FOR INSTALLATION OF TEMPORARY PAVEMENT REPAIR.
4. CONTRACTOR TO FURNISH AND INSTALL TEMPORARY PAVEMENT REPAIR TO MATCH THE EXISTING PAVEMENT STRUCTURE.
5. CONTRACTOR TO FURNISH AND INSTALL 6" BITUMINOUS CONCRETE LIP CURBING WITHIN THE LIMITS DEPICTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
6. TOTAL AREA OF DISTURBANCE FOR THESE IMPROVEMENTS IS 1,486± S.F./ 0.03± ACRES.

CONSTRUCTION SEQUENCE: PW-2118-NAUBUC AVENUE DRAINAGE REHABILITATION PROJECT
1. CONTRACTOR TO SAW-CUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT WITHIN THE PROJECT LIMITS.
2. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING CATCH BASIN STRUCTURES AND EXISTING STORM DRAINAGE PIPE. CONTRACTOR TO FURNISH AND INSTALL NEW CATCH BASIN/MANHOLE STRUCTURES AND 12" DUCTILE IRON STORM DRAINAGE PIPE WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.
3. CONTRACTOR TO BACKFILL AND COMPACT TRENCH LIMITS AND PROPOSED STORM DRAINAGE STRUCTURE AREAS OF EXCAVATION TO PAVEMENT SUB-GRADE ELEVATION FOR INSTALLATION OF BITUMINOUS CONCRETE PATCH-FULL DEPTH.
4. CONTRACTOR TO FURNISH AND INSTALL BITUMINOUS CONCRETE PATCHING-FULL DEPTH TO MATCH THE EXISTING PAVEMENT STRUCTURE.
5. CONTRACTOR TO ABANDON APPROXIMATELY 2,000 L.F. OF 15" STORM DRAINAGE PIPE/STRUCTURES UTILIZING A CONTROLLED LOW STRENGTH GROUT MATERIAL WITHIN THE LIMITS AND LOCATIONS DEPICTED ON THE APPROVED PLANS.
6. TOTAL AREA OF DISTURBANCE FOR THESE IMPROVEMENTS IS 279± S.F./ 0.01± ACRES.

PROJECT SPECIFIC SEDIMENTATION AND EROSION CONTROL PLAN
CONSTRUCTION ACTIVITIES OF CONCERN RELATIVE TO THE PROTECTION OF ADJACENT WETLANDS AND WATERCOURSES FROM SEDIMENTATION ARE AS FOLLOWS:

1. DEWATERING: OPEN TRENCH EXCAVATIONS WILL NEED TO BE DEWATERED AS NECESSARY FOR PROPER INSTALLATION OF THE PROPOSED PIPES. IN THESE AREAS, ALL WATER REMOVED FROM THE TRENCH SHALL BE ADEQUATELY TREATED PRIOR TO DISCHARGE USING MEASURES DESCRIBED IN SECTION 5-13 OF THE 2002 CT GUIDELINES FOR EROSION AND SEDIMENT CONTROL. THIS MAY INCLUDE A STONE SUMP AND STANDPIPE FOR PUMP INTAKE PROTECTION, AND A DIRT BAG OR PUMPING SETTLING BASIN FOR TREATMENT OF THE PUMPED WATER PRIOR TO DISCHARGE.

2. STOCKPILING: EXCAVATED MATERIAL SHALL NOT BE STOCKPILED ADJACENT TO STORM DRAIN INLETS, WETLANDS, OR WATERCOURSES. WHEN IT IS NECESSARY BASED ON THE PROPOSED METHODS OF CONSTRUCTION TO STAGE EXCAVATED MATERIAL FOR SHORT DURATIONS IN THE VICINITY OF STORM DRAIN INLETS, THESE INLETS SHALL BE PROPERLY PROTECTED AS DESCRIBED ON THE PLANS. LONGER DURATION STOCKPILING OF MATERIAL, WHEN NECESSARY, SHALL BE ONLY IN LOCATIONS APPROVED IN ADVANCE BY THE ENGINEER, AND SUCH STOCKPILES SHALL BE RINGED WITH A SEDIMENTATION CONTROL SYSTEM.

3. DISTURBED AREAS: LIMITS OF DISTURBANCE SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED PLAN. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH THE FINAL SURFACE TREATMENT AS SOON AS POSSIBLE AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. DISTURBED AREAS WITH STEEP OR LONG SLOPES AND OTHER AREAS WITH SIGNIFICANT POTENTIAL FOR CAUSING SEDIMENTATION SHALL BE PROTECTED WITH TEMPORARY STRAW MULCH, WOOD CHIPS, EROSION CONTROL MATTING, OR OTHER SUITABLE MATERIALS PRIOR TO SIGNIFICANT FORECASTED RAIN STORM EVENTS TO REDUCE EROSION POTENTIAL.

4. DRAINAGE WAYS: CONSTRUCTION OF DITCHES, CHANNELS, THAT ACTIVELY CONVEY FLOW SHALL BE PERFORMED SUCH THAT THE PORTION OF DRAINAGE WAY DISTURBED DURING A GIVEN DAY IS COMPLETED WITH THE PERMANENT LINING BY DAYS END, OR OTHERWISE AS NECESSARY TO PROVIDE FOR TEMPORARY BYPASS OF STORMWATER AND ENSURE THAT DOWNSTREAM WETLAND AREAS ARE PROTECTED FROM SEDIMENTATION AND EROSION OF THE CHANNEL.

5. CULVERTS CONVEYING WATERCOURSES: CULVERTS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO PROVIDE A TEMPORARY BYPASS OF THE WORK AREA THROUGH A TEMPORARY PIPE OR OTHER MEANS APPROVED BY THE ENGINEER AT THE END OF EACH WORK DAY OR PRIOR TO THE NEXT FORECASTED STORM EVENT AS REQUIRED TO CONVEY STORMWATER THROUGH THE WORK AREA AND ENSURE THAT DOWNSTREAM WETLAND AREAS ARE PROTECTED FROM SEDIMENTATION AND EROSION.

6. TRAVEL AREAS: A STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SHOWN ON THE PLANS AS REQUIRED TO PREVENT SOIL FROM BEING TRACKED OUT OF THE CONSTRUCTION SITE AND INTO THE ROAD. THIS CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS OF THE PROJECT HAVE BEEN RESTORED.

7. SEVERE WEATHER CONTINGENCY PLAN: IN ADVANCE OF A SEVERE WEATHER EVENT, ALL EROSION CONTROLS DESCRIBED ABOVE AND ELSEWHERE ON THE PLANS SHALL BE INSPECTED AND ADJUSTED AS NECESSARY.

PROJECT SPECIFIC SEDIMENTATION AND EROSION CONTROL PLAN
CONSTRUCTION ACTIVITIES OF CONCERN RELATIVE TO THE PROTECTION OF ADJACENT WETLANDS AND WATERCOURSES FROM SEDIMENTATION ARE AS FOLLOWS:

1. TRAVEL AREAS: A STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SHOWN ON THE PLANS AS REQUIRED TO PREVENT SOIL FROM BEING TRACKED OUT OF THE CONSTRUCTION SITE AND INTO THE ROAD. THIS CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS OF THE PROJECT HAVE BEEN RESTORED.

2. DEWATERING: OPEN TRENCH EXCAVATIONS WILL NEED TO BE DEWATERED AS NECESSARY FOR PROPER INSTALLATION OF THE PROPOSED PIPES. IN THESE AREAS, ALL WATER REMOVED FROM THE TRENCH SHALL BE ADEQUATELY TREATED PRIOR TO DISCHARGE USING MEASURES DESCRIBED IN SECTION 5-13 OF THE 2002 CT GUIDELINES FOR EROSION AND SEDIMENT CONTROL. THIS MAY INCLUDE A STONE SUMP AND STANDPIPE FOR PUMP INTAKE PROTECTION, AND A DIRT BAG OR PUMPING SETTLING BASIN FOR TREATMENT OF THE PUMPED WATER PRIOR TO DISCHARGE.

3. STOCKPILING: EXCAVATED MATERIAL SHALL NOT BE STOCKPILED WITHIN WETLAND OR FLOOD ZONE AREAS OR ADJACENT TO STORM DRAIN INLETS. WHEN IT IS NECESSARY BASED ON THE PROPOSED METHODS OF CONSTRUCTION TO STAGE EXCAVATED MATERIAL FOR SHORT DURATIONS IN FLOOD ZONE OR WETLAND AREAS, THESE MATERIALS SHALL BE ADEQUATELY PROTECTED AS DIRECTED BY THE ENGINEER, AND A PLAN SHALL BE IN PLACE TO REMOVE THE MATERIAL PRIOR TO THE NEXT FORECASTED SEVERE WEATHER EVENT. LONGER DURATION STOCKPILING OF MATERIAL, WHEN NECESSARY, SHALL BE ONLY IN THE APPROVED STAGING AREA SHOWN ON THE PLANS, AND SUCH STOCKPILES SHALL BE RINGED WITH A SEDIMENTATION CONTROL SYSTEM.

4. DISTURBED AREAS: LIMITS OF DISTURBANCE SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED PLAN. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH THE FINAL SURFACE TREATMENT AS SOON AS POSSIBLE AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED. DISTURBED AREAS WITH STEEP OR LONG SLOPES AND OTHER AREAS WITH SIGNIFICANT POTENTIAL FOR CAUSING SEDIMENTATION SHALL BE PROTECTED WITH TEMPORARY STRAW MULCH, WOOD CHIPS, EROSION CONTROL MATTING, OR OTHER SUITABLE MATERIALS PRIOR TO SIGNIFICANT FORECASTED RAIN STORM EVENTS TO REDUCE EROSION POTENTIAL.

5. DRAINAGE WAYS: CONSTRUCTION OF DITCHES, CHANNELS, THAT ACTIVELY CONVEY FLOW SHALL BE PERFORMED SUCH THAT THE PORTION OF DRAINAGE WAY DISTURBED DURING A GIVEN DAY IS COMPLETED WITH THE PERMANENT LINING BY DAYS END, OR OTHERWISE AS NECESSARY TO PROVIDE FOR TEMPORARY BYPASS OF STORMWATER AND ENSURE THAT DOWNSTREAM WETLAND AREAS ARE PROTECTED FROM SEDIMENTATION AND EROSION OF THE CHANNEL.

6. CULVERTS CONVEYING WATERCOURSES: CULVERTS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO PROVIDE A TEMPORARY BYPASS OF THE WORK AREA THROUGH A TEMPORARY PIPE OR OTHER MEANS APPROVED BY THE ENGINEER AT THE END OF EACH WORK DAY AND PRIOR TO THE NEXT FORECASTED STORM EVENT AS REQUIRED TO CONVEY STORMWATER THROUGH THE WORK AREA AND ENSURE THAT DOWNSTREAM WETLAND AREAS ARE PROTECTED FROM SEDIMENTATION AND EROSION.

7. SEVERE WEATHER CONTINGENCY PLAN: IN ADVANCE OF A SEVERE WEATHER EVENT, ALL EROSION CONTROLS DESCRIBED ABOVE AND ELSEWHERE ON THE PLANS SHALL BE INSPECTED AND ADJUSTED AS NECESSARY. THE MAJORITY OF THE WORK AREA FOR THIS PROJECT IS BELOW THE 100 YEAR FLOOD ELEVATION FOR SALMON BROOK. CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND FLOOD WARNINGS AND ADJUST OPERATIONS ACCORDINGLY. ALL EQUIPMENT AND STOCKPILED MATERIALS SHALL BE REMOVED FROM THE FLOOD ZONE PRIOR TO AN ANTICIPATED FLOOD EVENT AS PROJECTED FLOOD ELEVATIONS REQUIRE. WORK AREAS SHALL BE STABILIZED AS REQUIRED TO PROVIDE A STABLE OVERFLOW PATH FOR FLOOD WATER THROUGH OR AROUND THE WORK AREA.

RESPONSIBLE PARTIES:
THE CONTRACTOR SHALL PROVIDE A REPRESENTATIVE WHO IS RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENTATION CONTROL PLAN. THIS INCLUDES THE INSTALLATION AND MAINTENANCE OF ALL CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN.

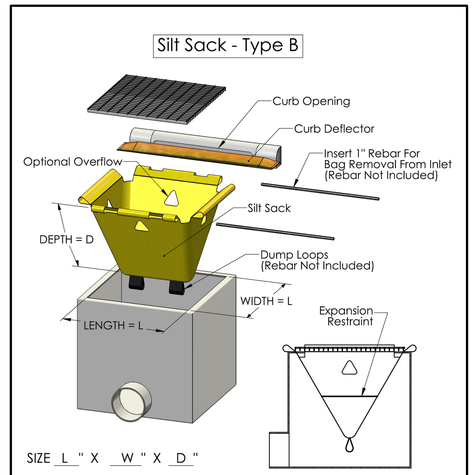
GENERAL SEDIMENTATION AND EROSION CONTROL REQUIREMENTS:

THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.

IN GENERAL, ALL ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS, AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

CONSTRUCTION METHODS, IN GENERAL, SHALL BE IN ACCORDANCE WITH THE PROVISIONS SET FORTH IN THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (2002) BY THE STATE OF CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION.

1. ALL CONTROL MEASURES SHALL BE INSTALLED AS NOTED ABOVE AND AS SHOWN ON THE PLANS.
2. ALL CONTROL MEASURES SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF ANY WORK, INCLUDING PRE-CONSTRUCTION CLEARING AND GRUBBING.
3. ALL CONTROL MEASURES SHALL BE MAINTAINED AND UPGRADED AS REQUIRED TO ACHIEVE PROPER SEDIMENT CONTROL THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL DISTURBED AREAS HAVE BEEN THOROUGHLY STABILIZED.
4. NO CONTROL MEASURES SHALL BE REMOVED WITHOUT APPROVAL FROM THE ENGINEER.
5. ADDITIONAL CONTROL MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PERIOD IF DEEMED NECESSARY BY THE ENGINEER.
6. THE LIMITS OF CLEARING, GRADING AND DISTURBANCE, AS SHOWN ON THE PLAN(S), SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE THE LIMITS OF CLEARING SHALL REMAIN TOTALLY UNDISTURBED.
7. ANY CONTROL MEASURES RETAINING SEDIMENT OVER 1/2 THEIR HEIGHT SHALL HAVE THE SEDIMENT IMMEDIATELY REMOVED, AND ALL DAMAGED CONTROL MEASURES SHALL BE REMOVED AND REPLACED.
8. ALL NEW AND EXISTING CATCH BASINS LOCATED WITHIN THE PROJECT LIMITS SHALL BE PROTECTED WITH A SEDIMENTATION CONTROL SYSTEM IN GRASSED AREAS OR WITH A SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN IN PAVED AREAS UNTIL ALL DISTURBED AREAS HAVE BEEN THOROUGHLY STABILIZED.
9. SEDIMENT REMOVED FROM CONTROL MEASURES AND DRAINAGE FACILITIES SHALL BE DISPOSED OF IN A MANNER THAT IS CONSISTENT WITH STATE AND LOCAL REGULATIONS.
10. THE PLANTING SEASONS FOR THE SPECIFIED SEED MIXTURE SHALL BE AS DEFINED IN THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, UNLESS DIRECTED OTHERWISE BY THE TOWN ENVIROMENTAL PLANNER. OUTSIDE OF THESE SPECIFIED DATES, AREAS WILL BE STABILIZED WITH HAYBALE CHECK DAMS, FILTER FABRIC, OR WOODCHIP MULCH AS REQUIRED TO CONTROL EROSION.



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2831 Cardwell Road
Richmond, VA 23234
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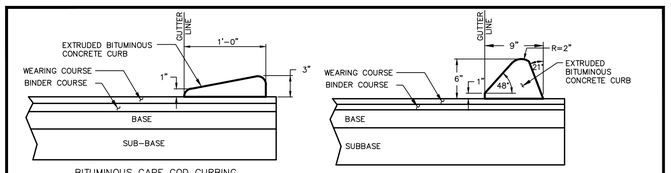
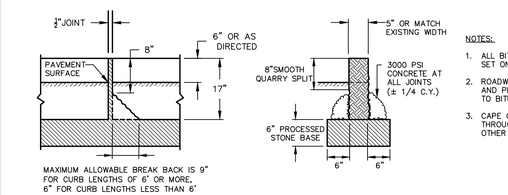
SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN





VERTICAL GRANITE CURBING

NOTES:
1. ALL BITUMINOUS CURBING IS TO BE SET ON THE WEARING COURSE.
2. ROADWAY SHALL BE SWEPT CLEAN AND PROPERLY TACK COATED PRIOR TO BITUMINOUS CURB INSTALLATION.
3. CAPE COD CURB SHALL BE INSTALLED THROUGHOUT ALL CUL-DE-SACS AND OTHER AREAS AS DIRECTED.

SCALE : NONE	
DRAWN BY: SR	
CHECKED BY: SMB	
APPROVED BY: DAP	
LAST REVISED:	3/28/2017

TOWN OF GLASTONBURY
DEPARTMENT OF PHYSICAL SERVICES
ENGINEERING DIVISION

TYPICAL CURBING DETAILS

PLATE NO. 5

PW-2119
PW-2124
PW-2106
PW-2118

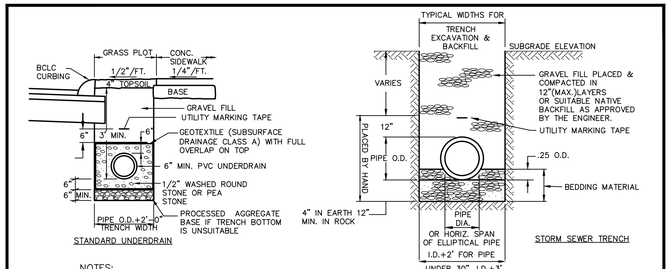
NO.	DESCRIPTION	DATE
	DRAWING ISSUE STATUS	

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	4-2-2020
CHECKED BY: S.M.B.	4-27-2020
APPROVED BY: D.A.P.	4-27-2020
ST. FILE:	

MANUAL REVISIONS TO THIS DOCUMENT ARE PROHIBITED. ALL REVISIONS MUST BE PERFORMED ON CADD FILE SHOWN IN THE LEFT MARGIN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE AT (860) 652-7735.

NOTES AND DETAIL SHEET
Storm Drainage and Sanitary Sewer Rehabilitation
located on
ADDISON ROAD, CEDAR RIDGE TERRACE, CONCORD STREET AND NAUBUC AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 12 OF 13



STANDARD UNDERDRAIN

NOTES:

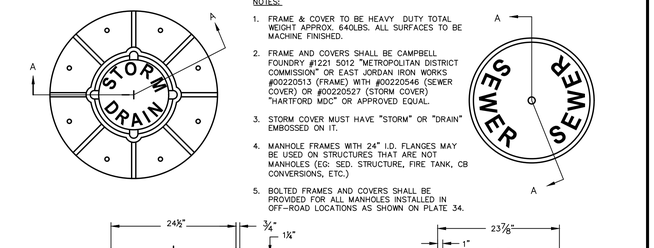
1. PERFORATIONS TO BE PLACED UP OR DOWN AS SPECIFIED BY THE ENGINEER
2. HOLES ARE TO BE 1/2" DIA. OR 5/8" DIA.
3. PIPE SHALL BE MIN. 6" DIA.
4. SLOTTED REINFORCED CONC. PIPE (SRCP) CAN BE USED AS A COMBINED STORM AND UNDERDRAIN SYSTEM.
5. ALL UNDERDRAIN TO BE OUTLETTED DIRECTLY INTO A CATCH BASIN.THE TOP OF THE UNDERDRAIN PIPE IS TO MATCH THE TOP OF THE OUTLET PIPE.
6. INCLUDE CLEANOUTS AT SPACING NOT TO EXCEED 150 FEET.

STORM SEWER TRENCH

NOTES:

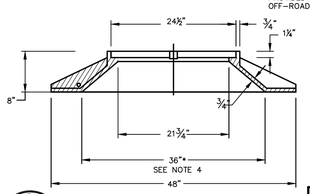
1. ALL STORM DRAIN INSTALLED WITHIN TOWN RIGHT-OF-WAY SHALL BE CONCRETE PIPE. ALL CONCRETE PIPE SHALL BE MINIMUM CLASS IV UNLESS OTHERWISE SPECIFIED.
2. USE WATERTIGHT RUBBER GASKETS IN ALL PIPE JOINTS.
3. PIPE BEDDING MATERIALS SHALL BE SAND OR SANDY SOIL, ALL OF WHICH PASSES 3/8" SIEVE AND <10% PASSING NO. 200 SIEVE.
4. WHEN GROUND WATER IS ENCOUNTERED, 3/4" STONE SHALL BE SUBSTITUTED FOR PIPE BEDDING, AND BACKFILLED TO 12" ABOVE THE TOP OF PIPE.

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	TRENCH FOR STORM DRAIN AND UNDER DRAIN
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 20

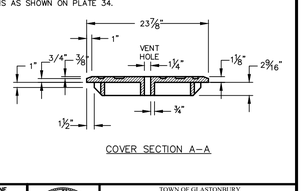


NOTES:

1. FRAME & COVER TO BE HEAVY DUTY TOTAL WEIGHT APPROX. 640LBS. ALL SURFACES TO BE MACHINE FINISHED.
2. FRAME AND COVERS SHALL BE CAMPBELL FOUNDRY #1221 5012 "METROPOLITAN DISTRICT COMMISSION" OR EAST JORDAN IRON WORKS #00220513 (FRAME) WITH #00220546 (SEWER COVER) OR #00220527 (STORM COVER) "HARTFORD MDC" OR APPROVED EQUAL.
3. STORM COVER MUST HAVE "STORM" OR "DRAIN" EMBOSSED ON IT.
4. MANHOLE FRAMES WITH 24" I.D. FLANGES MAY BE USED ON STRUCTURES THAT ARE NOT MANHOLES (EG: SED. STRUCTURE, FIRE TANK, CB CONVERSIONS, ETC.)
5. BOLTED FRAMES AND COVERS SHALL BE PROVIDED FOR ALL MANHOLES INSTALLED IN OFF-ROAD LOCATIONS AS SHOWN ON PLATE 34.

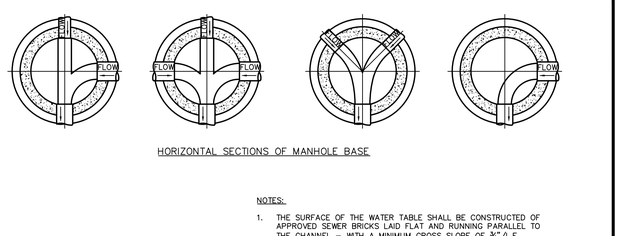


FRAME SECTION A-A



COVER SECTION A-A

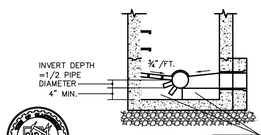
SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	MANHOLE FRAME AND COVER
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 33



HORIZONTAL SECTIONS OF MANHOLE BASE

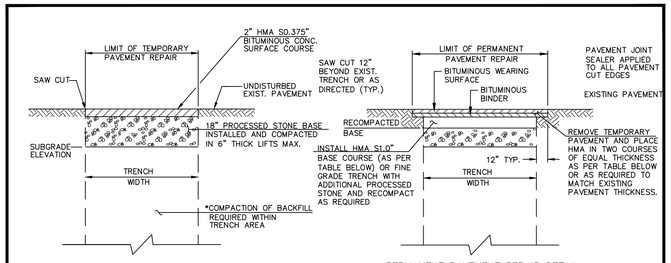
NOTES:

1. THE SURFACE OF THE WATER TABLE SHALL BE CONSTRUCTED OF APPROVED SEWER BRICKS LAID FLAT AND RUNNING PARALLEL TO THE CHANNEL – WITH A MINIMUM CROSS SLOPE OF ¾"/L.F.
2. THE BRICKS THAT FORM THE CHANNEL SHALL BE LAID WITH THE SIDE OF THE BRICKS EXPOSED IN THE CHANNEL.
3. THE TOP COURSE OF BRICKS FORMING THE CHANNEL SHALL BE LAID PERPENDICULAR TO THE CHANNEL.
4. THERE SHALL BE A SMOOTH TRANSITION FROM INLET TO OUTLET.
5. PRECAST INVERTS ARE NOT ACCEPTABLE.



VERTICAL – SECTION THRU MANHOLE

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	MANHOLE INVERTS (STORM AND SANITARY)
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 35



TEMPORARY PAVEMENT REPAIR DETAIL

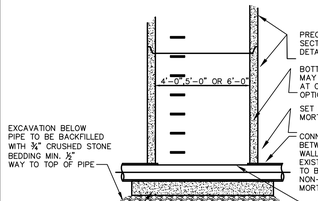
PERMANENT PAVEMENT REPAIR DETAIL

NOTES:

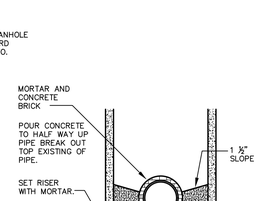
1. PROCESS STONE BASE SHALL BE CRUSHED TRAP ROCK CONFORMING TO ARTICLE M.05.01 OF THE FORM 817 AND TOWN SPECIFICATIONS. GRAVEL OR RECLAIMED MISCELLANEOUS AGGREGATE SHALL NOT BE USED.
2. PERMANENT TRENCH REPAIRS FOR STREETS WITH CONCRETE PAVEMENT OR CONCRETE BASE MAY CONSIST OF 2" HMA S0.5", 6" HMA S1.0", AND 10" GRAVEL SUBBASE AT THE DISCRETION OF THE TOWN ENGINEER.
3. AT THE REQUEST OF THE TOWN ENGINEER THE CONTRACTOR SHALL VERIFY AND SUBMIT PROPER TESTING RESULTS THAT COMPACTION MEETS WITH TOWN'S STANDARDS FOR A 95% COMPACTED DENSITY.

	LOCAL OR COLLECTOR	ARTERIAL (> 3000 ADT)
HMA S0.375"	1.5"	N/A
HMA S0.5"	2"	3" (IN TWO LIFTS)
HMA S1.0"	N/A	6" (IN TWO LIFTS)

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	TEMPORARY AND PERMANENT PAVEMENT REPAIRS
APPROVED BY: DAP	
LAST REVISED: 3/28/2017	PLATE NO. 3

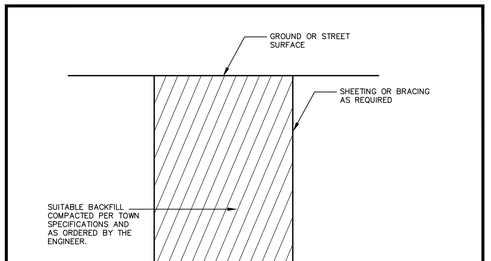


MANHOLE BASE LONGITUDINAL SECTION



MANHOLE BASE CROSS SECTION

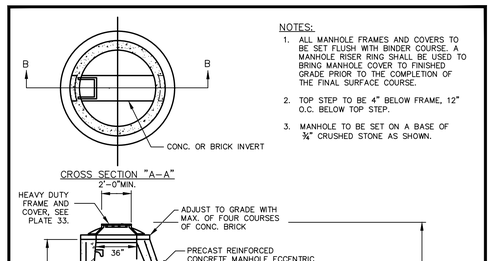
SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	PRECAST MANHOLE OVER EXISTING PIPE
APPROVED BY: DAP	
LAST REVISED: 4/29/2008	PLATE NO. 32



NOTES:

1. CRUSHED STONE FOUNDATION ¾" MAXIMUM SIZE, SHALL BE PLACED 6" UNDER PIPE AND UP TO THE PIPE GRADE, THE PIPE LAID THEREON, AND THE CRUSHED STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.
2. CRUSHED STONE HAUNCHING, ¾" MAXIMUM SIZE, SHALL BE BROUGHT TO A MINIMUM OF HALF WAY UP THE PIPE AND OUT TO THE TRENCH WALL AT THIS ELEVATION FOR ALL PIPE.
3. ALL COSTS FOR THIS CRUSHED STONE SHALL BE INCLUDED IN THE PRICE BID FOR SANITARY SEWER OR SANITARY SEWER LATERAL.
4. WHEN PIPE IS LAID IN A WET OR SILTY CONDITIONS, THE CONTRACTOR SHALL EXTEND CRUSH STONE TO THE TOP OF SEWER PIPE AND WRAP ALL OF THE CRUSHED STONE WITH AN ACCEPTABLE GEOTEXTILE (TC MIRAFI 140N OR APPROVED EQUAL)

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	TYPICAL TRENCH FOR SANITARY SEWERS
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 30



CROSS SECTION "A-A"
2'-0"MIN.

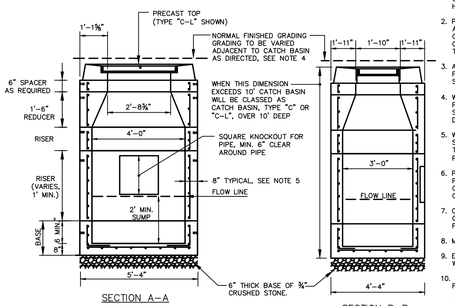
MANHOLE VERTICAL SECTION "B-B"

NOTES:

1. ALL MANHOLE FRAMES AND COVERS TO BE SET FLUSH WITH BINDER COURSE. A MANHOLE RISER RING SHALL BE USED TO BRING MANHOLE COVER TO FINISHED GRADE PRIOR TO THE COMPLETION OF THE FINAL SURFACE COURSE.
2. TOP STEP TO BE 4" BELOW FRAME, 12" O.C. BELOW TOP STEP.
3. MANHOLE TO BE SET ON A BASE OF ¾" CRUSHED STONE AS SHOWN.

WHEN THIS DIMENSION EXCEEDS 10 FT. MANHOLE WILL BE CLASSIFIED AS A MANHOLE OVER 10 FT. DEEP

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	PRECAST CONCRETE MANHOLE (STORM & SANITARY)
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 31



SECTION A-A

SECTION B-B

NOTES

1. ALL CATCH BASINS SHALL CONFORM TO CONNDOT STANDARD DETAIL SHEETS HW-507_1 AND HW-507_04 EXCEPT AS OTHERWISE NOTED ON THIS DETAIL. DOUBLE GRATE CATCH BASINS SHALL CONFORM TO CONNDOT STANDARD SHEETS HW-507_05 AND HW-507_06.
2. PRECAST CATCH BASIN TOPS MUST BE PROPERLY ALIGNED AS SHOWN AND SHALL CONFORM TO CONNDOT STANDARD DETAIL SHEETS HW-507_07, CAPE COD CATCH BASIN TOPS SHALL HAVE AN OPEN THROAT.
3. ALL FRAMES AND GRATES SHALL BE GALVANIZED. FOR DETAILS OF FRAMES AND GRATES, SEE CONNDOT STANDARD DETAIL SHEET HW-507_08.
4. WHEN TYPE 'C' CATCH BASINS ARE CONSTRUCTED IN PAVEMENT, THE NORMAL GUTTER OF THE ROADWAY SHALL BE VARIED TO PROVIDE AN ADDITIONAL 2-INCH DEPRESSED GUTTER AT THE CATCH BASIN.
5. WALL THICKNESS TO BE 12 INCHES WHEN HEIGHT OF STRUCTURE EXCEEDS 10 FEET FROM TOP OF FRAME TO BOTTOM OF BASE. THICKER WALLS APPLY ONLY TO PORTION OF STRUCTURE BELOW 10' DEEP.
6. PRECAST RISER SECTIONS SHALL NEVER HAVE CORNER PIPE ENTRIES. WHEN PIPE ALIGNMENT CANNOT BE CHANGED, A ROUND STRUCTURE SHALL BE USED PER CONNDOT DETAIL HW-507_04.
7. CATCH BASINS LEFT ABOVE THE FINISHED GUTTER GRADE FOR THE WINTER MUST BE PROPERLY SHIMMED FOR PLOWING AS SHOWN IN PLATE 4.
8. MORTAR MIX SHALL NOT CONTAIN LIME.
9. ENDS OF PIPE SHALL BE SAWCUT FLUSH WITH INSIDE WALLS.
10. IF CONCRETE MASONRY UNITS ARE USED THE FOLLOWING ADDITIONAL REQUIREMENTS SHALL BE MET:
    - MAXIMUM CORBEL SHALL NOT EXCEED 2 INCHES;
    - WHERE NECESSARY, BLOCKS MAY BE CUT OR CONCRETE BRICK USED (NO RED BRICK PERMITTED);
    - CORNERS SHALL BE SQUARE, COURSES LEVEL, AND JOINTS PROPERLY STAGGERED;
    - VOIDS IN EXTERIOR WALLS SHALL BE GROUTED, AND CORBELS SHALL BE WEDGED.

SCALE : NONE	TOWN OF GLASTONBURY DEPARTMENT OF PHYSICAL SERVICES ENGINEERING DIVISION
DRAWN BY: SR	
CHECKED BY: SMB	CATCH BASIN
APPROVED BY: DAP	
LAST REVISED: 9/1/2016	PLATE NO. 21

DRAWING ISSUE STATUS		
NO.	DESCRIPTION	DATE

PW-2119
PW-2124
PW-2106
PW-2118

SCALE: AS SHOWN	DATE:
DRAWN BY: S.Troy	4-2-2020
CHECKED BY: S.M.B.	4-27-2020
APPROVED BY: D.A.P.	4-27-2020
ST. FILE:	

MANUAL REVISIONS TO THIS DOCUMENT ARE PROHIBITED. ALL REVISIONS MUST BE PERFORMED ON CADD FILE SHOWN IN THE LEFT MARGIN. IF THERE ARE ANY DISCREPANCIES OR QUESTIONS, CONTACT THE TOWN OF GLASTONBURY, ENGINEERING OFFICE AT (860) 652-7735.

DETAIL SHEET
Storm Drainage and Sanitary Sewer Rehabilitation
located on
ADDISON ROAD, CEDAR RIDGE TERRACE, CONCORD STREET AND NAUBUC AVENUE
GLASTONBURY, CONNECTICUT

SHEET NO. 13 OF 13

ATTACHMENT C:
DETAILED ESTIMATE SHEET

TOWN OF GLASTONBURY,CT.
PROJECT QUANTITIES PER PROJECT
STORM DRAINAGE AND SANITARY SEWER REHABILITATION PROJECT 2022
ADDISON ROAD, CEDAR RIDGE TERACE, CONCORD STREET, NAUBUC AVENUE
FINAL PROJECT QUANTITIES
JANUARY 2022

			ADDISON ROAD SANITARY SEWER EXTENSION	CONCORD,MELROSE, MEDFORD STREET	NAUBUC AVENUE DRAINAGE	NAUBUC AVENUE SEWER	CEDAR RIDGE TERRACE
ITEM #	DESCRIPTION	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
0202001A	EARTH EXCAVATION (NAUBUC STORM DISCONNECT)	CY	0	0	0	67	0
0216131A	PIPE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL	CY	0	0	71	0	0
0216132A	MANHOLE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL	CY	0	0	12	0	0
0219011A	SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN	EA	0	7	0	0	7
0404000A	TEMPORARY PAVEMENT REPAIR	SY	0	217	0	0	0
0404100A	BITUMINOUS CONCRETE PATCHING-FULL DEPTH	SY	40	0	31	0	348
0586001.10	TYPE "C" CATCH BASIN- 0'-10' DEEP	EA	0	7	0	0	7
0586040.10	TYPE "C-L" CATCH BASIN- 0'-10' DEEP	EA	0	0	2	0	0
0586500.10	MANHOLE-(STORM) 0'-10' DEEP	EA	0	2	1	0	1
0586601	RESET TYPE "C" CATCH BASIN	EA	0	0	0	0	0
0586752	RESET TYPE "C" CATCH BASIN DOUBLE GRATE TYPE 2	EA	0	0	0	0	0
0586620	RESET TYPE "C-L" CATCH BASIN	EA	0	0	0	0	0
0586750	TYPE "C" CATCH BASIN TOP	EA	0	0	0	0	0
0586752	TYPE "C" CATCH BASIN TOP DOUBLE GRATE TYPE 2	EA	0	0	0	0	0
0586760	TYPE "C-L" CATCH BASIN TOP	EA	0	0	0	0	0
0586780	MANHOLE FRAME & COVER	EA	0	2	1	0	1
0586790.10A	REMOVE DRAINAGE STRUCTURE- 0'-10' DEEP	EA	0	6	2	0	7
0686000.15A	15" R.C. PIPE- 0'-10' DEEP	LF	0	496	0	0	46
0686000.18A	18" R.C. PIPE- 0'-10' DEEP	LF	0	0	0	0	982
0686002.12A	12" R.C. PIPE (CLASS V)- 0'-10' DEEP	LF	0	91	0	0	0
0686260.12A	12" DUCTILE IRON PIPE 0'-10' DEEP	LF	0	0	56	0	0
0815001	BITUMINOUS CONCRETE LIP CURBING	LF	0	460	0	0	600
0922500A	BITUMINOUS CONCRETE DRIVEWAY- (COMMERCIAL)	SY	0	0	0	45	0
0944000A	FURNISH AND PLACING TOPSOIL	SY	0	68	0	0	133
0950005A	TURF ESTABLISHMENT	SY	0	68	0	0	133
0970006A	TRAFFICPERSON- MUNICIPAL OFFICER	EST	$8,800	$0	$14,200	$0	$0
0970007A	TRAFFICPERSON- UNIFORMED FLAGGER	HR	0	320	0	0	240
0971001A	MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1	1	1	1	1
0975004	MOBILIZATION AND PROJECT CLOSEOUT	LS	1	1	1	1	1
0977001	TRAFFIC CONE	EA	0	40	40	0	0
0980020	CONSTRUCTION SURVEYING	LS	1	1	1	1	1
1220013	CONSTRUCTION SIGNS BRIGHT FLUORESCENT SHEETING	SF	0	62	62	0	0
1400102A	8" POLYVINYL CHLORIDE PIPE (SANITARY SEWER)	LF	140	0	0	0	0
1400111A	SANITARY SEWER- PRESSURE TESTING	LF	140	0	0	0	0
1401637A	SANITARY SEWER LATERAL CONNECTIONS (PVC)	LF	56	0	0	30	0
1401662A	SANITARY MANHOLE- 0'-10' DEEP	EA	1	0	0	0	0
1403010A	CUT AND PLUG ABANDONED SANITARY SEWER LATERALS	LF	0	0	0	30	0
1401948	MANHOLE FRAME & COVER (SANITARY SEWER)	EA	1	0	0	0	0

TOWN OF GLASTONBURY,CT.
PROJECT QUANTITIES PER PROJECT
STORM DRAINAGE AND SANITARY SEWER REHABILITATION PROJECT 2022
ADDISON ROAD, CEDAR RIDGE TERACE, CONCORD STREET, NAUBUC AVENUE
FINAL PROJECT QUANTITIES
JANUARY 2022

			ASPEN DRIVE	BRENTWOOD DRIVE	FIELDSTONE DRIVE	HIGHWOOD DRIVE	LIBERTY DRIVE	PARTRIDGE LANDING	PHEASANT CROSSING	SUMMIT CREST DRIVE	TOTAL ESTIMATED
ITEM #	DESCRIPTION	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
0202001A	EARTH EXCAVATION (NAUBUC STORM DISCONNECT)	CY									**67**
0216131A	PIPE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL	CY									**71**
0216132A	MANHOLE ABANDONMENT USING CONTROLLED LOW STRENGTH MATERIAL	CY									**12**
0219011A	SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN	EA									**14**
0404000A	TEMPORARY PAVEMENT REPAIR	SY									**217**
0404100A	BITUMINOUS CONCRETE PATCHING-FULL DEPTH	SY									**419**
0586001.10	TYPE "C" CATCH BASIN- 0'-10' DEEP	EA									**14**
0586040.10	TYPE "C-L" CATCH BASIN- 0'-10' DEEP	EA									**2**
0586500.10	MANHOLE-(STORM) 0'-10' DEEP	EA									**4**
0586601	RESET TYPE "C" CATCH BASIN	EA	10	12	10	23	4	12	6	9	**86**
0586752	RESET TYPE "C" CATCH BASIN DOUBLE GRATE TYPE 2	EA		2				8	2		**12**
0586620	RESET TYPE "C-L" CATCH BASIN	EA							1		**1**
0586750	TYPE "C" CATCH BASIN TOP	EA	10	12	10	23	4	12	6	9	**86**
0586752	TYPE "C" CATCH BASIN TOP DOUBLE GRATE TYPE 2	EA		2				8	2		**12**
0586760	TYPE "C-L" CATCH BASIN TOP	EA							1		**1**
0586780	MANHOLE FRAME & COVER	EA									**4**
0586790.10A	REMOVE DRAINAGE STRUCTURE- 0'-10' DEEP	EA									**15**
0686000.15A	15" R.C. PIPE- 0'-10' DEEP	LF									**542**
0686000.18A	18" R.C. PIPE- 0'-10' DEEP	LF									**982**
0686002.12A	12" R.C. PIPE (CLASS V)- 0'-10' DEEP	LF									**91**
0686260.12A	12" DUCTILE IRON PIPE 0'-10' DEEP	LF									**56**
0815001	BITUMINOUS CONCRETE LIP CURBING	LF									**1,060**
0922500A	BITUMINOUS CONCRETE DRIVEWAY- (COMMERCIAL)	SY									**45**
0944000A	FURNISH AND PLACING TOPSOIL	SY									**201**
0950005A	TURF ESTABLISHMENT	SY									**201**
0970006A	TRAFFICPERSON- MUNICIPAL OFFICER	EST									**$23,000**
0970007A	TRAFFICPERSON- UNIFORMED FLAGGER	HR									**560**
0971001A	MAINTENANCE AND PROTECTION OF TRAFFIC	LS									**1**
0975004	MOBILIZATION AND PROJECT CLOSEOUT	LS									**1**
0977001	TRAFFIC CONE	EA									**80**
0980020	CONSTRUCTION SURVEYING	LS									**1**
1220013	CONSTRUCTION SIGNS BRIGHT FLUORESCENT SHEETING	SF									**124**
1400102A	8" POLYVINYL CHLORIDE PIPE (SANITARY SEWER)	LF									**140**
1400111A	SANITARY SEWER- PRESSURE TESTING	LF									**140**
1401637A	SANITARY SEWER LATERAL CONNECTIONS (PVC)	LF									**86**
1401662A	SANITARY MANHOLE- 0'-10' DEEP	EA									**1**
1403010A	CUT AND PLUG ABANDONED SANITARY SEWER LATERALS	LF									**30**
1401948	MANHOLE FRAME & COVER (SANITARY SEWER)	EA									**1**