

COPY NO. \_\_\_\_\_

**SEWER SYSTEM REHABILITATION  
PROJECT 1: AREA A AND AREA B  
BID NO. 6213**

**TOWN OF TRUMBULL, CONNECTICUT**

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**BIDDING AND CONTRACT  
REQUIREMENTS AND SPECIFICATIONS**

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**DECEMBER 2016**

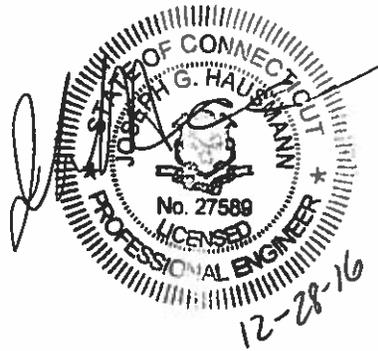
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**TRUMBULL, CONNECTICUT**  
**BIDDING AND CONTRACT REQUIREMENTS**  
**AND SPECIFICATIONS**  
**FOR**  
**SEWER SYSTEM REHABILITATION**  
**PROJECT 1: AREA A AND AREA B**

**BID NO. 6213**

**DECEMBER 2016**



**Prepared By:**

**Wright-Pierce**  
**169 Main Street, 700 Plaza Middlesex**  
**Middletown, CT 06457**

**Phone: 860-343-8297**



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TOWN OF TRUMBULL

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TRUMBULL, CONNECTICUT

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SEWER SYSTEM REHABILITATION

PROJECT 1: AREA A AND AREA B

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TOWN BID NO. 6213

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Sealed bids for the Sewer System Rehabilitation Project will be received by the Town of Trumbull at the office of the Purchasing Agent, 5866 Main Street, Trumbull, CT, until 2:00 PM, local time, February 16<sup>th</sup>, 2017 and then at said office publicly opened and read aloud. Bids submitted after this time will not be accepted. No oral, telephone or telegraphic responses shall be considered. Bids are to be completed, printed, signed by an authorized agent and submitted in a single sealed envelope the outside of which must be clearly marked:

**PROPOSAL BID # 6213 DUE: February 16<sup>th</sup>, 2017**

**SEWER SYSTEM REHABILITATION PROJECT 1: AREA A AND AREA B**

Trumbull Town Hall- Attn: Kevin J Bova, Purchasing Agent  
5866 Main Street, Trumbull, CT 06611

and the envelope shall bear on the outside the name of the proposer and address.

The Work involves rehabilitation of manholes and pipelines throughout the Town's sewer system including, but not limited to; cleaning, sealing, and lining of manholes, brick and mortar rehabilitation, frame and cover replacement and adjustment; lining sections of gravity sewer mains and laterals, testing and sealing of pipe joints; and pavement and lawn restoration, and appurtenant work.

Proposal documents may be obtained (at a cost to you) from Digiprint, 275 Ferry Blvd., Stratford, CT 06615, and (203-375-1228). The consulting engineer for this project is: Wright-Pierce, 169 Main Street, 700 Plaza Middlesex, Middletown, CT 860-343-8297.

A pre-bid conference will be held at The Trumbull Town Hall on January 31st, 2017 at the Nichols Room in Trumbull Town Hall at 10:00 AM, local time. Attendance is not mandatory but it is encouraged.

Each submitted bid shall include a completed Bid Form, Experience Statement, Certification of Bidder Regarding Equal Employment Opportunity and Non-Collusion Affidavit and shall be accompanied by a Bid Guarantee in the form of a bid bond, certified check, or bank check made

payable to the Town of Trumbull in an amount equal to 10% of the bid. An original and three (3) exact copies of the bid shall be submitted. Bids submitted without Bid Security will not be considered. No Bid may be withdrawn for 90 days after receipt of Bids unless released by the Owner.

All work activities performed in association with this request must be performed and completed for the Town in accordance with current Federal and Local regulations. All services performed shall also conform to the latest OSHA standards and/or regulations. Applicable laws and regulations relating to State of Connecticut Prevailing Wages, employment practices, nondiscrimination, and safety and health regulations shall be adhered to by the contractor. The contractor shall be responsible for "Certified Statements of Compliance" regarding Prevailing Wages. Contractor shall also collect and submit four (4) Certified "Statement of Compliance" from any sub-contractors.

The successful bidder must furnish within 15 calendar days after the Notice of Award the required number of copies of the signed Agreement, 100% Performance Bond, 100% Payment Bond, and begin execution of this contract within 10 calendar days following the Notice to Proceed. Attorneys-in-fact who sign the Bid Bonds or Payment Bonds and Performance Bonds must file with each bond, a certified and effective dated copy of their power of attorney.

The Town of Trumbull reserves the right to waive and/or reject any and all proposals or any part thereof, waive the information in the proposal process, and reject any unqualified proposals, or accept any proposal or part thereof, deemed to be in the best interest of the Town of Trumbull.

Kevin J Bova, Purchasing Agent  
Town of Trumbull, Connecticut

END OF SECTION

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## ARTICLE 1 - DEFINED TERMS

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1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. *Bidder*--The individual or entity who submits a Bid directly to Owner.
- B. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. *Successful Bidder*--The lowest responsible Bidder submitting a responsive Bid to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

## ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

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2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

## ARTICLE 3 - QUALIFICATIONS OF BIDDERS

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3.01 To be considered a responsive Bidder, the Contractor shall have obtained at least one set of paper plans and specifications from the Engineer (Wright-Pierce). The Bid will not be awarded to a Bidder unless a record for the purchase of at least one set of paper plans and specifications exists in the office of the Engineer. To meet this requirement and to establish the record of purchase, a prospective Bidder must purchase paper plans and specifications using the name that is to appear in the Bid Documents.

3.02 To demonstrate Bidder's qualifications to perform the Work, each Bidder must submit with his bid a completed Experience Statement (Section 00405) and such other data as may be called for below.

3.03 Bidders must be prequalified through the Connecticut Department of Administrative Services in the classification of Sewer and Water Lines and must submit with their bid a copy of their Prequalification Certificate and a copy of their project specific Update (Bid) Statement.

## ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

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4.01 *Subsurface and Physical Conditions*

- A. The Supplementary Conditions identify:

- 1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.06 Not Used

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. Not Used

E. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

#### ARTICLE 5 - PRE-BID CONFERENCE

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5.01A A pre-Bid conference will be held for General Bidders at the **Trumbull Town Hall on January 31<sup>st</sup>, 2017**. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are required to attend and encouraged to participate in the conference. A review of the Project site will be made after the pre-Bid conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

#### ARTICLE 6 - SITE AND OTHER AREAS

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6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents.

## ARTICLE 7 - INTERPRETATIONS AND ADDENDA

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7.01 All technical questions about the meaning or intent of the Bidding Documents are to be submitted in writing to Wright-Pierce, Consulting Engineers, Nicole Ouimet (860-343-8297) or Frank Smeriglio, Town of Trumbull, Engineering Department, (203-452-5053) ([fsmeriglio@trumbull-ct.gov](mailto:fsmeriglio@trumbull-ct.gov)). All other questions shall be directed to Kevin Bova (203-452-5042) ([Kbova@trumbull-ct.gov](mailto:Kbova@trumbull-ct.gov)).

Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed, emailed, transmitted by facsimile (FAX) or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer. Bidders are responsible for determining that they have received all Addenda issued. **Any notice of addendum shall be published on the Town website ([www.trumbull-ct.gov](http://www.trumbull-ct.gov)) in the Purchasing Department Section (Bid Notices) and from Digiprint. Submission of a response that does not address any changes or addendums may result in a disqualification of a proposal submission.**

## ARTICLE 8 - BID SECURITY

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8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 10% of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond on the form attached issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 60 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

8.04 All Bid Securities will be returned on the execution of the Agreement or if no award is made, within sixty days, excluding Saturdays, Sundays, and legal holidays after the actual date of opening of the General Bids, unless forfeited under the conditions herein stipulated.

## ARTICLE 9 - CONTRACT TIMES

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9.01 The number of days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

## ARTICLE 10 - LIQUIDATED DAMAGES

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10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

#### ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

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11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in the General Conditions and may be supplemented in the General Requirements.

11.02 Whenever a material, article, or piece of equipment is identified by reference to a manufacturer or trade name, it shall be understood that this is referenced for defining the performance of the material, article, or piece of equipment and that other products of equal capacities, quality and function shall be considered. It shall be the Contractor's responsibility to coordinate all submittals to the Engineer for approval to eliminate any conflicts which might arise due to the use of the substitute item. Any additional costs incident to the use of substitute items will be paid by the Contractor.

#### ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

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12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the bid.

12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

#### ARTICLE 13 - PREPARATION OF BID

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13.01 The Bid form is included with the Bidding Documents. Additional copies may be obtained from Issuing Office.

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the bid form must be fully completed and executed when submitted and the Bid signed. Please be advised that the person signing the Bid must be authorized by your organization to contractually bind your firm with regard to prices and related contractual obligations for the subject project and for the contractual period requested. A Bid price shall be indicated for each Bid item listed therein.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid form.

#### ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

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##### 14.01 *Basis of Bid*

A. Bidders shall submit a Bid on a lump sum basis for each lump sum item of Work and on a unit price basis for each unit price item of Work, for the Base Bid and include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form. In the evaluation of Bids, the Total Area A Bid Price plus the Total Area B Bid Price will equal the Base Bid.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words. The Town reserves the right to correct, after proper verification, any mistake in a proposal that is a clerical error, such as a price extension or a decimal point error.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.

ARTICLE 15 - SUBMITTAL OF BID

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15.01 Each prospective Bidder is furnished one copy of the Bidding Documents including one copy each of the Bid form and the Bid Bond. The Bid form is to be completed and submitted with the following:

- A. The Bid Form in its Entirety.
- B. Required Bid Security.
- C. Required Experience Statement (Section 00405) with supporting data.
- D. Signed Certification of Bidder Regarding Equal Employment Opportunity (Section 00406).
- G. Non-Collusion Affidavit of Prime Bidder (Section 00408)
- H. A tabulation of Subcontractors, Suppliers and other persons and organizations required to be identified in this Bid.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "SEWER SYSTEM REHABILITATION, PROJECT 1: AREA A AND AREA B." A mailed Bid shall be addressed with the proposal number, date, and to the Owner's mailing address indicated on the Bid Form.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

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16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

ARTICLE 17 - OPENING OF BIDS

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17.01 Responses to this request shall be received at the office of the Purchasing Agent, Town Hall, prior to the advertised time and place (indicated in the advertisement or invitation to Bid) of opening, at which time all proposals (total proposal amount only) shall be publicly read aloud.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 - AWARD OF CONTRACT

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19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom

it finds, after reasonable inquiry and evaluation, to be non-responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. The Town reserves the right to cancel the Bid if funding is not approved. The Purchasing agent from Town Hall will issue notification of award in writing.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award. A Bid which includes a Bid Price, for any Item, that is abnormally low or high may be rejected as unbalanced.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the responsible Bidder whose Bid, conforming with all the material terms and conditions of the Instructions to Bidders, is lowest, price and other factors considered. The Basis for Award shall be the Total Bid Price consisting of Total Area A Bid Price plus Total Area B Bid Price.

## ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

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20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by such Bonds and insurance certificates.

## ARTICLE 21 - SIGNING OF AGREEMENT

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21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

## ARTICLE 22 - SALES AND USE TAXES

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22.01 The Contractor's attention is called to Regulation 18 as amended, promulgated by the Sales and Use Tax Division of the State Department of Revenue Services, which provided for the exemption of the sales and use tax on the purchase of such materials and supplies as are to be physically incorporated in and become a permanent part of the project being performed under this contract. The contractor may avail himself of the savings of this tax and shall take this exemption into account in calculating his bid for this work. The

Contractor or Subcontractor shall furnish his suppliers with a completed certificate, the form of which is provided in the Supplementary Conditions.

ARTICLE 23 - RETAINAGE

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23.01 Provisions concerning retainage are set forth in the Agreement.

ARTICLE 24 - CONTRACTS TO BE ASSIGNED

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Not Used.

ARTICLE 25 - PARTNERING

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Not Used.

ARTICLE 26 - DELETION OF ITEMS

26.01 Owner reserves the right to reduce project scope by the elimination of Bid items, reduction of quantities on unit price Bid items, or deleting elements of lump sum Bid items. No adjustment to other Bid items prices will be permitted. In the case of reduction of quantities on unit price items, the unit price will not be adjusted. Such adjustments to project scope will be determined prior to award of the Contract and will be negotiated with the apparent Successful Bidder only. If such negotiations are not satisfactory to Owner, Owner will reject all Bids

ARTICLE 27 - SPECIAL LEGAL REQUIREMENTS

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27.01 Department of Labor Regulations: The Contractor must comply with all the Safety and Health Regulations (CFR29 Part 1926 and all subsequent amendments) as promulgated by the US Department of Labor on June 24, 1974; the Department of Labor Regulations relating to Copeland "Anti-Kickback Act (18 U.S.C. 874) as supplemented by 29 CFR Part 3; Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by 29 CFR Part 5, and Occupational Safety and Health Standards (OSHA) (29 CFR Part 1910). Contractors are urged to become familiar with the requirements of these regulations.

27.02 Environmental Regulations: The Contractor must comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857(h)), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738 and Environmental Protection Agency regulations (40 CFR Part 15). Contractors are urged to become familiar with the requirements of these regulations.

27.03 Wage Rates: The Work under this contract is subject to minimum Wage Rates. Refer to the Supplementary Conditions for additional information.

END OF SECTION

SECTION 00310

BID FORM

PROJECT IDENTIFICATION: Town of Trumbull, Connecticut  
Sewer System Rehabilitation  
Project 1: Area A and Area B

THIS BID IS SUBMITTED TO: Purchasing Agent  
Trumbull Town Hall  
5866 Main Street  
Trumbull, CT 06611

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of Owner's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
  - (a) Bidder has examined copies of all the Bidding Documents and the following Addenda (receipt of all which is hereby acknowledged):

<u>Date</u>	<u>Number</u>
_____	_____
_____	_____
_____	_____

- (b) Bidder acknowledges that his Bid will be rejected unless the Issuing Office has a record that the Bidder has purchased at least one set of paper Bidding Documents from the Issuing Office, and that a representative of the Bidder was present at the mandatory pre-bid meeting.

- (c) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- (d) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.
- (e) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.
- (f) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.03 of the General Conditions.
- (g) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- (h) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder.
- (i) The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and

Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

- (j) Bidder understands that the Owner reserves the right to reject any or all bids.
  - (k) Bidder understands that, if the contract is to be awarded, it will be awarded to the lowest responsive, responsible bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.
  - (l) The bid security attached in the amount of five percent of the Total Bid is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.
  - (m) Bidder is responsible for determining that they have received all addenda issued. Bidder to complete its proposal in accordance with the Bid as modified by the addenda(s).
  - (n) Any other representation required by Laws and Regulations.
4. The Owner reserves the right, either before or after opening of proposals, to ask any Bidder to clarify its Bid or to submit additional information that the Owner, in its sole discretion, deems desirable.
  5. Bidder will complete the Work described in the Contract Documents for the following price(s):

**UNIT PRICE SCHEDULE**

Item No.	Brief Description of Item with Unit Price in Words	Unit Price In Figures	Estimated Quantity Area A	Total Estimated Price In Figures Area A	Estimated Quantity Area B	Total Estimated Price in Figures Area B
1	Mobilization and Demobilization The sum of \$ _____ _____ Per Lump Sum	\$ _____	LS	\$ _____	LS	\$ _____
2	Replace Manhole Frame and Cover The sum of \$ _____ _____ Per Each	\$ _____	6 EA	\$ _____	8 EA	\$ _____
3	Adjust Manhole Frame and Cover The sum of \$ _____ _____ Per Each	\$ _____	1 EA	\$ _____	0 EA	\$ _____
4	Seal Manhole The sum of \$ _____ _____ Per Each	\$ _____	32 EA	\$ _____	43 EA	\$ _____
5	Line Manhole Chimney The sum of \$ _____ _____ Per Each	\$ _____	2 EA	\$ _____	0 EA	\$ _____

**UNIT PRICE SCHEDULE**

Item No.	Brief Description of Item with Unit Price in Words	Unit Price In Figures	Estimated Quantity Area A	Total Estimated Price In Figures Area A	Estimated Quantity Area B	Total Estimated Price in Figures Area B
6	Line Manhole Bench and Channel The sum of \$ _____ Per Each	\$ _____	5 EA	\$ _____	23 EA	\$ _____
7	Line Manhole Walls The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	1 EA	\$ _____
8	Test and Seal Pipe Joints – 8” Pipe The sum of \$ _____ Per Each	\$ _____	341 EA	\$ _____	125 EA	\$ _____
9	Test and Seal Pipe Joints – 12” Pipe The sum of \$ _____ Per Each	\$ _____	70 EA	\$ _____	134 EA	\$ _____
10	Test and Seal Pipe Joints – 14” Pipe The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	14 EA	\$ _____

**UNIT PRICE SCHEDULE**

Item No.	Brief Description of Item with Unit Price in Words	Unit Price In Figures	Estimated Quantity Area A	Total Estimated Price In Figures Area A	Estimated Quantity Area B	Total Estimated Price in Figures Area B
11	Test and Seal Pipe Joints – 20” Pipe The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	52 EA	\$ _____
12	Test and Seal Pipe Joints – 24” Pipe The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	230 EA	\$ _____
13	Test and Seal Pipe Joints – Lateral The sum of \$ _____ Per Each	\$ _____	11 EA	\$ _____	0 EA	\$ _____
14	Spot Lining – 8” Pipe The sum of \$ _____ Per Each	\$ _____	8 EA	\$ _____	25 EA	\$ _____
15	Spot Lining- 10” Pipe The sum of \$ _____ Per Each	\$ _____	1 EA	\$ _____	1 EA	\$ _____

**UNIT PRICE SCHEDULE**

Item No.	Brief Description of Item with Unit Price in Words	Unit Price In Figures	Estimated Quantity Area A	Total Estimated Price In Figures Area A	Estimated Quantity Area B	Total Estimated Price in Figures Area B
16	Spot Lining – 12” Pipe The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	2 EA	\$ _____
17	Spot Lining – 14” Pipe The sum of \$ _____ Per Each	\$ _____	2 EA	\$ _____	0 EA	\$ _____
18	Spot Lining – 24” Pipe The sum of \$ _____ Per Each	\$ _____	0 EA	\$ _____	7 EA	\$ _____
19	Top Hat Lateral Lining The sum of \$ _____ Per Each	\$ _____	2 EA	\$ _____	21 EA	\$ _____
20	Lateral Lining of Manhole Drop Connection The sum of \$ _____ Per Each	\$ _____	1 EA	\$ _____	0 EA	\$ _____

**UNIT PRICE SCHEDULE**

Item No.	Brief Description of Item with Unit Price in Words	Unit Price In Figures	Estimated Quantity Area A	Total Estimated Price In Figures Area A	Estimated Quantity Area B	Total Estimated Price in Figures Area B
21*	Heavy Cleaning of 8" -12" Pipes The sum of \$ _____ Per LF _____	\$ _____	300 LF	\$ _____	300 LF	\$ _____
22*	Heavy Cleaning of 14" -24" Pipes The sum of \$ _____ Per LF _____	\$ _____	300 LF	\$ _____	300 LF	\$ _____
23	Uniformed Police Officer The sum of \$ <u>Five Thousand Dollars</u> And Zero Cents Allowance	\$ 5,000.00	Allowance	\$ 5,000.00	Allowance	\$ 5,000.00
24	Traffic Control The sum of \$ _____ Per Lump Sum _____	\$ _____	LS	\$ _____	LS	\$ _____

\*These Bid items will not be covered by Clean Water Funding and will therefore be funded by the Town.

TOTAL Area A Bid Price (Items No's 1 through 22 in Area A Unit Price Schedule) was determined on the basis of the above prices, is written as follows:

\_\_\_\_\_ (\$ \_\_\_\_\_)  
(use words) (use figures)

TOTAL Area B Bid Price (Items No's 1 through 22 in Area B Unit Price Schedule) was determined on the basis of the above prices, is written as follows:

\_\_\_\_\_ (\$ \_\_\_\_\_)  
(use words) (use figures)

**TOTAL Bid Price:** (Total Area A Bid Price + Total Area B Bid Price) was determine on the basis of the above prices, is written as follows:

\_\_\_\_\_ (\$ \_\_\_\_\_)  
\_\_\_\_\_ (use figures)  
(use words)

6. Bidder agrees that the Work will be substantially complete and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

7. The following documents are attached to and made a condition of this Bid:

- (a) This Bid Form in its Entirety.
- (b) Required Bid Security.
- (c) Required Experience Statement (Section 00405) with supporting data.
- (d) Signed Certification of Bidder Regarding Equal Employment Opportunity (Section 00406).
- (e) Non-Collusion Affidavit of Prime Bidder (Section 00408)

(f) A tabulation of Subcontractors, Suppliers and other persons and organizations required to be identified in this Bid.

8. Communications concerning this Bid shall be addressed to:

\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

9. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

RESPECTFULLY SUBMITTED on \_\_\_\_\_, 20\_\_

If Bidder is

A Sole Proprietorship

By \_\_\_\_\_ (SEAL)  
(Individual's Name)

doing business as \_\_\_\_\_

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_

A Partnership

By \_\_\_\_\_ (SEAL)  
(Firm Name)

\_\_\_\_\_ (General Partner)

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_

A Corporation

By \_\_\_\_\_ (SEAL)  
(Corporation Name)

\_\_\_\_\_ (State of Incorporation)

By \_\_\_\_\_ (SEAL)  
(Name of Person Authorized to Sign)

By \_\_\_\_\_ (Title)

(Corporate Seal)

Attest \_\_\_\_\_ (Secretary)

Business address: \_\_\_\_\_  
\_\_\_\_\_

Phone No.: \_\_\_\_\_

A Joint Venture

By \_\_\_\_\_ (SEAL)  
(Name)

\_\_\_\_\_  
(Address)

By \_\_\_\_\_ (SEAL)  
(Name)

By \_\_\_\_\_  
(Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

END OF SECTION

SECTION 00405  
EXPERIENCE STATEMENT

All questions must be answered with clear and comprehensive data; if necessary, add additional pages. This statement must be notarized.

1. Name of Bidder.

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2. Permanent Main Office address, phone number, fax number, and cell number.

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3. General Business Information

Check if:  Corporation  Partnership  Joint Venture

Sole Proprietorship

4. **If Corporation:**

a. Date and State of Incorporation

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b. List of Officers (Name and Title)

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**If Partnership:**

a. Date and State of Organization

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b. Names of Current General Partners

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c. Type of Partnership (General, Publicly Traded, or Limited other) Describe:

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**If Joint Venture:**

a. Date and State of Organization

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b. Name, Address and Form of Organization of Joint Venture Partners: (Indicate managing partner by an asterisk\*)

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**If Sole Proprietorship:**

a. Date and State of Organization

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b. Names and Address of Owner or Owners

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5. How many years have you been engaged in the contracting business under your present firm name? Also state names and dates of previous firm names, if any.

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- 6. a. State work of a similar nature to that stated in the Bid Proposal, including project name, owner name, design professional, contract price , amount completed and date of substantial completion). Add additional pages as needed.

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- b. State references for similar services provided for at least four (4) clients in the past five (5) years (attach any other client references if desired). Please note it is the Town’s intent to communicate with the references listed herein.

CLIENT 1:

Organization Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Service Dates \_\_\_\_\_

Projects: \_\_\_\_\_

CLIENT 2:

Organization Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Service Dates \_\_\_\_\_

Projects: \_\_\_\_\_

CLIENT 3:

Organization Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Service Dates \_\_\_\_\_

Projects: \_\_\_\_\_

CLIENT 4:

Organization Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Service Dates \_\_\_\_\_

Projects: \_\_\_\_\_

- 7. Contracts on hand. (Schedule showing gross amount of each contract, the design professional, owner, amount completed, and the approximate anticipated dates of completion. Include Clients Representative and phone number.) Add additional pages as needed.

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- 8. General character of work performed by your company.

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- 9. Have you ever failed to complete any work awarded to you? \_\_\_(Yes) \_\_\_(No) If so, where and why?

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- 10. Have you ever defaulted on a contract? \_\_\_(Yes) \_\_\_(No). If so, where and why?

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11. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a construction contract awarded to him or her in their own name or when acting as a principal of another organization? \_\_\_(Yes) \_\_\_(No). If yes, describe circumstances.

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12. In the last five years, has your organization ever failed to substantially complete a project in a timely manner? \_\_\_(Yes) \_\_\_(No). If yes, describe the circumstances.

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13. List the more important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.

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14. List your major equipment available for this contract.

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15. List your key personnel such as Project Superintendent and foremen available for this contract. Include name, position, date of hire, date started in construction, and prior positions and construction experience.

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- 16. List any subcontractors whom you would expect to use and the general components of the Project (e.g. Electrical, Plumbing, HVAC, etc.) for which they will be responsible. Indicate other projects on which the proposed subcontractor has worked with you. Add additional pages as needed.

Proposed Subcontractors:

If note, write "None" \_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor Name \_\_\_\_\_

Address \_\_\_\_\_

Previous Projects Worked on with Contractor \_\_\_\_\_

\_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor Name \_\_\_\_\_

Address \_\_\_\_\_

Previous Projects Worked on with Contractor \_\_\_\_\_

\_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor Name \_\_\_\_\_

Address \_\_\_\_\_

Previous Projects Worked on with Contractor \_\_\_\_\_

\_\_\_\_\_

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

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

Proposer (fill in name) \_\_\_\_\_

By (Signature and Title) \_\_\_\_\_

- 17. Is your organization a member of a controlled group of corporations as defined in I.R.C. Sec. 1563? Yes\_\_\_\_\_ No\_\_\_\_\_

If yes, show names and addresses of affiliated companies.

\_\_\_\_\_

- 18. Name and address of banking institutions with whom you do business.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do you grant the Engineer permission to contact this (these)

institutions? \_\_\_(Yes) \_\_\_(No)

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_

(Name of Bidder)

By \_\_\_\_\_

State of \_\_\_\_\_ Title \_\_\_\_\_

County of \_\_\_\_\_)

\_\_\_\_\_ being duly sworn, deposes and says that he is

of \_\_\_\_\_ and that the answers to the foregoing  
(Name of Organization)

questions and all statements contained therein are true and correct.

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Notary Public)

My commission expires \_\_\_\_\_.

END OF SECTION

## SECTION 00406

CERTIFICATION OF BIDDER REGARDING  
EQUAL EMPLOYMENT OPPORTUNITY

## INSTRUCTIONS

This certification is related to Connecticut's Executive Order No. Three. This statement relates to a proposed contract with the Town of Trumbull, Connecticut. The bidder shall state as an initial part of the bid whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder, if the Successful Bidder, shall not be eligible and will not be eligible to enter into the proposed contract unless and until such reports are filed in a manner that is satisfactory to the Commission on Human Rights and Opportunities. Such reports shall be filed within seven days of notice of award.

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 CERTIFICATION BY BIDDER

Bidder's Name: \_\_\_\_\_

Address and Zip Code: \_\_\_\_\_

1. Bidder has participated in a previous contract or subcontract subject to Executive Order No. Three (regarding equal employment opportunity) or a preceding similar Executive Order.  
Yes \_\_\_\_ No \_\_\_\_ (If answer is yes, identify the most recent contract.)
  
2. If Yes, all required compliance reports were filed in connection with such contract or subcontract.  
Yes \_\_\_\_ No \_\_\_\_
  
3. Bidder has a written Affirmative Action Plan.  
Yes \_\_\_\_ No \_\_\_\_
  
4. This plan has been approved by the Connecticut Commission on Human Rights and Opportunities.  
Yes \_\_\_\_ No \_\_\_\_

5. Bidder has an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17, inclusive, of the Regulations of Connecticut State Agencies.

Yes \_\_\_\_\_ No \_\_\_\_\_

The information above is true and complete to the best of my knowledge and belief.

---

Name and Title of Signer (Please Type)

---

Signature

---

Date

END OF SECTION

SECTION 00408

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of: \_\_\_\_\_

County of: \_\_\_\_\_

\_\_\_\_\_, being first duly sworn, deposes and says that:

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

(Signed)

\_\_\_\_\_  
(Title)

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_,

\_\_\_\_\_  
\_\_\_\_\_  
(Title)

My Commission Expires on \_\_\_\_\_

END OF SECTION





1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 3.2 All Bids are rejected by Owner, or
  - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SECTION 00510

SUGGESTED FORM OF AGREEMENT  
BETWEEN OWNER AND CONTRACTOR  
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between \_\_\_\_\_ Town of Trumbull \_\_\_\_\_ (“Owner”) and  
\_\_\_\_\_  
\_\_\_\_\_ (“Contractor”).

Owner and Contractor hereby agree as follows:

**ARTICLE 1 – WORK**

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The Work involves rehabilitation of manholes and pipelines throughout the Town’s sewer system including, but not limited to; cleaning, sealing, and lining of manholes, brick and mortar rehabilitation, frame and cover replacement and adjustment; lining sections of gravity sewer mains and laterals, testing and sealing of pipe joints; and pavement and lawn restoration, and appurtenant work.

**ARTICLE 2 – THE PROJECT**

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Town of Trumbull, Connecticut

Sewer System Rehabilitation

Project 1: Area A and Area B

### **ARTICLE 3 – ENGINEER**

- 3.01 The Project has been designed by **Wright-Pierce Engineers** (Engineer), which is to act as Owner’s representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

### **ARTICLE 4 – CONTRACT TIMES**

#### 4.01 *Time of the Essence*

- A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

#### 4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 120 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 150 days after the date when the Contract Times commence to run.

#### 4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$1,500.00 for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$1,500.00 for each calendar day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

### **ARTICLE 5 – CONTRACT PRICE**

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:

- A. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

## ARTICLE 6 – PAYMENT PROCEDURES

### 6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

### 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 30th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
  - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with the General Conditions:
    - a. 95 percent of payment claimed until Work is 50 percent complete (with the balance being retainage);
    - b. When work is 50 percent complete, 98 percent of the dollar value of all work satisfactorily completed to date, (with the balance being retainage) provided that the contractor is making satisfactory progress and there is no specific cause for greater withholding;
  - 2. When the work is Substantially Complete (operational or beneficial occupancy), Owner shall pay an amount sufficient to increase total payments to Contractor to the payment claimed, less such amounts as Engineer shall determine as necessary to assure completion in accordance with Paragraph 14.02.B.5 of the General Conditions;
  - 3. Owner may reinstate up to 5 percent withholding if the Owner or Engineer determines, at its discretion, that the Contractor is not making satisfactory progress or there is other specific cause for such withholding in accordance with Paragraph 14.02.B.5 of the General Conditions; and

### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

## **ARTICLE 7 – INTEREST**

7.01 Not Used.

## **ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS**

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
  - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
  - D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."
  - E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor’s safety precautions and programs.
  - F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
  - G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
  - H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor is financially solvent and that he is experienced in and competent to perform the type of work, or to furnish plant and equipment materials and supplies.
- K. Contractor is familiar with all Federal, State and Municipal laws, ordinances and regulations, which in any way may affect the work of those employed therein.

## **ARTICLE 9 – CONTRACT DOCUMENTS**

### **9.01 Contents**

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 1 to 8, inclusive).
  - 2. Performance bond (pages 1 to 1, inclusive).
  - 3. Payment bond (pages 1 to 1, inclusive).
  - 4. General Conditions (pages 1 to 62, inclusive).
  - 5. Supplementary Conditions (pages 1 to 15 as well as all attached sections, inclusive).
    - a. Prevailing Wage Rates (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive)
  - 6. Specifications as listed in the table of contents of the Project Manual.
  - 7. Drawings consisting of 6 sheets with each sheet bearing the following general title: Sewer System Rehabilitation
  - 8. Addenda (numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - 9. Exhibits to this Agreement (enumerated as follows):
    - a. Contractor's Bid (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
    - b. Documentation submitted by Contractor prior to Notice of Award (pages \_\_\_\_\_ to \_\_\_\_\_, inclusive).
  - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    - a. Notice to Proceed (pages 00811-1, inclusive).
    - b. Work Change Directives.
    - c. Change Orders.

- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

## **ARTICLE 10 – MISCELLANEOUS**

### *10.01 Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

### *10.02 Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

### *10.03 Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

### *10.04 Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

### *10.05 Contractor's Certifications*

- B. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

Not Used

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

This Agreement will be effective on \_\_\_\_\_ (which is the Effective Date of the Agreement).

**OWNER:**

**CONTRACTOR**

\_\_\_\_\_  
By: \_\_\_\_\_  
Title: \_\_\_\_\_

\_\_\_\_\_  
By: \_\_\_\_\_  
Title: \_\_\_\_\_  
(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: \_\_\_\_\_  
Title: \_\_\_\_\_

Attest: \_\_\_\_\_  
Title: \_\_\_\_\_

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

License No.: \_\_\_\_\_  
(Where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

Agent for service of process:  
\_\_\_\_\_

**Agency:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**SECTION 00610**  
**PERFORMANCE BOND**

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location):*

**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form:  None  See Paragraph 16

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Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_ *(seal)*

Contractor's Name and Corporate Seal

\_\_\_\_\_ *(seal)*

Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.**

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of

the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted

within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:



**SECTION 00620**  
**PAYMENT BOND**

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):* Town of Trumbull, Connecticut  
5866 Main Street  
Trumbull, Connecticut 06611

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location):* Sewer System Rehabilitation, Project 1: Area A and Area B

**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form:  None  See Paragraph 18

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Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
Contractor's Name and Corporate Seal *(seal)*

\_\_\_\_\_  
Surety's Name and Corporate Seal *(seal)*

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature *(attach power of attorney)*

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.**

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
  - 5.1 Claimants who do not have a direct contract with the Contractor,
    - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
  - 7.2 Pay or arrange for payment of any undisputed amounts.
  - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or

(2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### 16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's

lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:



This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

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and

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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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CONSTRUCTION CONTRACT**

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

### B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

### D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

### E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### *2.01 Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### *2.02 Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### *2.03 Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract

Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such

notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 5 – BONDS AND INSURANCE**

### *5.01 Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### *5.02 Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### *5.03 Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of

insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
  2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
  - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

## 2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and

- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

## 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

## 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

## 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 *Use of Site and Other Areas*

##### A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
  2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employees at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*
    - a. Submit number of copies specified in the General Requirements.
    - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
  2. *Samples:*
    - a. Submit number of Samples specified in the Specifications.
    - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
    - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
    - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
    - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
    - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
  2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
  3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
  6. any inspection, test, or approval by others; or
  7. any correction of defective Work by Owner.

#### 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## ARTICLE 7 – OTHER WORK AT THE SITE

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

### 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## **ARTICLE 8 – OWNER'S RESPONSIBILITIES**

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

#### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

#### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

#### 9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
  2. approve the Claim; or
  3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

#### 11.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

#### 11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  2. there is no corresponding adjustment with respect to any other item of Work; and
  3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

## **ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

### *12.01 Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

#### 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor,

then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. repair such defective land or areas; or
  - 2. correct such defective Work; or
  - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

### *14.01 Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### *14.02 Progress Payments*

#### *A. Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
  - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment:*

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

#### 14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
  - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
  - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

## 14.07 *Final Payment*

### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

### B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

### C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

#### 14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
  1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

#### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
  2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

#### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

## **ARTICLE 16 – DISPUTE RESOLUTION**

### *16.01 Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
  - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## **ARTICLE 17 – MISCELLANEOUS**

### *17.01 Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *17.02 Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800SUPPLEMENTARY CONDITIONSSupplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract Funding Agency Edition, EJCDC C-700 (2007 Edition), hereinafter called the General Conditions, and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof. The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

Contents of Supplementary Conditions

<u>Section No.</u>	<u>Section Title</u>	<u>Page No.</u>
SC-1 to SC-16	Amendments to General Conditions	00800-1
SC-32	Wage Rates	SC-32-1

## **SC-1 DEFINITIONS AND TERMINOLOGY**

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

### **SC-1.01.A.3. APPLICATION FOR PAYMENT**

Add the following language to the end of Paragraph 1.01.A.3:

The Application for Payment form to be used on this Project is EJCDC No. C-620 or similar approved format. The Owner must approve all Applications for Payment before payment is made.

### **SC-1.01.A.9. CHANGE ORDER**

Add the following language to the end of Paragraph 1.01.A.9:

The Change Order form to be used on this Project is EJCDC No. C-941.

### **SC-1.01 A.29 OWNER**

Add the following to the end of paragraph 1.29 of the General Conditions:

Owner is referred to as Grantee in certain sections of these Contract Documents. Owner and Grantee are one and the same.

### **SC-1.01 A.52 NON-RESIDENT CONTRACTOR**

Add a new paragraph immediately after paragraph 1.01.A.51 of the General Conditions, which is to read as follows:

#### **52. Non-Resident Contractor -**

- a. A person who is not a resident in the State where the proposed construction is to be located, or
- b. Any partnership that has no member thereof resident in the State where the proposed construction is to be located.
- c. Any corporation established under laws other than those of the State in which the proposed construction is located.

### **SC-1.02.D DEFECTIVE**

Insert the following language as paragraph 1.02 D.1.d:

- d. or fails to provide the level of service for which it was intended.

### **SC-2.02 COPIES OF DOCUMENTS**

Delete Paragraph 2.02.A in its entirety and insert the following in its place:

- A. Owner shall furnish to Contractor up to 3 printed or hard copies of the Drawings and Project Manual and one set in electronic pdf format. Additional copies will be furnished upon request at the cost of reproduction.

### **SC-2.03 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED**

Delete Paragraph 2.03.A in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

### **SC-2.05 BEFORE STARTING CONSTRUCTION**

Add the following as paragraph 2.05.B:

- B. The value of mobilization shall not exceed 2.5 percent of the contract price.

### **SC-3.01 INTENT**

In paragraph 3.01.B, line 2, immediately following the word “constructed”, add the words “by the CONTRACTOR”

Add a new paragraph immediately after Paragraph 3.01 C of the General Conditions which is to read as follows:

- D. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion.

### **SC- 3.03 REPORTING DISCREPANCIES**

Add the following to the end of paragraph 3.03.A.1:

Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

Delete Paragraph 3.03.A.3 in its entirety and insert the following in its place:

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual or constructive knowledge thereof.

#### **SC-4.02 SUBSURFACE AND PHYSICAL CONDITIONS**

Add the following new paragraph(s) immediately after paragraph 4.02.B:

C. In the preparation of Drawings and Specifications, Engineer or Engineer's Consultants relied upon the following information:

1. DVD's and Reports prepared by Green Mountain Pipeline Services of Royalton, VT. Contractor is responsible for any interpretation or conclusion he/she may draw from any "technical data" or any other data, interpretations, opinions or information contained in such reports.

D. Copies of information itemized in SC-4.02.C that are not included with Bidding Documents may be examined at Wright-Pierce, 169 Main Street, 700 Plaza Middlesex, Middletown, CT 06457, Tel. (860) 343-8297, during regular business hours. The information is not part of the Contract Documents, and the Contractor is not entitled to rely upon this information.

#### **SC-4.06 HAZARDOUS ENVIRONMENTAL CONDITION AT SITE**

Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

- A. No reports, explorations, tests or drawings of Hazardous Environmental Conditions at the Site are known to the Owner or Engineer.
- B. Not used.

#### **SC-5.01 PERFORMANCE, PAYMENT, AND OTHER BONDS**

Add the following new paragraph immediately after paragraph 5.01.C:

- A. The premium on such new or additional bonds shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until new sureties have qualified.

**SC-5.04 CONTRACTOR’S INSURANCE**

Add the following sentence to the end of Paragraph 5.04.B.4.

“Written notice will be served by registered mail to the Purchasing Agent, Town of Trumbull”

Add the following new paragraph immediately after Paragraph 5.04.B:

- C. The successful bidder shall provide the Town Purchasing Agent with a Certificate of Insurance before work commences. The Town shall be named as an additional insured on all policies with Insurance Company licensed to write such insurance in Connecticut, against the following risks and in not less than the following amounts:
- Worker’s Compensation
  - Comprehensive General Liability and Property Damage
  - Automobile Insurance
  - All Risk Insurance

General Liability	Each Person	Each Occurrence	Aggregate
Bodily Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage Liability	\$1,000,000	\$1,000,000	\$1,000,000
Personal Injury Liability	\$1,000,000	\$1,000,000	\$1,000,000
Comprehensive Automobile Liability			
Bodily Injury	\$1,000,000	\$1,000,000	\$1,000,000
Property Damage		\$1,000,000	\$1,000,000

**SC-5.05 OWNER’S LIABILITY INSURANCE**

Delete section 5.05.A in its entirety and insert the following in its place.

*5.05 Owner’s and Contractor’s Protective Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Contractor must purchase and maintain at Contractors expense Owner’s and Contractor’s Protective Liability Insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

**SC-6.01 SUPERVISION AND SUPERINTENDENCE**

Add the following sentences to the end of paragraph 6.01.B of the General Conditions.

It is understood that such representative shall be acceptable to the Town and shall be one whose experience and length of service in this particular kind of work warrants him ability to perform

the duties entailed to the satisfaction of the Engineer, and who can continue in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll. The Engineer reserves the right of investigation to satisfy the Town that the appointed superintendent is properly qualified to carry out the obligations entailed to perform the work herein contemplated in the plans and specifications and directions.

#### **SC-6.02      LABOR; WORKING HOURS**

Add the following sentences to the end of paragraph 6.02.B of the General Conditions.

"Regular working hours shall be 7:00 AM to 4:00 PM, Monday through Friday."

"The Official Town of Trumbull Holidays are:

New Year's Day

Martin Luther King Day

Presidents' Day

Good Friday

Memorial Day

Independence Day

Labor Day

Columbus Day

Veteran's Day

Thanksgiving Day

Day Following Thanksgiving Day

Christmas Day

Day After Christmas Day (2014 Floating Holiday)"

#### **SC-6.05      SUBSTITUTES AND "OR-EQUALS"**

Add a new paragraph SC-6.05.A.1.c immediately after paragraph 6.05.A.1.b of the General Conditions, which is to read as follows:

- c. It shall be CONTRACTOR's responsibility to coordinate all submittals to ENGINEER for approval to eliminate any conflicts which might arise due to the use of "or equal" items. Any additional costs incidental to the use of "or equal" items shall be paid by CONTRACTOR.

#### **SC-6.06      CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

Add the following paragraph immediately after paragraph 6.06.C.2:

3. Owner or Engineer may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor, Supplier, or other individual or entity.

Add a new paragraph immediately after Paragraph 6.06.G:

- H. The Contractor shall not award work valued at more than fifty (50%) percent of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

#### **SC-6.09 LAWS AND REGULATIONS**

Add new paragraphs immediately after paragraph 6.09.C:

- D. All work activities performed, and procurement of goods and services, in association with this Contract must be performed in accordance with all applicable current Federal, State and Local regulations. All work shall also conform to the latest OSHA standards and/or regulations.
- E. Each and every provision of law and clause required by law to be inserted in this Contract, shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein.

#### **SC-6.10 TAXES**

Add a new paragraph immediately after Paragraph 6.10.A:

- B. The Contractor's attention is called to Regulation 18 as amended, promulgated by the Sales and Use Tax Division of the State Department of Revenue Services, which provided for the exemption of the sales and use tax on the purchase of such materials and supplies as are to be physically incorporated in and become a permanent part of the Project being performed under this Contract. The Contractor may avail himself of the savings of this tax and shall take this exemption into account in calculating his bid for this work. The Contractor or Subcontractor shall furnish his suppliers with a completed Exempt Purchase Certificate. A copy of the Contractor's Exempt Purchase Certificate is included in Article SC-20 of the Supplementary Conditions.
- C. The Town of Trumbull is exempt from the payment of taxes imposed by the Federal Government and/or State of Connecticut. Such taxes must not be included in the proposal price. The Town of Trumbull Tax Exempt number is 05-010 31-000.

#### **SC-6.11**

Add a new paragraph immediately after Paragraph 6.11A.3:

- 4. The Contractor shall have no claim against the Town for damages or extra compensation on account of delays in execution of the work or delays in making the construction site available to the Contractor.

**SC-6.13 SAFETY AND PROTECTION**

Add new paragraphs immediately after Paragraph 6.13.F:

- G. Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the manual of "Accident Prevention in Construction", latest revision, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws.
- H. If at any time, in the sole judgment of the Engineer, the work is not properly lighted, barricaded, or in any other respect safe in regard to public travel, persons on or about the work, or public or private property, the Engineer shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable and the Contractor shall comply promptly with such orders. If, under such circumstances, the Contractor does not or cannot immediately put the work and the safeguards into proper and approved condition, or if the Contractor or his representative is not upon the site so that he can be notified immediately of the insufficiency of safety precautions, the Engineer may put the work into such a condition that it shall be, in his opinion, in all respects safe. The Contractor shall pay all costs and expenses incurred by the Engineer or Owner in doing so. Such action of the Engineer, or his failure to take such action, shall in no way relieve or diminish the responsibility of the Contractor for any and all costs, expenses, losses, liability, claims, suits, proceedings, judgments, awards or damages resulting from, by reason of or in connection with any failure to take safety precautions or the insufficiency of the safety precautions taken by him or the Engineer acting under authority of this article or for failure to comply with the provisions of any State or Federal Occupational Safety and Health Laws, Rules or Regulations.

**SC-6.20 INDEMNIFICATION**

Add new paragraphs immediately after Paragraph 6.20.C of the General Conditions which are to read as follows:

- D. The Contractor shall indemnify, defend and hold harmless the Owner against any and all mechanic's liens placed on the premises or on Owner's interest in the premises by any Subcontractor of any tier or material supplier. In the event that a Subcontractor of any tier or material supplier places a mechanic's lien on the premises, the Contractor shall, with thirty (30) days of the filing of any mechanic's lien, substitute a bond for such lien or cause the lien to be discharged. If the Contractor shall fail to do so, the Owner may, at its option and at the expense of the Contractor, bond such lien or cause the lien to be discharged, and the Contractor will reimburse the Owner for all costs and expenses incurred, including but not limited to attorneys' fees and court costs.
- E. The Contractor shall indemnify, defend, and hold harmless the Owner from and against any additional costs or expenses incurred by Owner, including attorneys' fees and court costs, as a result of any claim or cause of action by any Subcontractor or supplier of any tier asserted directly against the Owner to recover payment for labor or materials supplied to the Project,

unless such claim or cause of action arises from the failure of the Owner to make payments in accordance with the applicable provisions of the Contract Documents.

- F. The Contractor shall indemnify and hold harmless the Owner, its agents and employees from and against any costs and expenses, including attorneys' fees and court costs, incurred in enforcing any of the Contractor's defense, indemnity, and hold harmless obligations under this Contract.

### **SC-8.11 EVIDENCE OF FINANCIAL ARRANGEMENTS**

SC-8.11 Add the following new paragraph immediately after paragraph 8.11.A:

- B. On request of Contractor prior to the execution of any Change Order involving a significant increase in the Contract Price, Owner shall furnish to Contractor reasonable evidence that adequate financial arrangements have been made by Owner to enable Owner to fulfill the increased financial obligations to be undertaken by Owner as a result of such Change Order.

### **SC-9.03 PROJECT REPRESENTATIVE**

Add a new paragraph immediately after paragraph 9.09E of the General Conditions which is to read as follows:

- F. Resident Project Representative is Engineer's agent at the site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding Resident Project Representative's actions. Resident Project Representative's dealings in matters pertaining to the on-site work shall in general be with Engineer and Contractor keeping Owner advised as necessary. Resident Project Representative's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. Resident Project Representative shall generally communicate with Owner with the knowledge of and under the direction of Engineer.
- 1 Duties and Responsibilities of Resident Project Representative:
    - 1.1 Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
    - 1.2 Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
    - 1.3 Liaison:
      - a. Serve as Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents; and assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-site operations.

- b. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
- 1.4 Shop Drawings and Samples:
- a. Record date of receipt of Shop Drawings and samples.
  - b. Receive samples which are furnished at the site by Contractor, and notify Engineer of availability of samples for examination.
  - c. Advise Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been reviewed by Engineer.
- 1.5 Review of Work, Rejection of Defective Work, Inspections and Tests:
- a. Conduct on-site observations of the Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Report to Engineer whenever Resident Project Representative believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of Work that Resident Project Representative believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
  - c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to Engineer appropriate details relative to the test procedures and startups.
  - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Engineer.
- 1.6 Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- 1.7 Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with recommendations to Engineer. Transmit to the Contractor decisions as issued by Engineer.
- 1.8 Records:
- a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
  - b. keep a diary or log book recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
  - c. Record names, address and telephone numbers of all contractors, subcontractors and major suppliers of materials and equipment.

- 1.9 Reports:
- a. Furnish Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
  - b. Consult with Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.
  - c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from Contractor and recommend to Engineer Change Orders, Work Directive Changes, and Field Orders.
  - d. Report immediately to Engineer and Owner upon the occurrence of any accident.
- 1.10 Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 1.11 Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the Work.
- 1.12 Completion:
- a. Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
  - b. Conduct final inspection in the company of Engineer, Owner and Contractor and prepare a final list of items to be completed or corrected.
  - c. Observe that all items on final list have been completed or corrected and make recommendations to Engineer concerning acceptance.
- 2 Limitations of Authority of the Resident Project Representative:
- 2.1 Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Engineer.
  - 2.2 Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.
  - 2.3 Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.
  - 2.4 Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
  - 2.5 Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
  - 2.6 Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.
  - 2.7 Shall not authorize Owner to occupy the Project in whole or in part.

- 2.8 Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

**SC-9.09      LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES**

Add the following language to the end of Paragraph 9.09.E:

- 2      Limitations of Authority of the Resident Project Representative:
- 2.1    Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Engineer.
- 2.2    Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.
- 2.3    Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.
- 2.4    Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- 2.5    Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
- 2.6    Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.
- 2.7    Shall not authorize Owner to occupy the Project in whole or in part.
- 2.8    Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Engineer.

**SC-10      CHANGES IN THE WORK; CLAIMS**

Add the following paragraphs immediately after paragraph 10.03.A.3:

4. Agreement on any Change Order shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Price and the Contract Time.
5. Except as expressly permitted hereunder, a change in the Contract Price or the Contract Time shall be accomplished only by a written Change Order executed before the Work is performed. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any alteration of or addition to the Work, shall be the basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

**SC-11.03 UNIT PRICE WORK**

Delete Paragraph 11.03.D in its entirety and insert the following in its place:

- D.** The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
  2. if there is no corresponding adjustment with respect to any other item of Work; and
  3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

**SC-13.05 OWNER MAY STOP THE WORK**

Add a new paragraph immediately after paragraph 13.05.A of the General Conditions to read as follows:

- B.** If OWNER stops Work under Paragraph 13.05.A, CONTRACTOR shall be entitled to no extension of Contract Time or increase in Contract Price.

**SC-14.02 PROGRESS PAYMENTS**

Add the following sentence at the end of paragraph 14.02.A.3:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

**SC-14.05 PARTIAL UTILIZATION**

Add the following new paragraph immediately after paragraph 14.05.A.4, which is to read as follows:

5. Owner may at any time request Contractor in writing to permit Owner to take over operation of any part of the Work although it is not substantially complete. A copy of such request will be sent to Engineer, and within a reasonable time thereafter Owner, Contractor, and Engineer shall

make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If Contractor does not object in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the list of items to be completed or corrected and will deliver such lists to Owner and Contractor together with a written recommendation as to the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties, and guarantees for that part of the Work which will become binding upon Owner and Contractor at the time when Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed Engineer). During such operation and prior to Substantial Completion of such part of the Work, Owner shall allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.

#### **SC-14.07 FINAL PAYMENT**

Add a new paragraph immediately after paragraph 14.07.B.1 of the General Conditions which is to read as follows:

2. Two (2) percent of the total contract amount as reflected on the final Application for Payment shall be retained by Owner during the Correction Period. This retainage shall be held by Owner in an account without interest accruing to Contractor. All amounts otherwise due Contractor will be paid as described in paragraph 14.07.C of the General Conditions. At the end of the correction period, Owner shall pay Contractor the retainage less any amounts deducted for failure of Contractor to perform as outlined in Section 13 of the General Conditions.

#### **SC-15.02 OWNER MAY TERMINATE FOR CAUSE**

Add a new phrase immediately after paragraph 15.02.A.4 of the General Conditions which is to read as follows:

5. If CONTRACTOR abandons the Work, or sublets this Contract or any part thereof, without the previous written consent of OWNER, or if the Contract or any claim thereunder shall be assigned by CONTRACTOR otherwise than as herein specified;
6. If the Contractor fails to perform to the Town's satisfaction any material requirement of the Agreement, or is in violation of any specific provision thereof.
7. If the Town reasonably determines satisfactory performance of the Agreement is substantially endangered or can reasonably anticipate such an occurrence or default.
8. If the Contractor furnished any statement, representation, warranty or certification in connection with this Agreement, which is materially false, deceptive, incorrect, or incomplete.

#### **SC-15.05 TOWN RIGHT TO STOP WORK OR TERMINATE CONTRACT**

Add the new Section immediately after 15.04.B:

*15.05 Town Right to Stop Work of Terminate Contract*

- A. If the Contractor shall be adjudged bankrupt, an assignment shall be made for the benefit of creditors. A receiver or liquidator shall be appointed for the Contractor and for any of his property. The Contractor shall be dismissed within twenty (20) days after such appointment. The proceedings in connection therewith shall not be stayed within the said twenty (20) days. If the Contractor shall refuse or fail after notice or warning from the Engineer, to supply enough properly skilled workmen or proper materials, or if the Contractor shall fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or duly authorized extension thereof) or shall fail to complete the work within said period, or if the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work, or if the Contractor shall fail or refuse to regard laws, ordinances or the instructions of the Engineer or otherwise be guilty of a substantial violation of any provision of this contract, then in any such event, the Town without prejudice to any other right or remedy, may give seven (7) days notice to the Contractor, to terminate the employment of the Contractor.
1. In such cases, the Contractor shall not be entitled to receive any further payment until the work is finished.
  2. If the unpaid balance of the compensation to be paid the Contractor hereunder, shall exceed the expense of so completing the work (including compensation for additional managerial administrative and inspection services and any damages for delay), such excess shall be paid to the Contractor.
  3. If such expense shall exceed such unpaid balance, the Contractor and his sureties shall be liable to the Town for such excess.
  4. If the right of the Contractor to proceed with the work is so terminated, the Town may take possession of and utilize in completing the work, such materials, appliances, supplies, plan and equipment as may be on the site of the work, and necessary therefore.
  5. If the work shall be stopped by order of the Court of any other public authority, for a period of three (3) months, without act or fault of the Contractor or any of his agents, servants, employees, or subcontractors, the Contractor may upon ten (10) days' notice to the Town of Trumbull, discontinue his performance of the work and/or terminate the contract.

**SC-16 DISPUTE RESOLUTION**

Delete Paragraph 16.01 in its entirety and replace with the following new Paragraph 16.01:

16.01 *Methods and Procedures*

- A. Prior to the initiation of formal dispute resolution proceedings, the claiming party shall submit a written demand for a conference to be attended by those individuals who singly or combined are empowered to make decisions for each entity in an attempt to resolve the

disputed issue. Such meeting shall be held within 15 working days of the demand at the offices of the Owner.

- B. Owner and Contractor may mutually request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association or any recognized dispute resolution organization located in the State of Connecticut.
- C. Owner and Contractor shall participate in the mediation process in good faith. The mediation process shall commence within 30 days of the selection of a mediator following the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- D. If the claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process, or
  - 3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

#### **SC-17 MISCELLANEOUS**

Add the following new paragraphs immediately after Section 17.06 Headings, which is to read as follows:

##### *17.07 Archeological Finds*

- A. Be alert to the possibility that, during prosecution of the Project, significant archeological or paleontological remains or other such materials may be uncovered. When archeological or paleontological materials are uncovered, immediately halt operations in the location of same and notify the Engineer of said discovery. Make every effort to preserve archeological or paleontological materials intact in their original positions, in order to preserve the archeological or paleontological nature and importance of such materials in relation to one another and to the enclosing soil. The State Historic Preservation Office should also be notified.
- B. The Engineer shall have the authority to suspend Project work in the area of such discovery for the purpose of preserving, documenting and recovering the archeological or paleontological materials. Carry out all instructions of the Engineer for the protection of such materials, including steps to protect the site from vandalism and unauthorized

investigations, from accidental damage and from dangers such as heavy rainfall or runoff. Reschedule work to minimize any loss of time needed to complete the project while the authorities having jurisdiction evaluates, records and salvages the archeological or paleontological materials.

*17.08 Wage Rates*

- A. The requirements and provisions of all applicable laws and any amendments thereof or additions thereto as to the employment of labor, and to the schedule of minimum wage rates established in compliance with laws shall be a part of these Contract Documents. Copies of the wage schedules are included in SC-32 of these Supplementary Conditions. If, after the Notice of Award, it becomes necessary to employ any person in a trade or occupation not classified in the wage determinations, such person shall be paid at not less than such rates as shall be determined by the officials administering the laws mentioned above. Such approved minimum rate shall be retroactive to the time of the initial employment of such person in such trade or occupation. CONTRACTOR shall notify OWNER of CONTRACTOR's intention to employ persons in trades or occupations not classified in sufficient time for OWNER to obtain approved rates for such trades or occupations.
- B. The schedules of wages referred to above are minimum rates only, and OWNER will not consider any claims for additional compensation made by CONTRACTOR because of payment by CONTRACTOR of any wage rate in excess of the applicable rate contained in these Contract Documents. All disputes in regard to the payment of wages in excess of these specified in the schedules shall be resolved by CONTRACTOR.
- C. The said schedules of wages shall continue to be the minimum rates to be paid during the life of this Agreement and a legible copy of said schedules shall be kept posted in a conspicuous place at the site of the work.
- D. The State schedule of minimum wage rates are included in SC-32 of these Supplementary Conditions. Where rates differ, the higher rates shall apply as a minimum for that trade.
- E. Applicable laws and regulations relating to State of Connecticut Prevailing Wages, employment practices, nondiscrimination, safety and health regulations shall be adhered to by the CONTRACTOR. The CONTRACTOR shall be responsible for "Certified Statements of Compliance" regarding Prevailing Wages. CONTRACTOR shall also collect and submit four (4) Certified "Statements of Compliance" from any sub-contractors.

END OF SECTION



SECTION SC-32WAGE RATES

Wage rates apply to this project. The Wage Rates are attached to these specifications or will be supplied as a separate document, issued as an Addendum. It is the responsibility of the Contractor, before bid opening, to request, if necessary, any additional information on Wage Rates for those trades people who are not covered by the applicable Wage Rates, but who may be employed for the proposed work under this contract.

Additional wage classifications and rates can only be added after bid opening. If required classifications are not listed in the wage determination, the Contractor must list the classifications and the rates he proposes to pay. This list will be forwarded to the Connecticut Department of Labor, Wage & Workplace Standards Division 200 Folly Brook Blvd., Wethersfield, CT 06109 for approval. If DOL rejects any or all of the proposed rates as being too low, the Contractor will be required to pay the higher rate at no increase in the total contract cost. In any event, the rates the Contractor proposes to pay to those unlisted classifications should not be lower than the rate paid to a laborer.

Preferred Employees: In the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the state who are, and continuously for at least six months prior to the date hereof have been, residents of this state, and if no such person is available then to residents of other states.



**SECTION 00810  
NOTICE OF AWARD**

Date: \_\_\_\_\_

Project: \_\_\_\_\_

Owner: \_\_\_\_\_

Owner's Contract No.: \_\_\_\_\_

Contract: \_\_\_\_\_

Engineer's Project No.: \_\_\_\_\_

Bidder: \_\_\_\_\_

Bidder's Address: *[send Notice of Award Certified Mail, Return Receipt Requested]*  
\_\_\_\_\_  
\_\_\_\_\_

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

*[Indicate total Work, alternates, or sections of Work awarded.]*

The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

*[Insert appropriate data if unit prices are used. Change language for cost-plus contracts.]*

\_\_\_\_\_ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:  
\_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Title

Copy to Engineer



**SECTION 00811  
NOTICE TO PROCEED**

Date: \_\_\_\_\_

Project: \_\_\_\_\_

Owner: \_\_\_\_\_

Owner's Contract No.: \_\_\_\_\_

Contract: \_\_\_\_\_

Engineer's Project No.: \_\_\_\_\_

Contractor: \_\_\_\_\_

Contractor's Address: *[send Certified Mail, Return Receipt Requested]*

You are notified that the Contract Times under the above Contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_ [(or) the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents. Also, before you may start any Work at the Site, you must: \_\_\_\_\_ *[add other requirements]*.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Owner

Given by: \_\_\_\_\_

Given by: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Copy to Engineer



SECTION 00836

CONTRACTOR'S AFFIDAVIT

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Before me, the undersigned, a \_\_\_\_\_  
(Notary Public, Justice of Peace, Alderman)

in and for said County and State personally appeared, \_\_\_\_\_  
(Individual, Partner or duly

\_\_\_\_\_ who being duly sworn according to law  
authorized representative of corporate contractor)

deposes and says that the cost of all the Work, and outstanding claims and indebtedness of whatever  
nature arising out of the performance of the contract between

(Owner)

and \_\_\_\_\_ of \_\_\_\_\_  
(Contractor)

dated \_\_\_\_\_ for the construction of the \_\_\_\_\_  
(Agreement Date) (Project)

\_\_\_\_\_ and necessary  
appurtenant installations have been paid in full.

\_\_\_\_\_  
(Individual, Partner, or duly authorized  
representative of corporate contractor)

Sworn to and subscribed before me  
this \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_, \_\_\_\_\_

END OF SECTION



SECTION 00837

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that \_\_\_\_\_  
 \_\_\_\_\_ (Contractor)  
 of \_\_\_\_\_, County of \_\_\_\_\_ and State of \_\_\_\_\_  
 do hereby acknowledge that \_\_\_\_\_ has this day had, and received of  
 \_\_\_\_\_ (Contractor)  
 and from \_\_\_\_\_ the sum of One Dollar and other valuable considerations in  
 \_\_\_\_\_ (Owner)  
 full and complete satisfaction and payment of all sums of money owed, payable and belonging to  
 \_\_\_\_\_ by any means whatsoever, for on account of a Contract  
 \_\_\_\_\_ (Contractor)  
 Agreement between \_\_\_\_\_ and \_\_\_\_\_  
 \_\_\_\_\_ (Owner) \_\_\_\_\_ (Contractor)  
 dated \_\_\_\_\_ for \_\_\_\_\_  
 \_\_\_\_\_ (Agreement Date) \_\_\_\_\_ (Project)

NOW, THEREFORE, the said \_\_\_\_\_  
 \_\_\_\_\_ (Contractor)

(for myself, my heirs, executors and administrators) (for itself, its successors and assigns)  
 do/does, by these presents remise, release, quit-claim and forever discharge \_\_\_\_\_  
 \_\_\_\_\_ (Owner)  
 \_\_\_\_\_, of and from all claims and demands, arising from or in connection  
 with the said contract dated \_\_\_\_\_, and of and from all, and all manner of action and  
 \_\_\_\_\_ (Agreement Date)  
 actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money,  
 accounts, reckonings, bonds, bills, specialties, covenants, contracts, agreements, promises,  
 variances, damages, judgments, extents, executions, claims and demand, whatsoever in law or  
 equity, or otherwise, against \_\_\_\_\_ its successors and assigns, which (I,  
 \_\_\_\_\_ (owner)  
 my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which  
 (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can, shall or may  
 have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of  
 recorded time to the date of these presents.

IN WITNESS WHEREOF, \_\_\_\_\_  
(Contractor)

has caused these presents to be duly executed this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

Signed, Sealed and Delivered in the presence of:

\_\_\_\_\_  
(Individual -Contractor) (seal)

---

\_\_\_\_\_  
(Partnership - Contractor) (seal)

\_\_\_\_\_ By \_\_\_\_\_ (seal)  
(Partner)

---

Attested:

\_\_\_\_\_  
(Corporation)

\_\_\_\_\_ By \_\_\_\_\_  
(Secretary) (President or Vice President)

(Corp. Seal)

END OF SECTION



The following documents are attached to and made part of this Certificate:

---

---

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This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

---

Executed by Engineer

---

Date

---

Accepted by Contractor

---

Date

---

Accepted by Owner

---

Date

SECTION 00839

WAIVER OF LIEN - MATERIALS AND LABOR

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

TO WHOM IT MAY CONCERN:

WHEREAS, \_\_\_\_\_ the undersigned  
\_\_\_\_\_ have been employed by \_\_\_\_\_  
\_\_\_\_\_ to furnish labor and materials for the project known as  
\_\_\_\_\_.

NOW THEREFORE, KNOW YE, THAT WE, the undersigned, for good and valuable considerations do hereby waive and release any and all lien or right of lien on said above project and premises under the Law, in relation to Mechanics' Liens Law, on account of labor and materials, or both, furnished by the undersigned to or on account of the said contract for the said project and premises only so far as that portion of work which has been included in our requisition dated \_\_\_\_\_ and all prior requisitions.

THIS WAIVER AND RELEASE is being made to the undersigned in the amount of \$\_\_\_\_\_ which sum the undersigned certifies to be the balance due the undersigned for all labor, materials or both, furnished by the undersigned to or on account of the said contract as included on his requisition dated \_\_\_\_\_.

GIVEN UNDER \_\_\_\_\_ hand and seal, the \_\_\_\_\_ day  
of \_\_\_\_\_, 20 \_\_\_\_.

By: \_\_\_\_\_

\_\_\_\_\_

END OF SECTION



**SECTION 00840  
WORK CHANGE DIRECTIVE**

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

**Contractor is directed to proceed promptly with the following change(s):**

Item No.	Description

**Attachments (list documents supporting change):**

---



---

**Purpose for Work Change Directive:**

Authorization for Work described herein to proceed on the basis of Cost of the Work due to:

- Nonagreement on pricing of proposed change.
- Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

**Estimated change in Contract Price and Contract Times:**

Contract Price \$ \_\_\_\_\_ (increase/decrease)      Contract Time \_\_\_\_\_ (increase/decrease)  
days

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Received for Contractor by:	Date
Received by Funding Agency (if applicable):	Date:



**SECTION 00842  
CHANGE ORDER**

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

**Attachments (list documents supporting change):**

**CHANGE IN CONTRACT PRICE:**

**CHANGE IN CONTRACT TIMES:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change

\$ \_\_\_\_\_

Original Contract Times:  Working  Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

**RECOMMENDED:**

By: \_\_\_\_\_  
Engineer (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable):

**ACCEPTED:**

By: \_\_\_\_\_  
Owner (Authorized Signature)

Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
Contractor (Authorized Signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## **CHANGE ORDER INSTRUCTIONS**

### **A. GENERAL INFORMATION**

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### **B. COMPLETING THE CHANGE ORDER FORM**

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

**SECTION 00844  
APPLICATION FOR PAYMENT**

(The remainder of this page was left blank intentionally)







# Stored Material Summary

# Contractor's Application

A		B		C		D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description		Stored Previously Date (Month/Year)	Stored Previously Amount (\$)	Stored this Month Amount (\$)	Subtotal	Incorporated in Work Date (Month/Year)	Incorporated in Work Amount (\$)	Materials Remaining in Storage (\$ (D + E - F))		
<b>Totals</b>												

For (contract):

Application Number:

Application Period:

Application Date:



SECTION 01010SUMMARY OF WORKPART 1 - GENERAL1.1 DESCRIPTION

- A. Location: Work under this contract includes, but is not limited to, locations within the rights-of-way on the streets and easements in the Town of Trumbull, Connecticut, as shown on the drawings.
- B. Work Included:

The Work involves rehabilitation of manholes and pipelines throughout the Town's sewer system including, but not limited to: cleaning, sealing, and lining of manholes; brick and mortar rehabilitation; frame and cover replacement and adjustment; lining sections of gravity sewer mains and laterals; testing and sealing of pipe joints; pavement restoration, lawn restoration and appurtenant work.
- C. Schedule Limitations:
  - 1. All construction activities on Town roadways will be as indicated in Section 00800 except during emergencies defined in the General Conditions and unless Owner has specifically granted permission in writing. Work hours on CTDOT roadways shall be dictated by the conditions of the CTDOT encroachment permit.
- D. Related Work Specified Elsewhere:
  - 1. Construction Schedules: Section 01310.
- E. Removals, Relocations and Rearrangements
  - 1. Examine the existing site(s) for the work of all trades which will influence the cost of the work under the bid. This work shall include removals, relocations and rearrangements which may interfere with, disturb or complicate the performance of the work under the bid involving systems, equipment and related service lines, which shall continue to be utilized as part of the finished project. The Contractor is responsible for all coordination in this regard.
- F. Coordination:
  - 1. The Contractor shall be responsible for coordinating work with the Town of Trumbull, Town of Trumbull Water Pollution Control Authority, Trumbull Department of Public Works, Town of Trumbull Police Department, Local Bus Company and all other utilities.
  - 2. The Contractor shall become familiar with the Town of Trumbull and Connecticut DOT standards for roadway work. He shall retain any necessary permitting required to do work.
  - 3. The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the right-of-way or property of the Town. A copy of the written consent shall be given to the Engineer.

PART 2 - PRODUCTS

Not Applicable.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION SEQUENCE

- A. The Contractor shall submit to the Engineer for review and acceptance, a complete schedule of his proposed sequence of construction operations prior to commencing any work. Refer to Paragraph 1.1.C above for scheduling requirements.
- B. The Contractor shall conduct his operations in such a manner and sequence which shall neither result in a disruption of, nor interfere with, the functional workings of any existing utilities/facilities or wastewater flows.
- C. The Contractor shall furnish, install and operate any piping, equipment and appurtenances necessary to provide the temporary services, facilities, and bypasses required during construction including, but not limited to, bypass pumping, flow barriers and diversions. Temporary facilities, if required, shall have pumping capacity equal to or greater than the existing pumping and/or piping as applicable. The Contractor must submit a temporary by-pass plan to, and receive approval from, the Owner prior to conducting any bypassing.
- D. The Contractor shall include the cost of all temporary facilities required to bypass pump or otherwise handle and maintain flows during rehabilitation work as necessary in the bid price. The cost shall include all labor, tools, equipment and materials necessary.
- E. The following items must be reflected in the Contractor's proposed sequence of construction operations:
  - 1. Access to all residences and businesses must be maintained at all times. To the maximum extent practicable, the Contractor will work to limit the area impacted by his work while on public ways.
- F. The Contractor shall insure that no excavation be left open, unguarded, or water filled during any period of time when work is not actually in progress. It is the purpose and intent that all excavations and backfill, including consolidation operations, and temporary surfacing and pavements within an area be accomplished expeditiously before proceeding to other work areas. Construction scheduling and methods will be discussed at the pre-construction conference.
- G. The Owner reserves the right to schedule the Contractor to construct at any locations within the project area. At the same time the Owner may order the suspension of construction at any location. Construction in seasonally heavily traveled roads shall be avoided, to the greatest extent practical, during the peak traffic periods. The Contractor is advised that various permits are necessary for the progress of the work.
- H. The Contractor shall pay special attention to the schedule and number of construction days as specified. If the Contractor exceeds the number of construction days, he shall pay liquidated damages and incur all additional expenses to include additional costs for uniformed police officer.
- I. The Contractor is permitted to have multiple construction crews if required to meet the construction time frame.

### 3.2 DETOURS AND ROAD ACCESSIBILITY

- A. The Contractor shall contact the responsible heads of the Fire, Police, Highway and other appropriate governing bodies of the municipality in order to obtain necessary permits and determine the requirements of said departments with respect to traffic control, alternate vehicular access routes, etc. Wherever detours are permitted the size, construction and location of signs shall conform with local and state requirements and/or standards. Detour routes shall be adequately posted to assist the motorist to return to his route of travel. Where the roadway under construction is the only means of vehicular access to a particular area, the Contractor shall provide continual access to the area for residents and emergency vehicles. Contractor shall be responsible to provide detour plan to Town of Trumbull and necessary emergency services for approval.
- B. The Contractor is responsible for providing traffic control and/or coordination with the Town of Trumbull Police Department and maintaining two-way traffic during construction. Traffic control and protection requirements are listed in Section 01570 shall be the responsibility of the contractor under the respective bid item.

3.3 CHANGE IN AMOUNT OF WORK

- A. The Owner reserves the right to increase or decrease the amount of any item of the work listed as may be found desirable or necessary during the carrying out of this contract and the unit prices quoted in the Bid Proposal shall apply without change to such variation in the quantity of each of the Items, except as otherwise provided in the Contract Documents. The Owner may elect to reduce or increase the areas where work is scheduled and reduce or increase other related work within the contract.

3.4 VISIT TO THE SITE

- A. Before submitting a bid, the Contractor shall visit the various sites, examine their conditions and thoroughly acquaint himself with the conditions for performing the work. He shall also study the drawings and compare the same with the information gathered during his examination of the sites, as no extra compensation will be authorized for extra work caused by his unfamiliarity with the sites and/or drawings or the conditions peculiar to this job.

3.5 DISPOSAL OF EXCESS MATERIAL

- A. All surplus material removed from the excavations shall be disposed of at the cost of the Contractor as an incidental work item.

3.6 TECHNICAL SPECIFICATIONS

- A. All technical specifications such as ASTM, AWWA, AASHTO, etc, referred to in these specifications refer to the latest revision of such technical specifications.

3.7 SPECIAL CONDITIONS

- A. The Contractor is advised that protection of the existing utilities in the vicinity of the project, and the assurance of uninterrupted service during the contract period is of the essence.

- B. In the event that any operations undertaken by the Contractor under this contract result in damages to utilities, all necessary repairs to water piping, valves, hydrants, fittings, cables, sewer mains, etc., shall be done by the Contractor. The Contractor shall provide, at no extra cost to the Owner, all necessary materials, equipment and labor necessary to satisfactorily excavate backfill, repair, etc., in conjunction with such repair work.
- C. Prior to commencing excavation work, the Contractor shall notify Call Before You Dig (1-800-922-4455) to have all existing public and private utility lines and underground structures marked out.

3.8 PERMITS, FEES AND BONDS

- A. The Contractor shall obtain and comply with all required permits, pay all fees and provide all bonds and insurances necessary to complete the work as specified. All Town permit fees will be waived.

3.9 EXISTING UTILITIES AND STRUCTURES

- A. The plans do not show the location and depth of all utilities, nor do they show all utilities that may be encountered.
- B. The Contractor shall assume that there are existing underground utility connections to each and every building or structure along the line of work, whether they appear on the drawings or not. The Contractor shall notify the proper utility companies and obtain and preserve the locations as marked for all existing gas, electric and other utilities that may be encountered along the line of work, until such time as such markings are no longer required.
- C. The Contractor shall dig by hand in advance of the trenching machinery to determine the exact location and depth of each utility to be encountered. Excavating machinery shall be stopped at least two feet away from each side of the utility to be crossed and the Contractor shall tunnel by hand under these utilities after he has ascertained their exact location and depth.

3.10 TWENTY-FOUR (24) HOUR EMERGENCY SERVICE

- A. The Contractor shall maintain a 24-hour, 7-day a week telephone service and a local facility to handle emergency requirements such as settled trenches, rain damage, etc. The Contractor's emergency personnel shall be able to respond to emergency calls within thirty minutes. A list of the personnel and their telephone numbers shall be submitted to the Owner, Town Public Works and Engineering Departments and to the local Police and Fire Departments. This requirement shall apply during the entire length of the project.
- B. This list shall be submitted on the Contractor's letterhead and shall state that should an emergency arise during the implementation of this project, these people are to be contacted. The Contractor shall submit this letter at the Pre-Construction Conference.

END OF SECTION

SECTION 01050COORDINATIONPART 1 - GENERAL1.1 DESCRIPTION

- A. Contractor is required to work in close proximity to Owner's existing facilities. The Contractor, under this Contract, will be responsible for coordinating construction activities with Owner to ensure that services, facilities, and safe working conditions are maintained.
- B. Any damage to existing structures, equipment and property, accepted equipment or structures, and property or work in progress by others; as a result of the Contractor's or his subcontractor's operations shall be made good by the Contractor at no additional cost to the Owner.

1.2 COORDINATION WITH OTHERS

- A. PRIOR TO ANY CONSTRUCTION ACTIVITY: the Contractor shall call the statewide utility clearing center "CALL-BEFORE-YOU-DIG" at 1-800-922-4455. All existing utilities shall be marked in the field by the respective utility companies prior to any construction activities.
- B. Town of Trumbull, CT:
  - 1. Contractor shall coordinate access, egress, detours and traffic control, if required, at each site with the Town of Trumbull Police Department and CT State Police. The Contractor shall notify the Town of Trumbull Police, CT State Police, Fire Department and local school bus company at least twenty-four (24) hours in advance of any street closings or detours.
  - 2. Contractor shall coordinate all work on Town property with the treatment plant personnel.
  - 3. The Contractor shall be responsible for coordinating and maintaining public services to all public and private properties.
- C. The Contractor shall identify all utility companies who have facilities in the project vicinity and coordinate the Work of this Contract with said utility companies.
- D. The following is list of utilities/agencies that may be involved in this project:
 

1. The Aquarian Water Company of CT	203.362.3061
2. United Illuminating Company	203.447.7900
3. Southern CT Gas Company	1.866.268.2887
4. Trumbull WPCA/Sewer Department	203.452.5048
5. Trumbull Department of Public Works	203.452.5045
6. Trumbull Town Engineer	203.452.5053

The Contractor shall coordinate the Work of this Contract with the above utilities/agencies and with any and all others who become involved in the project, to provide a minimum disruption to utility services and to services regulated by said agencies. The Contractor shall provide not less than forty-eight (48) hours notice to utilities prior to working in proximity of utilities or in areas under control of said agencies. The Contractor shall bear all costs for the utility company's inspection requirements

- E. The Contractor shall provide the Resident Project Representative and Owner a construction schedule indicating the times to perform the work required. The Contractor shall update the schedule when required and give the Resident Project Representative and Owner one week notice before the start of any work. The Contractor shall daily communicate with the Resident Project Representative and Owner concerning updating the schedule, job progress, delay or early starts, etc.
- F. Project meetings shall occur as specified in Section 01200 "Project Meetings" of these Specifications.

END OF SECTION

SECTION 01070ABBREVIATIONS & SYMBOLSPART 1 - GENERAL1.1 DESCRIPTION

A. Where any of the following abbreviations are used in these Specifications, they shall have the meaning set forth opposite each.

AASHTO	American Association of State Highway and Transportation Officials
AC	Alternating Current
ACI	American Concrete Institute
ACP	Asbestos Cement Pipe
AGA	American Gas Association
AIC	Ampere Interrupting Capacity
AGMA	American Gear Manufacturers Association
AIEE(IEEE)	American Institute of Electrical Engineers (Institute of Electrical and Electronics Engineers, Inc.)
AISC	American Institute of Steel Construction
amp	Ampere 125-16
Amer. Std.	American Standard for Cast Iron Pipe Flanges and Flanged Fittings, Class 125 (ASA B16 11960)
ANSI	American National Standards Institute
API	American Petroleum Institute
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American or Brown and Sharpe Wire Gage
AWWA	American Water Works Association
BOD	Biochemical Oxygen Demand
c.f.	Cubic Foot
c.f.m.	Cubic Foot Per Minute
c.f.s.	Cubic Foot Per Second
CI	Cast Iron
CIPRA	Cast Iron Pipe Research Association
CSI	Construction Specifications Institute
c.y.	Cubic Yards
DC	Direct Current
DEP	Department of Environmental Protection
DI	Ductile Iron
DOT	Department of Transportation
EDR	Equivalent Directional Radiation
EPA	U.S. Environmental Protection Agency

fps	Feet Per Second
ft.	Feet
gal.	Gallons
gpd	Gallons Per Day
gpm	Gallons Per Minute
HP	Horsepower
IBR	Institute of Boiler and Radiator Manufacturers
in.	Inches
inter.	Interlock
ISA	Instrument Society of America
kva	Kilovolt-ampere
kw	Kilowatt
lb.	Pound
max.	Maximum
MCB	Master Car Builders
MGD	Million Gallons Per Day
Min.	Minimum
NBS	National Bureau of Standards
NEC	National Electrical Code, Latest Edition
NEMA	National Electrical Manufacturers Association
NEWWA	New England Water Works Association
NPT	National Pipe Thread
OS&Y	Outside Screw and Yoke
PCA	Portland Cement Association
ppm	Parts Per Million
%	Percent
psi	Pounds Per Square Inch
psig	Pounds Per Square Inch Gage
PVC	Polyvinyl Chloride
rpm	Revolutions Per Minute
RUS	Rural Utility Service
s.f.	Square Foot
STL. W.G.	U.S. Steel Wire, Washburn and Moen, American Steel and Wire Cos., or Roebling Gage
s.y.	Square yard
TDH	Total Dynamic Head
USAS	Standards of the United States of America Standards Institute (formerly American Standards Association)
USS GAGE	United States Standard Gage
VC	Vitrified Clay
WSP	Working Steam Pressure
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Service Administration, Washington, D.C.

END OF SECTION

SECTION 01150MEASUREMENT AND PAYMENTPART 1 - GENERAL1.1 DESCRIPTION

- A. For lump sum items, payment shall be made to the Contractor in accordance with an accepted Progress Schedule and Schedule of Values on the basis of actual work completed.
- B. For unit-price items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements.
  - 1. All units of measurement shall be standard United States convention as applied to the specific items of work by tradition and as interpreted by the Engineer.
  - 2. At the end of each day's work, the Contractor's Superintendent or other authorized representative of the Contractor shall meet with the Resident Project Representative and determine the quantities of unit price work accomplished and/or completed during the work day.
  - 3. The Resident Project Representative will then prepare two "Daily Progress Reports" which shall be signed by both the Resident Project Representative and Contractor's Representative.
  - 4. Once each month the Resident Project Representative will prepare two "Monthly Progress Summation" forms from the month's accumulation of "Daily Progress Reports" which shall also be signed by both the Resident Project Representative and Contractor's Representative.
  - 5. These completed forms will provide the basis of the Engineer's monthly quantity estimate upon which payment will be made. Items not appearing on both the Daily Progress Reports and Monthly Progress Summation will not be included for payment. Items appearing on forms not properly signed by the Contractor will not be included for payment.
  - 6. After the work is completed and before final payment is made, the Engineer will make final measurements to determine the quantities of various items of work accepted as the basis for final settlement.

1.2 SCOPE OF PAYMENT

- A. Payments to the Contractor will be made for the actual quantities of the Contract items performed and accepted in accordance with the Contract Documents. Upon completion of the construction, if these actual quantities show either an increase or decrease from the quantities given in the Bid Form, the Contract unit prices will still prevail.
- B. The Contractor shall accept in compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment, and incidentals necessary to

the completed work and for performing all work contemplated and embraced by the Contract; also for all loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work and until its final acceptance by the Engineer, and for all risks of every description connected with the prosecution of the work, except as provided herein, also for all expenses incurred in consequence of the suspension of the work as herein authorized.

- C. The payment of any partial estimate or of any retained percentage except by and under the approved final invoice, in no way shall affect the obligation of the Contractor to repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

1.3 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

- A. When alterations in the quantities of work not requiring supplemental agreements, as hereinbefore provided for, are ordered and performed, the Contractor shall accept payment in full at the Contract price for the actual quantities of work done. No allowance will be made for anticipated profits. Increased or decreased work involving supplemental agreements will be paid for as stipulated in such agreements.
- B. When alterations in the quantities of work not requiring supplemental agreements, as hereinbefore provided for, are ordered performed, the Contractor shall use the unit cost associated with a Bid Item for both Areas A and Areas B of the Contract.

1.4 OMITTED ITEMS

- A. Should any items contained in the bid form be found unnecessary for the proper completion of the work contracted, the Engineer may eliminate such items from the Contract, and such action shall in no way invalidate the Contract, and no allowance will be made for items so eliminated in making final payment to the Contractor.

1.5 PARTIAL PAYMENTS

- A. Partial payments shall be made monthly as the work progresses. Partial payment shall be made subject to the provisions of the Agreement, and the General and Supplementary Conditions.

1.6 PAYMENT FOR MATERIAL DELIVERED

- A. When requested by the Contractor and at the discretion of the Owner, payment may be made for all or part of the value of acceptable, non-perishable materials and equipment which are to be incorporated into bid items, have not been used, and have been delivered to the construction site or placed in storage places acceptable to the Owner. Payment shall be subject to the provisions of the General and Supplementary Conditions.
- B. No payment shall be made upon fuels, supplies, lumber, false work, or other materials, or on temporary structures or other work of any kind which are not a permanent part of the Contract.

1.7 FINAL PAYMENT

A. The Engineer will make, as soon as practicable after the entire completion of the project, a final quantity invoice of the amount of the Work performed and the value of such Work. Owner shall make final payments of the sum found due less retainages subject to the provisions of the Agreement, and the General and Supplementary Conditions.

1.8 INCIDENTAL WORK

A. Incidental work items for which separate payment is not made include (but are not limited to) the following items:

1. Contract administration and insurances
2. Safety and health plan
3. Clearing, grubbing and stripping
4. Dust control
5. Noise control
6. Clean-up
7. Erosion and sedimentation control
8. Loam, seeding, grading, liming, fertilization, mulching, and watering
9. Restoration of property, and replacement of fences, curbs, structures and other minor items disturbed by the construction activities
10. Coordination with the Owner, Utilities and others, including related inspection cost (refer to Section 01050)
11. Utility crossings and relocations, unless payment is otherwise made
12. Trench boxes, steel and/or wood sheeting as required, including that left in place
13. Project record documents
14. Materials testing
15. Construction schedules, bonds, insurance, shop drawings, warranties, guarantees, certifications, and other submittals required by the Contract Documents
16. Repair and replacement of water lines (all sizes), culverts, underdrains, rock lined drainage trenches in streets and other utilities damaged by construction activities and corresponding proper disposal of removed materials unless otherwise paid for
17. Temporary utilities for construction and to maintain existing service during construction
18. Quality assurance testing
19. Temporary construction and other facilities not to be permanently incorporated into the Work necessary for construction sequencing and maintenance of operations
20. Weather protection
21. Permits not otherwise paid for or provided by the Owner

22. Visits to the Project site or elsewhere by personnel or agents of the Contractor, including manufacturer's representatives, as may be required
23. On-site and other facilities acceptable to Engineer for the storage of materials, supplies and equipment to be incorporated into the Work
24. Test pits to determine existing utility locations, soils conditions, and as required to complete the project
25. Pavement Markings
26. Earthwork (except ledge)
27. Pre-Construction photographs
28. Minor Items--such as relocation of sign posts, guard rails, rock wall, mail boxes, curbs, traffic loop detectors, pavement markings, etc., damaged as a result of construction activities
29. Miscellaneous demolition required by the construction

1.9 DESCRIPTION OF PAY ITEMS

- A. The following sections describe the measurement of and payment for the work to be done under the respective items listed in the Bid Form.
- B. Each unit or lump-sum price stated in the Bid Form shall constitute full compensation, as herein specified, for each item of the work completed.

Item No. 1 - Mobilization and Demobilization

- A. Method of Measurement: The lump sum amount bid for Mobilization and Demobilization shall not exceed 5.0% of the Base Bid.
- B. Basis of Payment: Payment amount shall be full compensation for Mobilization and Demobilization costs associated with providing the equipment required for sewer system rehabilitation efforts. Lump sum shall be paid following mobilization of equipment to begin the rehabilitation efforts and the submittal and acceptance of the Pre-Construction Photographs.

Item No. 2 - Replace Manhole Frame and Cover

- A. Method of Measurement: Replace Manhole Frame and Cover sets accepted for payment shall be for the actual number of manhole frame and cover sets replaced as indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment: The unit price per each Replace Manhole Frame and Cover set replaced shall be full compensation for all labor, materials and equipment necessary to complete the work including excavation; removal and disposal of roadway pavement to the limits required, removal and disposal of existing cover and frame; cleaning, resetting or otherwise modifying the manhole chimney to provide for a proper mounting surface for the frame; replacing chimney where indicated in the Contract Documents; disposal of removed chimney materials; furnishing, installing and grouting new frame and non-vented cover; backfill including aggregate base and subbase material; installation of roadway pavement; compaction; cleaning manhole; site restoration; adjustment of frame and cover to final grade; and all else incidental thereto for which payment is not provided under other items.

Item No. 3 - Adjust Manhole Frame and Cover

- A. Method of Measurement: Adjust Manhole Frame and Cover sets accepted for payment shall be for the actual number of manhole frame and cover sets adjusted as indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment: The unit price per each Adjust Manhole Frame and Cover set adjusted shall be full compensation for all labor, materials and equipment necessary to complete the work including excavation; locating buried manhole; removal and disposal of roadway pavement to the limits required; , removal and disposal of existing cover and frame; cleaning, resetting or otherwise modifying the manhole chimney to provide for a proper mounting surface for the frame; , resetting or otherwise modifying the manhole chimney to provide for a proper mounting surface for the frame; installing and grouting frame; backfill including aggregate base and subbase material; installation of roadway pavement; compaction; cleaning manhole; site restoration; adjustment of frame and cover to final grade; and all else incidental thereto for which payment is not provided under other items.

Item No. 4 - Seal Manhole

- A. Method of Measurement: Seal Manhole accepted for payment shall be for the actual number of manholes whose leaks are sealed with injection grouting, at the locations indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment: The unit price per each Seal Manhole shall be full compensation for all labor, materials and equipment necessary to complete the work including power wash cleaning and preparation of structure; disposal of materials removed; drilling holes for injection grouting; injection of grout to seal leaks; patching grout holes; grouting and sealing around leaking pipe connections or other defects; maintaining and bypassing existing sewer flows; and all else incidental thereto for which payment is not provided under other items. Payment shall not be made until visual inspection and acceptance by the Engineer.

Item No. 5 - Line Manhole Chimney

- A. Method of Measurement: Line Manhole Chimney accepted for payment shall be for the actual number of manholes whose chimney is lined with cementitious lining as indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment:
  - 1. The unit price per each Line Manhole Chimney lined shall be full compensation for all labor, materials and equipment necessary to complete the work including cleaning and preparation of structure for lining; patching holes; lining of chimney; testing; and all else incidental thereto for which payment is not provided under other items. Payment shall not be made until visual inspection and acceptance by the Engineer.

2. Chemical grout injection for leak sealing and the patching of holes created for the injection grouting shall be paid for under the bid item for that work.

Item No. 6 - Line Manhole Bench and Channel

- A. Method of Measurement: Line Manhole Bench and Channel accepted for payment shall be for the actual number of manholes whose bench and channel are lined with cementitious lining as indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment:
  1. The unit price per each Line Manhole Bench and Channel lined shall be full compensation for all labor, materials and equipment necessary to complete the work including cleaning and preparation of structure for lining; patching holes; cementitious lining of bench and channel; testing; maintaining and bypassing existing sewer flows; and all else incidental thereto for which payment is not provided under other items. Payment shall not be made until visual inspection and acceptance by the Engineer.
  2. Chemical grout injection for leak sealing and the patching of holes created for the injection grouting shall be paid for under the seal manhole bid item for that work.

Item No. 7 - Line Manhole Walls

- A. Method of Measurement: Line Manhole Walls accepted for payment shall be for the actual number of manholes whose walls are lined with cementitious lining as indicated in the Contract Documents or as directed by the Engineer.
- B. Basis of Payment:
  1. The unit price per each Line Manhole Walls lined shall be full compensation for all labor, materials and equipment necessary to complete the work including cleaning and preparation of structure for lining; patching holes; cementitious lining of walls; testing; maintaining and bypassing existing sewer flows; and all else incidental thereto for which payment is not provided under other items. Payment shall not be made until visual inspection and acceptance by the Engineer.
  2. Chemical grout injection for leak sealing and the patching of holes created for the injection grouting shall be paid for under the bid item for that work.

Item Nos. 8, 9, 10, 11 and 12 – Test and Seal Pipe Joints (various sizes)

- A. Method of Measurement: Test and Seal Pipe Joints accepted for payment shall be the actual number of existing pipe joints tested, sealed and accepted as complete.
- B. Basis of Payment:
  1. Test and Seal Pipe Joints shall be paid for at the Contract unit price per joint stated in the Bid Schedule. Said unit price shall include compensation for furnishing all labor, materials, tools, and equipment necessary for pipe joint testing and sealing, complete, satisfactorily tested, and operational. Work under this item shall include sewer line cleaning, disposal of material removed

from the sewer, TV inspection of the sewer, video DVDs and written logs, testing of each joint, chemical injection sealing of joints failing the initial test, re-testing and re-grouting of all joints according to the specification, maintaining and bypassing existing sewer flows and sewer service to all users, final cleaning of access manholes, notices to abutters, and all appurtenant work as needed to complete the work.

2. Joints tested and accepted without requiring chemical joint sealing shall also be paid for under this item.

Item No. 13 – Test and Seal Pipe Joints - Laterals

- A. Method of Measurement: Test and Seal Pipe Joints – Laterals accepted for payment shall be the actual number of laterals tested, sealed and accepted as complete.
- B. Basis of Payment:
  1. Test and Seal Pipe Joints – Laterals shall be paid for at the Contract unit price per lateral as stated in the Bid Schedule. Said unit price shall include compensation for furnishing all labor, materials, tools, and equipment necessary for building lateral pipe joint testing and sealing, complete, satisfactorily tested, and operational. Work under this item shall include sewer line cleaning, disposal of material removed from the sewer, TV inspection of the lateral, video DVDs and written logs, testing of each joint, chemical injection sealing of joints failing the initial test, re-testing and re-grouting of all joints according to the specification, maintaining and bypassing existing sewer flows and sewer service to all users, final cleaning of access manholes, notices to abutters, and all appurtenant work as needed to complete the work. It is assumed that each building lateral designated for testing and sealing shall be tested and sealed from the main to approximately five (5) feet up the lateral. This includes testing and sealing the lateral connection point to the main.

Item Nos. 14, 15, 16, 17 and 18 - Spot Lining (various sizes)

- A. Method of Measurement: Spot Lining of sewer pipe accepted for payment shall be the actual number of sections of sewer pipe lined as noted in the Contract Documents and accepted as complete.
- B. Basis of Payment: The Spot Lining repairs shall be paid for at the Contract unit price per each stated in the Bid Schedule, at length no less than 4 feet, and not to exceed 13 feet. Spot liner length shall also not be less than an appropriate amount to cover the repair with a minimum of 1 foot of liner either side of any visible defect. Said unit price shall include compensation for furnishing all labor, materials, tools, and equipment necessary for the work, complete, satisfactorily inspected, and operational. Work under this item shall also include sewer line cleaning, disposal of material removed from the sewer, pre installation TV inspection, reinstatement of the services, including cutting of the liner at each service if services are present in the liner extents, polishing the cut hole, grout and seal of each service connection, sealing the ends of the liner sections, curing, post

installation TV inspection of the sewer, video DVDs and written logs, maintaining and bypassing existing sewer flows and sewer service to all users, final cleaning of access manholes, notices to abutters, and all else incidental thereto for which payment is not provided under other items.

Item No. 19 – Top Hat Lateral Lining

- A. Method of Measurement: Top Hat Lateral Lining accepted for payment shall be the actual number of lateral connections repaired and accepted as complete.
- B. Basis of Payment: Top Hat Lateral Lining connection repairs shall be paid for at the Contract unit price per each stated in the Bid Schedule, including a nominal amount of length in the main line pipe to provide a proper watertight seal, and a minimum of 18-inches up to 5-feet of lining length up the sewer lateral. Said unit price shall include compensation for furnishing all labor, materials, tools, and equipment necessary for the work, complete, satisfactorily tested, and operational. Work under this item shall also include sewer line cleaning, disposal of material removed from the sewer, pre installation TV inspection, curing, post installation TV inspection of the sewer, video DVDs and written logs, maintaining and bypassing existing sewer flows and sewer service to all users, final cleaning of access manholes, notices to abutters, and all else incidental thereto for which payment is not provided under other items.

Item No. 20 – Lateral Lining of Manhole Drop Connection

- A. Method of Measurement: Lateral Lining at Manhole Drop Connection accepted for payment shall be the actual number of manhole drop connections repaired and accepted as complete.
- B. Basis of Payment: Lateral Lining of Manhole Drop Connection shall be paid for at the Contract unit price per each stated in the Bid Schedule, an adequate liner length to seal the full length of the drop piping from main into lower manhole section. Said unit price shall include compensation for furnishing all labor, materials, tools, and equipment necessary for the work, complete, satisfactorily tested, and operational. Work under this item shall also include sewer line cleaning, disposal of material removed from the sewer, pre installation TV inspection, curing, post installation TV inspection of the sewer, video DVDs and written logs, maintaining and bypassing existing sewer flows and sewer service to all users, final cleaning of access manholes, notices to abutters, and all else incidental thereto for which payment is not provided under other items.

Item No. 21 and 22 – Heavy Cleaning of Pipes (various sizes)

- A. Method of Measurement: For Heavy Cleaning of Pipes, in order to test and seal or line, accepted for payment shall be the additional cost per linear feet of pipe cleaned after 3 initial passes of the high pressure water jetting equipment as outlined in Section 02752, additional cost per linear feet of root cutting and/or additional cost of linear feet of grease removal, and accepted as complete.
- B. Basis of Payment: Heavy Cleaning of Pipes shall be paid for at the Contract unit price per linear foot as stated in the Bid Schedule. Contractor doing the heavy

cleaning is also responsible for removal of debris accumulated as a result of the cleaning work; grit and debris cannot be pushed downstream into the system. Work includes all transportation and disposal of all collected materials to the White Plains Road Pump Station (Beardsley Pump Station) and/or DPW site and Contractor shall coordinate with the WPCA Staff accordingly.

Item No. 23 - Uniformed Police Officer Allowance

- A. Method of Measurement: A work allowance is included for municipal or State uniformed police officers for traffic control. The use of a municipal or State uniformed police officer will be used and paid for under this item at the direction of the Owner or Engineer only. Contractor shall be responsible to maintain traffic control at all times as part of incidental work items.
- B. Basis of Payment:
  - 1. The allowance shall cover the cost charged to the Contractor by the Trumbull Police Department or CT State Police for providing Uniformed Police Officers for traffic control under the direction of the Owner or Engineer. Excluded from this allowance are any costs associated with routine traffic control, including signage, cones, flashing lights, etc. or certified flaggers where the Town or State does not specifically require the use of Uniformed Police Officers.
  - 2. Payment for this item shall be on the basis of invoices presented by the Police Department to the Contractor for the work. No mark-up will be added by the Contractor to the invoice.

Item No. 24 - Traffic Control

- A. Method of Measurement: Traffic Control will be paid for at the Lump Sum price as stated in the Bid Schedule.
- B. Basis of Payment: Payment for Traffic Control shall constitute full compensation for all traffic regulation and control efforts and including all labor, materials, equipment and supervision required to provide comprehensive and professional traffic regulation and control at all project locations. The traffic control plan, temporary pavement markings for traffic re-routing, pedestrian safety, and coordination with the Town and Police Department are included in this item. Payment under this item will be made for full-time dedicated flaggers only. Part-time flaggers will not be considered adequate. The lump sum shall be paid in partial payments over the course of the project, where the percentage paid is equal to the percentage of completion of the entire Contract.

END OF SECTION



SECTION 01200PROJECT MEETINGSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: To enable orderly review during progress of the work, and to provide for systematic discussion of problems, the Engineer will conduct project meetings throughout the construction period.
- B. Related work described elsewhere: The Contractor's relations with his subcontractors and materials suppliers and discussions relative thereto, are the Contractor's responsibility and are not part of project meetings content.

1.2 QUALITY ASSURANCE

- A. Persons designated by the Contractor to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.3 SUBMITTALS

- A. Agenda items: To the maximum extent practicable, advise the Engineer at least 24 hours in advance of project meetings regarding all items to be added to the agenda.
- B. Minutes: The Engineer will compile minutes of each project meeting and will furnish a copy to the Contractor. The Contractor may make and distribute such other copies as he wishes.

PART 2 - PRODUCTS

(No products are required in this Section.)

PART 3 - EXECUTION3.1 MEETING SCHEDULE

- A. Except as noted below for Preconstruction Meeting, project meetings will be held bi-weekly or as decided to in the preconstruction meeting. Coordinate as necessary to establish mutually acceptable schedule for meetings.

3.2 MEETING LOCATION

- A. Meetings will be held at a site to be determined at the pre-construction meeting.

3.3 PRECONSTRUCTION MEETING

- A. Preconstruction meeting will be scheduled within twenty days after the Effective Date of the Agreement, but before the Contractor starts work at the site. Provide attendance by authorized representatives of the Contractor and all major subcontractors. The Engineer will advise other interested parties and request their attendance. The Owner will inform the Contractor of the meeting location at least 48 hours in advance of the meeting.

- B. Minimum agenda: Distribute data on, and discuss:
  - 1. Identification of key project personnel for Owner, Engineer, Contractor, funding/regulatory Agencies.
  - 2. Responsibilities of Owner, Engineer, Resident Project Representative, Contractor.
  - 3. Channels and procedures for communications.
  - 4. Construction schedule, including sequence of critical work.
  - 5. Easements, permits.
  - 6. Contract Documents, including distribution of required copies of original documents and revisions.
  - 7. Processing of Shop Drawings and other data submitted to the Engineer for review.
  - 8. Processing of field decisions and Change Orders.
  - 9. Rules and regulations governing performance of the Work, including funding/regulatory Agency requirements.
  - 10. Procedures for safety and first aid, security, quality control, housekeeping, and other related matters.

#### 3.4 PROJECT MEETINGS

- A. Attendance: To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work. The Superintendent shall attend. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the Work are involved.
- B. Minimum agenda:
  - 1. Review, revise as necessary, and approved minutes of previous meeting.
  - 2. Review progress of the Work since last meeting, including status of submittals for approval.
  - 3. Review schedule of work to be accomplished prior to next meeting.
  - 4. Discuss monthly partial payment request.
  - 5. Review status of change order requests and Work Directive Changes.
  - 6. Identify problems which impede planned progress.
  - 7. Develop corrective measures and procedures to regain planned schedule.
  - 8. Complete other current business.

END OF SECTION

SECTION 01310CONSTRUCTION SCHEDULESPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Within ten (10) days after the effective date of the Agreement between Owner and Contractor submit to the Engineer an estimated progress schedule as specified herein.
- B. Form of Schedules:
  - 1. Narrative: Completely describe the construction methods to be employed.
  - 2. Network Analysis System:
    - a. Provide a separate horizontal schedule line for each trade or operation and show concurrent and preceding activities.
    - b. Present in chronological order the beginning of each trade or operation showing duration and float time.
    - c. Scale: Identify key dates and allow space for updating and revision.
  - 3. Mathematical Analysis:
    - a. A mathematical analysis shall accompany the network diagram. A computer printout will be acceptable.
    - b. Information shall be included on activity numbers, duration, early start, late start, etc. and float times.
- C. Content of Schedules:
  - 1. Provide complete sequence of construction by activity:
    - a. Shop Drawings, Project Data and Samples:
      - 1) Submittal dates.
      - 2) Dates reviewed copies will be required.
    - b. Decision dates for:
      - 1) Products specified by allowances.
      - 2) Selection of finishes.
    - c. Estimated product procurement and delivery dates.
    - d. Dates for beginning and completion of each element of construction.
  - 2. Identify work of separate phases and logically grouped activities.
  - 3. Show the projected percentage of completion for each item of work as of the first day of each month.
  - 4. Provide separate sub-schedules, if requested by the Engineer, showing submittals, review times, procurement schedules, and delivery dates.
- D. Updating:
  - 1. Show all changes occurring since previous submission.
  - 2. Indicate progress of each activity, show completion dates.
  - 3. Include:
    - a. Major changes in scope.
    - b. Activities modified since previous updating.
    - c. Revised projections due to changes.
    - d. Other identifiable changes.

4. Provide narrative report, including:
  - a. Discussion of problem areas, including current and anticipated delay factors.
  - b. Corrective action taken, or proposed.
  - c. Description of revisions that may affect schedules.
5. The Contractor's normal sequence of operation in performing the work under the terms of this contract shall be varied at the direction of the Town of Trumbull, so that priorities can be given in critical areas such as schedule, right-of-way, clearance and other Town commitments, either present or future.

1.2 SUBMITTALS

- A. Submit updated schedules with each progress payment request.
- B. Submit 4 copies of initial and updated schedules to the Engineer.
- C. The Contractor shall file an appeal to the Public Works if the sequence of operation in performing the work is varied by the Town in a manner that is unacceptable to him.

END OF SECTION

SECTION 01320SAFETY AND HEALTH PLANPART 1 - GENERAL1.1 DESCRIPTION

## A. Work Included:

1. The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work, as outlined herein and in the General and Special Conditions of the Contract Documents. Within (10) days after the effective date of the Agreement between Owner and Contractor, submit to the Engineer a Safety and Health Plan as specified herein.
2. Contractor shall comply with all applicable Laws and Regulations related to the safety of persons or property, or for the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
3. Contractor shall designate a qualified and experienced safety representative (OSHA defined "Competent Person") at the site whose duties and responsibilities shall be the prevention of accidents and maintaining and supervising of safety precautions and programs, including a "Job Hazards Analysis".
4. The Contractor shall be solely responsible to provide all labor, equipment, and utilities sufficient to ensure no construction noise, particulates, or odors, are allowed to accumulate to levels which adversely affect health or work in, or near the construction area. The Contractor will be required to limit noise operations pursuant to the Town of Trumbull Charter Chapter 164-1 to and including Chapter 164-13.

## B. Content of Safety and Health Plan:

1. Prepare complete safety and health plan in accordance with the requirements of CFR Title 29 Part 1926 - Safety and Health Regulations for Construction.
  - a. Provide documentation that Contractor's hazardous communication program is up to date.
  - b. Provide documentation that Contractor's safety training is up to date.
  - c. Prepare a project specific Safety and Health Plan addressing construction safety issues, including but not limited to excavations, fall protection and egress, as well as provisions for construction in hazardous environmental conditions at the construction site. The hazardous environmental conditions at the construction site include, but are not limited to, confined space entry, and trenching/excavation, to name a few.
2. Safety provisions for confined space entry shall follow General Industry Standard CFR Title 29 Part 1910.146 and will be incorporated into the Safety and Health Plan.
  - a. Permit Required Confined Space may only be entered with a permit, alternate procedures (1910.146 (c) (5)), or reclassification to non-permit

required confined space (1910.146 (c) (7)). For this Contract it is anticipated that the only permit required confined space will be manholes. However, the Contractor is required to perform a site evaluation to identify all hazards and potential hazards in work areas prior to control of site.

- b. The Contractor shall be responsible for all aspects of construction site safety including development of appropriate confined space entry procedures. The plan shall include, but not necessarily be limited to, the following:
  - Definitions
  - Confined Space Evaluations
  - Equipment Selection
  - Confined Space Entry Training Documentation
  - Permit Required Confined Space Entry Requirements
  - Testing (Monitoring) and Ventilation
  - Confined Space Entry Permit Form
  - Rescue and Emergency Procedures
  - Emergency Contact Information
- c. The Contractor shall inform the Owner and Engineer's representative whenever work will be performed in a confined space and the permit space program that the Contractor will follow.
- d. The Contractor shall inform the Owner and Engineer's representative of any hazards confronted or created during entry operations, either through a briefing or during the entry operation.
- e. The Contractor will coordinate entry operations with the Owner when both Owner personnel and Contractor personnel will be working in or near permit spaces.
- f. The Owner, Engineer, their representatives, independent testing laboratories and government agencies, when inspecting the site, shall be supplied by the Contractor proper safety equipment when entry into a confined space is required.

C. Updating:

1. Contractor shall be responsible for updating the Safety and Health Plan as appropriate throughout the course of the construction period.

1.2 SUBMITTALS

- A. **Contractor shall be responsible for all aspects of construction site safety.** Provide 3 copies of the Contractor's site specific Safety and Health Plan to the Engineer. The Safety and Health Plan is provided for information only to inform the Owner, Engineer (and Resident Project Representative) of the project specific safety program requirements. The Contractor will overview the plan with the Owner (and staff), Engineer (and Resident Project Representative) at the beginning of the project, and subsequently when the safety plan is updated.
- B. Provide updated Safety and Health Plans as necessary during the course of the project.
- C. Contractor's most current Safety and Health Plan shall be available at the

construction site throughout the construction project.

1.3 ON-SITE COORDINATION MEETINGS

- A. Contractor shall review key aspects of Safety and Health Plan at the Pre-Construction Meeting, and subsequent on-site safety informational meeting.
- B. Contractor shall report to Engineer and Owner at each progress meeting concerning compliance with the Safety and Health Plan for the most recent construction period and new considerations and requirements for the upcoming period.
- C. Contractor shall hold weekly on-site coordination meetings with Resident Project Representative and Owner to ensure that Owner's staff is aware of key Safety and Health Plan requirements of the current phase of construction.

END OF SECTION



SECTION 01340SUBMITTALSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included:
  - 1. Submit to the Engineer, Shop Drawings, Operation and Maintenance Manuals, Manufacturers' Certificates, Project Data, and Samples required by the Specification Sections.
- B. Related Work Specified Elsewhere:
  - 1. Construction Schedules: Section 01310
  - 2. Project Record Documents: Section 01720
  - 3. General Conditions: Section 00700.

1.2 SHOP DRAWINGS

- A. Shop Drawings are required for each and every element of the work. Each shop drawing shall be assigned a number consisting of the Specification Section number followed by a dash and then a sequential number beginning with 01 (e.g., 16000-01) for purposes of easy identification. Resubmittals shall include an alphabetic suffix after the corresponding sequential number (e.g., 16000-01A).
- B. Shop Drawings are generally defined as all fabrication and erection drawings, diagrams, brochures, schedules, bills of material, manufacturers data, spare parts lists, and other data prepared by the Contractor, his subcontractors, suppliers, or manufacturers which illustrate the manufacturer, fabrication, construction, and installation of the work, or a portion thereof.
- C. The Contractor shall submit to the Engineer five (5) of hardcopies of Shop Drawings and approved data (for Owner's, Engineer's and Field Representative's files), and one electronic Portable Document Format (PDF) transmitted using e-mail, File Transfer Protocol (FTP), or approved submittal sharing software. The Engineer shall return one hardcopy and electronic PDF to the Contractor for duplication and distribution to subcontractors, suppliers and manufacturers. All shop drawing comments will be summarized on the Submittal Review Form and must be retained with each submittal hardcopy and electronic PDF. Number of copies, mandatory hardcopy submissions for specific submittals, format, and transmission method will be finalized at Pre-Construction Meeting.
- D. The Contractor shall provide a completed Submittal Certification Form (copy provided for Contractor's use at the end of this Specification Section) which shall be attached to every hardcopy and electronic PDF of each shop drawing. Shop Drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the work.
- E. Shop Drawings shall be submitted as a complete package by specification section, unless otherwise reviewed and approved by the Engineer. It is the intent that all

information, materials and samples associated with each specification section be included as a single submittal for the Engineer's review. Any deviation from this requirement, such as submitting miscellaneous metals grouped by structure, shall be requested in writing with an anticipated shop drawing breakdown/schedule prior to any associated submittal.

- F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.
- G. No material or equipment shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.
- H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the work (such as the construction of foundations), the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which review is required.
- I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. Hard copies of shop drawings shall be of standardized sizes to enable the Owner to maintain a permanent record of the submissions. Approved standard sizes shall be: (a) 24 inches by 36 inches; (b) 11 inches by 17 inches, and (c) 11 inches by 8-1/2 inches. Provision shall be made in preparing the shop drawings to provide a binding margin on the left hand side of the sheet. Shop drawings submitted other than as specified herein may be returned for resubmittal without being reviewed.
- J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer.
- K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal. Shop Drawings that contain significant deviations that are not brought to the attention of the Engineer may be subject to rejection. The Owner has the right to disqualify any manufacturer or equipment.
- L. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires and appurtenances, layout, etc., detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications.
- M. A maximum of two submissions of each Shop Drawing will be reviewed, checked, and commented upon without charge to the Contractor. Any additional submissions

which are ordered by the Engineer to fulfill the stipulations of the Drawings and Specifications, and which are required by virtue of the Contractor's neglect or failure to comply with the requirements of the Drawings and Specifications, or to make those modifications and/or corrections ordered by the Engineer in the review of the first two submissions of each Shop Drawing, will be reviewed and checked as deemed necessary by the Engineer, and the cost of such review and checking, as determined by the Owner, and based upon Engineer's documentation of time and rates established for additional services in the Owner-Engineer Agreement for this Project, may be deducted from the Contractor to make all modifications and/or corrections as may be required by the Engineer in an accurate, complete, and timely fashion. Resubmittals for the sole purpose of providing written responses to review comments will not be considered a resubmittal counting towards the two submission limit.

1.3 SAMPLES

A. The Contractor shall submit samples when requested by the Engineer to establish conformance with the specifications, and as necessary to define color selections available.

1.4 MANUFACTURER'S CERTIFICATES

- A. Prior to accepting the installation, the Contractor shall submit manufacturer's certificates for each item specified.
- B. Such manufacturer's certificates shall state that the equipment has been installed under either the continuous or periodic supervision of the manufacturer's authorized representative, that it has been adjusted and initially operated in the presence of the manufacturer's authorized representative, and that it is operating in accordance with the specified requirements, to the manufacturer's satisfaction. All costs for meeting this requirement shall be included in the Contractor's bid price.

1.5 SUBMISSION REQUIREMENTS

- A. Accompany submittals with transmittal letter, containing:
1. Date.
  2. Project title and number.
  3. Contractor's name and address.
  4. The sequential shop drawing number for each shop drawing, project data and sample submitted shall be:
    - i. Specification Section number followed by a dash and then a sequential number beginning with 01 (e.g., 16000-01).
    - ii. Under limited situations when additional different pieces of equipment are submitted under the same specification section, those submittals shall be numbered sequentially (e.g. 05500-01, 05500-02, 05500-03, etc.).
    - iii. Resubmittals shall include decimal point and an alphabetic suffix after the corresponding sequential number (e.g., 16000-01A).
  5. Notification of deviations from Contract Documents.
  6. Other pertinent data.

- B. A completed Submittal Certification Form shall be attached to each hardcopy and electronic PDF of each shop drawing and must include:
  - 1. Project name
  - 2. Specification Section and sequential number with alphabet suffix for resubmittal
  - 3. Description
  - 4. Identification of deviations from Contract Documents.
  - 5. Contractor's stamp, initialed or signed, certifying review of the submittal, verification of field measurements and compliance with Contract Documents.
  - 6. Where specified or when requested by the Engineer, manufacturer's certification that equipment, accessories and shop painting meet or exceed the Specification requirements.
  - 7. Where specified, manufacturer's guarantee.
- C. Requirements for Electronic Submittals:
  - 1. Each individual shop drawing submittal shall be contained in one PDF.
  - 2. The first page of the PDF shall be the Submittal Certification Form as described above.
  - 3. Subject lines for e-mails transmitting PDF submissions and subsequent correspondence referring to specific submittals shall identify the submittal's Specification Section, sequential number, appropriate alphabet suffix for resubmittals, and a brief description (e.g. 16010-01-Electrical General).
  - 3. The electronic PDF shall be **exactly** as submitted in the hardcopy and shall be transmitted using e-mail, File Transfer Protocol (FTP), or approved submittal sharing software.
  - 4. PDF versions of 24x36 drawings shall be converted to 24 x 36 PDFs so as not to lose the clarity of the original drawing.
  - 5. Electronic PDF submittals that are not submitted in accordance with the requirements stated above will not be reviewed by the Engineer.

#### 1.6 RESUBMISSION REQUIREMENTS

- A. Revise initial drawings as required and resubmit as specified for initial submittal.
- B. Indicate on drawings any changes which have been made other than those required by Engineer. All renumbering of shop drawings, relabeling of individual pieces or assemblies or relocating of pieces or assemblies to other Drawings within the submittal shall be clearly brought to the attention of the Engineer.

#### 1.7 ENGINEER'S REVIEW

- A. The review of shop and working drawings hereunder will be general only, and nothing contained in this specification shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.
- B. The Engineer's review comments will be summarized on a Submittal Review Form, which includes an action code. A description of each action code is provided below.

1. **No Exceptions Taken (Status 0 on shop drawing log).** The shop drawing complies with the Contract Document requirements. No changes or further information are required. Where appropriate, the submittal review form will be used to alert the Contractor, Owner and Field personnel of remaining items within that specification section that still needs to be submitted.
2. **Make Corrections Indicated (Status 1 on shop drawing log).** The shop drawing complies with the Contract Document requirements except for minor changes, as indicated. Resubmittal is not required unless it is specifically called for; however, Engineer requires that all comments will be addressed by the Contractor, unless otherwise notified in writing prior to execution of the relevant work.
3. **Conditional to Remarks (Status 2 on shop drawing log).** The shop drawing potentially complies with the Contract Document requirements, contingent upon satisfactory resolution of review comments. Remarks will explicitly list what information needs to be resubmitted. Resubmittal from the Contractor should include a cover letter or summary which indicates how each review comment has been addressed.
4. **Revise and Resubmit (Status 3 on shop drawing log).** The shop drawing does not comply with the Contract Document requirement as submitted, but may with changes indicated and/or submission of additional information. The entire package must be resubmitted with the necessary information and a cover letter which indicates how each review comment has been addressed and where to find the information in the resubmittal.
5. **Rejected (Status 4 on shop drawing log).** The shop drawing does not comply with the Contract Document requirements, for the reasons indicated in the remarks, and is unacceptable.
6. **In Review (Status 5 on shop drawing log).** The shop drawing is currently under review.
7. **For Information Only (Status 6 on shop drawing log).** The shop drawing review was informational only. No comments are provided.



SECTION 01380PRE-CONSTRUCTION PHOTOGRAPHSPART 1 - GENERAL1.1 DESCRIPTION

## A. Work Included:

1. Pre-Construction Record: Contractor shall utilize digital photographs and video to obtain a visual record of the project area; copies of same shall be given to the Engineer and Owner.
2. Notify Engineer at least three (3) working days prior to photographing or videoing the project area so Engineer may, at his option, observe.

1.2 QUALITY

- A. Pre-Construction Record: Quality shall be such that the condition of existing pavement, curbing, driveway entrances, sidewalks, etc. can be readily determined.

1.3 SUBMITTAL OF PRINTS

- A. Pre-Construction Record: Submit hard copy prints and electronic files on CD ROM, and video electronic files on DVD to the Engineer and Owner prior to any construction work.
- B. The quality of the photos and video are subject to approval by the Engineer prior to the start of construction work in the areas shown by the photos.

END OF SECTION



SECTION 01400QUALITY CONTROLPART 1 - GENERAL1.1 REQUIREMENTS INCLUDED

- A. General Quality Control.
- B. Workmanship.
- C. Manufacturer's Instructions.
- D. Manufacturer's Certificates.
- E. Manufacturer's Field Services.
- F. Testing Laboratory Services.

1.2 RELATED REQUIREMENTS

- A. Section 00700 - General Conditions: Inspection and testing required by governing authorities.
- B. Section 01340 - Submittals: Submittal of Manufacturer's Instructions.
- C. Section 02200 - Earthwork.
- D. Section 02513 – Bituminous Concrete Pavement
- E. Section 02568 – Pressure Testing and Chemical Grouting of Sanitary Sewer main Joints
- F. Section 02752 – Sewer Line Cleaning
- G. Section 02756 – Sewer Pipe Relining
- H. Section 02758 – Manhole Rehabilitation
- I. Section 02765 – Service Lateral Connection Liner

1.3 QUALITY CONTROL

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.

1.4 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.5 MANUFACTURERS' INSTRUCTIONS

- A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

1.6 MANUFACTURERS' CERTIFICATES

- A. When required by individual Specifications Section, submit manufacturer's certificate that products meet or exceed specified requirements.

1.7 MANUFACTURERS' FIELD SERVICES

- A. When specified in respective Specification Sections, require supplier and/or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to make appropriate recommendations.
- B. Representative shall submit written report to Engineer listing observations and recommendations.

1.8 TESTING LABORATORY SERVICES

- A. Owner will employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services wherever an Independent Testing Laboratory is required by individual specification sections listed in paragraph 1.2 above, unless otherwise indicated.
- B. Services will be performed in accordance with requirements of governing authorities and with specified standards.
- C. Reports will present observations and test results and indicate compliance or non-compliance with specified standards and with Contract Documents. Independent Testing Laboratory will submit one copy of each report directly to each of the following: Engineer, Resident Project Representative, Contractor. Reports will be mailed within 5 days of obtaining test results. If test results indicate deficiencies, Independent Testing Laboratory shall telephone or FAX results to Engineer, Resident Project Representative and Contractor within 24 hours.
- D. Contractor shall cooperate with Independent Testing Laboratory personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.
- E. Contractor shall coordinate all testing work and shall notify Engineer and Independent Testing Laboratory at least 24 hours prior to performing work requiring testing services. If scheduled tests or sampling cannot be performed because the work is not ready as scheduled, testing costs associated with the delay will be determined by Engineer and invoiced by Owner to Contractor. If unpaid after 60 days, the invoice amount will be deducted from the Contract Price. If adequate notice is not provided, Contractor shall suspend work on that portion of the Project until testing can be performed. Such suspension will not be grounds for a claim against the Owner for delay, nor will it be an acceptable basis for an extension of time.
- F. Payment for Independent Testing Laboratory services shall be as follows:
  - 1. General: Where testing is the Owner's responsibility, payment will be made as stated below unless other requirements are given in Specification Sections. Testing which is the responsibility of the Contractor will be considered an incidental item unless otherwise indicated in Section 01150, Measurement and Payment.
  - 2. Initial Testing: Owner will pay for initial tests.
  - 3. Retesting: Costs of retesting due to non-compliance will be paid by Owner.

The cost of retesting will be determined by Engineer and Owner will invoice Contractor for this cost. If unpaid after 60 days, the invoice amount will be deducted from the Contract Price.

4. Contractor's Convenience Testing: Inspections and tests performed for Contractor's convenience will be paid for by Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION



SECTION 01562DUST CONTROLPART 1 - GENERAL1.1 DESCRIPTIONS

## A. Work Included:

1. Furnish and apply water or calcium chloride on the road surfaces within the construction site, when required to control dust and when directed by the Engineer.
2. When dust control is not included as a separate item in the Contract, the work shall be considered incidental to the appropriate items of the Contract.

PART 2 - PRODUCTS2.1 MATERIALS

## A. Water for Sprinkling:

## B. Clean, free of salt, oil, and other injurious matter.

## C. Calcium Chloride:

1. Meet the requirements of AASHTO M144.

PART 3 - EXECUTION3.1 APPLICATION

## A. Water:

1. Apply water by methods approved by the Engineer.
2. Use approved equipment including a tank with gauge equipped pump and spray bar.

## B. Calcium Chloride:

1. Apply at a rate sufficient to maintain a damp surface but low enough to assure non-contamination of water courses.
2. Apply water prior to calcium chloride addition.

END OF SECTION



SECTION 01570TRAFFIC REGULATIONPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included:
  - 1. Provide all materials and perform all work necessary to completely regulate traffic in the area of Work.
  - 2. Perform all work in such a manner as to provide safe passage at all times for the public and with a minimum of obstruction to traffic.
  - 3. Do not close roads or streets to passage of the public without the permission of the proper authorities.
- B. The local police department and/or the CT State Police will decide if safe passage is being maintained and shall have the authority to require the Contractor to take any additional steps necessary to maintain safe passage.
- C. Minimize the length of delays or traffic stoppage to the extent practicable. Maximum traffic stoppage time shall be 10 minutes.
- D. The Contractor shall protect all phases of the work from damage due to traffic, etc., and provide necessary watchmen, flag person and/or police officers.

1.2 SCHEDULING WORK

- A. Coordinate and conduct a meeting with the Owner, Engineer, police and fire departments, and Town of Trumbull Board of Education (for school bus route coordination) to discuss the traffic control plan for the work.
- B. Schedule all work so that two adjacent parallel streets are not closed to passage by the public at any one time, if at all possible. Streets may be completely closed to traffic only upon written order of the Engineer. If permanent repairs are not completed immediately, the pavement surface along the line of work shall be maintained in a condition comparable to the adjacent road surface.
- C. Revise the plan of work if it will create a traffic hazard or an unreasonably long detour.
- D. Do not start work in any new location without the permission of the Engineer.
- E. Notify all police, fire departments and Town of Trumbull Board of Education (for school bus route coordination) in writing at least 24 hours in advance of all scheduled detours and when streets are reopened. The Contractor shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well-lighted, in order to minimize confusion.

1.3 SUBMITTALS

- A. Provide a written plan (including sketches or figures as needed), in accordance with Paragraph 3.1 below.

PART 2 - PRODUCTS2.1 WARNING SIGNS AND BARRICADES

- A. Provide adequate warning signs, barricades, signal lights, watchmen and take other

- necessary precautions for the safety of the public.
- B. Provide and illuminate suitable warning signs to show where construction, barricades or detours exist.
  - C. Provide barricades of substantial construction and painted with a finish that increases visibility at night.
  - D. Keep signal lights illuminated at all barricades and obstructions from sunset to sunrise.
  - E. Maintain all necessary signs, barricades, lights, watchmen and other safety precautions during authorized suspension of the Work, weekends, holidays or other times when the Work is not in progress.
  - F. Traffic control signs for construction work shall be located and of the size and type as outlined in Manual on Uniform Traffic Control Devices for Streets and Highways as published by U. S. Department of Transportation.

## 2.2 UNIFORMED POLICE OFFICER

- A. A uniformed police officer is a police officer (local, county or state) on regular or special duty dressed in uniform with the necessary high visibility vest and apparel needed for traffic control.
- B. Arrange the police detail with the local Chief of Police, County Sheriff, or State Police Captain depending on jurisdiction.

## 2.3 FLAG PERSON

- A. A flag person is a trained and certified individual assigned specifically to the task of directing traffic and is outfitted in the necessary high visibility vest and apparel needed for traffic control.
- B. Flag persons shall be provided by the Contractor.

## PART 3 - EXECUTION

### 3.1 TRAFFIC CONTROL WORK PLAN

- A. Submit a traffic control work plan to the Owner for approval prior to construction. The traffic plan shall encompass all scenarios anticipated (i.e. shoulder closure, lane closure, center of road work zone, work zone in close proximity to intersection, etc.). The location of uniformed police officers, certified flagmen, and work zone traffic control devices shall be set according to the approved traffic control work plan.
- B. Traffic control work plan must be submitted to owner and engineer, and approved prior to commencing work.

### 3.2 DETOURS

- A. Provide, identify and maintain suitable detours when the project, or any part thereof, is closed to public travel.
- B. When the closed part of the project is reopened, restore the detour area and any other disturbed areas to the original condition.

### 3.2 INCONVENIENCE TO RESIDENTS OF VICINITY

- A. Whenever a traveled way is closed, perform the Work in such a manner that local travel and residents in the vicinity of the Work will be inconvenienced as little as possible.
- B. Allow access to residents and abutting land owners along the project to driveways and other normal outlets from their property. Contractor to notify residents prior to construction that will effect residents land or access to their land.
- C. Where necessary, bridges shall be constructed and maintained for residents. Before closing any driveway or entrance, the Contractor shall give the owner or resident of the property involved, due notice of such temporary closing. When this is not practicable and an emergency arises, the Contractor shall, on the order of the Engineer, provide a satisfactory place to house temporarily, any motor vehicle, which may be prevented from being housed at night.
- D. Excavated materials and equipment shall be placed in such position as not to unnecessarily impede travel on the streets, or access to driveways. A sufficient clear space for pedestrian travel shall be maintained on the sidewalks, and all property entrances and driveways shall be kept clear, where possible.
- E. People living or having business within the barricaded zone shall be permitted to use the highway for auto traffic if possible.

3.4 TRAFFIC CONTROL OFFICERS

- A. Where required by the local, county or state police departments and/or when specified, traffic control officer shall be Uniformed Police Officers.
- B. Where the local, county or state police departments do not wish to or are unable to furnish traffic control officers and/or when specified or directed by the Owner, the traffic control officer shall be a certified flag person.

END OF SECTION



SECTION 01710PROJECT CLEANINGPART 1 - GENERAL1.1 DESCRIPTION

## A. Work Included:

1. Maintain premises and public properties free from accumulations of waste, debris, and rubbish, caused by operations.
2. At completion of work, remove waste materials, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces. Leave project clean and ready for use.

1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Conduct cleaning and disposal operations in accordance with all applicable local and state laws, ordinances, and code requirements.

PART 2 - PRODUCTS2.1 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturers.

PART 3 - EXECUTION3.1 PERFORMANCE

## A. Cleaning During Construction:

1. Execute cleaning operations to ensure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
2. Entirely remove and dispose of material or debris during the progress of the work that has washed into or has been placed in watercourses, ditches, gutters, drains, catch basins, or elsewhere as a result of the Contractor's operations.
3. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
4. At reasonable intervals during the progress of work, clean the site and dispose of waste materials, debris, and rubbish.
5. Handle materials in a controlled manner with as few handlings as possible. Do not drop or throw material from heights.
6. When applicable, schedule cleaning operations so that dust and other contaminants resulting from the cleaning process will not fall on wet, newly painted surfaces.

## B. Control of Hazards:

1. Store volatile wastes in covered metal containers, and remove from premises

- daily.
2. Prevent accumulation of wastes which may create hazardous conditions.
  3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Disposal:
1. Do not burn or bury rubbish and waste materials on project site.
  2. Do not dispose of volatile wastes, such as mineral spirits, oil, or paint thinner, in storm or sanitary drains.
  3. Do not dispose of wastes into streams or waterways.
- D. Final Cleaning:
1. Employ experienced workmen, or professional cleaners, for final cleaning.
  2. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from all sight-exposed interior and exterior finished surfaces.
  3. Repair, patch and touch up marred surfaces to specified finishes.
  4. Broom clean paved surfaces.
  5. Rake clean non-paved surfaces of the project site.
  6. Restore to their original condition those portions of the site not designated for alterations by the Contract Documents.

END OF SECTION

SECTION 01720PROJECT RECORD DOCUMENTSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included:
  - 1. Keep accurate record documents for all additions, substitutions of material, variations in work, and any other additions or revisions to the Contract.
- B. Related Work Specified Elsewhere:
  - 1. Shop Drawings, Project Data, and Samples are specified in "General Conditions" and Section 01340, Submittals.

1.2 MAINTENANCE OF DOCUMENTS

- A. Maintain at job site, one copy of:
  - 1. Contract Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Reviewed Shop Drawings
  - 5. Change Orders
  - 6. Any other modifications to the Contract
  - 7. Field Test Reports
- B. Store documents in files and racks specifically identified for this use, that are apart from documents used for construction.
- C. File documents in a logical manner indexed for easy reference.
- D. Maintain documents in clean, dry, legible condition.
- E. Do not use record documents for construction purposes.
- F. Make documents available at all times for inspection by the Engineer and Owner, and by the end of the project, transmit these documents to the Engineer.

1.3 RECORDING

- A. Label each document "PROJECT RECORD" in large high printed letters.
- B. Keep record documents current and do not permanently conceal any work until required information has been recorded.
- C. General Field Recording Requirements for Rehabilitation Type Projects:
  - 1. Manhole Rehabilitation
    - a. Provide a typed list of the work performed at each location (ex. installed new frame and cover, sealed manhole, lined bench and channel, etc.).
    - b. Provide digital photographs of the completed manhole.
    - c. Provide digital photograph of the ground surface at the completed manhole including background features such as a building or other landmark to assist the Owner in locating the manhole rehabilitated.
  - 2. Pipeline Rehabilitation
    - a. Provide the Owner with DVD recordings, television inspection logs and photographs of pre and post conditions of all pipelines rehabilitated.
    - b. See applicable Division 2 Specifications for additional requirements.
- D. General Field Recording Issues for Installation Type Projects:
  - 1. All ties should be taken from existing, permanent features such as utility

- poles, corners of houses and hydrants. Porches, sheds or other house additions should be avoided for they could be torn down. A minimum of two ties should be taken.
2. Inverts should be recorded to the nearest hundredth of a foot.
  3. Elevations should be recorded to the nearest hundredth of a foot.
- E. Project Record Drawings - Legibly mark Contract Drawings to record existing utilities and actual construction of all work, including but not limited to the following (where applicable):
1. Existing Utilities
    - a. Water mains and services, water main gate valves, sewer mains and services, storm drains, culverts, steam lines, gas lines, tanks and other existing utilities encountered during construction must be accurately located and shown on the Drawings. In congested areas supplemental drawings or enlargements may be required.
    - b. Show any existing utilities encountered in plan and profile and properly labeled showing size, material and type of utility. Ties should be shown on plan. Utility should be drawn to scale in section (horizontally and vertically) and an elevation should be called out to the nearest hundredth of a foot.
    - c. When existing utility lines are broken and repaired, ties should be taken to these locations.
    - d. If existing water lines are replaced or relocated, document the area involved and pipe materials, size, etc. in a note, and with ties.
  2. Manholes
    - a. Show ties to center of structure covers or hatches.
    - b. In general, show inverts at center of structures. However, for manholes with drop structures, or steep channels (greater than 0.2' change on slope), show inverts at face of manhole.
    - c. Show inverts for other structures at the face of the structure.
    - d. Show any field or office redesigns.
- F. Specifications and Addenda - Legibly mark up each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  2. Changes made by Change Order, Field Order, or other method.

#### 1.4 SUBMITTALS

- A. At the completion of the project, deliver record documents to the Engineer.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
  1. Date, project title and number.
  2. Contractor's name and address.
  3. Title and number of each record document with certification that each document is completed and accurate.
  4. Signature of Contractor, or his authorized representative.
- C. Failure to supply all information on the Project Record Drawings as specified in Part 1.3 may result in additional retainage from monthly partial payment requests, and in non-approval of final payments of the Contract and/or if contract time (as specified in accordance with the Standard General Conditions of the Construction

Contract) has elapsed, this shall be grounds for the enactment of the liquidated damages as specified.

END OF SECTION



SECTION 02200EARTHWORKPART 1 - GENERAL1.1 DESCRIPTION

- A. The Work described by this Section consists of all earthwork encountered and necessary for construction of the project as indicated in the Contract Documents, and includes but is not limited to the following:
  - 1. Excavation
  - 2. Backfilling and Filling
  - 3. Compaction
  - 4. Providing soil material as necessary
  - 5. Disposal of excess suitable material and unsuitable materials
- B. Related Work Specified Elsewhere:
  - 1. Traffic Regulation is specified in Division 1.
  - 2. Surface restoration is specified in the appropriate sections of this Division.
  - 3. Section 01400 - Quality Control.

1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
  - 1. All work shall be performed and completed in accordance with all local, state and federal regulations.
  - 2. The General Contractor shall secure all other necessary permits unless otherwise indicated from, and furnish proof of acceptance by, the municipal and state departments having jurisdiction and shall pay for all such permits, except as specifically stated elsewhere in the Contract Documents.
- B. Testing Methods:
  - 1. Gradation Analysis: Where a gradation is specified the testing shall be in accordance with ASTM C-117-90 and ASTM C-136-93 (or latest revision).
  - 2. Compaction Control:
    - a) Unless otherwise indicated, wherever a percentage of compaction for backfill is indicated or specified, it shall be the in-place density divided by the maximum density and multiplied by 100. The maximum density shall be the density at optimum moisture as determined by ASTM Standard Methods of Test for Moisture-Density Relations of Soil Using 10-lb. Hammer and 18-in. Drop, Designation D-1557-91 (Modified Proctor), or latest revision, unless otherwise indicated.
    - b) The in-place density shall be determined in accordance with ASTM Standard Method of Test for Density of Soil in Place by the Sand Cone method, Designation D 1556-90, (or latest revision) or Nuclear method Designation D2922.

- c) Wherever specifically indicated, maximum density at optimum moisture may be determined by ASTM Standard Methods of Test for Moisture Density Relations of Soils, ASTM D-698-91 (Standard Proctor).
- d) An Independent Testing Laboratory will be retained by the Owner to conduct all laboratory and field soil sampling and testing, and to observe earth work and foundation construction activities. Laboratory testing will consist of sieve analyses, natural water content determinations, and compaction tests. Field testing will consist of in-place field density tests and determination of water contents.

### 1.3 SUBMITTALS

- A. Collection of samples and testing of all materials for submittals shall be performed by the Independent Testing Laboratory and paid for by the Contractor until the materials are approved by the Owner or Engineer.
- B. Submit test results in accordance with the procedure specified in the General and Supplementary Conditions.
- C. Submit test results (including gradation analysis) and source location for all borrow material to be used at least 10 working days prior to its use on the site. Contractor shall identify and provide access to borrow sites.
- D. Submit moisture density curve for each type of soil (on site or borrow material) to be used for embankment construction or fill beneath structures or pavement.

### 1.4 TESTS

The Independent Testing Laboratory shall conform to the following procedures and standards:

- A. Submit test results in accordance with the procedure specified in the General and Supplementary Conditions.
- B. All testing shall be performed by a qualified Independent Testing Laboratory acceptable to the Engineer and Contractor at the Owner's expense unless otherwise indicated (see Section 01400 - Quality Control).
- C. Paved Areas: Make at least one field density test of subgrade for every 2,000 sq. ft. of paved area, but in no case less than 1 test. In each compacted fill layer, make one field density test for every 2,000 sq. ft. of paved area, but in no case less than 1 test.
- D. In addition to the above tests the Independent Testing Laboratory will perform additional density tests at locations and times requested by the Engineer.
- E. Additional density testing will be required by the Engineer if the Engineer is not satisfied with the apparent results of the Contractor's compaction operation.
  - 1. If the test results fail to meet the requirements of these specifications, the Contractor shall undertake whatever action is necessary, at no additional cost to the Owner, to obtain the required compaction. The cost of retesting will be paid by Owner. The cost of retesting will be determined by Engineer and Owner will invoice Contractor for this cost. If unpaid after 60 days, the invoice amount for retesting will be deducted from the Contract Price. No allowance will be considered for delays in the performance of the work.

2. If the test results pass and meet the requirements of these Specifications, the cost of the testing service will be borne by the Owner, but no allowance will be considered for delays in the performance of the work.

1.5 JOB CONDITIONS

A. Site Information:

1. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner and Engineer will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. Data are made available for the convenience of Contractor.
2. Additional test borings and other exploratory operations may be made by Contractor at no additional cost to Owner.

B. Existing Utilities and Structures:

1. The locations of utilities and structures shown on the Drawings are approximate as determined from physical evidence on or above the surface of the ground and from information supplied by the utilities. The Engineer in no way warranties that these locations are correct. It shall be the responsibility of the Contractor to determine the actual locations of any utilities or structures within the project area.

PART 2 - PRODUCTS

2.1 SOIL MATERIAL

- A. Processed Aggregate Sub-base: Shall be screened or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. Processed Gravel for base shall not contain particles of rock that will not pass the 4 inch square mesh sieve. The material shall conform to CT DOT Specification Section M.05.01. The gradation of the material shall meet the following grading requirements:

<u>Sieve Designation</u>	<u>Percent by Weight Passing Square Mesh Sieves</u>
2 1/2 inches	100
2 inches	95-100
3/4 inch	50-75
1/4 inch	25-45
No. 40	5-20
No. 100	2-12

B. Common Borrow:

1. Well graded granular material having no rocks with a maximum dimension over 6-inches, except where it is used for pipe bedding in which case the maximum size shall be 2-inches.
2. Free from frozen material and other unsuitable material.

3. That portion passing a three inch square mesh sieve shall contain not more than 70 percent passing a 1/4 inch mesh sieve and not more than 10 percent passing a number 200 mesh sieve when used as pipe bedding material and not more than 5 percent passing a number 200 mesh sieve when used as backfill around structures

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Examine the areas and conditions under which excavating, backfilling, filling, compaction and grading are to be performed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

#### 3.2 EXCAVATION

##### A. General:

1. Excavation consists of removal and disposal of all material encountered when establishing line and grade elevations required for execution of the work.
2. The Contractor shall make excavations in such manner and to such widths as will give suitable room for performing all work required by the Contract Documents; shall furnish and place all sheeting, bracing, and supports; shall do all cofferdamming, pumping, and draining; and shall render the bottom of the excavations firm, dry and acceptable in all respects.
3. Earth Excavation shall consist of the removal, hauling and disposal of all earth materials encountered during excavation including but not limited to native soil or fill, pavement (bituminous or concrete), existing sewers and manholes, ashes, loam, clay, swamp muck, debris, soft or disintegrated rock or hard pan which can be removed with a backhoe, or a combination of such materials, and boulders that do not meet the definition of "Ledge" below.
4. The Contractor shall not have any right of property in any materials taken from any excavation. Do not remove any such materials from the construction site without the approval of the Engineer. This provision shall in no way relieve the Contractor of his obligations to remove and dispose of any material determined by the Engineer to be unsuitable for backfilling. The Contractor shall dispose of unsuitable and excess material in accordance with the applicable sections of the Contract Documents.
5. All excavated materials designated by the Engineer as unsuitable shall become the property of the Contractor and disposed of at locations in accordance with all State and local laws and the provisions of the Contract Documents.

- B. Unauthorized Excavation: Shall consist of removal of materials beyond indicated subgrade elevations or dimensions without specific authorization of Engineer. Unauthorized excavation, as well as remedial work required by the Engineer shall be at the Contractor's expense. Remedial work required is as follows:

1. If the bottom of an excavation is excavated beyond the limits indicated, backfill the resulting void with thoroughly compacted common borrow or screened stone as directed by the Engineer.

2. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.
- C. Protection of Persons, Property and Utilities:
1. Barricade open excavations occurring as part of this work and post with warning lights in compliance with local and State regulations.
  2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations. Exercise extreme caution and utilize sheeting, bracing, and whatever other precautionary measures that may be required.
  3. Rules and regulations governing the respective utilities shall be observed in execution of all work. Active utilities and structures shall be adequately protected from damage, and removed or relocated only as indicated or specified. Inactive and abandoned utilities encountered in excavation and grading operations shall be removed, plugged or capped only with written authorization of the utility owner. Report in writing to the Engineer, the locations of such abandoned utilities. Extreme care shall be taken when performing work in the vicinity of existing utility lines, utilizing hand excavation in such areas, as far as practicable.
  4. Repair, or have repaired, all damage to existing utilities, structures, lawns, other public and private property which results from construction operations, at no additional expense to the Owner, to the complete satisfaction of the Engineer, the utility, the property owner, and the Owner.
- D. Stability of Excavations:
1. Slope sides of excavations to comply with all codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
  2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- E. Shoring and Bracing:
1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
  2. Provide trench shoring and bracing to comply with local, State and Federal codes and authorities having jurisdiction, including the Occupational Safety and Health Act. The Contractor shall be responsible for the design and construction of the excavation support system. The excavation support system shall be designed by a CT licensed Professional Engineer.
  3. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Install shoring and bracing as excavation progresses.
- F. Material Storage:
1. Stockpile excavated materials which are satisfactory for use on the work until required for backfill or fill. Place, grade and shape stockpiles for proper drainage and protect with temporary seeding or other acceptable methods to control erosion.
  2. Locate and retain soil materials away from edge of excavations.

3. Dispose of excess soil material and waste materials as herein specified.
- G. Dewatering:
1. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to intercept and/or remove promptly and dispose legally and properly of all water entering trenches and other excavations (including surface and subsurface waters).
  2. Excavations shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.
  3. Any damage as a result of the Contractor's dewatering operations to work in progress or private or municipal property shall be promptly repaired by the Contractor to the satisfaction of the Engineer at the Contractor's expense.
- H. Cold Weather Protection:
1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F.
  2. No frozen material shall be used as backfill or fill and no backfill shall be placed on frozen material.
- I. Separation of Surface Material:
1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the work.
  2. Prior to excavation, existing pavement shall be cut where in the opinion of the Engineer it is necessary to prevent damage to the remaining road surface.
  3. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.
  4. From areas within which excavations are to be made, loam and topsoil shall be carefully removed and separately stored to be used again as directed; or, if the Contractor prefers not to separate surface materials, he shall furnish, as directed, loam and topsoil at least equal in quantity and quality to that excavated.
- J. Dust Control:
1. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, so as to minimize the creation and dispersion of dust. Refer to Specification Section 01562.
  2. If the Engineer decides that it is necessary to use calcium chloride for more effective dust control, the contractor shall furnish and spread the material, as directed.

### 3.3 BACKFILL AND FILL

#### A. General:

1. Backfilling shall consist of replacing material removed to permit installation of structures or utilities, as indicated in the Contract Documents.
2. Filling shall consist of placing material in areas to bring them up to grades indicated on the Drawings.
3. The Contractor shall provide and place all necessary backfill and fill material, in layers to the required grade elevations.

4. Backfill excavations as promptly as work permits, but not until completion of the following:
  - a. Acceptance by Engineer of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
  - b. Inspection, approval, and recording locations of underground utilities.
  - c. Removal of formwork.
  - d. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Temporary sheet piling driven below bottom of structures shall be removed in manner to prevent settlement of the structure or utilities, or cut off and left in place if required.
  - e. Removal of trash and debris.
  - f. Permanent or temporary horizontal bracing is in place on horizontally supported walls.
  - g. Density testing having results meeting requirements specified herein.
5. In general, and unless otherwise indicated, material used for backfill of trenches and excavations around structures shall be suitable excavated material which was removed in the course of making the construction excavation. Unless otherwise specified or allowed by the Engineer the backfill and fill shall be placed in layers not to exceed 8 inches in thickness.
6. All fill and backfill under structures and pavement, and adjacent to structures, shall be compacted crushed stone or common borrow as specified or as indicated on the Drawings. The fill and backfill materials shall be placed in layers not exceeding 8 inches in thickness.
7. All structures (including manholes) shall be placed on a 6-inch mat of screened stone unless otherwise indicated.
8. Suitable excavated material shall meet the following requirements:
  - a. Free from large clods, silt lumps or balls of clay.
  - b. Free from stones and rock fragments with larger than 12 inch max. dimension.
  - c. Free from organics, peat, etc.
  - d. Free from frozen material.
9. If sufficient suitable excavated material is not available from the excavations, and where indicated on the Drawings, the backfill material shall be common borrow, unless otherwise indicated, as required and as directed by the Engineer.
10. Do not backfill with, or on, frozen materials.
11. Remove, or otherwise treat as necessary, previously placed material that has frozen prior to placing backfill.
12. Do not mechanically or hand compact material that is, in the opinion of the Engineer, too wet.
13. Do not continue backfilling until the previously placed and new materials have dried sufficiently to permit proper compaction.
14. The nature of the backfill materials will govern the methods best suited for their placement and compaction. Compaction methods and required percent compaction is covered in Compaction section.

15. Before compaction, moisten or aerate each layer as necessary to provide a water content necessary to meet the required percentage of maximum dry density for each area classification specified.
16. Do not allow large masses of backfill material to be dropped into the excavation in such a manner that may damage pipes and structures.
17. Place material in a manner that will prevent stones and lumps from becoming nested.
18. Completely fill all voids between stones with fine material.
19. Do not place backfill on or against new concrete until it has attained sufficient strength to support loads without distortion, cracking, and other damage.
20. Deposit backfill and fill material evenly on all sides of structures to avoid unequal soil pressures.
21. Keep stones or rock fragments with a dimension greater than two inches at least one foot away from the pipe or structure during backfilling.
22. Leave sheeting in place when damage is likely to result from its withdrawal.
23. Completely fill voids left by the removal of sheeting with screened stone which is compacted thoroughly.

### 3.4 COMPACTION

#### A. General:

1. Control soil compaction during construction to provide not less than the minimum percentage of density specified for each area classification.

#### B. Percentage of Maximum Density Requirements:

1. Compact soil to not less than the following percentages of maximum dry density determined in accordance with ASTM D1557 as indicated.
  - a. Off Traveled Way Areas: Compact each layer of backfill or fill material to at least 90% of maximum dry density (ASTM D1557).
  - b. Walkways: Compact each layer of backfill or fill material to at least 93% of maximum dry density (ASTM D1557).
  - c. Roadways, Drives and Paved Areas: Compact each layer of fill, subbase material, and base material to at least 95% of maximum dry density (ASTM D1557).

#### C. Moisture Control:

1. Where subgrade or a layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, in quantities controlled to prevent free water appearing on surface during or subsequent to compaction operations.
2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
3. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory level.

#### D. Compaction Methods: The Contractor may select any method of compaction that is suitable to compact the material to the required density.

1. General: Whatever method of compacting backfill is used, care shall be taken that stones and lumps shall not become nested and that all voids between

stones shall be completely filled with fine material. All voids left by the removal of sheeting shall be completely backfilled with suitable materials and thoroughly compacted.

2. Tamping or Rolling: If the material is to be compacted by tamping or rolling, the material shall be deposited and spread in uniform, parallel layers not exceeding the uncompacted thicknesses specified. Before the next layer is placed, each layer shall be tamped as required so as to obtain a thoroughly compacted mass. Care shall be taken that the material close to the excavation side slopes, as well as in all other portions of the fill area, is thoroughly compacted. When the excavation width and the depth to which backfill has been placed are sufficient to make it feasible, and it can be done effectively and without damage to the pipe or structure, backfill may, on approval, be compacted by the use of suitable rollers, tractors, or similar powered equipment instead of by tamping. For compaction by tamping or rolling, the rate at which backfilling material is deposited shall not exceed that permitted by the facilities for its spreading, leveling, and compacting as furnished by the Contractor.
- E. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

### 3.5 GRADING:

- A. General:
1. Grading shall consist of that work necessary to bring all areas to the final grades.
  2. Uniformly grade areas within limits of work requiring grading, including adjacent transition areas.
  3. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Compaction:
1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.
- C. Protection of Graded Areas:
1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
  2. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

### 3.6 BASE PROCESSED AGGREGATE

- A. General:
1. Base course consists of placing the specified materials in layers to support a paved surface, as indicated in the Drawings.
- B. Grade Control:
1. During construction, maintain lines and grades including crown and cross-slope of base.
- C. Placing:

1. Place base on prepared subbase conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base materials.
  2. Place base, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compaction.
- D. Shaping and Compacting:
1. All layers of aggregate shall be compacted to the required density immediately after placing. As soon as the compaction of any layer has been completed, the next layer shall be placed.
  2. The Contractor shall bear full responsibility for and make all necessary repairs to the subgrade until the full is placed and compacted. Repairs shall be made at no additional cost to the Owner.
  3. If the aggregate base or leveling course becomes contaminated by degradation of the aggregate or addition of foreign materials, the contaminated material shall be removed and replaced with the specified material at the Contractor's expense.

END OF SECTION

SECTION 02270TEMPORARY EROSION CONTROLPART 1 - GENERAL1.1 DESCRIPTION

## A. Work Included:

1. The work under this section shall include provision of all labor, equipment, materials and maintenance of temporary erosion control devices, as specified herein and as directed by the Engineer.
2. Erosion control measures shall be provided as necessary to correct conditions that develop prior to the completion of permanent erosion control devices, or as required to control erosion that occurs during normal construction operations.
3. Construction operations shall comply with all federal, state and local regulations pertaining to erosion control.
4. After awarding of or after being awarded the Contract, prior to commencement of construction activities, the Contractor will meet with the Engineer to discuss erosion control requirements and develop a mutual understanding relative to details of erosion control.

## B. Related Work Specified Elsewhere:

1. Site work is specified in appropriate sections of this Division.

## C. Design Criteria:

1. Conduct all construction in a manner and sequence that causes the least practical disturbance of the physical environment.
2. Stabilize disturbed earth surfaces in the shortest time and employ such temporary erosion control devices, as may be necessary, until such time as adequate soil stabilization has been achieved.

1.2 SUBMITTALS

- A. The Contractor shall furnish the Engineer, in writing, his work plan giving proposed locations for storage of topsoil and excavated material, before beginning construction. A schedule of work shall accompany the work plan. Acceptance of this plan will not relieve the Contractor of his responsibility for completion of the work as specified.

1.3 QUALITY ASSURANCE

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

- B. All materials and methods of sedimentation and erosion control shall conform to the requirements outlined in the Connecticut Guidelines for Erosion and Sediment Control as updated and the General Permit for Stormwater and Dewatering Wastewaters from Construction Activities and the Inland Wetlands Commission Permit appended to these Contract Documents.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Crushed stone for sediment filtration devices, access ways and staging areas shall conform to Connecticut DOT Standard Specifications for Highway and Bridges Form 814A.
- B. Permanent Seed:
  - 1. Conservation mix appropriate to the predominant soil conditions as specified in the BMP and subject to approval by the Engineer.
- C. Temporary Seeding:
  - 1. Use species appropriate for soil conditions and season as specified in the BMP and subject to approval by the Engineer.
- D. Water:
  - 1. The Contractor shall provide water and equipment to control dust, as directed by the Engineer.
- E. Silt Fence

Silt fence fabric shall be a woven, polypropylene, ultraviolet resistant material such as "ENVIROFENCE" by Mirafi Inc., Charlotte, NC or equal.

- F. Sediment Control Device

Sediment control devices shall be used during construction to control sediment discharges into existing drainage systems or other receiving streams. Silt sack shall be used under catch basins and dewatering bags as a stand alone device to catch sediment laden groundwater. They are constructed of permeable geotextile material and contain factory installed hose connections for various size hoses.

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

### 2.2 CONSTRUCTION REQUIREMENTS

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

2. Baled hay, sand bags or siltation fence may be used in an arrangement to fit local conditions.
- B. Temporary Berms:
1. Temporary barriers shall be constructed along the toe of embankments when necessary to prevent erosion and sedimentation.
- C. Temporary Seeding:  
Areas to remain exposed for a time exceeding 3 weeks shall receive temporary seeding as indicated below:

<u>Season</u>	<u>Seed</u>	<u>Rate</u>
Summer (5/15 - 8/15)	Sudangrass	40 lbs/acre
Late Summer/Early Fall (8/15 - 9/15)	Oats	80 lbs/acre
Fall (9/15 - 10/1)	Annual Ryegrass	40 lbs/acre
Winter (10/1 - 4/1)	Winter Rye	112 lbs/acre
Spring (4/1 - 7/1)	Mulch w/Dormant Seed	80 lbs/acre*
	Oats	80 lbs/acre
	Annual Ryegrass	40 lbs/acre

\* seed rate only

- D. Silt Fence shall be supported by posts and installed per the manufacturer's recommendations.
- E. Mulch All Areas Receiving Seeding:  
Use either wood cellulose fiber mulch (750 lbs/acre); or straw mulch with chemical tack (as per manufacturer's specifications). Wetting for small areas may be permitted. Biodegradable netting is recommended in areas to be exposed to drainage flow.
- F. Erosion control matting for slopes and ditches shall be anchored with pegs and/or staples per manufacturer's recommendations. Contractor shall provide matting along the flowline of all ditches and swales having a longitudinal slope in excess of 0.01 ft/ft, and on all slopes in excess of 3(H) to 1(V).

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Temporary Erosion Checks:
1. Temporary erosion checks shall be constructed in ditches and at other locations designated by the Engineer. The Engineer may modify the Contractor's arrangement of silt fences, bales and bags to fit local conditions.
  2. Baled hay, silt fences, or sandbags, or some combination, may be used in other areas, as necessary, to inhibit soil erosion.
  3. Siltation fence shall be located and installed as shown on plans or as required to comply with all Federal, State and Local Regulations.
- B. Erosion control matting for slopes and ditches shall be installed where indicated on the Drawings and as required to stabilize the soil until permanent vegetative stabilization is established.

- C. Maintenance:  
Erosion control features shall be installed prior to excavation wherever appropriate. Temporary erosion control features shall remain in place and shall be maintained until a satisfactory growth of grass is established. The Contractor shall be responsible for maintaining erosion control features throughout the life of the construction contract. Maintenance will include periodic inspections by the Owner or Engineer for effectiveness of location, installation and condition with corrective action taken by the Contractor, as appropriate.
- D. Removing and Disposing of Materials:
1. When no longer needed, material and devices for temporary erosion control shall be removed and disposed of upon approval by Engineer.
  2. When removed, such devices may be reused in other locations, provided they are in good condition and suitable to perform the erosion control for which they are intended.
  3. When dispersed over adjacent areas, the material shall be scattered to the extent that it causes no unsightly conditions nor creates future maintenance problems.
  4. Sedimentation basins, if no longer required, will be filled in, the pipe removed, the surface loamed and grass cover shall be established.

END OF SECTION

SECTION 02485LOAMING & SEEDINGPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Furnish, place, and test topsoil, seed, lime, and fertilizer where shown on the drawings or directed by the Engineer and protect and maintain seeded areas disturbed by construction work, as directed by the Engineer.
- B. Related Work Specified Elsewhere: Earthwork, excavation, backfill, compaction, site grading and temporary erosion control are specified in the appropriate Sections of this Division.

1.2 SUBMITTALS AND TESTING

- A. Seed:
  - 1. Furnish the Engineer with duplicate signed copies of a statement from the vendor, certifying that each container of seed delivered to the project site is fully labeled in accordance with the Federal Seed Act and is at least equal to the specification requirements.
  - 2. This certification shall appear in, or with, all copies of invoices for the seed.
  - 3. The certification shall include the guaranteed percentages of purity, weed content and germination of the seed, and also the net weight and date of shipment. No seed may be sown until the Contractor has submitted the certificates and certificates have been approved.
  - 4. Each lot of seed shall be subject to sampling and testing, at the discretion of the Engineer, in accordance with the latest rules and regulations under the Federal Seed Act.
- B. Topsoil:
  - 1. Inform the Engineer, within 30 days after the award of the Contract, of the sources from which the topsoil is to be furnished.
  - 2. Obtain representative soil samples, taken from several locations in the area under consideration for topsoil removal, to the full stripping depth.
  - 3. Have soil samples tested by an independent soils testing laboratory, approved by the Engineer, at the Contractor's expense.
  - 4. Have soil samples tested for physical properties and pH (or lime requirement), for organic matter, available phosphoric acid, and available potash, in accordance with standard practices of soil testing.
  - 5. Approval, by the Engineer, to use topsoil for the work will be dependent upon the results of the soils tests.
- C. Lime & Fertilizer:
  - 1. Furnish the Engineer with duplicate copies of invoices for all lime and fertilizer used on the project showing the total minimum carbonates and minimum percentages of the material furnished that pass the 90 and 20 mesh sieves and the grade furnished.

2. Each lot of lime and fertilizer shall be subject to sampling and testing at the discretion of the Engineer.
3. Sampling and testing shall be in accordance with the official methods of the Association of Official Agricultural Chemists.
4. Upon completion of the project, a final check may be made comparing the total quantities of fertilizer and lime used to the total area seeded. If the minimum rates of application have not been met, the Engineer may require the Contractor to distribute additional quantities of these materials to meet the minimum rates.

### 1.3 DELIVERY, STORAGE & HANDLING

#### A. Seed:

1. Furnish all seed in sealed standard containers, unless exception is granted in writing by the Engineer.
2. Containers shall be labeled in accordance with the United States Department of Agriculture's rules and regulations under the Federal Seed Act in effect at the time of purchase.

#### B. Fertilizer:

1. Furnish all fertilizer in unopened original containers.
2. Containers shall be labeled with the manufacturer's statement of analysis.

### 1.4 JOB CONDITIONS

A. Topsoil: Do not place or spread topsoil when the subgrade is frozen, excessively wet or dry, or in any condition otherwise detrimental, in the opinion of the Engineer, to the proposed planting or to proper grading.

#### B. Seeding:

1. Planting Seasons: The recommended seeding time is from April 1 to September 15. The Contractor may seed at other times. Regardless of the time of seeding, the Contractor shall be responsible for each seeded area until it is accepted.
2. Weather Conditions:
  - a. Do not perform seeding work when weather conditions are such that beneficial results are not likely to be obtained, such as drought, excessive moisture, or high winds.
  - b. Stop the seeding work when, in the opinion of the Engineer, weather conditions are not favorable.
  - c. Resume the work only when, in the opinion of the Engineer, conditions become favorable, or when approved alternate or corrective measures and procedures are placed into effect.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

#### A. Seed:

1. Provide the grass seed mixture approved by the Engineer, having the following composition:
  - a. Park Mixture:

- 50 percent Creeping Red Fescue
- 30 percent Kentucky Bluegrass
- 20 percent Annual Ryegrass
- b. Roadside Mixture:
  - 50 percent Creeping Red Fescue
  - 15 percent Kentucky Bluegrass
  - 5 percent White Clover
  - 2 percent Red Top
  - 3 percent Birdsfoot Trefoil
  - 25 percent Annual Ryegrass
- 2. Do not use seed which has become wet, moldy, or otherwise damaged in transit or during storage.
- B. Topsoil:
  - 1. Fertile, friable, natural topsoil typical of the locality, without admixture of subsoil, refuse or other foreign materials and obtained from a well-drained site. Mixture of sand, silt, and clay particles in equal proportions.
  - 2. Free of stumps, roots, heavy of stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, weeds, sticks, brush or other deleterious matter.
  - 3. Not less than 4 percent nor more than 20 percent organic matter.
  - 4. Topsoil depth shall be 4-inches, unless otherwise indicated.
- C. Lime:
  - 1. Provide lime which is ground limestone containing not less than 85% of total carbonate and of such fineness that 90% will pass a No. 20 sieve and 50% will pass a No. 100 sieve.
  - 2. Coarser materials will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing a No. 100 sieve. No additional payment will be made to the Contractor for the increased quantity.
- D. Fertilizer:
  - 1. Provide a commercial fertilizer approved by the Engineer.
  - 2. Provide fertilizer containing the following minimum percentage of nutrients by weight:
    - 10% Available phosphoric acid
    - 10% Available potash
    - 10% Available nitrogen (75% of the nitrogen shall be organic)

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Equipment:
  - 1. Provide all equipment necessary for the proper preparation of the ground surface and for the handling and placing of all required materials.
  - 2. Demonstrate to the Engineer that the equipment will apply materials at the specified rates.
- B. Soil: Perform the following work prior to the application of lime, fertilizer or seed.

1. Scarify the subgrade to a depth of 2 inches to allow the bonding of the topsoil with the subsoil.
2. Apply topsoil to a depth of 4 inches or as directed on areas to be seeded.
3. Trim and rake the topsoil to true grades free from unsightly variations, humps, ridges or depressions.
4. Remove all objectionable material and form a finely pulverized seed bed.

### 3.2 PERFORMANCE

#### A. Grading:

1. Grade the areas to be seeded as shown on the Drawings or as directed by the Engineer.
2. Leave all surfaces in even and properly compacted condition.
3. Maintain grades on the areas to be seeded in true and even conditions, including any necessary repairs to previously graded areas.

#### B. Placing Topsoil:

1. Uniformly distribute and evenly spread topsoil on the designated areas.
2. Spread the topsoil in such a manner that planting work can be performed with little additional soil preparation or tillage.
3. Correct any irregularities in the surface resulting from top soiling or other operations to prevent the formation of depressions where water may stand.
4. Thoroughly till the topsoil to a depth of at least 3 inches by plowing, harrowing, or other approved method until the condition of the soil is acceptable to the Engineer. The surface shall be cleared of all debris and or stones one inch or more in diameter.

#### C. Placing Fertilizer:

1. Distribute fertilizer uniformly at a rate determined by the soils test over the areas to be seeded.
2. Incorporate fertilizer into the soil to a depth of at least 3 inches by discing, harrowing, or other methods acceptable to the Engineer.
3. The incorporation of fertilizer may be a part of the tillage operation specified above.
4. Distribution by means of an approved seed drill equipped to sow seed and distribute fertilizer at the same time will be acceptable.

#### D. Placing Lime:

1. Uniformly distribute lime immediately following or simultaneously with the incorporation of fertilizer.
2. Distribute lime at a rate determined from the pH test, to a depth of at least 3 inches by discing, harrowing, or other methods acceptable to the Engineer.

#### E. Seeding:

1. Fine rake and level out any undulations or irregularities in the surface resulting from tillage, fertilizing, liming or other operations before starting seeding operations.
2. Hydroseeding:
  - a. Hydroseeding may be performed where approved and with equipment approved by the Engineer.

- b. Sow the seed over designated areas at a minimum rate of 5 pounds per 1000 square feet.
  - c. Seed and fertilizing materials shall be kept thoroughly agitated in order to maintain a uniform suspension within the tank of the hydroseeder.
  - d. The spraying equipment must be designed and operated to distribute seed and fertilizing materials evenly and uniformly on the designated areas at the required rates.
3. Drill Seeding:
    - a. Drill seeding may be performed with approved equipment having drills not more than 2 inches apart.
    - b. Sow the seed uniformly over the designated areas to a depth of 1/2 inch and at a rate of 5 pounds per 1,000 square feet.
  4. Broadcast Seeding:
    - a. Broadcast seeding may be performed by equipment approved by the Engineer.
    - b. Sow the seed uniformly over the designated areas at a rate of 5 pounds per 1,000 square feet.
    - c. Sow half the seed with the equipment moving in one direction and the remainder of the seed with the equipment moving at right angles to the first sowing.
    - d. Cover the seed to an average depth of 1/2 inch by means of a brush harrow, spike-tooth harrow, chain harrow, cultipacker, or other approved devices.
    - e. Do not perform broadcast seeding work during windy weather.
- F. Compacting:
1. Seeded areas must be raked lightly after sowing unless seeding is to be directly followed by application of an approved mulch.
  2. Compact the entire area immediately after the seeding operations have been completed.
  3. Compact by means of a cultipacker, roller, or other equipment approved by the Engineer weighing 60 to 90 pounds per linear foot of roller.
  4. If the soil is of such type that a smooth or corrugated roller cannot be operated satisfactorily, use a pneumatic roller (not wobbly wheel) that has tires of sufficient size to obtain complete coverage of the soil.
  5. When using a cultipacker or similar equipment, perform the final rolling at right angles to the prevailing slopes to prevent water erosion, or at right angles to the prevailing wind to prevent dust.

### 3.3 PROTECTION & MAINTENANCE

- A. Protection:
  1. Protect the seeded area against traffic or other use.
  2. Erect barricades and place warning signs as needed.
- B. Maintenance:
  1. At the time of the first cutting, set mower blades two inches high. All lawns shall receive at least two mowings before acceptance. Coordinate schedule for mowing with Engineer.

2. Maintenance shall also include all temporary protection fences, barriers and signs and all other work incidental to proper maintenance.
3. Maintain grass areas until a full stand of grass is indicated, which will be a minimum of 45 days after all seeding work is completed, and shall not necessarily related to Substantial Completion of the General Contract.
4. Protection and maintenance of grass areas shall consist of watering, weeding, cutting, repair of any erosion and reseeding as necessary to establish a uniform stand for the specified grasses, and shall continue until Acceptance by the Engineer of the work of this section. It shall also include the furnishing and applying of such pesticides as are necessary to keep grass areas free of insects and disease. All pesticides shall be approved by Engineer prior to use.

3.4 ACCEPTANCE

- A. At final acceptance of the project all areas shall have a close stand of grass with no weeds present and no bare spots greater than three inches (3") in diameter over greater than five percent (5%) of the overall seeded area.

END OF SECTION

SECTION 02513BITUMINOUS CONCRETE PAVINGPART 1 - GENERAL1.1 DESCRIPTION

## A. Work Included:

1. Furnish all plant, labor, equipment and materials required to install bituminous concrete pavement courses, including walkways and driveways, as shown on the Drawings and as specified herein.

## B. Work Not Included: Removal and replacement of paving for the convenience of the Contractor will not be considered for payment.

## C. Related Work Specified Elsewhere:

1. Excavation, backfill, aggregate base and base.

1.2 QUALITY ASSURANCE

## A. Materials: Use only materials furnished by a bulk bituminous concrete producer regularly engaged in the production of hot mixed, hot laid bituminous concrete.

## B. Equipment: Provide, maintain and operate pavers, dump trucks, tandem, 3-wheel and pneumatic tired rollers well suited to the mixtures being placed. Provide, maintain and operate hand equipment as required. When applicable, provide, maintain and operate trimming equipment and materials.

## C. General: All materials, construction methods and equipment shall conform to the requirements of the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816, latest edition (hereinafter referred to as CTDOT Specifications) and as specified herein.

## D. The purpose of this specification is to direct the Contractor's attention to certain paving items. Compliance with this specification does not relieve the Contractor of his obligation to perform his work in complete accordance with the Connecticut Department of Transportation's requirements.

1.3 SUBMITTALS

## A. A certificate of compliance shall be furnished to the Engineer that the materials supplied comply with the specification requirements.

## B. Delivery slips shall be furnished with each load of mix delivered to the project. Information shall include:

1. Vehicle identification.
2. Date.
3. Project.
4. Identification of material.
5. Gross, tare and net weights.
6. Signed by the bituminous concrete producer.
7. Stamped by a licensed public weighmaster.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Hot Bituminous Concrete Base Course - Town Roads
  - 1. Shall conform to the requirements of subsection M.04, Class 1, of the CTDOT specifications.
- B. Hot Bituminous Concrete Final Course - Town Roads
  - 1. Shall conform to the requirements of subsection M.04, Class 2, of the CTDOT specifications.
- C. Hot Bituminous Concrete Base Course - CT DOT Roads
  - 1. Shall conform to the requirements of subsection M.04, Class 4, of the CTDOT specifications.
- D. Hot Bituminous Concrete Final Course - CT DOT Roads
  - 1. Shall conform to the requirements of subsection M.04, Class 1, of the CTDOT specifications.
- E. Tack Coat and Joint Sealer
  - 1. Shall conform to the requirements of subsection M.04 of the CTDOT specifications.
- F. Pavement Markings
  - 1. Shall conform to the requirements of subsection M.07 of the CTDOT specifications.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Grade Control:
  - 1. The Contractor shall establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.
- B. Reset all existing manholes and gate boxes, to finished grade as required at no additional cost to the Owner.

### 3.2 PAVEMENT REMOVAL

- A. General:
  - 1. Exercise extreme care in the removal of pavement so that pavement will not be unnecessarily disturbed or destroyed.
  - 2. Mechanically cut pavement to be removed to a straight line, unless otherwise directed by the Engineer.
  - 3. All pavement removed shall become the property of the Contractor and disposed of at acceptable locations.

### 3.3 SURFACE PREPARATION

- A. Tack coat shall conform to Section 4.06 of the CTDOT Specifications.
- B. Tack Coat:
  - 1. Apply to contact surfaces of previously constructed asphalt or Portland cement concrete and surfaces abutting or projecting into asphalt concrete

pavement. Distribute at rate of 0.05 to 0.15 gallons per square yard of surface.

### 3.4 PLACING THE MIX

#### A. General:

1. Place asphalt concrete mixture on prepared surface in conformance with Section 4.06 of the CTDOT Specifications. Place in areas inaccessible to paving machine and small areas by hand. Place each course to required grade, cross-slope and compacted thickness.
2. Asphalt concrete shall only be placed when the base temperature is above 40°F and rising for a minimum placement of 1½" or more of pavement or above 50°F for a minimum placement of 1" of pavement.

#### B. Protection:

1. After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened to the extent that the pavement will not be damaged.

#### C. Joint Sealing

1. All joints between existing and new pavement shall be sealed in conformance with Section 4.06 of the CTDOT Specifications.

### 3.5 PAVEMENT MARKINGS

- #### A. Pavement markings shall conform to the CTDOT Specification Section 12.09.

END OF SECTION



SECTION 02568PRESSURE TESTING AND CHEMICAL GROUTING  
OF SANITARY SEWER PIPE JOINTSPART 1 - GENERAL1.1 SCOPE OF WORK

- A. The work covered by this Section of the Specifications consists of furnishing all labor, supervision, equipment, appliances and materials and performing all operations in connection with pressure testing and joint sealing, by chemical grouting, of sanitary sewer mains and building laterals, and as directed by the ENGINEER, complete in place and accepted, in accordance with the Drawings and Specifications.
- B. The work and materials required in this Section of the Specifications generally consists of the following:
  - 1. Sewer mains to be pressure tested and sealed shall be televised before and after sealing with results kept in a logbook. It is assumed that each building lateral designated for testing and sealing shall be tested and sealed from the main to approximately five (5) feet up the lateral, including the lateral connection point to the main.
  - 2. A notification form should be given to each building for which laterals have been grouted. This notification to the occupant should state that the lateral servicing the particular address was grouted on the particular date and if blockage occurs, the occupant should call a given phone number of the CONTRACTOR.
  - 3. Sewer flow control to maintain flows in the sewer system allowing the specified work to be performed in a manner acceptable to the Engineer.
  - 4. Following the testing and grouting of sewer main joints, the Contractor shall clean and dispose of all debris in manholes prior to visual inspection by the Engineer.
- C. Sewer joints shall be pressure tested and grouted where indicated on the tables in Appendix B: Area A Pipe Rehabilitation Table and Appendix E: Area B Pipe Rehabilitation Table of these Specifications and where directed by the Engineer.
- D. Refer to Appendix C: Area A CCTV Inspection Reports and Appendix F: Area B CCTV Inspection Reports, for observed defect information.

1.2 RELATED SECTIONS

- |                                    |               |
|------------------------------------|---------------|
| A. Sewer Flow Control              | Section 02751 |
| B. Sewer Line Cleaning             | Section 02752 |
| C. Television Inspection of Sewers | Section 02753 |

1.3 SUBMITTALS

- A. Shop drawings, a list of materials, and technical data shall be submitted to the OWNER for approval prior to any work being performed under this Section of the Specifications.

1.4 DESIGN CRITERIA

- A. The CONTRACTOR shall provide CCTV testing-grouting rigs plus all necessary support equipment and personnel for full-time operation.
- B. The CONTRACTOR shall provide an experienced Chief Operator for each of the CCTV testing-grouting rigs. The Chief Operator shall have a minimum of six (6) months active experience as Chief Operator of similar CCTV testing-grouting rigs.

PART 2 - PRODUCTS

2.1 SEWER CLEANING AND TELEVISION INSPECTION EQUIPMENT

- A. Cleaning and Television Inspection Equipment used in performing pressure testing and joint sealing shall be as designated in Sections 02752 Sewer Line Cleaning, and 02753 Television Inspection of Sewers.

2.2 PRESSURE TESTING EQUIPMENT

- A. The basic equipment used shall consist of a television camera, joint testing device (such as a low void packer), and test monitoring equipment. The equipment shall be constructed in such a way as to provide means for introducing a test medium, under pressure, into the VOID area created by the expanded ends of the joint-testing device and a means for continuously measuring the actual static pressure of the test medium within the VOID area. A fluid (liquid or gas) shall be used as the test medium. Both liquid (usually water) and air are acceptable, but the test procedure is different for each.
- B. VOID pressure data shall be transmitted electrically and without the use of the test medium (water) or hoses. All test monitoring shall be above ground and in a location that allows for simultaneous, continued observation of the television monitor and test monitoring equipment by the OWNER'S representative.
- C. The CONTRACTOR shall supply a test cell in order to ensure accuracy of the testing equipment.

2.3 JOINT SEALING EQUIPMENT

- A. The basic equipment shall consist of a closed circuit television system, necessary chemical sealant containers, pumps, regulators, valves, hoses, etc., and LOW VOID joint sealing packers for the various sizes of sewer pipes. The packer shall be a cylindrical case of a size less than pipe size, with the cables at either end used to pull it through the line. The packer device shall be constructed in such a manner as to allow a restricted amount of sewage to flow at all times. Generally, the equipment shall be capable of performing the specified operations in lines where flows do not exceed the normal maximum line flows. When the packer is inflated, two (2) wide spaced annular bladders shall be formed, each having an elongated shape and producing an annular void around the center portion of the packer. The packer shall be equipped with a lateral sealing inversion tube for testing and sealing of the building lateral.

2.4 JOINT SEALING MATERIALS

- A. Chemical Grout Sealant

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1. The chemical grouting material shall be a liquid that can be easily transported to the pipe joint and injected into the joint. The grout shall react quickly to seal the joint against infiltrating groundwater and shall be capable of withstanding the environment within the sewer or drain system and normal maintenance operations. The chemical grout shall provide a seal that will withstand a water or air pressure test of four pounds per square inch (4 psi) above the hydrostatic pressure for a minimum of thirty (30) seconds.
  2. The CONTRACTOR shall use an appropriate root inhibitor mixed with the grout as recommended by the manufacturer; such as Barrier 50W as manufactured by Avanti International, or approved equal.
  3. The seal effectiveness of the grout may not be required to be demonstrated by laboratory testing in a soil box on standard pipe of various configurations, if acceptable testing documentation is supplied to and approved by the OWNER. Otherwise, the test will be an exfiltration test performed at a ten (10) foot head of water on a single joint, grout with a standard packing device. Under the following criteria, the test results must meet the specification relating to an acceptable seal for a new pipe.
    - a. Soil Box - A box of such dimensions as to contain a standard 8-inch concrete joint (bell and spigot area) and approximately one yard of soil. One end must allow protrusion of the pipe so that the standpipe can be affixed. The bell end of pipe must be strapped securely to the box and the box designed with a sliding panel so that the spigot end can be flexed.
    - b. Pipe Failure Configuration - The following configurations used in the Western Report (Improved Sealants for Infiltration Control, The Western Company, June, 1969) shall each be tested.
      - 1) Open Joint -  $\frac{1}{8}$ " open gap from dead tight joint.
      - 2) Broken Bell - Approximately  $\frac{1}{3}$  of the bell is broken away.
      - 3) Slot - 3" x  $\frac{1}{8}$ " slot in barrel of pipe.
    - c. Flexure Test - The open joint configuration shall be subjected to a deflection of at least 0.3 inch per foot of pipe without causing failure of the seal. (This corresponds to 20% of the possible deflection before breakage of the bell.).
    - d. Soils - All tests will be performed in two soils:
      - 1) Sand (particle size greater than 0.05mm)
      - 2) Clay (at least 30% of soil with particle size less than 0.02 mm)
    - e. In lieu of laboratory tests, the grout manufacturer may submit other proof that the sealant used meets the above requirements.
    - f. The grouting material shall be an acrylamide gel, AV-100 as manufactured by Avanti International, urethane gel 5610 as manufactured by 3-M or an approved equal. The CONTRACTOR shall receive the ENGINEER's approval prior to using any grouting material.
- B. All chemical sealing materials used in the performance of the work specified must conform to the following minimum performance standards:
1. While being injected, the chemical grout must be able to react in moving water.
  2. The final cured grout must be capable of withstanding submergence in water without degradation.
  3. The resultant grout formation must be impervious to water penetration.

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4. The grout material, after fully curing, must be flexible, not brittle or rigid.
  5. The final grout should be able to withstand freeze-thaw and wet-dry cycles without causing adverse changes to the grout.
  6. The final grout formation must not be biodegradable.
  7. The cured grout should be chemically stable and resistant to concentrations of acids, alkalis, and organics found in normal sewage.
  8. The chemical grout sealing effectiveness shall meet or exceed that stated in "Chemical Sealants for Elimination of I/I", page 23, published by the U.S.E.P.A., September 28, 1973.
- C. All chemical sealing materials used shall meet the following minimum application requirements.
1. All component materials should be easily transportable by common carriers.
  2. Packaging of component materials should be compatible with field storage requirements.
  3. Grout components must be packaged in such a fashion as to provide for maximum worker safety when handling the materials and minimize spillage when preparing for use.
  4. Mixing of the components should be compatible with field applications and not require precise measurements.
  5. Catalyzation shall take place at the point of injection/repair.
  6. Cleanup must be done without inordinate use of flammable or hazardous chemicals.
  7. Materials must be capable of being pumped through a minimum of 500 feet of ½ inch to ¾ inch diameter hose.
  8. Residual sealing materials must be removable from the sewer after injection to ensure no flow reduction, restriction or blockage of normal sewer flows.
- D. Acrylamide Base Gel sealing materials shall have the following basic properties:
1. A controllable reaction time ranging from ten (10) seconds to greater than one (1) hour.
  2. Viscosity that can be made near two (2) centipoise or greater.
  3. Viscosity to remain constant throughout the induction period.
  4. The ability to tolerate some dilution and react in moving water.
  5. The final reaction shall produce a homogeneous chemically stable, non-biodegradable, firm, flexible gel.
  6. The gel shall not be rigid or brittle.
  7. The gel shall have a negligible corrosion rate on mild steel plates.
  8. The base compounds may be varied considerably by additives to increase the strength, adhesion, solution density and viscosity.
  9. The gel shall be prepared from a minimum of ten percent (10%) (by weight) aqueous solution of the basic chemicals. The activator and initiator catalysts shall be introduced in such proportions, as recommended by the manufacturer, as to produce the most effective gel time for the existing field conditions and temperatures.
  10. Proportion control tests shall be made daily to determine that the proper amount of catalysts and additives are being used for the prevailing conditions. The concentration of the initiator (ammonium persulfate) shall be less than three

percent (3%) by weight.

- E. Urethane Base Gel sealing materials shall have the following basic properties:
1. 1 Part urethane prepolymer thoroughly mixed with between 5 and 10 parts of water weight. The recommended mix ratio is 1 part urethane prepolymer to 8 parts of water (11% prepolymer).
  2. A liquid prepolymer having a solids content of 77% to 83%, specific gravity of 1.04 (8.65 pounds per gallon), and a flash point of 20° F.
  3. A liquid prepolymer having a viscosity of 600 to 1200 centipoise at 70°F than can be pumped through 500 feet of ½-inch hose with a 1000 psi head at a flow rate of 1 ounce per second.
  4. The water used to react the prepolymer should have a pH of 5 to 9.
  5. A cure time of 80 seconds at 40°F, 55 seconds at 60°F, and 30 seconds at 80°F when 1 part prepolymer is reacted with 8 parts of water only.
  6. A cure time that can be reduced to 10 seconds for water temperatures of 40°F to 80°F when 1 part prepolymer is reacted with 8 parts of water containing a sufficient amount of gel control agent additive.
  7. A relatively rapid viscosity increase of the prepolymer/water mix. Viscosity increases from about 10 to 60 centipoise in the first minute for 1 to 8 prepolymer ratio at 50°F.
  8. A reaction (curing) which produces a chemically stable and non-biodegradable, tough, flexible gel.
  9. The ability to increase mix viscosity, density, gel strength and resistance to shrinkage by the use of additives to the water.
- F. None of the materials in the grouting system shall present undue hazard to job site personnel, the general public, or the environment. Material Safety Data Sheets (Form OSHA-20 or equivalent) shall be made available for each material outlining proper fire and explosion hazard data, health hazard data, spill and leak procedures, and special protective equipment information.
- G. Proper procedures for waste disposal of all residues of each material in the grouting system shall be used. Manufacturers' recommendations shall be strictly adhered to. Disposal shall be made at a sanitary landfill site or other applicable disposal site. Neither the grout nor its component materials shall be disposed of in the sewer drain system.
- H. All equipment and the surrounding area shall be cleaned up properly and completely. The method of cleaning equipment shall be based on the manufacturer's recommendations.
- I. The chemical sealing materials used shall have a minimum of five (5) years documented "in place" successful use in the sealing of sewer line joints. At the request of the ENGINEER, proof of such documentation will be provided by the CONTRACTOR. If such documentation is inadequate or unsatisfactory to the OWNER, the material shall not be allowed for use on this project unless verified by the soil box test and approved by the ENGINEER.
- J. An additive to increase the compressive and tensile strength as well as elongative properties shall be added to the grout mix. If an acrylamide gel is used then AV-257 as manufactured by Avanti International is acceptable or if a urethane gel is used an acceptable additive is 5612 as manufactured by 3-M. Mixing ratios shall be a

minimum of 4 gallons in lieu of water per 30 gallon mix if acrylamide and 4 gallons in lieu of water per 40 gallon mix if urethane. The grout shall be mixed as defined by the Manufacture.

### PART 3 – EXECUTION

#### 3.1 CLEANING AND TELEVISION INSPECTION OF SEWERS

A. All lines that are scheduled for grouting shall be cleaned. Cleaning shall include the complete removal and disposal of all dirt, rocks, roots, gravel and other debris and obstructions from the sewers. Cleaning and Television Inspection shall be performance in accordance with Sections 02752 Sewer Line Cleaning, and 02753 Television Inspection of Sewers.

#### 3.2 PRESSURE TESTING

A. The technique of sewer line joint testing is used to test the integrity of individual pipe joints. Testing cannot be performed and will not be required on cracked or broken pipe, or sections of the pipe between joints. Testing also will not be required on visibly leaking joints. Test all joints except those with visible infiltration. Joints with visible infiltration shall be sealed immediately.

B. Procedure:

1. Position the packer on each joint to be tested.
2. Inflate the sleeves on each end of the packer.
3. Apply four (4.0) psi pressure above the existing hydrostatic pressure on the outside of the joint to the void area created around the inside perimeter of the joint.
4. Shut off the supply of air once the pressure has stabilized at the required amount.
5. Monitor the void pressure for thirty (30) seconds.
6. Repair the joint if the pressure drops more than one half (1/2) psi in the thirty (30) seconds.

C. Water or chemical pressure testing may be used in lieu of air testing subject to review and approval by the Engineer.

#### 3.3 JOINT SEALING

A. Joints showing visible leakage, or joints that have failed the joint test, shall be sealed as specified. Joint sealing shall be accomplished by forcing chemical sealing materials into or through infiltration points by a system of pumps, hoses, and sealing packers. The amount of grout necessary for each joint shall conform to manufacturer's recommendations and to further requirements of this Section.

B. The packer shall be positioned over the area of infiltration by means of a metering device and the closed circuit television camera in the line. It is important that the procedure used by the CONTRACTOR for positioning the packer be accurate to avoid over pulling the packer and thus not effectively sealing/grouting the intended joint from infiltration.

C. The packer sleeves shall then be expanded using precisely controlled pressures. The

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pneumatically expanded sleeve or elements shall seal against the inside periphery of the pipe to form a void area at the point infiltration, now completely isolated from the remainder of the pipeline.

- D. Into this isolated area, sealant materials shall be pumped through the hose system at controlled pressures that are in excess of groundwater pressures.
- E. The pumping, metering, and packer device shall be integrated so that proportions and quantities of materials can be regulated in accordance with the type and size of the leak being sealed.
- F. Sewer main and lateral sealing is performed if video inspection shows visible leakage; however the OWNER reserves the right to seal additional sewer joints as it sees fit. Final field determination of joint sealing will be made by the ENGINEER. The packer should remain in position, maintaining the isolated VOID. Chemical grout sealant is pressure injected through the packer into the annular space between the inversion tube and the sewer pipe. Under pressure, the grout material is then forced out into the soil through leaking joints and pipe defects. It is assumed that each building lateral designated for testing and sealing shall be tested and sealed from the main to approximately five (5) feet up the lateral.

### 3.4 JOINT SEALING VERIFICATION

- A. Joint sealing verification is completed by performing air testing a second time. The air test is the same as defined above. The sequence of air testing, grouting and subsequent air testing is repeated until either the joint is sealed or it is determined that the grout consumption is too high and may result in the blockage of the pipe. The final determination to stop subsequent attempts to seal a joint will be made by the ENGINEER.

### 3.5 RESIDUAL GROUT MATERIAL

- A. Any residual sealing materials that extend into the pipe, reducing the pipe diameter, or restrict the flow shall be removed from the joint. The sealed joints shall be left reasonably "flush" in dimension with the existing pipe surface. If excess residual sealing materials accumulate in the line and/or as directed by the ENGINEER, the entire line section shall be re-cleaned to remove excess material, at no expense to the OWNER. In the case where lateral sealing has taken place, the CONTRACTOR shall take precautions not to inject excess material; shall notify the homeowner by written notice that the lateral has been grouted, and shall be responsible to clean laterals where blockage occurs due to excess grout material.

### 3.6 RECORDS

- A. Documentation of television inspection results shall be as follows:
  - 1. Television Inspection Logs: Printed location records shall be kept by the CONTRACTOR and will clearly show the location, in relation to adjacent manholes, of each infiltration point discovered by the television camera. In addition, other points of significance such as locations of building sewer, unusual conditions, roots, storm sewer connections, collapsed sections, presence of scale and corrosion and other discernible features will be recorded and a copy of such records will be supplied to the OWNER.
  - 2. Photographs: Standard size photographs of the television monitor or problem

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areas shall be taken by the CONTRACTOR upon request of the ENGINEER and at no cost to the OWNER.

3. DVD Recordings: The purpose of recordings shall be to supply a visual and audio record of problem areas of the lines that may be replayed both daily and at future presentations. Video recording playback shall be at the same speed that it was recorded. Slow motion or stop motion playback features shall be supplied at the option of the OWNER. DVD's shall remain available to the OWNER along with a viewing machine, for a period of up to thirty days following completion of all work by the CONTRACTOR. All DVDs (and any other recordings) shall become the property of the OWNER. All DVDs shall be compatible with DVD equipment.
- B. During the joint testing program, complete records shall be kept, recording the location of the line section in which the testing is being done, the location of each joint tested, the test pressures used, flow rates of the test liquid and the test results. A specific statement shall be included to indicate if the referenced joint passed or failed the test and if the joint is to be sealed.
- C. Complete records shall be kept of all joint sealing performed in each line section certified and submitted to the ENGINEER. The records will document the location of the line section in which the sealing was done, the location of each joint sealed, the amount of material used to seal the joint the numbers of injections required to seal the joint and the joint test verification results. Two copies of the certified test results shall be submitted to the ENGINEER for review and approval.
- D. The complete procedure for sealing sewer mains and laterals should be videotaped during the air testing and sealing operation. The DVDs are to be submitted to the ENGINEER for review and permanent record.

### 3.7 INSPECTION

- A. Work shall only be performed in the presence of a duly authorized representative of the ENGINEER. This includes blending the various chemicals (set-up and tear down operations need not be performed in the presence of the ENGINEER).
- B. The ENGINEER may direct the CONTRACTOR to alter testing pressure gel time, and/or pumping rate, based on actual conditions encountered during sealing.
- C. The ENGINEER may direct the operator to position the air-inflatable sleeves along a clean barrel of pipe to verify that the unit is holding pressure. Similarly, the ENGINEER may direct the operator to position the air-inflatable sleeves on either side of a house connection to determine that air leakage is being properly recorded.
- D. The ENGINEER shall determine which joints pass and fail the pressure test based on compliance with these specifications. A daily log of work accomplished shall be duly recorded and acknowledged by the ENGINEER and the CONTRACTOR'S superintendent.
- E. Video Inspection of each sewer main and lateral grouted will be required immediately following the process to determine cleanliness before moving on to the next location.

### 3.8 WARRANTY

- A. All sewer pipe joint sealing work performed shall be guaranteed against faulty workmanship and/or materials for a period of one year after the completion of work.

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- B. Prior to the expiration of the guarantee period, the OWNER reserves the right to select an initial retest area consisting of specific sealed sewer mains and laterals. The sewer mains and laterals to be retested shall be randomly selected throughout the project area and shall be representative of the majority of the sealing work originally performed.
- C. Within the initial retest area, the CONTRACTOR shall retest all previously sealed sewer mains and laterals as previously specified. Any joints failing the retest shall be resealed. If the failure rate of the retested sewer mains and laterals is less than 5% of the sewer mains and laterals retested, the work shall be considered satisfactory and no further retesting will be required.
- D. If, in the initial retest area, the failure rate of the retested sewer mains and laterals exceeds 5% of the sewer mains and laterals retested, an additional retest area of equivalent size shall be selected and all previously sealed sewer mains and laterals shall be retested. This additional retesting and resealing, if necessary, will continue until a failure rate of less than 5% of the total sewer mains and laterals retested is met. If a sewer main fails the initial retest, no additional payment shall be made for resealing the failed joints.
- E. Any additional testing/sealing required beyond the initial retest area shall be accomplished at no cost to the OWNER. The initial retesting shall be considered as being included for payment under the appropriate pipe size unit bid item for pressure testing and sealing.
- F. Should as much as 25% of the original project be retested and fail to meet the 5% requirement, the CONTRACTOR will be required to provide the same number of crews as utilized in the original project so that the retesting will proceed at a more rapid rate.

3.9 LINE OBSTRUCTIONS

- A. It shall be the responsibility of the CONTRACTOR to clear the line of all obstructions such as solids, dropped joints, collapsed pipe that will prevent the line from being grouted. As a general guide, if the camera or grouting equipment cannot pass by the obstruction as determined by the ENGINEER then the obstruction should be considered for repair or removal.
- B. If inspection reveals an obstruction that cannot be removed by conventional sewer cleaning equipment, or an internal cutter to remove such things like protruding services, then the sewer main shall not be sealed and the ENGINEER shall be notified of the recommended repair.

END OF SECTION



SECTION 02601MANHOLES FRAMES AND COVERSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Replace manhole frame and cover, adjust manhole frame and cover, and brick masonry, including chimney replacement where called for elsewhere in this Division, in conformance with the dimensions, elevations, and locations shown on the Drawings and as specified herein.
- B. Related Work Specified Elsewhere (when applicable):
  - 1. Excavation, backfill, paving and loaming and seeding are specified in the appropriate Sections in this Division.
  - 2. Refer to Appendix A: Manhole Reports and Appendix D: Area B Manhole Reports for observed defect information.
  - 3. For manhole Frames and Covers to be rehabilitated, refer to 02758 Manhole Rehabilitation.

1.2 QUALITY ASSURANCE

- A. Frames and Covers:
  - 1. Acceptable Manufacturers:
    - a. Campbell Foundry Co.
    - b. Neenah Foundry Co.
    - c. E. L. LeBaron Foundry Company.
    - d. Or equivalent.
- B. Masonry:
  - 1. Brick: Shall comply with the ASTM Standard Specifications for Sewer Brick (made from clay or shale), Designation C32, for Grade SS, hard brick.
  - 2. Cement: ASTM C-150.
  - 3. Hydrated Lime: ASTM C-207
  - 4. Sand: ASTM C33

1.3 SUBMITTALS TO THE ENGINEER

- A. Submit shop drawings and manufacturer's literature in conformance with Section 01340 and the General Conditions of these Contract Documents.

PART 2 – PRODUCTS2.1 FRAMES AND COVERS

- A. Standard Units:
  - 1. Frame and cover set shall be Campbell Foundry Pattern No. 1047 or approved equivalent product of similar size, shape and markings.
  - 2. Made of cast iron conforming to ASTM A48-76, Class 30 minimum.
  - 3. Have machined bearing surfaces to prevent rocking.

4. Castings shall be smooth with no sharp edges.
  5. Constructed to support an HS-20 wheel loading.
  6. Dimensions and Style shall conform to the Drawings, Standard castings differing in non-essential details are subject to approval by the Engineer:
    - a. Covers - solid with sewer in 3-inch letters diamond pattern.
    - b. Frame - 24-inch diameter clear opening, with flange bracing ribs.
- B. Water Tight Units:
1. Same features as above for Standard Units, with 24-inch diameter minimum clear opening.
  2. Sealing features:
    - a. Inner lid held by a bronze tightening bolt in a locking bar.
    - b. Neoprene gasket
    - c. Water tight pick hole.
  3. Minimum weight of frame and cover shall be 510 lbs.

## 2.2 MASONRY

- A. Brick:
1. Sound, hard, uniformly burned, regular and uniform in shape and size, compact texture, and satisfactory to the Engineer.
  2. Immediately remove rejected brick from the work.
- B. Mortar:
1. Composition (by volume):
    - a. 1 part portland cement.
    - b. 1/2 part hydrated lime.
    - c. 4-1/2 parts sand.
  2. The proportion of cement to lime may vary from 1:1/4 for hard brick to 1:3/4 for softer brick, but in no case shall the volume of sand exceed 3 times the sum of the volume of cement and lime.
- C. Cement shall be Type II portland cement.
- D. Hydrated lime shall be Type S.
- E. Sand:
1. Shall consist of inert natural sand.
  2. Grading:

<u>Sieve</u>	<u>Percent Passing</u>
No. 4	100
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35
No. 100	2-15
No. 200	0-5

## PART 3 - EXECUTION

### 3.1 PERFORMANCE

- A. Remove existing frame and cover. See Section 02578 “Manhole Rehabilitation” of these Specifications for additional requirements regarding replacing existing frames and covers and adjusting to grade existing frames and covers.
- B. Adjust to Grade:
  - 1. Adjust tops of manholes with brick masonry to accommodate proper resetting of manhole frame to grade.
  - 2. Concrete rings are not acceptable for adjusting to grade.
- C. Masonry:
  - 1. Laying Brick:
    - a. Use only clean bricks in brickwork for manholes.
    - b. Moisten the brick by suitable means until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.
    - c. Lay each brick in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and thoroughly bond as directed.
    - d. Construct all joints in a neat workmanlike manner. Construct the brick surfaces inside the manholes so they are smooth with no mortar extending beyond the bricks and no voids in the joints. Maximum mortar joints shall be 1/2 inch.
    - e. Outside faces of brick masonry shall be plastered with mortar from 1/4-inch to 3/8-inch thick.
    - f. Completed brickwork shall be watertight.
  - 2. Curing:
    - a. Protect brick masonry from drying too rapidly by using burlaps which are kept moist, or by other approved means.
    - b. Protect brick masonry from the weather and frost as required.
- D. Frames and Covers:
  - 1. Set all frames in a full bed of mortar, true to grade and concentric with the manhole opening.
  - 2. Completely fill all voids beneath the bottom flange to make a watertight fit.
  - 3. Place a ring of mortar at least one inch thick around the outside of the bottom flange, extending to the outer edge of the manhole all around its circumference.
  - 4. Clean the frame seats before setting the covers in place.
- E. Plugging and Patching:
  - 1. Fill all exterior cavities with non-shrink grout and with bituminous waterproofing once the concrete and mortar has set.
  - 2. Touch up damaged water proofing.
- F. Cleaning:
  - 1. Thoroughly clean manholes, steps, frames and covers of all debris and foreign matter.

END OF SECTION



SECTION 02751SEWER FLOW CONTROLPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: During the rehabilitation of manholes and sewer pipelines the Contractor shall control flows in sewer lines at all times. The manholes and sewer pipelines that may require sewer flow control include, but may not be limited to, manholes indicated for sealing and/or lining of the bench and channel, and sewer pipeline runs requiring various types of internal rehabilitation.
- B. Related Work Specified Elsewhere:
  - 1. Manhole rehabilitation is specified in the appropriate sections in this Division.
  - 2. Sewer pipeline rehabilitation and appurtenant work is specified in the appropriate sections of this Division.

1.2 PERFORMANCE

- A. Plugging or Blocking:
  - 1. Insert plug at a manhole upstream of the manhole or sewer pipeline to be rehabilitated.
  - 2. Plug shall be so designed that all or any portion of the sewage flows can be released.
  - 3. Flows shall be shut off or substantially reduced during manhole and sewer pipeline rehabilitation.
- B. Pumping and Bypassing:
  - 1. When required, supply the necessary pumps, conduits and other equipment (including standby equipment) to divert the flow of sewage around the manhole or sewer pipeline in which work is being performed.
  - 2. Furnish the necessary labor and 24-hour supervision to set up and operate the pumping and bypassing system.
  - 3. When required on a 24-hour basis, all engines shall be equipped with silencers.

END OF SECTION



SECTION 02752SEWER LINE CLEANINGPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Provide all equipment necessary for the proper cleaning of the sewers prior to closed circuit television inspection, pressure testing and grouting sewer main joints, and sewer pipe lining.
- B. Sewer flow control to maintain flows in the sewer system allowing the specified work to be performed in a manner acceptable to the Engineer.

1.2 RELATED SECTIONS

- A. Pressure Testing and Chemical Grouting of Sanitary Sewer Pipe Joints - Section 02568
- B. Sewer Flow Control - Section 02751
- B. Television Inspection of Sewers - Section 02753
- C. Sewer Pipe Lining - Section 02756

PART 2 - PRODUCTS2.1 MATERIALS

- A. High Velocity Hydro-Cleaning Equipment shall:
  - 1. Have a minimum of 400 feet of high pressure hose.
  - 2. Have multiple high velocity nozzles, as follows:
    - a. Standard 35 degree nozzle with multiple rear jets and one front jet.
    - b. Sand nozzle capable of transporting sand and gravel to the downstream manhole; and
    - c. Rotating nozzle for removal of grease and scale.
  - 3. Include a high velocity gun for washing and scouring manhole walls and floor.
  - 4. Be capable of producing flows from a fine spray to a long distance solid stream.
  - 5. Include a water tank, auxiliary engines and pumps, and a hydraulically driven hose reel.
  - 6. Have equipment operating controls located above ground.

PART 3 - EXECUTION3.1 PERFORMANCE

- A. Select cleaning equipment based on the conditions of the lines at the time the work commences.
  - 1. Light cleaning (small amounts of debris exist within the sewer line): Use high pressure water jetting equipment, brushes and swabs.
  - 2. Heavy cleaning (large deposits of debris or heavy root growth exist within the sewer line): Use high pressure water jetting equipment specifically designed for the intended use.
- B. Use selected equipment to remove all dirt, grease, rock and other deleterious materials and obstructions.

- C. Protect existing sewer lines from damage caused by improper use of cleaning equipment.
- D. Take precautions to avoid damage or flooding to public or private property being served by the line being cleaned.
- E. Removal of Materials:
  - 1. Remove all solids and semi-solids at the downstream manhole of the section being cleaned.
  - 2. Passing material from one section of a line to another will not be permitted.
- F. Disposal of Materials: Remove from the site and dispose of all solids or other waste materials recovered during the cleaning operations in an approved manner.

3.2 FIELD QUALITY CONTROL

- A. Acceptance of this portion of the work may be made upon completion of subsequent television inspection and shall be to the complete satisfaction of the Engineer.

END OF SECTION

SECTION 02753TELEVISION INSPECTION OF SEWERSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Furnish all necessary labor, materials, supervision and equipment to satisfactorily inspect gravity sewer lines and sewer service pipes as required by the Contract Documents by means of a closed circuit television system.

1.2 RELATED SECTIONS

- A. Pressure Testing and Chemical Grouting of Sanitary Sewer Pipe Joints - Section 02568
- B. Sewer Flow Control - Section 02751
- C. Sewer Line Cleaning - Section 02752
- D. Sewer Pipe Lining - Section 02756

PART 2 - PRODUCTS2.1 MATERIALS AND EQUIPMENT

- A. The cameras shall be designed and constructed for sewer line inspection work. The mechanical design of the lens shall allow it to turn and rotate 360 degrees to provide a close up view of sewer pipe walls and sewer service pipes. The camera shall be designed to maintain proper orientation of the picture while the lens is turning and rotating.
- B. The cameras shall be operative in 100% humidity conditions.
- C. The lighting for the cameras shall be suitable to allow a clear picture of service pipes and the entire periphery of the mainline sewer pipe, such that joints, root intrusions, cracks, offset joints, deposits, etc. can be seen and identified by the Engineer.
- D. The lens focus and rotational capabilities and the light intensity will be remotely controlled from an above ground television "studio".
- E. The cameras shall produce a continuous, full color picture with a quality acceptable to the Engineer.

PART 3 - EXECUTION3.1 PERFORMANCE

- A. Flow Control:
  - 1. A minimum of 75% of the periphery of the sewer line shall be visible at all times.
  - 2. The Engineer may require that the line be plugged so that the entire periphery can be inspected. For details on sewer flow control, see Section 02751.
- B. Operation:
  - 1. Perform inspection of sewer lines after lines have been suitably cleaned.
  - 2. When inspecting newly constructed sewer lines, introduce water into the sewer lines to be tested from the upstream manhole prior to the television inspection, but no more than 24 hours in advance of the inspection.
  - 3. Lines will be suitably isolated from the remainder of the sewer line as required.

4. Move the cameras through the line in either direction at a uniform rate as directed by the Engineer.
  5. The Engineer may require Contractor to pull cameras back to get a second view of a section of the pipe.
  6. Use manual winches, power winches, television cable reel powered rewinds, high-pressure hose and reels on jet-cleaning trucks, or a flexible pole, to move the camera through the sewer.
  7. The screen monitor and winch operators shall be in full communication at all times.
  8. Remove all wires, screens, sand bags, etc. used in the television inspection process from the sewers at the completion of inspection of each sewer section.
- C. Measurement:
1. Measurement for location of defects, service connections, etc., shall be accurate to two tenths (0.2) of a foot over the length of the section being inspected.
- D. Records:
1. Printed records shall be provided, reflecting location of defects, service connections, etc., shall be recorded and stored to "Wincan" digital reporting software (or equivalent):
    - a. Keep records and supply to the Engineer when the work has been completed.
    - b. Show the exact location in relation to adjacent manholes, of each infiltration point discovered by the television camera.
    - c. Show locations of laterals, unusual conditions, roots, break-in storm sewer connections, collapsed sections, presence of scale and corrosion, and other discernible features.
  2. Inventory the houses and apparent empty lots bordering each section of sewer line that is inspected and compare results to the number and location of house services found during the inspection. Log inconsistencies and report them to the Engineer.
  3. Video / Photographs:
    - a. A copy of the video shall be provided to the Engineer in DVD format.
    - b. The video shall be digitally recorded, indexed by pipe section (labeled by manhole number or other means acceptable to Engineer) and allow for printing of still photographs.
    - c. Photographs shall be printed at Engineer's request and shall be identified on the back as follows:

Date \_\_\_\_\_  
 Section, MH# \_\_\_\_\_ to MH# \_\_\_\_\_  
 Diameter of Sewer \_\_\_\_\_  
 Distance from MH# \_\_\_\_\_ is \_\_\_\_\_  
 Description of item photographed \_\_\_\_\_  
 \_\_\_\_\_

END OF SECTION

SECTION 02756SEWER PIPE LININGPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Provide all equipment necessary for the lining of sanitary sewer lines by the cured-in-place-pipe (CIPP) method and the reinstatement of sewer services.
- B. Sewer pipe lining shall occur where indicated on the tables in Appendix B: Area A Pipe Rehabilitation Table and Appendix E: Area B Pipe Rehabilitation Table of these Specifications and where directed by the Engineer.
- C. Refer to Appendix C: Area A CCTV Inspection Reports and Appendix F: Area B CCTV Inspection Reports, for observed defect information.

1.2 RELATED SECTIONS

- |                                    |               |
|------------------------------------|---------------|
| A. Sewer Flow Control              | Section 02751 |
| B. Sewer Line Cleaning             | Section 02752 |
| C. Television Inspection of Sewers | Section 02753 |

1.3 QUALITY ASSURANCE

- A. Standards:
  - 1. Cured-in-place-pipe (CIPP) shall meet all the requirements of ASTM F1216 and ASTM F1743.
- B. Acceptable Contractors:
  - 1. Reynolds Inliner, LLC.
  - 2. Green Mountain Pipeline Services, Inc.
  - 3. Insituform Technologies, Inc.
  - 4. Or qualified equivalent contractor with a minimum of 5 year's experience in sewer pipe lining and a minimum of 100,000 linear feet of successfully installed CIPP liner.

1.4 SUBMITTALS

- A. The Contractor shall submit to the Owner and/or Engineer, complete design calculations for the liner that meet the requirements of ASTM F1216 or ASTM F-1743. The design shall be based on the following physical conditions of the existing pipe to be rehabilitated:
  - 1. All pipes shall be considered fully deteriorated.
  - 2. All pipes are subjected to a soil load of 120 lbs/lf with an H-20 live traffic load.
  - 3. The water table is assumed to be 3 feet below the ground surface.
  - 4. Pipe lengths are shown on the Plans. Depths shall be field verified.
  - 5. The maximum pipe ovality is 2%.
  - 6. The minimum wall thickness for CIPP liner is 6 mm.
  - 7. The minimum flexural modulus of elasticity of the cured liner shall be 250,000 psi, with a flexural strength of 4,500 psi, as tested in accordance with ASTM D-790.

- B. Contractor to submit materials and installation procedures for review by Owner and/or Engineer, including information on resin, tube, coatings, and manhole and service sealants, an installation schedule, the manufacturer's recommended curing schedule, means of obtaining and collecting samples for testing, method of monitoring liner temperature during curing, and other quality management programs, plans for bypassing or handling of sewer flows, and traffic control.
- C. Contractor to submit video tapes of pre-installation TV inspection and post-lining TV inspection, and a 1-year warranty inspection as specified in Section 02753.
- D. Contractor to submit an outreach plan to the Engineer at least 1 week prior to the commencement of lining activities, this plan shall at minimum include a schedule for 1 week and 24 hour advance notices to residents who will be affected by the pipe lining, samples of notices to be provided to residents, and an odor and noise mitigation plan.
- E. Contractor to submit documentation relative to the qualifications, training and experience of the installers.
- F. Contractor to supply an equipment listing including redundant tools and spare parts to be on site during the lining work.
- G. Contractor to supply information on proposed or potential repair and/or rehabilitation methods in the event of a failed liner installation.
- H. Following liner installation, contractor shall supply wet-out logs, curing schedules, including temperature measurements, and collected samples for testing.

## PART 2 - PRODUCTS

- A. Pipe Liner
  - 1. The liner shall be fabricated from materials that are chemically resistant to exposure to domestic sewage and septic tank effluent.
  - 2. The completed liner shall be continuous, seamless, and jointless from manhole to manhole.
  - 3. Liner shall be sized to provide a tight fit to the host pipe.
  - 5. Liner thickness calculations are discussed in Part 1 above.
  - 6. Liner material shall meet the requirements of ASTM F1216 and ASTM F1743.

## PART 3 - EXECUTION

- A. All work shall be done in compliance with all current OSHA safety regulations.
- B. Prior to conducting any work, Contractor shall deliver notices to all residents and/or building owners within the area of the pipe lining. Notice shall indicate when the work will take place and who to call with questions or in the event of an emergency. Notice to be approved by the Owner prior to distribution.
- C. Prior to lining the sewer main, the sewer shall be cleaned in accordance with Section 02752. Prior to liner installation the CONTRACTOR shall trim all intruding taps to allow for proper installation of the liner.
- D. Immediately prior to the commencement of lining, the pipeline shall be inspected with TV equipment per Section 02753. Contractor to verify that the conditions of the sewers are acceptable for the methods of liner installation required.
- E. Contractor to control sewer flow and bypass pump per Section 02751.

- F. The Contractor shall install the liner per the method recommended by the liner manufacturer and as submitted in the shop drawing.
- G. Steam curing shall only be allowed for pipe sizes of 18-inch diameter and smaller, unless written permission from the Engineer is granted.
- H. Water used for installation shall be provided by the Contractor. The Contractor shall notify Owner prior to disposal or water into the sewer system.
- I. Following liner installation, leakage testing shall be performed on the liner according to the requirements of ASTM F1216.
- J. After liner installation and curing, Contractor shall cool the liner down to at least 100 degrees Fahrenheit prior to commencing service re-instatement and collection of samples. Liner temperature during curing and cool-down shall be monitored by a thermocouple or temperature monitoring strip and recorded at least at 15 minute intervals.
- K. After liner installation and curing, the Contractor shall reinstate the existing service connections, using remote controlled equipment including a television camera meeting the requirements of Section 02753. The opening created for the service lateral shall be at least 95% of the original opening. After creating the hole in the liner, polish the edges of the hole to remove sharp edges and improve flow conditions from the service pipe into the lined sewer main. Coupons of the lining material removed during service reinstatement shall be collected at the downstream manhole, and shall not be left within the sewer system.
- L. The Contractor shall grout and seal each service connection to prevent leakage between the existing pipe, the existing service connection, and the new liner.
- M. Any connections to the sewer main that are not to be reinstated after liner installation shall be coordinated with the Owner. It is the Contractor's sole responsibility to confirm with the Owner that a connection is to be abandoned and not reinstated to the main. For each connection not reinstated, the Contractor shall obtain a sign-off from the Owner, using the form included at the end of this Section.
- N. Provide a watertight seal at the insertion and termination points in the manholes. Seal any annular space between the liner and host pipe in the manholes and provide for smooth merging of flows from other pipelines entering the manhole.
- O. After completion of the work, perform post-installation TV inspection of the completed liner and the restored service connections per the requirements of Section 02753. Any of the following defects that are observed shall be repaired immediately at the expense of the Contractor:
  - a. Visible leaks, weeping or pinholes
  - b. Fins, bulges, wrinkles or other obstructions of more than 5% of the cross-sectional area that were not identified on the pre-installation TV inspection
  - c. soft or uncured sections of the liner
  - d. visual discoloration or other visual anomalies
- P. During the one-year warranty period, any defects which will affect the integrity or the strength of the liner shall be repaired at the expense of the Contractor.

**CONFIRMATION TO ABANDON AN EXISTING CONNECTION TO THE SEWER MAIN**

Complete this form for each connection to the sewer main that is not reinstated after lining.

**Connection Location:**

Street Address: \_\_\_\_\_

\_\_\_\_\_ LF upstream/downstream (circle one) of MH \_\_\_\_\_ as indicated on CCTV inspection prior to lining of the main.

**Purpose for Abandonment (check all that apply):**

_____	Service No Longer Active	_____	Served by Separate Lateral
_____	Connection to Storm Drain	_____	Other: _____

**Method of Determining Connection can be Abandoned:**

_____	Dye Test	_____	Direction from Owner
_____	CCTV Inspection	_____	Visual Inspection
_____	Building Inspection	_____	Other: _____

**Confirmation that Connection is to be Abandoned (not reinstated):**

_____	_____
Owner	Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Submit copy of the signed form to the Engineer.

**END OF SECTION**

SECTION 02758MANHOLE REHABILITATIONPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: The work includes the rehabilitation of existing sewer manholes, including but not limited to
1. the removal of roots, mineral build-up and debris;
  2. replacing frames and covers;
  3. the injection grouting of cracks and leaking joints;
  4. the sealing and lining of various manhole components;
  5. the epoxy coating of various manhole components;
  6. the adjustment to grade of frames and covers;
  7. the replacement of manhole chimneys;
  8. the installation/ application of a seal at the joint of the manhole frame and chimney;
- B. The locations of the manholes to be rehabilitated are shown in the drawings. The tables below describe the manholes that will be rehabilitated and the types of rehabilitation that will be required:

**PROJECT 1: AREA "A" MANHOLE REHABILITATION**

<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
5-336	Brewster Pl.	Seal Manhole
5-337	Brewster Pl.	Seal Manhole
5-197	Craig Ln.	Line Manhole Chimney Replace Manhole Frame and Cover
5-215	Deerfield Dr.	Seal Manhole
5-132	Edison Rd.	Seal Manhole
5-258	Edison Rd.	Seal Manhole Replace Manhole Frame and Cover

<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
5-71	Edison Rd.	Seal Manhole
5-183	Evergreen Ln.	Seal Manhole
5-311	Garden St.	Replace Manhole Frame and Cover
5-65	Highgate Rd.	Seal Manhole Replace Manhole Frame and Cover
5-67	Highgate Rd.	Seal Manhole Line Manhole Bench and Channel
5-142	Lounsbury Rd.	Seal Manhole
5-201	MacArthur Rd.	Seal Manhole
5-203	MacArthur Rd.	Seal Manhole
5-303	Main St.	Seal Manhole Line Manhole Bench and Channel Adjust Manhole Frame and Cover (Buried Manhole)
5-347	Main St.	Seal Manhole
5-351	Main St. ROW	Seal Manhole
5-318	Orchard St.	Seal Manhole Line Manhole Bench and Channel
5-321A	Orchard St.	Seal Manhole Line Manhole Chimney Line Manhole Bench and Channel

<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
5-323	Orchard St.	Seal Manhole
5-241	Raynor Ave.	Seal Manhole
5-241A	Raynor Ave.	Seal Manhole
5-138	Ruth St.	Seal Manhole
5-139	Ruth St.	Seal Manhole
5-37	Sunnycrest Rd. ROW	Seal Manhole
5-39	Sunnycrest Rd. ROW	Seal Manhole
5-121	Thorburn Ave.	Seal Manhole
5-123	Thorburn Ave.	Seal Manhole Line Manhole Bench and Channel
5-117	Whalley Rd.	Seal Manhole
5-54	Williams Rd.	Seal Manhole
5-281	Woodridge Cir.	Seal Manhole Replace Manhole Frame and Cover
5-150	Woolsley Ave.	Seal Manhole Replace Manhole Frame and Cover
5-153	Woolsley Ave.	Seal Manhole

<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
5-165	Woolsley Ave.	Seal Manhole

**Notes:**

- (1) – Refer to Appendix A, Area A Manhole Inspection Reports, for observed defect information, and manhole dimensions and depths.
- B. The intent of the manhole rehabilitation work is to stop infiltration into the manhole (whether or not it was previously observed) and repair structural or operation and maintenance defects identified during previous inspections.
- C. Related Work Specified Elsewhere:
  - 1. Sewer Flow Control (02751)
  - 2. Manholes Frames and Covers (02601)

**PROJECT 1: AREA “B” MANHOLE REHABILITATION**

<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
624	Allen Dr.	Seal Manhole Replace Manhole Frame and Cover Line Manhole Bench and Channel
642	Allen Dr.	Seal Manhole
628	Birch St.	Seal Manhole Line Manhole Bench and Channel
737	Bonita Ave.	Seal Manhole Replace Manhole Frame and Cover Line Manhole Bench and Channel
631	Canterbury Ln.	Seal Manhole
697	Canterbury Ln.	Seal Manhole
537	Cedar Crest Rd.	Seal Manhole Line Manhole Bench and Channel

579	Church Hill Rd.	Seal Manhole Line Manhole Bench and Channel
754	Church Hill Rd.	Seal Manhole Line Manhole Bench and Channel
777	Daniels Farm Rd.	Seal Manhole Line Manhole Bench and Channel
<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
581	Edison Rd.	Seal Manhole Replace Manhole Frame and Cover
589	Edison Rd.	Seal Manhole Replace Manhole Frame and Cover
590	Edison Rd.	Seal Manhole Replace Manhole Frame and Cover Line Manhole Bench and Channel
495	Geraldine Cir.	Seal Manhole
638	Gibson Ave.	Seal Manhole Line Manhole Bench and Channel
641	Gibson Ave.	Seal Manhole Line Manhole Bench and Channel
948A	Inca Dr. ROW	Seal Manhole Replace Manhole Frame and Cover Line Manhole Bench and Channel
656	Jerome Ave.	Seal Manhole
5-98	Lawrence Rd.	Seal Manhole
607	Lillian Dr.	Seal Manhole
605	Linley Rd.	Seal Manhole Line Manhole Bench and Channel

783	Little Plain Rd.	Seal Manhole Line Manhole Bench and Channel
644	MacArthur Rd.	Seal Manhole Line Manhole Bench and Channel
772	Manor Dr.	Seal Manhole Line Manhole Bench and Channel
<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
694	Middlebrooks Ave.	Seal Manhole
695	Middlebrooks Ave.	Seal Manhole Line Manhole Bench and Channel
690	Palisade Ave.	Seal Manhole Replace Manhole Frame and Cover
931	Park St. ROW	Seal Manhole Line Manhole Bench and Channel
707	Poplar St.	Seal Manhole
5-23	Reservoir Ave.	Seal Manhole
5-19	Reservoir Ave. ROW	Seal Manhole
5-20	Reservoir Ave. ROW	Seal Manhole
5-31	Reservoir Ave. ROW	Seal Manhole
532	Reservoir Ave.	Seal Manhole Replace Manhole Frame and Cover Line Manhole Bench and Channel
583	Richards Pl.	Seal Manhole Line Manhole Bench and Channel

927	Riverbend Rd. ROW	Seal Manhole Line Manhole Bench and Channel
5-89	Sunnycrest Rd.	Seal Manhole
5-97	Sunnycrest Rd.	Seal Manhole
<b>MH ID Number</b>	<b>Location</b>	<b>Rehabilitation Scope</b>
511	Suzanne Cir.	Seal Manhole
551	Tait Rd.	Seal Manhole Line Manhole Bench and Channel
555	Tait Rd.	Seal Manhole
659	White Birch Dr.	Seal Manhole Line Manhole Walls Line Manhole Bench and Channel
472	White Plains Rd.	Seal Manhole Line Manhole Bench and Channel

Notes:

(1) – Refer to Appendix D, Area B Manhole Inspection Reports, for observed defect information, and manhole dimensions and depths.

- B. The intent of the manhole rehabilitation work is to stop infiltration into the manhole (whether or not it was previously observed) and repair structural or operation and maintenance defects identified during previous inspections. This is to prevent future deterioration using various products and procedures and methods either singularly or in combination.
- C. Related Work Specified Elsewhere:
  1. Sewer Flow Control (02751)
  2. Manholes Frames and Covers (02601)

1.2 DESCRIPTION OF METHODS

- A. Seal Manhole (Chemical Grout): Manholes sealing (grouting) involves injection grouting to stop leakage includes surface preparation where required, drilling through the manhole walls, bench or channel at points of current leakage and points showing signs of previous leakage, +and where directed by the Engineer, and using an

injectable grout material placed in the voids and earthen materials outside the manhole to prevent leakage into the structure. Patching of the drill and grouting holes is also included. Patching around leaking pipe connections and other defects with non-shrink grout is also included; and other associated work to stop leaks. Seal Manhole includes the pressure washing of the entire manhole and removal and disposal of all roots, deposits and loose debris.

- B. Line Manhole Chimney and Line Manhole Bench and Channel: Lining manholes includes the pressure washing of the entire manhole and removal and disposal of all roots, deposits and loose debris and the lining of the manhole through the spray application and/or centrifugally spincasting a cementitious based liner to the inside of the manhole. Specific sections within the manhole requiring lining are indicated in the "Rehabilitation Scope" chart found in this Section.
- C. Internal Mechanical Seals: Install manufactured products that seal leaks within a manhole from frame to top of concrete walls via rubber seals held in place with extendable mechanical bands. Installing these seals includes the pressure washing of manhole and removal of all roots, deposits and loose debris and the sealing of the manhole through the installation of the mechanical seal.
- D. Replacement of manhole frame and cover: Replacement of the manhole frame and cover includes sawcutting the pavement, removing and disposing of the frame and cover, and installing a new frame and cover to grade including any required chimney adjustments, and restoring the disturbed area to grade by matching the pavement depth, or loaming and seeding.
- E. Adjust (raise or lower) Manhole Frame and Cover: Adjusting to grade the existing manhole frame and cover includes sawcutting the existing pavement, removing the existing frame and cover, and reinstalling the frame and cover to grade including any required chimney adjustments, and restoring the disturbed area to grade with loam and seed off road or matching the existing pavement depth.
- F. Miscellaneous Cleaning, including pressure washing, debris removal and other necessary work to properly prepare surfaces and manholes for the work to be performed. Protect pipe inlets and outlets to prevent debris from entering the collection system.
- G. Sewer flow control required to control and maintain flows in the sewer system allowing the specified work to be performed in a manner acceptable to the Engineer.
- H. Final Acceptance: After the rehabilitation work has been completed, the manholes shall be cleaned of all debris and visually inspected by the Engineer and tested (as required) in the presence of the Owner and/or Engineer.

### 1.3 SUBMITTALS TO THE ENGINEER

- A. Submit shop drawings in accordance with the General Conditions of the Contract Documents and Section 01340 - Submittals.
- B. Submit all catalog data sheets, ASTM references, material composition, component physical properties and chemical resistance for all materials as applicable.
- C. Submit detailed descriptions of the recommended procedures for handling and storing materials including a proposed method for monitoring temperatures of the storage location.
- D. Submit a detailed description of all required field testing processes and procedures as applicable from the manufacturer.

- E. Submit a certified statement from the manufacturer that the contractor / installer is an approved installer and tester of the rehabilitation product with certificates of completed training for each crew member involved in each rehabilitation component.
- F. Submit the contact information and documentation for the third-party National Association of Corrosion Engineers (NACE) accredited inspector or manufacturer's representative who shall to perform holiday (spark) testing on the liner.
- G. Submit manufacturer's "Certification of Conformance" that lining materials meet or exceed the requirements of these Specifications.
- H. Submit other documents as specified in the appropriate Sections of this Division.
- I. Submit a minimum of five recent verifiable references for similar project work in the United States indicating the successful application of the manhole rehabilitation as specified herein or to be furnished by the Contractor and applied in a similar project environment as included in these contract specifications.
- J. Submit documentation of a minimum of a three year successful installation history of the products to be used.

#### 1.4 QUALITY ASSURANCE

- A. All work shall be performed in accordance with the National Association of Sewer Service Companies (NASSCO) Specification Guidelines, latest edition. Workmanship shall be first-class in all respects.
- B. Contractor's personnel involved in the installation of material shall be certified by the manufacturer that they have successfully completed training in handling, applying and finishing materials used. The Contractor shall provide copies of such certifications from the manufacturer.
- C. The Contractor shall inspect pre-rehabilitation work, rehabilitation operations, and post-rehabilitation work.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Rehabilitation component materials are to be kept dry, protected from weather and stored under cover and in accordance with manufacturer's recommendations.
- B. Polymer and Cementitious protective coating materials are to be stored at temperatures as recommended by the manufacturer and handled according to their SDS. Do not store near flame, heat, or strong oxidants.

### PART 2 - PRODUCTS

#### 2.1 SEAL MANHOLE (CHEMICAL GROUT):

- A. Chemical Grout Sealing: Manhole sealing (chemical grouting) includes a high pressure washing of manhole, removal of all roots, deposits and loose debris and the sealing of individual leaks, barrel joints, base joint, pipe penetrations, lifting holes and other defects using pressure grouting with root inhibitor. Manholes to be sealed may consist of precast concrete, cast-in-place concrete, masonry block or brick.
  - 1. Equipment: The basic equipment shall consist of pumps, containers, injection packers, hoses, valves, and all necessary equipment and tools required to seal manhole joints and leaks. The chemical grout injection pumps shall be equipped with pressure meters that will provide for monitoring pressure during

the injection of the chemical sealants. When necessary, liquid bypass lines equipped with pressure-regulating bypass valves will be incorporated into the pumping system.

B. Materials:

1. Hydrophilic Polyurethane Chemical Grout: consists of premeasured, prepackaged polyurethane chemical grout with root inhibitor. The grout shall be non-toxic, non-flammable, high flash point (225° F) hydrophilic polymer of the type which is applied in a crack or open joint by use of a packer. When mixed with water, the material shall expand up to 4 times its original volume and cure to a closed cell polyurethane foam.
2. Hydrophobic Polyurethane Chemical Grout: consists of premeasured, prepackaged polyurethane chemical grout with root inhibitor. The grout shall be non-toxic, non-flammable, high flash point (225° F) hydrophobic polymer of the type which is applied in a crack or open joint by use of a packer. Acrylamide Chemical Grout: consists of a low viscosity chemically reactive gel which is applied in a crack or open joint by use of a packer.
3. Water: Potable from municipal/public water supply.
4. Filler Gaskets: Oakum, use strong fibrous jute material, saturated with grout for use in plugging larger opening in combination with the polyurethane grout.
5. Utilize proper grout for the intended application as recommended by the manufacturer. Grout conditions may be adjusted for catalyzing the reaction, inhibiting the reaction, lowering the freezing temperature of the grout solution, adding fillers, providing strength, or for inhibiting root growth according to the instructions of the grout manufacturer and in the specified quantities as recommended by the grout manufacturer.
6. Utilize non-shrink grout for patching holes and filling gaps around pipe connections or left behind by drilling holes for injection.

C. Acceptable Sealant Grout Manufacturers and Products are:

1. Avanti International – AV-100 Acrylamide Gel or AV-118 Acrylic Gel
2. De Neef Construction Chemicals
  - a. Hydro-Active Flex (hydrophobic polyurethane)
3. Sika Corporation
  - a. F Sika Fix HH (hydrophilic polyurethane)
  - b. Sika Fix HH LV (hydrophobic polyurethane)
4. Or approved equal.

2.2 LINE MANHOLE CHIMNEY, LINE MANHOLE BENCH AND CHANNEL and LINE MANHOLE WALLS

A. Cementitious Liner:

1. Equipment: The basic equipment shall consist of pumps, containers, injection packers, hoses, valves, and all necessary equipment and tools required to line manholes as required by the manufacturer.
2. Materials: The liner mix shall be cement-based, fiber-reinforced calcium aluminate mortar specifically designed to prevent infiltration and restore structural integrity, and to be spray applied to form a structurally enhanced, monolithic cementitious liner covering all interior manhole surfaces. Minimum applied thickness shall be ½ inch but application thickness must

provide structurally stable manhole and form a barrier to water and gases. Material shall be premixed and specially formulated to resist hydrogen sulfide bacterial corrosion and abrasion in municipal sanitary sewer systems. The liner shall have the following properties as determined by laboratory testing:

3. The lining material shall meet the following minimum requirements at 28 days:

Compressive Strength	ASTM C109	9,000 psi
Flexural Strength	ASTM C293	700 psi
Shrinkage @ 90% Humidity	ASTM C596	0%
Tensile Strength	ASTM C496	>600 psi
Sulfide Resistance	ASTM C267	no visible attack at pH 2 or greater
4. Acceptable Products and Manufacturers are:
  - a. Strong Seal by Strong Systems, Inc.
  - b. Permacast Process by AP/M Permaform
  - c. QM-1s Restore by Quadex
  - d. Or approved equal.

### 2.3 INTERNAL MECHANICAL SEALS

1. Internal Mechanical Seals: These are manufactured products that seal leaks within a manhole via rubber seals held in place with extendable mechanical bands. Installing these seals includes the pressure washing of manhole and removal of all roots, deposits and loose debris and the sealing of the manhole through the installation of the mechanical seal.
2. Equipment:
  - a. The basic equipment shall be pressure washing equipment and suitable tools to install the mechanical seals.
3. Materials:
  - a. Flexible Sleeve:
    1. Shall be a single piece of high-quality rubber suitable for a sewer environment of a sufficient size and flexibility to completely cover the area to be sealed and allow for post-installation expansion.
    2. Sleeves shall have a minimum thickness of 3/16 inch.
  - b. Expansion Bands:
    1. Shall be stainless steel with a minimum thickness of 16 gauge.
    2. Bands shall be sized properly to be able to expand to the appropriate size of the area to be sealed and create sufficient pressure to create a watertight seal.
    3. Bands shall be permanently held in place with a positively locking mechanism.
  - c. Acceptable Manufacturers and Products include:
    1. Cretex Companies – Internal Chimney Seal or LSS Internal Chimney Seal
    2. S.S.I. – Internal Uni-band
    3. Trelleborg – NPC Flex Rib Chimney Seal
    4. or approved equal

2.4 REPLACE MANHOLE FRAME AND COVER

- A. Equipment
  - 1. Refer to Sections 02601 and 02513
- B. Materials
  - 1. Frame and cover - Shall be in accordance with Section 02601
  - 2. Brick leveling course - Shall be in accordance with Section 02601
  - 3. Chimney replacement – Shall be in accordance with Section 02601
  - 4. Pavement restoration - Shall be in accordance with Section 02513

2.5 ADJUST MANHOLE FRAME AND COVER

- A. Equipment
  - 1. Refer to Sections 02601 and 02513
- B. Materials
  - 1. Installing frame and cover - Shall be in accordance with Section 02601
  - 2. Brick leveling course - Shall be in accordance with Section 02601
  - 3. Pavement restoration - Shall be in accordance with Section 02513

PART 3 - EXECUTION

3.0 MANHOLE PRE-REHABILITATION INSPECTIONS

- A. Prior to rehabilitation of manholes, the Contractor and Engineer will inspect each manhole to determine or confirm the scope of rehabilitation as outlined herein:
  - 1. Open each manhole with the Engineer present and look for visible cracks, leaks, or evidence of past leaks. Areas of particular interest are manhole section joints and pipe openings.
    - a. If available compare to the existing inspection and note any condition changes or discrepancies.
  - 2. Clean each manhole as outlined below. After cleaning, again look for visible cracks, leaks or evidence of past leaks, and general condition of the manhole.
  - 3. Provide Engineer a written list of manhole defects at least three weeks before the scheduled work.
  - 4. The Engineer shall review and confirm the scope of required rehabilitation prior to work commencing. The Owner and Engineer reserve the right to modify the scope at each manhole as needed to obtain the proper rehabilitation. The Engineer shall provide written direction to the Contractor for any scope changes.

3.1 SEAL MANHOLE (CHEMICAL GROUT)

- A. Sealing Procedures (Precast, Brick and Block Manholes):
  - 1. A high pressure washing of the manhole.
  - 2. Removal and disposal of all roots, deposits, and loose debris.
  - 3. At each point of leakage within the manhole structure (including at pipe penetrations), a hole shall be carefully drilled from within the manhole and shall extend through the entire manhole wall. In cases where there are multiple leaks around the circumference of the manhole, fewer holes may be drilled, providing all leakage is stopped from these holes.

4. Grout ports or sealant injection devices shall be placed in these previously drilled holes in such a way as to provide a watertight seal between the holes and the injection device.
  5. A hose, or hoses, shall be attached to the injection device from an injection pump. Chemical sealing materials as specified shall then be pumped through the hose until material refusal is recorded on the pressure gage mounted on the pumping unit or a predetermined quantity of sealant has been injected. Care shall be taken during the pumping operation to insure that excessive pressures do not develop and cause damage to the manhole structure.
  6. Upon completion of the injection, the ports shall be removed and the remaining holes filled with mortar and troweled flush with the surface of the manhole walls or other surfaces. The mortar used shall be a non-shrink hydraulic cement.
- B. Manhole Joint Sealing Procedures:
1. Set grout ports or injectors at 90° intervals at each joint in the manhole, as well as at each pipe penetration, or similarly evenly spaced around identified leak location, if different from examples above.
  2. Inject chemical grout. Ensure that chemical grout fills entire circumference of each manhole joint or pipe penetration, or other identified leakage point.
  3. Cut out all loose or protruding wall joints, mastic and fill all interior lift holes and pipe penetrations with hydraulic cement. Finish shall be trowel smooth.
- C. Temporarily bypass pump wastewater around manholes, use flow through plugs, or otherwise divert flows as necessary. Refer to Section 02751.

3.2 LINE MANHOLE CHIMNEY and LINE MANHOLE BENCH AND CHANNEL

- A. Lining Procedures (Precast, Block and Brick Manholes): Liner materials shall be mixed per manufacturer's written specifications and applied using equipment specifically designed to meet required thickness and application requirements as set forth by the manufacturer.
- B. Any active sewer flows shall be dammed, plugged or diverted as required to ensure that the liquid flow is maintained below the surfaces to be lined. Any active infiltration sources must be identified and stopped or handled in accordance with manufacturer recommendations prior to lining operations.
1. All surface preparations must be performed to meet or exceed manufacturer's recommendations prior to application
- C. Repair and lining materials must be applied by an experienced Applicator of the specified cementitious material and in accordance with the manufacturer's recommendations.
- D. Minimum placement thickness shall be ½-inch.
- E. Immediately following application, the cementitious liner material shall be troweled or brushed to achieve an even consistent surface.
- F. Cementitious liner material shall be permitted to cure according to manufacturer recommendations.
- G. In locations where only the Bench and Channel area are identified to be lined, the lining shall extend up the walls of the manhole a minimum of 6-inches in order to provide a uniform coating to line the entire junction of the manhole wall and table.
- H. In areas where the manhole walls are identified to be lined, the lining shall extend up beyond the top of the manhole chimney and onto the manhole frame, unless an

internal mechanical seal is to be applied, in which case the lining shall continue to a point contained within the mechanical seal. At the lower extent, the manhole should be lined to the junction of the manhole wall and table.

- I. Temporarily bypass pump wastewater around manholes, use flow through plugs, or otherwise divert flows as necessary. Refer to Section 02751.

### 3.3 INTERNAL MECHANICAL SEALS

1. Prior to the installation, the Contractor is required to pressure wash (minimum of 3,000 psi) and thoroughly clean the inside of the manhole including frame, chimney, and walls.
2. If existing manhole surface is rough or uneven to the extent that it will not allow a watertight seal, a single component quick set repair mortar shall be applied to create a smooth surface prior to installation.
3. Bands and rubber sleeve shall be reasonably clean, smooth, circular and free of debris, voids or other flaws that may prevent a watertight seal.
4. Following installation, the seal shall not impede or restrict access to the manhole.
5. Installation shall be in accordance with manufacturer's recommendations.
6. If there is an offset of more than 3" between the manhole frame and chimney, or manhole chimney and the manhole walls, the offset shall be corrected prior to installing the mechanical seal.
7. The internal mechanical seal shall extend up onto the manhole frame. At the lower extent it shall extend to the lesser of 6" below the junction of the manhole wall or to the angle point on the cone section. If no angle point exists, the chimney to wall joint shall be sealed per the manhole sealing procedures described herein, and the internal mechanical seal shall extend to that joint.

### 3.3 REPLACE MANHOLE FRAME AND COVER

- A. Sawcut pavement.
- B. Remove and dispose of frame, and cover. Any damage to existing chimney shall be repaired by the Contractor at his cost. Dispose of off site in accordance with all local, State and Federal regulations.
- C. Inspect the integrity of the chimney (brick and/or concrete ring and mortar).
- D. Cleaning the chimney surfaces to be re-mortared
- E. Furnish and set the new frame and cover with mortar on chimney to match grades
- F. Repair pavement, as necessary.
- G. Perform all manhole work in accordance with Section 02601
- H. Perform pavement restoration in accordance with Section 02513

### 3.4 ADJUST MANHOLE FRAME AND COVER

- A. Sawcut pavement.
- B. Carefully remove frame and cover. Any damage to the chimney shall be repaired by the Contractor at no additional cost to the Owner.
- C. Dispose of chimney off-site, as necessary.
- D. Cleaning the surfaces to be re-mortared
- E. Adjust the elevation by providing additional height as required and as indicated in the Contract Documents.
- F. Prepare and reset frame and cover on new brickwork to match new grades.

- G. Repair pavement, as necessary.
- H. Perform all manhole work in accordance with Section 02601
- I. Perform pavement restoration in accordance with Section 02513

3.5 MANHOLE CLEANING

- A. Prior to the rehabilitation of the existing manhole, the Contractor is required to pressure wash (minimum of 3,000 psi) and thoroughly clean the inside of the manhole including walls and invert shelf in accordance with manufacturer's instructions for products being applied.
- B. Remove and properly dispose of all roots, deposits and other loose materials, preventing any debris from entering the sewer.
- C. The Contractor is required to provide wash water for the cleaning.
- D. Coordinate the cleaning of the manholes with the Owner.

3.6 TESTING

- A. Manhole Structure Sealing Test: Manhole structure sealing shall be visually inspected in the presence of the Engineer for watertightness against leakage of water into the manhole. All visible leaks and defects observed during inspection shall be repaired to the Engineer's satisfaction and at no additional cost to the Owner.
- B. Manhole Liner Test: Manhole cementitious liner shall be visually inspected in the presence of the Contractor for watertightness against leakage of water into the manhole. All visible leaks and defects observed during inspection shall be repaired to the Engineer's satisfaction and at no additional cost to the Owner.
  - 1. The Engineer may require an adhesion test on any manhole exhibiting signs of delamination or sloughing. Contractor shall repair the site of the adhesion test at no additional cost to the Owner, as well as perform any liner repairs that may be required if the test fails.
- C. Drop piping repair and mechanical seals shall be visually inspected for watertightness and quality workmanship following successful installation.
- D. The Engineer and Owner reserve the right to inspect the rehabilitated manholes during the warranty period (including during periods when the groundwater table is higher than at the time the work is completed). The Owner or Engineer shall notify the Contractor prior to inspection and the Contractor shall be present during the inspection. Any leakage or defects in the work found by this inspection shall be corrected by the Contractor at no additional cost to the Owner.

END OF SECTION





system shall use a manufactured system that has a minimum five year history of satisfactory performance. A licensed, certified trainer and representative from the liner system manufacturer shall be on site to assist in the work. This trainer shall have a minimum of 5 years experience installing this system with a minimum of 2,000 installations. Submit list of ten (10) similar jobs within the past three (3) years that utilized the manufacturer's product. Provide project information including the project name, number of service connection laterals liners installed, project completion date and project references. The following information shall be submitted by the Contractor for review and approval;

- a. The number of years of experience in performing SLC lining projects.
  - b. The name of the SLC lining manufacturer and supplier for previous work listed. The Contractor shall be an approved installer as certified and/or licensed by the liner manufacturer.
  - c. A list of municipal clients that the Contractor has performed this type of work without defects or performance problems.
    - 1) The list shall contain names and telephone numbers of persons to contact for the purpose of verifying previous satisfactory performance.
    - 2) A full description of the actual work performed.
    - 3) The list of municipal clients and description of projects shall include the number of SLC liners installed over the past three (3) years.
5. Material Certification: Provide written certification from the manufacturer that all materials used in the work were manufactured and tested in accordance with the appropriate ASTM specification, and are used or installed in conformance with the manufacturer's recommendations.
  6. Resident Notifications: The Contractor shall submit a copy of the initial resident notification as described in Section 1.8.
  7. Storage and Delivery Procedures: The Contractor shall provide the SLC liner manufacturer's recommended storage and delivery procedures. This shall include storage and delivery temperatures, maximum time from wet-out to installation, and other pertinent information.
  8. Material Safety Data Sheets: The Contractor shall submit Material Safety Data Sheets (MSDS) for each component of the SLC liner system.
  9. Test Results: Prior to use of any materials, the Contractor shall submit at his own expense the results of testing for the proposed materials as performed by an independent laboratory in conformance with these specifications. All submitted test data shall be performed on field installed samples within the last twelve (12) months. Testing by an independent laboratory shall verify that the products to be used meet all minimum strength standards as set forth in ASTM F1216, Table 1. Testing shall also verify that any product to be used on this project meets the minimum chemical resistance requirements as established in ASTM F1743, Table 2, with the testing meeting the requirements of Section 7.2.1 of ASTM F1743.
  10. Pipe Cleaning Narrative: The Contractor shall submit a narrative describing in sufficient detail the proposed methods of root cutting and cleaning of existing laterals. The narrative shall include the degree of cleaning as recommended by the SLC liner manufacturer and shall indicate approval of the proposed cleaning methods by the SLC liner manufacturer's technical representative.
  11. Liner Thickness Calculations: The Contractor shall perform liner thickness

calculations for each set of laterals in each manhole to manhole sewer line section and furnish them to the Engineer with supporting assumptions. Calculations shall be done after cleaning, televising and other field inspections have been completed. Design parameters shall be used in the calculations. The finished SLC liner shall have a minimum thickness of two (2) millimeters for four (4) inch laterals and three (3) millimeters for six (6) inch laterals.

12. Curing Cycle and Cooling Rate: The Contractor shall submit the resin manufacturer's recommended curing cycle and cooling rate. The Contractor shall submit a copy of the cure logs for each lateral installation.
13. The Contractor shall submit two (2) copies of the pre-installation television inspection video and log for each proposed SLC liner installation. Videos shall be submitted in DVD format, as well as a portable USB drive or other portable hard drive device.
14. The Contractor shall submit two (2) copies of the final television inspection video and log for each completed SLC liner installation. Videos shall be submitted in DVD format, as well as a portable USB drive or other portable hard drive device.

#### 1.4 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
  1. ASTM D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
  2. ASTM F1216 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
  3. ASTM F1743 – Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP)
  4. ASTM D5813 – Standard Specification for Cured-in-Place Thermosetting Resin Sewer Piping Systems
- B. Where reference is made to one of the above standards, the revision in effect at the time of the bid opening shall apply.

#### 1.5 QUALITY ASSURANCE

- A. The purpose of the SLC liner is to provide a permanent seal of the annular space of a sewer main and service connection. The SLC liner shall lock the sewer main in place with the service connection to provide a seal of the first joint or set of joints in the service lateral to provide for the repair of a damaged and/or leaking tapped service into the sewer main.
- B. The Contractor performing the SLC liner work shall be fully qualified, experienced and equipped to complete this work expeditiously and in a satisfactory manner. See Paragraph 1.03.A.4 for the required Contractor qualifications.
- C. The Contractor shall also be capable of providing crews as needed to complete the work without undue delay and within the contract time allotted.
- D. The Owner may approve or disapprove the Contractor and/or manufacturer based on the submitted information and a follow up interview at the Owner's discretion.
- E. The SLC liner shall be provided by a single manufacturer, who shall be responsible for the provision of all test requirements specified herein.
- F. Inspection of the SLC liner may also be made by the Engineer or Owner representative

after delivery. The SLC liner shall be subject to rejection at any time on account of failure to meet any of the requirements specified, even if a sample liner has been accepted as satisfactory at the place of manufacture. Liners rejected after delivery shall be marked for identification and shall be removed from the job site immediately.

- G. Final Installed Liner Thickness: The final installed liner thickness shall not be less than the required thickness specified, or more than ten (10) percent greater than the required thickness specified. The final installed liner thickness measurement shall be determined from liner samples, coupons retrieved from the sewer, or as deemed necessary by the Engineer. The Contractor shall be responsible for considering all site conditions and their installation process to determine the required liner thickness.

#### 1.6 SYSTEM DESCRIPTION

- A. The SLC liner shall be a seamless, one-piece product affixed to the walls of the existing service lateral pipe and the junction between the existing service lateral pipe and the sewer main. The SLC liner may also be a one piece, tight fitting, corrosion-resistant and verifiable non-leaking, cured-in-place pipe with hydrophilic O-rings where the lateral tube shall assume no bonding to the existing service lateral pipe. The mainline portion of the SLC liner that connects to the main/lateral interface shall be a top hat type. The lateral sleeve must be watertight with a uniform wall thickness. The carrier packer shall be specifically designed for four (4) inch to six (6) inch diameter service lateral connections, and shall be manufactured to conform to either a wye, tee or break-in type connection. The mainline portion of the carrier packer shall accommodate pipe diameters ranging from eight (8) inches to fifteen (15) inches. A corrosion resistant resin compatible with the installation process shall be used.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Care shall be taken in shipping, handling and storage of all components to avoid damaging the SLC liner. Extra care shall be taken during cold weather construction. Any liner damaged in shipment shall be replaced as directed by the Engineer.
- B. Any liner showing a split, tear, or has been handled in a way that may have caused damage, even though damage may not be visible, shall be marked as rejected and removed from the job site immediately.
- C. The SLC liner shall be maintained at a proper temperature in refrigerated facilities to prevent premature curing at all times prior to installation. The liner shall be protected from UV light prior to installation. Any liner showing evidence of premature curing will be marked as rejected and removed from the job site immediately.

#### 1.8 PUBLIC NOTIFICATION

- A. The Contractor shall notify all property owners who discharge sewage directly into the sewer or SLC to be lined that their sewer service will be interrupted while the liner is being installed. Deliver written notices to each affected property owner one (1) week prior installation and again at 48 hours prior to the commencement of the work being conducted on their sewer service, including the date, start time and time when service will be completely restored. The Contractor shall also provide a telephone number that property owners can call for information related to the project work. **THE CONTRACTOR SHALL CONTACT ANY HOME OR BUSINESS THAT CANNOT BE RECONNECTED WITHIN THE TIME STATED IN THE WRITTEN NOTICE.**

- B. THE MAXIMUM AMOUNT OF TIME THAT ANY HOME OR BUSINESS SHALL BE WITHOUT SANITARY SEWER SERVICE SHALL BE 10 HOURS. INTERRUPTION OF SERVICE SHALL NOT OCCUR BETWEEN 6:00 P.M. AND 8:00 A.M. ANY SERVICE THAT INTERRUPTED FOR LONGER THAN 10 HOURS WILL BE BYPASSED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

## 1.9 GUARANTEE

- A. All SLC liner installations shall be fully guaranteed by the Contractor and manufacturer for a period of one year from the date of acceptance. A written warranty shall be submitted. During this period, all serious defects discovered by the Owner shall be removed and replaced in a satisfactory manner at no additional cost to the Owner. The Owner reserves the right to conduct an independent television inspection and each liner installation, at his own expense, prior to completion of the guarantee period. Any defects replaced at that time shall be fully guaranteed by the Contractor and manufacturer for a period of one (1) year from the date the defect was repaired. Wrinkles, blisters, dry spots in resin or other defects in the finished SLC or impacts to the flow capacity of the pipe will not be accepted. The Contractor will be responsible to remove and repair all such defects, at the Contractor's expense, in a manner that is satisfactory to the Engineer. Defects also include, but are not limited to, the following:

1. Leakage through the liner or between the liner and pipe.
2. Reduction of the liner thickness of more than 10 percent.
3. Separation of the liner from the pipe.
4. Excessive wrinkles that restrict flow.

All liners shall be as free from visual defects, such as foreign inclusions, dry spots, pinholes and delamination, as commercially practical. The liner surface shall be free of leaks, cracks and crazing and shall have a smooth finish. Some minor waviness that will not appreciably decrease the flow cross section or affect the flow characteristics of the pipe shall be permissible, as approved by the Engineer.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. The SLC liner shall be a resin-impregnated, one-piece flexible polyester felt, non-woven textile tube, needle punched felt, circular knit or circular braid, glass fiber reinforced plastic or equivalent material tube which is cured-in-place by an acceptable curing method. The thermo-set synthetic resin shall be suitable for the design conditions as well as the curing process. The SLC liner shall provide a service life of 50 years and shall have the minimum structural properties listed below:

Minimum Standard

Mechanical Property  
Vinylester/Epoxy

Polyester Resin

Flexural Strength (ASTM D790)	4,500 psi	5,000 psi
Flexural Modulus of Elasticity (ASTM D790)	250,000 psi	400,000 psi

- B. The SLC liner shall be designed, fabricated and installed for the actual conditions encountered for each application, including the material of the host pipe, in accordance with the applicable provisions of ASTM F1216, and shall meet the following minimum design conditions:
1. AASHTO H-20 live load with one truck passing.
  2. Soil weight of 120 pounds per cubic foot, with a coefficient of friction  $Ku' = 0.130$ .
  3. Assume that 5 feet of groundwater force will be exerted onto the pipe when the pipe crown is zero (0) feet to ten (10) feet below the ground surface. For each additional foot of pipe crown depth, and one (1) foot of additional groundwater force.
  4. Partially deteriorated pipe with two (2) percent minimum ovality. If ovality of existing pipe is found to be worse, use actual percent up to five (5) percent maximum.
  5. Soil modulus of 1,000 psi.
  6. Factor of Safety of two (2).
  7. Soil Depth of Cover will be determined by field measurements.
  8. Short Term Flexural Modulus of 300,000 psi.
- C. The SLC shall be designed to withstand all imposed loads, including live loads and hydrostatic pressure, if applicable. The SLC liner shall have sufficient wall thickness to withstand all anticipated external pressures and loads that may be imposed after installation. The design shall be performed and certified by a Professional Engineer licensed by the State of Connecticut.
- D. The SLC liner shall be manufactured and installed by Maxliner, Martinsville, VA; LMK Enterprises, Inc., Ottawa, IL; Insituform Technologies, Inc., St. Louis, MO; Prime Liner, BLD Services LLC, National Water Main Cleaning Co. or approved equal.
- E. The SLC product shall extend from the mainline into the lateral connection a continuous, tight-fitting, watertight pipe-within-a-pipe to eliminate any visible ground water leakage and future root intrusion at the lateral to mainline connection. The SLC product system shall be compatible with the sewer mainline pipe material and the lateral pipe material. The portion of the liner within the mainline pipe shall be a top hat style, unless otherwise approved by the Engineer.
- F. Once cured, the SLC liner shall form a continuous, tight-fitting, hard, impermeable liner which is chemically resistant to domestic sewage over the expected lifetime of the rehabilitated pipe. The liner material and resin shall be completely compatible.
- G. The insert shall be continuous over the entire length of the rehabilitated sewer service lateral, extending a minimum of eighteen (18) inches up the lateral, up to the distance required to repair the defect as directed by the Engineer (to a maximum of five feet), and a minimum of three (3) inches around the lateral opening for top hat style liners.
- H. An epoxy-sealing component may be used to form a sealing bond between the SLC product and the host lateral and main pipe walls. If the seal utilizes gaskets, the

portion of the liner in the mainline pipe shall be embedded with hydrophilic O-rings and an epoxy-sealing component will not be required.

## 2.2 RESIN

- A. The resin system shall meet the requirements of ASTM F1216, Section 5.2 and/or ASTM D5813, Section 8.2.2. The resin installed SLC liner system shall comply with the structural requirements specified herein and shall provide chemical resistance for the flow media in the gravity pipe. The resin shall be compatible with the rehabilitation process, shall be able to cure in the presence or absence of water, and shall have an initiation temperature for curing as recommended by the resin manufacturer. Unless otherwise specified, provide a general purpose or enhanced strength, unsaturated, thermosetting, polyester, vinylester, epoxy or silicate resin and a catalyst system compatible with the installation process.
- B. Submit documentation from the resin manufacturer specifically describing the chemical characteristics of the resin system, including allowable mixing, impregnation, and handling time, transportation and storage time, and recommended curing cycle including temperatures, pressures, and times. The resin manufacturer's documentation must also include maximum allowable time for handling the impregnated tube prior to insertion and the maximum allowable elapsed time from insertion to exotherm. If remedial measures area available to extend either of the maximum allowable times indicated above, without affecting the physical properties of the resin, the resin manufacturer should describe these measures and the time limits beyond which even those measures will not prevent alteration of the physical properties of the resin.

## PART 3 – EXECUTION

### 3.1 PRE-INSPECTION

- A. A videotaped survey, in accordance with Section 02753, must be completed on the pipe using a pan and tilt camera to confirm that the proposed repair falls within the limitation parameters set by the manufacturer for the following aspects:
  - 1. The location and clock reference of the lateral connection to be lined.
  - 2. Any lateral connection offsets.
  - 3. Any intrusion from the lateral into the main.
  - 4. The angle at with the connection enters the main.
  - 5. Any changes in the angle of approach of the lateral for the required length to be lined.
  - 6. The potential flows entering the main from the lateral.
  - 7. The potential flows through the main.
  - 8. The diametric size of the lateral connection for the required length to be lined.
  - 9. The size of the main at the point of the lateral connection.
  - 10. The presence of active infiltration within the vicinity of the work area.

### 3.2 LINE PREPARATION

- A. Prior to installing the SLC product, the area around the lateral sealing surface in both the main and the lateral shall be inspected. Waste product build-up, hard scale, roots, lateral cutting debris or resin slugs much be removed using high pressure water jetting

equipment or in-line cutters. All laterals to be lined shall be cleaned as required prior to lining. The term “cleaned” shall mean the removal of all sand, dirt, roots, grease and all other solids of semi-solid materials from the interior face of the sewer main and lateral.

- B. It shall be the responsibility of the CONTRACTOR to clear the line of all obstructions such as solids. Prior to liner installation the CONTRACTOR shall trim all intruding taps to allow for proper installation of the liner.
- C. Built-up deposits in the sewer main and lateral pipe walls shall be removed. The removal shall reach at least one foot beyond the SLC liner to allow the bladder to inflate tightly against the pipe walls, ensuring a smooth transition from the SLC liner to the existing pipe wall.
- D. The Contractor shall televise each lateral, in accordance with Section 02753, to provide a detailed record of existing conditions. Two copies of the pre-installation inspection videos shall be submitted to the Owner. The Contractor shall be responsible for having a copy of the pre-installation inspection videos in the field. Immediately prior to liner installation, the camera shall traverse the lateral to inspect for any debris which may have entered the line since the video of existing conditions was recorded.
- E. The Contractor shall stop all active infiltration prior to SLC liner installation using grout or other approved methods, as recommended by the SLC liner.
- F. Additional precautions must be taken when applying the sleeve to a sewer main that has been lined with a CIPP liner with a polyolefin coating. The coating shall be lightly scarified, scraping off the coating in the sewer main CIPP pipe in the vicinity of the SLC liner, and shall be verified by the Engineer. This scarifying or scuffing is required for SLC liners that are required to adhere to the sewer main pipe wall. Scarification of the existing sewer main CIPP pipe is not required for SLC liners that utilize hydrophilic O-rings.
- G. The Contractor shall be responsible for bypassing of sewage, in accordance with Section 02751, during the installation of the SLC liner. In cases where the temporary backup of sewage is accepted as a substitute for temporary bypassing, the Contractor shall be responsible for any damage caused by sewage backing up into sewer infrastructure, into properties or buildings or sewage backups that cause any combined sewer overflows (CSOs).

### 3.3 INSTALLATION

- A. The SLC liner shall be vacuum-impregnated with resin (wet-out) under controlled conditions. The volume of resin used shall be sufficient to fill all voids in the textile lining material at a nominal thickness and diameter. The volume shall be adjusted by adding 5% to 10% excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints found in the existing pipe and lateral connection. There shall be no dry or unsaturated areas in the mainline sheet or lateral tube upon visual inspection.
- B. The SLC liner shall be loaded on the applicator apparatus, attached to a robotic manipulator device and positioned in the mainline pipe at the service lateral connection to be rehabilitated. For SLC full-wrap style liners with gaskets, the mainline liner and bladder shall be wrapped around the “T” launching device and held firmly by placing four (4) hydrophilic O-rings around the main liner. An adhesive sealant three hundred (300) milliliters in volume shall be applied to the main/lateral interface and shall be

applied as a two (2) inch wide band on the main liner. The robotic device used together with a television camera shall align the SLC liner with the service connection opening. The inserted SLC liner will then be inspected using the television camera to confirm that it is correctly positioned and/or centered in the lateral opening prior to curing. The insertion pressure will be adjusted to fully deploy the SLC liner into the lateral connection and hold it tight to the main and lateral pipe walls.

- C. The pressure apparatus shall include a bladder of sufficient length in both the main and lateral pipe to ensure that the inflated bladder extends beyond the ends of both the lateral tube and main line tube of the SLC liner. The inflated bladder shall press the end edges flat against the internal pipe walls, thus forming a smooth transition from the SLC liner to the main and lateral host pipe. There shall be no steps, ridges or gaps between the SLC liner and the inner diameters of the lateral and main upon completion.
- D. For SLC liners with gaskets, the main bladder shall be inflated. The inflated bladder shall cause the main sheet to unwrap and expand, embedding the hydrophilic O-rings between the main liner and main pipe. The main liner shall be pressed tightly against the main pipe.
- E. After insertion is completed, the recommended pressure must be maintained on the impregnated SLC liner, pressing the liner firmly against the inner pipe wall for the duration of the curing process. The liner shall be chemically cured at ambient temperatures or by using a suitable heat source. The use of sewage to invert or cure liners or calibration tubes is strictly prohibited. The completed SLC liner shall be free of dry spots, lifts and delamination.
- F. The completed SLC liner should not inhibit the passage of a closed-circuit television inspection camera in either the sewer main or service lateral pipe. This includes the post-installation video inspection as well as future inspection or cleaning operations. For SLC liners with gaskets or mechanical seals, the liner shall taper at each end of the main to provide a smooth transition for video equipment and maintain the proper flow in the sewer main. In all cases, the completed SLC liner must provide an airtight, watertight, verifiable non-leaking connection between the sewer main and sewer service lateral. Any defects discovered during the warranty period that affect the performance or inhibit video or cleaning operations in the sewer main or lateral shall be repaired at the expense of the Contractor in manner acceptable to the Owner.
- G. Following installation of the SLC liner, the Contractor shall provide the Owner with an electronic picture and recorded date identifying the location, the completed work and the restored condition of all rehabilitated service lateral connections. The Contractor shall televise each rehabilitated lateral to provide a detailed record of the completed installations. Upon completion, the Contractor shall submit two (2) video inspections of all rehabilitated laterals, along with all accompanying log sheets. Videos shall be submitted in DVD format, as well as a portable USB drive or other portable hard drive device.
- H. The Contractor shall immediately inform the Engineer of the location of any sewer service laterals where the SLC liner cannot be installed. These service locations will be identified, documented, video recorded and the Contractor shall provide a brief explanation of why the SLC liner cannot be installed. The Contractor shall make no attempt to install the SLC liner in these services unless directed by the Engineer.
- I. Notify all property owners who discharge sewage directly into the sewer main or

lateral to be lined that their sewage service will be interrupted while the SLC liner is being installed. Deliver written notices to each affected property owner one (1) week prior to and again forty eight (48) hours prior to commencement of the work, listing the date, start time and time when the sewer service will be completely restored. See 1.08 of this Section for additional information regarding public notification.

#### 3.4 FIELD TESTING AND ACCEPTANCE

- A. Field acceptance of the SLC liner shall be based on the Engineer's evaluation of the installation, including television inspection video review and review of the certified test data for the installed liner samples.
- B. Groundwater infiltration of the SLC liner upon completion shall be zero.
- C. All sewer service connections shall be open, clear and watertight.
- D. There shall be no evidence of splits, cracks, breaks, lifts, kinks, delamination or crazing in the SLC liner.
- E. The completed SLC liner should not inhibit the passage of a closed-circuit television inspection camera in either the sewer main or service lateral pipe.
- F. If any defective liner is discovered during the warranty period, it shall be removed and replaced with a new liner or a new pipe at no additional cost to the Owner.

END OF SECTION

## **APPENDICES**



**APPENDIX A**  
**Manhole Inspection Reports**



WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull 9/9  
Subsystem Name/No. 5

Manhole ID No. 5337

**Rating System (NASSCO)**  
1 = Excellent - No defects or minor defects present  
2 = Good - Minor defects present but have not started to deteriorate  
3 = Fair - Moderate defects present that will continue to deteriorate  
4 = Poor - Severe defects that will become grade 5 in near future  
5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051 D  
DATE: 8/30/2011 WEATHER: Sunny TIME: 3:16pm INSPECTOR: mm, pke

LOCATION DATA:  
STREET: Brewster play (Address # & Street or Closest Intersection)  
BURIED: Yes/No Yes PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish)

COVER DIAMETER: 26"  
NO. OF COVER HOLES: 2  
SIZE OF COVER HOLES: 1"

AT ABOVE/BELOW GRADE?     in.  
SURCHARGED AT INSPECTION? Y/N N Height     in.  
EVIDENCE OF SURCHARGE? Y/N N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N N  
RISERS ARE: BRICK BLOCK PRECAST OTHER:      
MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 7'9" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5 Infil  
EVIDENCE OF INFILTRATION Y/N Y wall/table  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

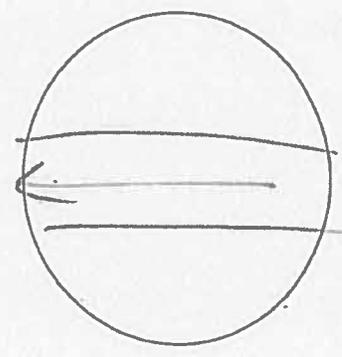
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION N  
GROUNDWATER LEVEL     ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)  
COVER: Y/N Est. I/I     JOINTS: Y/N Est. I/I wall  
FRAME: X/N Est. I/I     INVERTS: Y/N Est. I/I table  
WALLS: Y/N Est. I/I     TABLES: Y/N Est. I/I 0-19pm

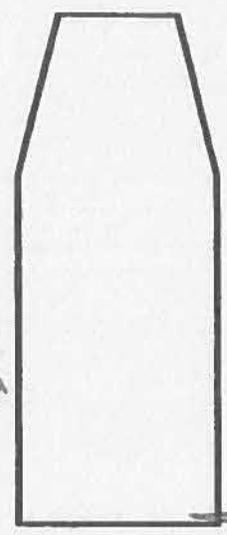
TOTAL ESTIMATED I/I (GPM): <19pm

CORROSION PROBLEMS? Y/N N

COMMENTS (REQUIRED): minor infiltration



PLAN



SECTION

Overall MH Condition Rating (1-5)  
2

wall/table leak witness

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-197

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Tambury CT PROJECT NO.: 12051D  
DATE: 9/8/11 WEATHER: \_\_\_\_\_ TIME: 12:20 INSPECTOR: AEZ/JDM

**LOCATION DATA:**

STREET: Craig Ln (Address # & Street or Closest Intersection)  
BURIED: Yes/No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted

Concealed Pick Holes Bolted Locked

Gasketed-Yes/No (to prevent inflow)

Inner Cover-Yes/No (not inflow dish)

COVER DIAMETER: 18" 24" 30"

NO. OF COVER HOLES: 0

SIZE OF COVER HOLES: N/A

AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height     in.

EVIDENCE OF SURCHARGE? Y/N Height     in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5

FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N

RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 7' 5" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N

CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_

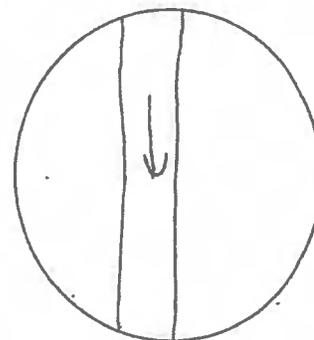
FRAME: Y/N Est. I/I 2 gpm INVERTS: Y/N Est. I/I \_\_\_\_\_

WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

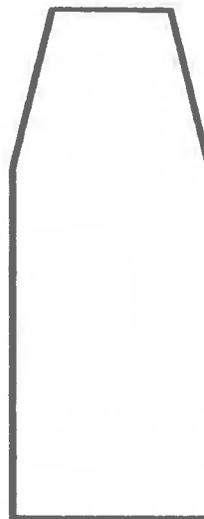
TOTAL ESTIMATED I/I (GPM): 2 gpm

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): Bricks falling apart. Riser is leaking steadily.



PLAN



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-215

**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: TRUMBULL CT PROJECT NO.: 120510  
 DATE: 9/16 WEATHER: SUNNY TIME: 2:10pm INSPECTOR: REL/CLD

LOCATION DATA:  
 STREET: DEERFIELD DR (Address # & Street or Closest Intersection)  
 BURIED: Yes/No NO PAVED AREA: Yes/No NO SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth     in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not/inflow dish)  
 18" 24" 30" 30"

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: \_\_\_\_\_  
 SIZE OF COVER HOLES: N/A  
 (AT) ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N

RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 10.17 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N

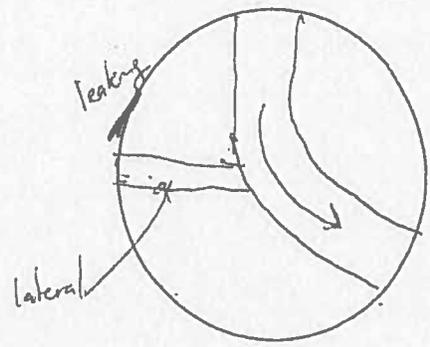
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
 FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
 WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I 5-10 gpm

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



PLAN



SECTION

Overall MH Condition  
Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-132

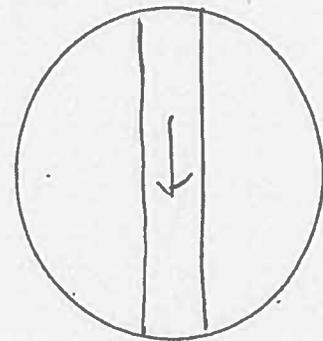
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Tomball, CT PROJECT NO.: 12051D  
 DATE: 9/15/11 WEATHER: Sunny TIME: 11:40 INSPECTOR: JPM + BRL

LOCATION DATA:  
 STREET: Edison Rd. (Address # & Street or Closest Intersection)  
 BURIED: Yes  No  PAVED AREA: Yes  No  SHEETING: Yes  No  PONDING: Yes  No  Depth     in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1  2 3 4 5  
 COVER TYPE: None  Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes  (to prevent inflow)  
 Inner Cover-Yes  (not inflow dish)  
 18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: 0  
 ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y  N  Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y  N  Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1  2 3 4 5  
 FRAME CONDITION: (Circle One) 1  2 3 4 5

RISER CONDITION: (Circle One) 1  2 3 4 5  
 EVIDENCE OF INFLOW? Y/N  
 RISERS ARE: BRICK BLOCK ~~PC~~  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 9'-10" FT (Rim to Invert)  
 EVIDENCE OF INFLOW Y  N   
 CONDITION OF WALLS: (Circle One) 1 2  3 4 5  
 EVIDENCE OF INFILTRATION  N   
 CONDITION OF STEPS: (Circle One) 1  2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

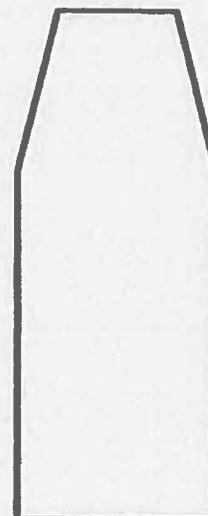
CONDITION OF INVERTS: (Circle One) 1 2  3 4 5  
 EVIDENCE OF INFILTRATION  N   
 CONDITION OF TABLE: (Circle One) 1  2 3 4 5  
 EVIDENCE OF INFILTRATION Y  N   
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y  N  Est. I/I \_\_\_\_\_ JOINTS: Y  N  Est. I/I \_\_\_\_\_  
 FRAME: Y  N  Est. I/I \_\_\_\_\_ INVERTS: Y  N  Est. I/I 2  
 WALLS: Y  N  Est. I/I 4 TABLES: Y  N  Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 6

CORROSION PROBLEMS? Y  N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-258

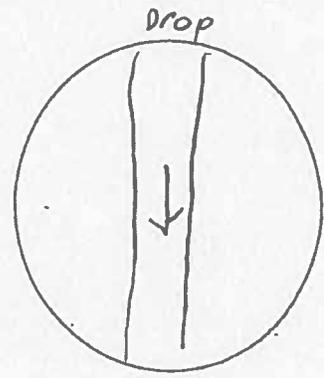
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Edison St. Trumbull, CT PROJECT NO.: 12051D  
 DATE: 9/15/11 WEATHER: cloudy TIME: 9:15 AM INSPECTOR: JOM + ERL

LOCATION DATA:  
 STREET: Edison St. (Address # & Street or Closest Intersection)  
 BURIED: Yes  PAVED AREA: Yes  No  SHEETING: Yes  No  PONDING: Yes  No  Depth 1 in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5 Cracked  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes  No  (to prevent inflow)  
 Inner Cover-Yes  No  (not inflow dish)  
 COVER DIAMETER: 18" 24" 26" 30"



PLAN

NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: 0  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y  N  Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y  N  Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y  N   
 RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 6'-1" FT (Rim to Invert)  
 EVIDENCE OF INFLOW: Y  N   
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION: Y  N   
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

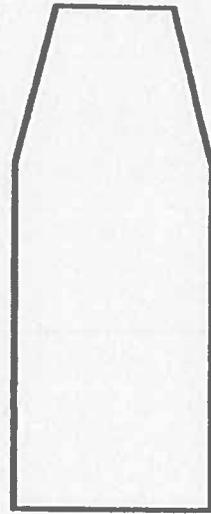
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION: Y  N   
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION: Y  N   
 GROUNDWATER LEVEL: \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)  
 COVER: Y  N  Est. I/I \_\_\_\_\_ JOINTS: Y  N  Est. I/I 3  
 FRAME: Y  N  Est. I/I \_\_\_\_\_ INVERTS: Y  N  Est. I/I 3.5  
 WALLS: Y  N  Est. I/I \_\_\_\_\_ TABLES: Y  N  Est. I/I 3

TOTAL ESTIMATED I/I (GPM): 12 gpm

CORROSION PROBLEMS? Y/N Y/N

COMMENTS (REQUIRED): There is a hose build into the MH.



SECTION

Overall MH Condition Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-71

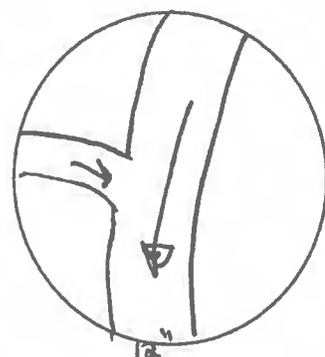
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
 DATE: 12/29/11 WEATHER: Sunny TIME: 11:35AM INSPECTOR: JDM/NLO

LOCATION DATA:  
 STREET: Edison Rd. (Address # & Street or Closest Intersection)  
 BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
 DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No No (to prevent inflow)  
 Inner Cover-Yes/No No (not inflow dish)  
 18" 24" 26" 30"



COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? 0.5 in.  
 SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height     in.  
 EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height     in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N Y  
 RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

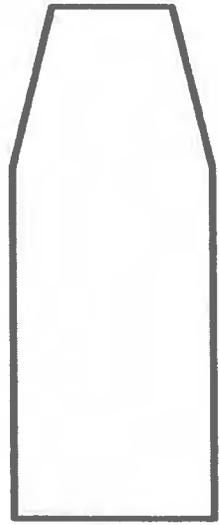
MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 8-10 FT (Rim to Invert)  
 EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N - Joint  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4  
 CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N Y  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N Y  
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Y Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I 1.6GPM  
 FRAME: Y/N Y Est. I/I \_\_\_\_\_ INVERTS: Y/N Y Est. I/I \_\_\_\_\_  
 WALLS: Y/N Y Est. I/I \_\_\_\_\_ TABLES: Y/N Y Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 1

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



Overall MH Condition  
Rating (1-5)

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-183

**Rating System (NASSCO)**

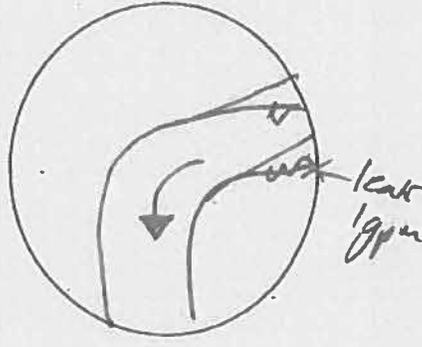
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Tumbully CT PROJECT NO.: 12051 D  
DATE: 9/14/2011 WEATHER: sunny TIME: 1:58 PM INSPECTOR: JDH/MLO

LOCATION DATA:  
STREET: Evergreen Ln. (Address # & Street or Closest Intersection)  
BURIED: Yes/No /No PAVED AREA: Yes/No /No SHEETING: Yes/No /No PONDING: Yes/No /No Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None  Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No /No (to prevent inflow)  
Inner Cover-Yes/No /No (not inflow dish)  
COVER DIAMETER: 18" 24" 26" 30"



PLAN

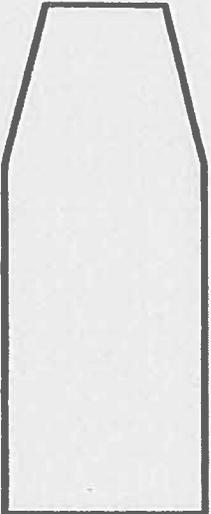
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES:      
AT/ABOVE/BELOW GRADE? AT in.  
SURCHARGED AT INSPECTION? Y/N /N Height     in.  
EVIDENCE OF SURCHARGE? Y/N /N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5  
RISER CONDITION: (Circle One) 1 3 3 4 5  
EVIDENCE OF INFLOW? Y/N /N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 7 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N /N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N /N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4  
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N /N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N /N  
GROUNDWATER LEVEL     ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N /N Est. I/I     JOINTS: Y/N /N Est. I/I      
FRAME: Y/N /N Est. I/I     INVERTS: Y/N /N Est. I/I      
WALLS: Y/N /N Est. I/I 1 gpm TABLES: Y/N /N Est. I/I    

TOTAL ESTIMATED I/I (GPM):      
CORROSION PROBLEMS? Y/N /N



SECTION

COMMENTS (REQUIRED): \*leak on wall (1 gpm) right above  
tbl

Overall MH Condition  
Rating (1-5)  
2

WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull 9/19  
Subsystem Name/No. 5

Manhole ID No. 5-311

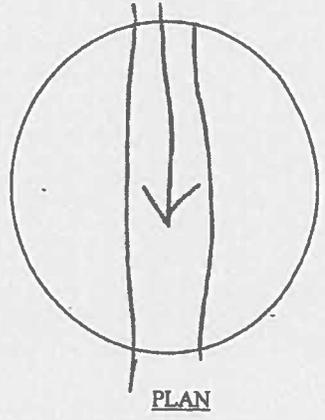
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
DATE: 8-31-2011 WEATHER: sunny TIME: 10:32am INSPECTOR: Jmm/jdm

LOCATION DATA:  
STREET: Garden St (Address # & Street or Closest Intersection)  
BURIED: Yes  No  PAVED AREA: Yes  No  SHEETING: Yes  No  PONDING: Yes  No  Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None  Solid  Vented/Slotted  
Concealed Pick Holes  Bolted  Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish)  
COVER DIAMETER: 18" 24" 30" 26"



NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES:      
AD/ABOVE/BELOW GRADE?     in.  
SURCHARGED AT INSPECTION? Y/N Height     in.  
EVIDENCE OF SURCHARGE? Y/N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5  
RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 8'9" FT (Rim to Invert)  
EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

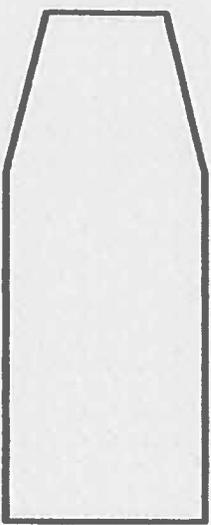
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
GROUNDWATER LEVEL     ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I     JOINTS: Y/N Est. I/I      
FRAME: Y/N Est. I/I     INVERTS: Y/N Est. I/I      
WALLS: Y/N Est. I/I 2-3 TABLES: Y/N Est. I/I      
9pm

TOTAL ESTIMATED I/I (GPM): 2-3 pm

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): behind minor  
stairs corr.



SECTION

Overall MH Condition Rating (1-5)  
2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-65

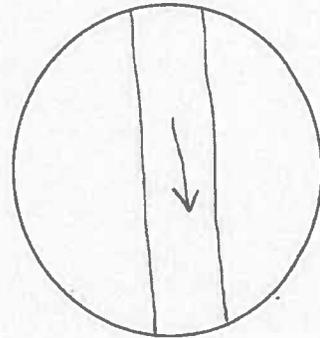
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: TRUMBULL, CT PROJECT NO.: 120510  
 DATE: 7/26/11 WEATHER: SUNNY TIME: 11:45 AM INSPECTOR: JOM

LOCATION DATA:  
 STREET HIGHGATE RD (Address # & Street or Closest Intersection)  
 BURIED: Yes/No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)



COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 14.75 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4 5

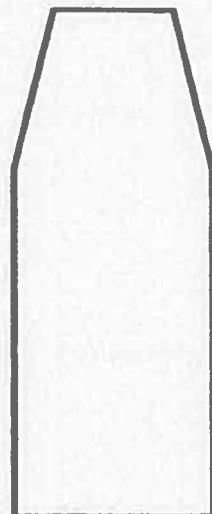
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
 FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
 WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? \_\_\_\_\_ Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



Overall MH Condition  
Rating (1-5)  
2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-67

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
DATE: 12/29/11 WEATHER: Sunny TIME: 11:05 AM INSPECTOR: JDM/NLO

**LOCATION DATA:**

STREET: Highgate Rd (Address # & Street or Closest Intersection)  
BURIED: Yes/No /No  PAVED AREA: Yes/No /No  SHEETING: Yes/No /No  PONDING: Yes/No /No  Depth     in.  
DRAINAGE AREA:     Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow) /No   
Inner Cover-Yes/No (not inflow dish) /No   
18" 24" 30" 30"

COVER DIAMETER: \_\_\_\_\_

NO. OF COVER HOLES: \_\_\_\_\_

SIZE OF COVER HOLES: \_\_\_\_\_

ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N /No  Height \_\_\_\_\_ in.

EVIDENCE OF SURCHARGE? /No  Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5

FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N /No

RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 16'-2" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N /No

CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N /No  *by drop pipe*

CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N /No

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N /No

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N /No  Est. I/I \_\_\_\_\_ JOINTS: Y/N /No  Est. I/I \_\_\_\_\_

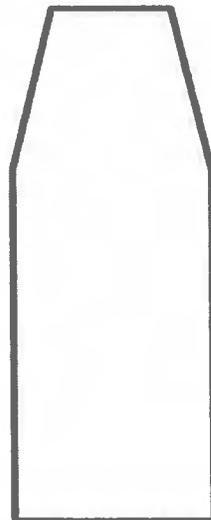
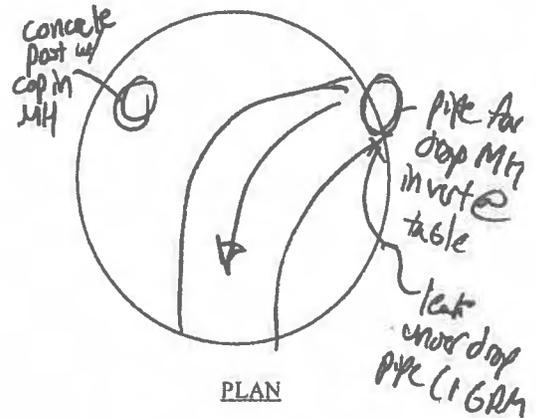
FRAME: Y/N /No  Est. I/I \_\_\_\_\_ INVERTS: Y/N /No  Est. I/I \_\_\_\_\_

WALLS: Y/N /No  Est. I/I 160M TABLES: Y/N /No  Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): lots of flow  
Crack on table 1



Overall MH Condition Rating (1-5)

**4**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. ~~512~~ 5-142

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Tumbull, CT PROJECT NO.: 12051 D  
DATE: 8/31/2011 WEATHER: sunny TIME: 1:46 PM INSPECTOR: ERL/ULO

LOCATION DATA:  
STREET: Lounsbury Rd (Address # & Street or Closest Intersection)

BURIED: Yes/No Yes PAVED AREA: Yes/No Yes SHEETING: Yes/No Yes PONDING: Yes/No No Depth     in.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted

Concealed Pick Holes Bolted Locked

Gasketed-Yes/No (to prevent inflow)

Inner Cover-Yes/No (not inflow dish)

COVER DIAMETER: 18" 24" 26" 30"

NO. OF COVER HOLES: 0

SIZE OF COVER HOLES: \_\_\_\_\_

AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.

EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5

FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N

RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 9.33 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N

CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_

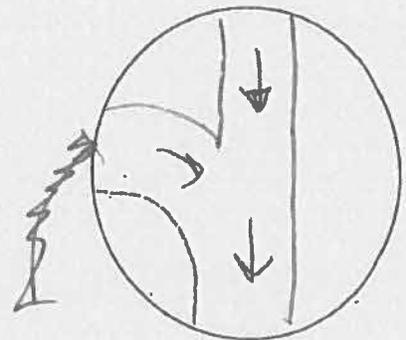
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_

WALLS: Y/N Est. I/I 3-5mm TABLES: Y/N Est. I/I \_\_\_\_\_

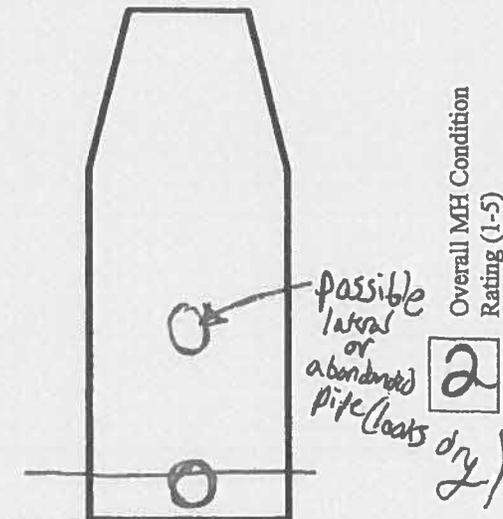
TOTAL ESTIMATED I/I (GPM): 3-5

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): not @ joint



PLAN



Overall MH Condition Rating (1-5)

SECTION

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-201

**Rating System (NASSCO)**

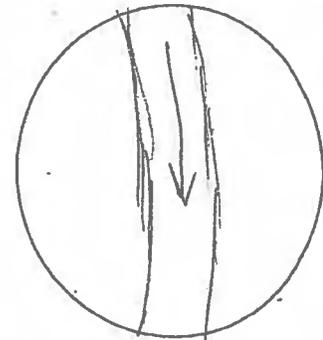
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Tumbull, CT PROJECT NO.: 12051, D  
DATE: 9/8/11 WEATHER: \_\_\_\_\_ TIME: 11:26 INSPECTOR: JDM/AEZ

LOCATION DATA:  
STREET: McArthur Rd (Address # & Street or Closest Intersection)  
BURIED: Yes/No Yes/No PAVED AREA: Yes/No SHEETING: Yes/No Yes/No PONDING: Yes/No Yes/No Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No Yes/No (to prevent inflow)  
Inner Cover-Yes/No Yes/No (not inflow dish)  
COVER DIAMETER: 18" 24" 26" 30"



PLAN

NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: N/A  
AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
SURCHARGED AT INSPECTION? Y/N Y/N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N Y/N Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5  
RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N Y/N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 8' 9" FT (Rim to Invert)  
EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

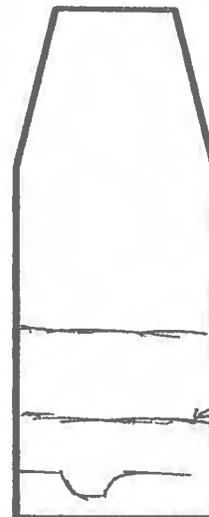
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I 2-3 TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 2-3

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. ~~5~~ 5-203

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

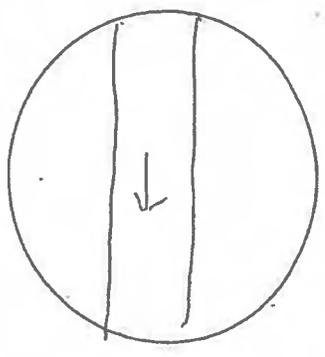
*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trombly Ct PROJECT NO.: 12051D  
DATE: 9/8/11 WEATHER: \_\_\_\_\_ TIME: 11:42 INSPECTOR: AEB/JDM

LOCATION DATA:  
STREET: McArthur Rd (Address # & Street or Closest Intersection)  
BURIED: Yes/No /No PAVED AREA: Yes/No /No SHEETING: Yes/No /No PONDING: Yes/No /No Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No /No (to prevent inflow)  
Inner Cover-Yes/No /No (not inflow dish)



**PLAN**

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N /N Height     in.  
EVIDENCE OF SURCHARGE? Y/N /N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N /N

RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 8' 2" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N /N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION /N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N /N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N /N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

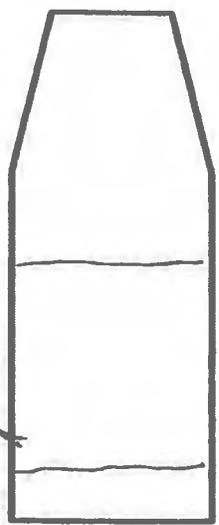
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N /N Est. I/I \_\_\_\_\_ JOINTS: Y/N /N Est. I/I \_\_\_\_\_  
FRAME: Y/N /N Est. I/I \_\_\_\_\_ INVERTS: Y/N /N Est. I/I \_\_\_\_\_  
WALLS: /N Est. I/I 1 TABLES: Y/N /N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 1

CORROSION PROBLEMS? /N

COMMENTS (REQUIRED): Leaking at bottom near the table SECTION



Overall MH Condition  
Rating (1-5)

2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-347

**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
 DATE: 12/29/11 WEATHER: Sunny TIME: 1:30 PM INSPECTOR: JDM/NLO

LOCATION DATA:  
 STREET: Main Street (Address # & Street or Closest Intersection)  
 BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth     in.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No No (to prevent inflow)  
 Inner Cover-Yes/No No (not inflow dish)  
 COVER DIAMETER: 18" 24" 26" 30"

NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: 4 in.

AT/ABOVE/BELOW GRADE? U  
 SURCHARGED AT INSPECTION? Y/N N Height     in.  
 EVIDENCE OF SURCHARGE? Y/N N Height     in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N N  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 8-4" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N N

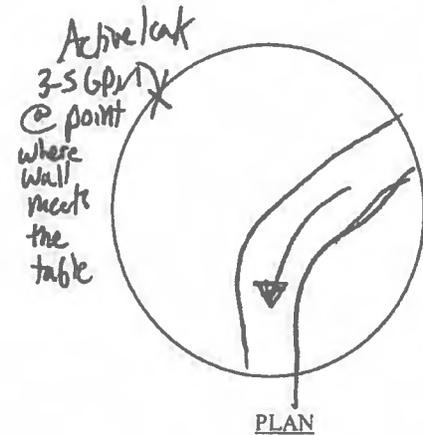
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N N Est. I/I \_\_\_\_\_ JOINTS: Y/N N Est. I/I \_\_\_\_\_  
 FRAME: Y/N N Est. I/I \_\_\_\_\_ INVERTS: Y/N N Est. I/I \_\_\_\_\_  
 WALLS: Y/N N Est. I/I \_\_\_\_\_ TABLES: Y/N N Est. I/I 3-56PM

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N N

COMMENTS (REQUIRED): • 1 Active leak (3-5 6PM)



Overall MH Condition  
 Rating (1-5)  
2

WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull 9/19  
Subsystem Name/No. 5

Manhole ID No. 5-351

Rating System (NASSCO)

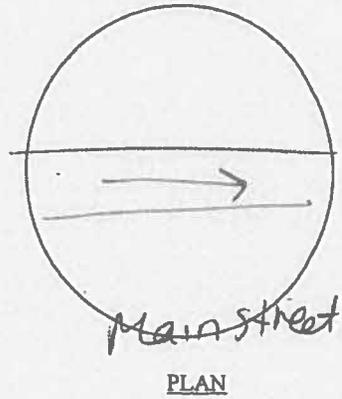
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 20510  
DATE: 8/30/2011 WEATHER: Sunny TIME: 1020 am INSPECTOR: pko, lmm

LOCATION DATA:  
STREET: Main Street / Park (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth in.  
DRAINAGE AREA: Sq.ft.

MANHOLE DATA:  
COVER CONDITION:  
COVER TYPE: (Circle One) 1 2 3 4 5  
None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish) 1  
18" 24" 30" 20



COVER DIAMETER: 2  
NO. OF COVER HOLES: 1  
SIZE OF COVER HOLES: 1"

AT/ABOVE/BELOW GRADE? AT in.  
SURCHARGED AT INSPECTION? Y Height in.  
EVIDENCE OF SURCHARGE? N Height in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 9.3 FT (Rim to Invert)

EVIDENCE OF INFLOW N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5 plug holes leaking 5gpm  
EVIDENCE OF INFILTRATION N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

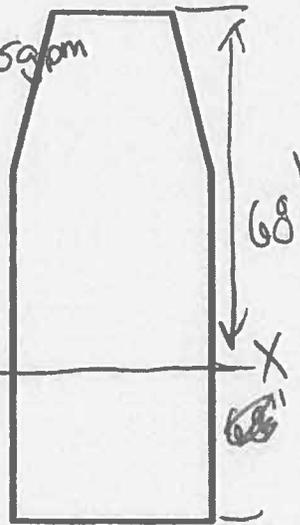
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION N  
GROUNDWATER LEVEL 6.8 ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)  
COVER: N Est. I/I \_\_\_\_\_ JOINTS: N Est. I/I \_\_\_\_\_  
FRAME: N Est. I/I \_\_\_\_\_ INVERTS: N Est. I/I \_\_\_\_\_  
WALLS: N Est. I/I \_\_\_\_\_ TABLES: N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 5 gpm

CORROSION PROBLEMS? N

COMMENTS (REQUIRED): Major source of infiltration in system



Overall MH Condition Rating (1-5)  
3

WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull 919  
Subsystem Name/No. 5

Manhole ID No. 5-318

**Rating System (NASCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051 D  
DATE: 8-31-2011 WEATHER: Sunny TIME: 9:42am INSPECTOR: Imm, jdm

LOCATION DATA: Jnt. of Chestnut + Orchard (Address # & Street or Closest Intersection)  
STREET  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish) 11



COVER DIAMETER: 18" 24" 30" 26 11  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES:    

ABOVE/BELOW GRADE?     in.  
SURCHARGED AT INSPECTION? Y/N N Height     in.  
EVIDENCE OF SURCHARGE? Y/N N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5 rusty

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 6'5" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

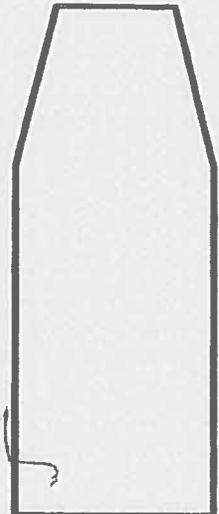
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
GROUNDWATER LEVEL     ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)  
COVER: Y/N N Est. I/I     JOINTS: Y/N N Est. I/I      
FRAME: Y/N N Est. I/I     INVERTS: Y/N N Est. I/I 19pm  
WALLS: Y/N N Est. I/I     TABLES: Y/N N Est. I/I 1-2

TOTAL ESTIMATED I/I (GPM): 2-3

CORROSION PROBLEMS? Y/N N

COMMENTS (REQUIRED): Minor infiltration SECTION



Overall MH Condition Rating (1-5)  
3

WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull  
Subsystem Name/No. 5

Manhole ID No. 5321 A

Rating System (NASSCO)

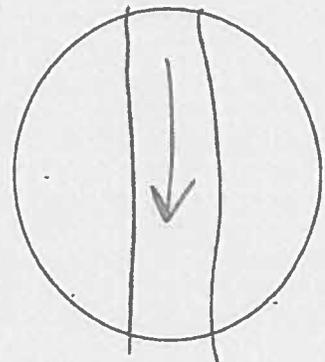
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12057C  
DATE: 8-31-2011 WEATHER: Sunny TIME: 9:21am INSPECTOR: Imm, jdm

LOCATION DATA:  
STREET: Orchard Street (Address # & Street or Closest Intersection)  
BURIED: Yes/No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish) 20"  
18" 24" 30"



PLAN

COVER DIAMETER:      
NO. OF COVER HOLES:      
SIZE OF COVER HOLES:      
AT/ABOVE/BELOW GRADE?     in.

SURCHARGED AT INSPECTION? Y/N  
EVIDENCE OF SURCHARGE? Y/N  
CONDITION OF RIM: (Circle One) 1 2 3 4 5 chip on top  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 7' 11" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL     ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

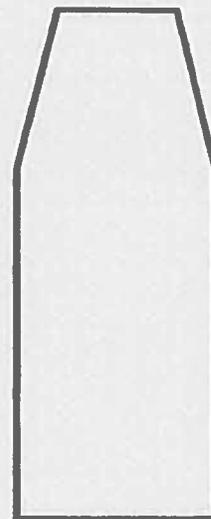
COVER: Y/N Est. I/I     JOINTS: Y/N Est. I/I      
FRAME: Y/N Est. I/I     INVERTS: Y/N Est. I/I      
WALLS: Y/N Est. I/I     TABLES: Y/N Est. I/I    

TOTAL ESTIMATED I/I (GPM): 5 gpm  
2 holes in wall

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): invert/table damaged SECTION

from leak



Overall MH Condition Rating (1-5)

4

WRIGHT-PIERCE

MANHOLE INSPECTION REPORT

Project Name: Trumbull 9/19  
Subsystem Name/No. 5

Manhole ID No. J-323

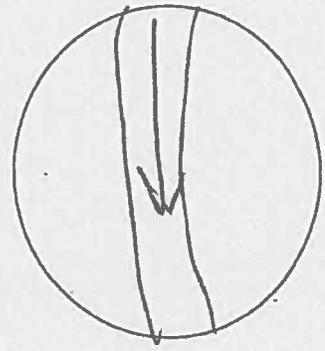
**Rating System (NASSCO)**  
1 = Excellent - No defects or minor defects present  
2 = Good - Minor defects present but have not started to deteriorate  
3 = Fair - Moderate defects present that will continue to deteriorate  
4 = Poor - Severe defects that will become grade 5 in near future  
5 = Immediate Attention Required - Defects present that require immediate attention

Note: See Reverse Side of Form for Standard Photos Required

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051 D  
DATE: 8/31/2011 WEATHER: sunny TIME: 8:50am INSPECTOR: Jmm, jdm

LOCATION DATA:  
STREET: Whispering willow Orchard (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow) No  
Inner Cover-Yes/No (not inflow dish) No



PLAN

COVER DIAMETER: 18" 24" 30" 36"  
NO. OF COVER HOLES: 1  
SIZE OF COVER HOLES:     in.

AT/ABOVE/BELOW GRADE?     in.  
SURCHARGED AT INSPECTION? Y/N N Height     in.  
EVIDENCE OF SURCHARGE? Y/N N Height     in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N N  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER:    

MANHOLE IS: BRICK BLOCK PRECAST OTHER:      
DEPTH OF MANHOLE: 9'6" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N

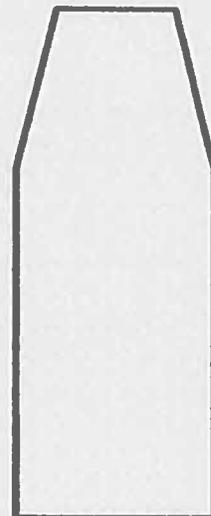
GROUNDWATER LEVEL     ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N N Est. I/I     JOINTS: Y/N N Est. I/I      
FRAME: Y/N N Est. I/I     INVERTS: Y/N N Est. I/I 1-2  
WALLS: Y/N N Est. I/I 1-2 TABLES: Y/N N Est. I/I    

TOTAL ESTIMATED I/I (GPM): 2-3 9pm

CORROSION PROBLEMS? YN rusty frame

COMMENTS (REQUIRED): minor hole in wall and invert



SECTION

Overall MH Condition Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-241

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

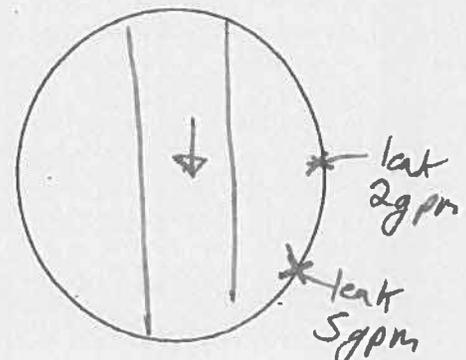
*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Tambull, CT PROJECT NO.: 12051 D  
DATE: 9/14/2011 WEATHER: Sunny TIME: 10:40AM INSPECTOR: JDM/MG

LOCATION DATA:  
STREET: Raynor Ave. (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish)  
18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N N Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N N  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 8'-1" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

COVER: Y/N N Est. I/I \_\_\_\_\_ JOINTS: Y/N N Est. I/I 7gpm  
FRAME: Y/N N Est. I/I \_\_\_\_\_ INVERTS: Y/N N Est. I/I \_\_\_\_\_  
WALLS: Y/N N Est. I/I \_\_\_\_\_ TABLES: Y/N N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N N

COMMENTS (REQUIRED): \* 2 leaks @ 2 & 5 gpm \*



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. S-241A

**Rating System (NASSCO)**

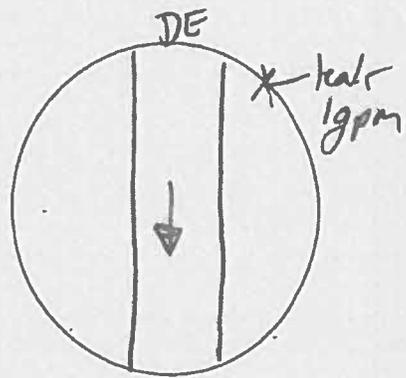
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trombull, CT PROJECT NO.: 12051D  
DATE: 9/14/2011 WEATHER: sunny TIME: 10:56AM INSPECTOR: JDM/NLO

LOCATION DATA:  
STREET: Raynor Ave (Address # & Street or Closest Intersection)  
BURIED: Yes/No Yes/No PAVED AREA: Yes/No Yes/No SHEETING: Yes/No Yes/No PONDING: Yes/No Yes/No Depth     in.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow) Yes/No  
Inner Cover-Yes/No (not inflow dish) Yes/No  
18" 24" 26" 30"



COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: \_\_\_\_\_  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 7'-9" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

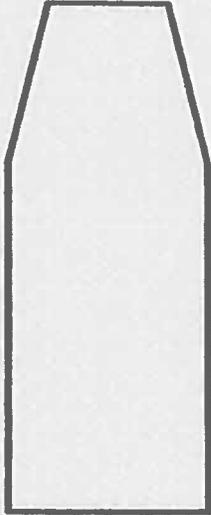
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I 1gpm

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): 1 leak @ 1gpm above table SECTION



Overall MH Condition  
Rating (1-5)

2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-138

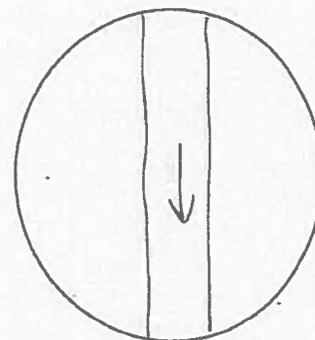
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trombly, CT PROJECT NO.: 12051D  
 DATE: 8/1/11 WEATHER: SUNNY TIME: \_\_\_\_\_ INSPECTOR: JAN/CRL

LOCATION DATA:  
 STREET: Route 20, Ruth St (Address # & Street or Closest Intersection)  
 BURIED: Yes/No (No) PAVED AREA: Yes/No (Yes) SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth \_\_\_\_\_ in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None (Solid) Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)



PLAN

COVER DIAMETER: 18" 24" 26" 30"  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N \_\_\_\_\_  
 RISERS ARE: (BRICK) BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT (4FT) OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK (PRECAST) OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 10.08 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: (3) 3 4

CONDITION OF INVERTS: (Circle One) 1 2 (3) 4 5  
 EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

CONDITION OF TABLE: (Circle One) 1 2 (3) 4 5  
 EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/No (No) Est. I/I \_\_\_\_\_ JOINTS: Y/No (No) Est. I/I \_\_\_\_\_  
 FRAME: Y/No (No) Est. I/I \_\_\_\_\_ INVERTS: Y/No (No) Est. I/I \_\_\_\_\_  
 WALLS: Y/No (No) Est. I/I \_\_\_\_\_ TABLES: Y/No (No) Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? (No)

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-138

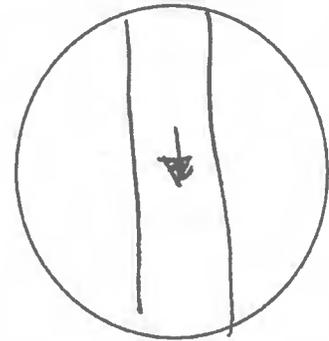
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
 DATE: 12/29/11 WEATHER: Sunny TIME: 9:45 AM INSPECTOR: JDM/NLO

**LOCATION DATA:**  
 STREET: Ruth Street (Address # & Street or Closest Intersection)  
 BURIED: Yes/No /No PAVED AREA: Yes/No /No SHEETING: Yes/No /No PONDING: Yes/No /No Depth     in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No /No (to prevent inflow)  
 Inner Cover-Yes/No /No (not inflow dish)



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_

AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N /No Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N /No Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N /No  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 10'-2" FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N /No  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N /No  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N /No

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N /No Est. I/I \_\_\_\_\_ JOINTS: Y/N /No Est. I/I \_\_\_\_\_  
 FRAME: Y/N /No Est. I/I \_\_\_\_\_ INVERTS: Y/N /No Est. I/I \_\_\_\_\_  
 WALLS: Y/N /No Est. I/I 1-26M TABLES: Y/N /No Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 1-2 GPM

CORROSION PROBLEMS? Y/N /No

COMMENTS (REQUIRED): Wall is saturated & leaking slightly (1-26M) SECTION



Overall MH Condition  
 Rating (1-5)

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-37

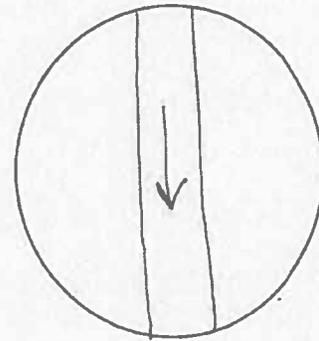
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, Ct PROJECT NO.: 120510  
 DATE: 7/25/11 WEATHER: CLOUDY TIME: \_\_\_\_\_ INSPECTOR: JDM

LOCATION DATA: Sunnycrest Rd. ROW  
 STREET: RESERVE INTERSECTION (Address # & Street or Closest Intersection)  
 BURIED: Yes/No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth    in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)  
 18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 8.92 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

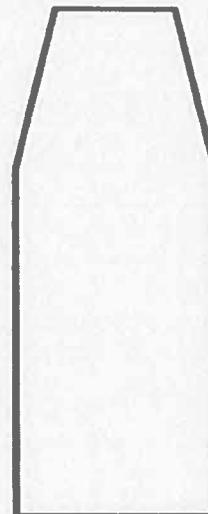
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
 FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
 WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

1

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-39

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

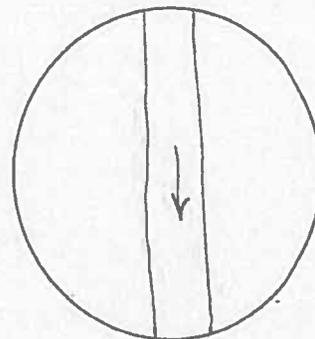
PROJECT LOCATION: TRUMBULL, CT PROJECT NO.: 120510  
DATE: 7/25/11 WEATHER: CLOUDY TIME: \_\_\_\_\_ INSPECTOR: JDM

LOCATION DATA: Sunnycrest Rd ROW  
STREET: RESERVOIR INTERCEPTOR (Address # & Street or Closest Intersection)

BURIED: Yes/No NO PAVED AREA: Yes/No NO SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish)



PLAN

COVER DIAMETER: 18" 24" 26" 30"  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: -

AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N \_\_\_\_\_  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 11 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

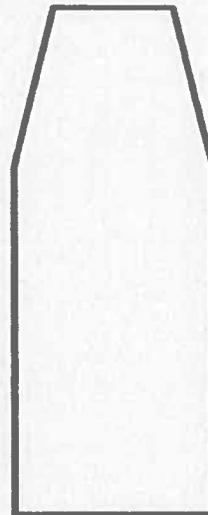
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? \_\_\_\_\_ Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-121

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: TRUMBULL CT PROJECT NO.: 120510  
DATE: 8/1/11 WEATHER: LT RAIN TIME: \_\_\_\_\_ INSPECTOR: JAM/ERL

LOCATION DATA:  
STREET: THORBURN AVE. (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth \_\_\_\_\_ in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish)

COVER DIAMETER: 18" 24" 26" 30"  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N \_\_\_\_\_  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 7.58 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_

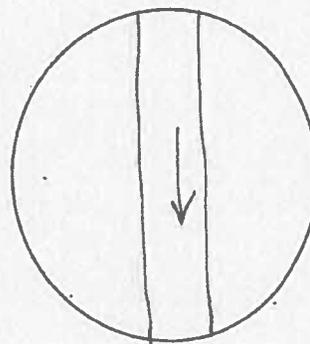
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_

WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

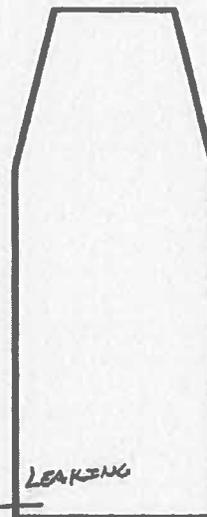
TOTAL ESTIMATED I/I (GPM): 3-5

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



PLAN



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-123

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

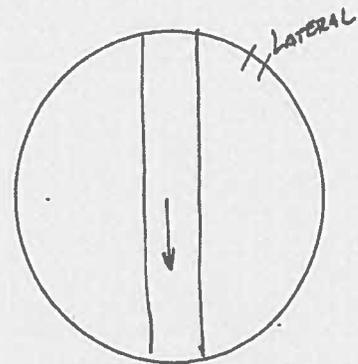
PROJECT LOCATION: TRUMBULL CT PROJECT NO.: 12051D  
DATE: 9/1/11 WEATHER: Rain TIME: \_\_\_\_\_ INSPECTOR: Jan/BL

**LOCATION DATA:**

STREET: THORNTON AVE. (Address # & Street or Closest Intersection)  
BURIED: Yes/No NO PAVED AREA: Yes/No NO SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish)



PLAN

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N \_\_\_\_\_  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 9.08 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 1-2

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-117

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: TRUMBULL CT PROJECT NO.: 120510  
DATE: 8/1/11 WEATHER: LT RAIN TIME: \_\_\_\_\_ INSPECTOR: JAM/ERL

LOCATION DATA:  
STREET WHALEBY RD. (Address # & Street or Closest Intersection)  
BURIED: Yes/ No PAVED AREA:  Yes/No SHEETING: Yes/No PONDING: Yes/No Depth in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One)  1 2 3 4 5  
COVER TYPE: None  Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish)

COVER DIAMETER: 18" 24" 26" 30"  
NO. OF COVER HOLES: 0

SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2  3 4 5  
FRAME CONDITION: (Circle One) 1  2 3 4 5

RISER CONDITION: (Circle One) 1  2 3 4 5

EVIDENCE OF INFLOW? Y/N  
RISERS ARE:  BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT  4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK  PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 7.67 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One)  1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF STEPS: (Circle One)  1 2 3 4 5

NUMBER OF SECTIONS:  2 3 4

CONDITION OF INVERTS: (Circle One) 1 2  3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF TABLE: (Circle One) 1 2  3 4 5

EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/ No Est. I/I \_\_\_\_\_ JOINTS: Y/ No Est. I/I \_\_\_\_\_

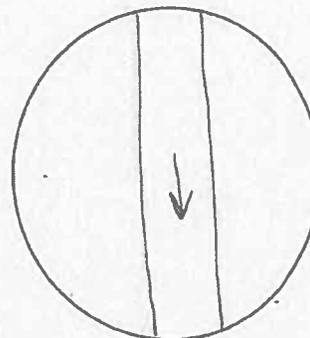
FRAME: Y/ No Est. I/I \_\_\_\_\_ INVERTS: Y/ No Est. I/I \_\_\_\_\_

WALLS: Y/ No Est. I/I \_\_\_\_\_ TABLES: Y/ No Est. I/I \_\_\_\_\_

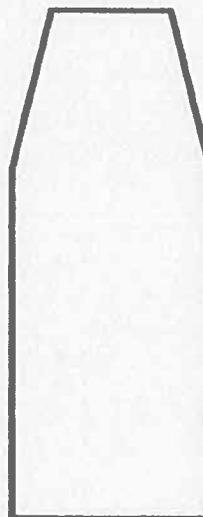
TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/ No

COMMENTS (REQUIRED): INVERT WAS CLOSED



PLAN



SECTION

Overall MH Condition  
Rating (1-5)

2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-54

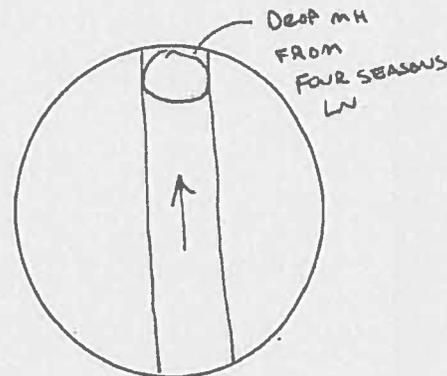
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
 DATE: 7/26/11 WEATHER: Cloudy TIME: 9:40AM INSPECTOR: JOM

LOCATION DATA:  
 STREET: WILKINS RD (Address # & Street or Closest Intersection)  
 BURIED: Yes/No No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)  
 18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: \_\_\_\_\_  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N  
 RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 16.42 FT (Rim to Invert)  
 EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
 FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
 WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 5-10

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): LEAKING AT TABLE CONNECTING TO THE WALL. EVIDENCE OF LEAKAGE AT RISER SECTION



Overall MH Condition  
Rating (1-5)

3

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-281

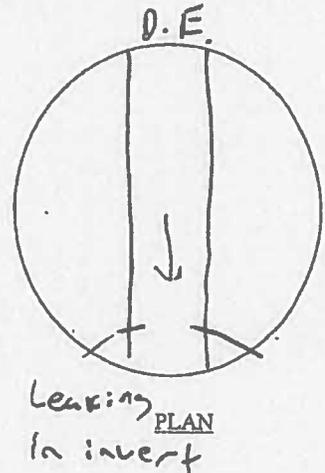
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051D  
 DATE: 9/15/11 WEATHER: Lt. Rain TIME: 1:45 INSPECTOR: JDA + ERL

LOCATION DATA:  
 STREET: Woodridge Cir (Address # & Street or Closest Intersection)  
 BURIED: Yes  No  PAVED AREA: Yes  No  SHEETING: Yes  No  PONDING: Yes  No  Depth      in.  
 DRAINAGE AREA:      Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None  Solid  Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes  No  (to prevent inflow)  
 Inner Cover-Yes  No  (not inflow dish)  
 COVER DIAMETER: 18" 24" 26" 30"



NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: 0  
 ABOVE/BELow GRADE?      in.  
 SURCHARGED AT INSPECTION? Y  N  Height      in.  
 EVIDENCE OF SURCHARGE? Y  N  Height      in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y  N   
 RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER:     

MANHOLE IS: BRICK BLOCK PRECAST OTHER:       
 DEPTH OF MANHOLE: 10'-4" FT (Rim to Invert)  
 EVIDENCE OF INFLOW Y  N   
 CONDITION OF WALLS: (Circle One) 1 2 2 4 5  
 EVIDENCE OF INFILTRATION Y  N   
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y N   
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y N   
 GROUNDWATER LEVEL      ft (above invert)

**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)  
 COVER: Y  N  Est. I/I      JOINTS: Y  N  Est. I/I       
 FRAME: Y  N  Est. I/I      INVERTS: Y  N  Est. I/I       
 WALLS: Y  N  Est. I/I      TABLES: Y  N  Est. I/I     

TOTAL ESTIMATED I/I (GPM): 3-5

CORROSION PROBLEMS?      Y/N     

COMMENTS (REQUIRED): \_\_\_\_\_



Overall MH Condition  
Rating (1-5)

**3**

**SECTION**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-150

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

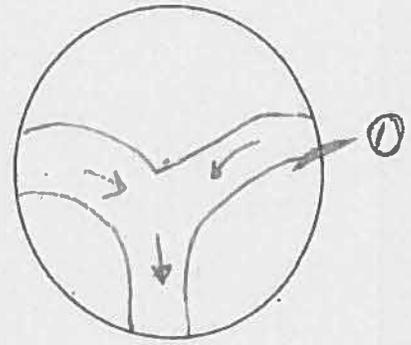
*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
DATE: 8/31/2011 WEATHER: sunny TIME: 2:47PM INSPECTOR: ERL/NLO

LOCATION DATA:  
STREET: Woolsey Ave. (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow) \_\_\_\_\_  
Inner Cover-Yes/No (not inflow dish) \_\_\_\_\_  
18" 24" 26 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5 *missing a piece*  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N Y *all the way around leaking*  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 11.33 FT (Rim to Invert)

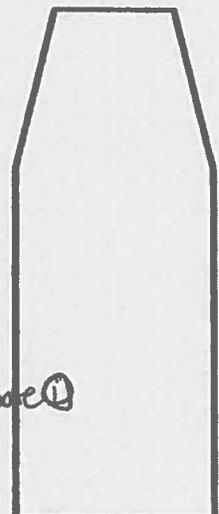
EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

COVER: Y/N N Est. I/I \_\_\_\_\_ JOINTS: Y/N N Est. I/I \_\_\_\_\_  
FRAME: Y/N N Est. I/I 0-1gpm INVERTS: Y/N N Est. I/I \_\_\_\_\_  
WALLS: Y/N N Est. I/I \_\_\_\_\_ TABLES: Y/N N Est. I/I 1-2gpm = 7 Above

TOTAL ESTIMATED I/I (GPM): 2-4gpm  
CORROSION PROBLEMS? Y/N N  
COMMENTS (REQUIRED): \_\_\_\_\_  
*all around table*



SECTION

Overall MH Condition  
Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-153

**Rating System (NASSCO)**

- 1 - Excellent - No defects or minor defects present
- 2 - Good - Minor defects present but have not started to deteriorate
- 3 - Fair - Moderate defects present that will continue to deteriorate
- 4 - Poor - Severe defects that will become grade 5 in near future
- 5 - Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: TRUMBULL CT PROJECT NO.: 120510  
DATE: 8/1/11 WEATHER: SUNNY TIME: \_\_\_\_\_ INSPECTOR: JAN/ZAL

**LOCATION DATA:**

STREET: WOOLSEY AVE. (Address # & Street or Closest Intersection)  
BURIED: Yes/No No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth     in.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No No (to prevent inflow)  
Inner Cover-Yes/No No (not inflow dish)

COVER DIAMETER: 18" 24" 26" 30"  
NO. OF COVER HOLES: 0  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N  
RISERS ARE: BRICK BLOCK PRECAST  
MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

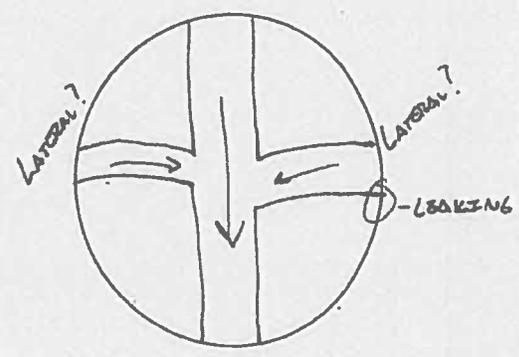
MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 11.58 FT (Rim to Invert)  
EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

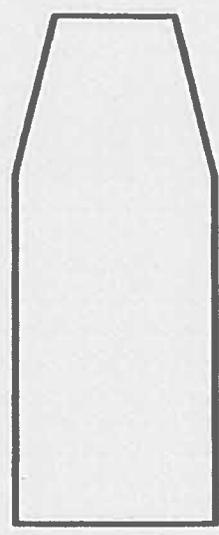
COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): 3-4 LATERAL  
CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): LEAKING LATERAL



PLAN



Overall MH Condition  
Rating (1-5)

**2**

SECTION

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-165

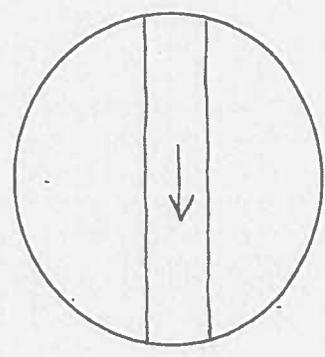
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
 DATE: 8/1/11 WEATHER: Sunny TIME: \_\_\_\_\_ INSPECTOR: Jan/ERC

LOCATION DATA:  
 STREET Wauusey Ave. (Address # & Street or Closest Intersection)  
 BURIED: Yes/ No PAVED AREA:  Yes/No SHEETING: Yes/No PONDING: Yes/No Depth \_\_\_ in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One)  1 2 3 4 5  
 COVER TYPE: None  Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N Height \_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N Height \_\_\_ in.  
 CONDITION OF RIM: (Circle One)  1 2 3 4 5  
 FRAME CONDITION: (Circle One)  1 2 3 4 5

RISER CONDITION: (Circle One)  1 2 3 4 5

EVIDENCE OF INFLOW? Y/N  
 RISERS ARE:  BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT  4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK  PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 10.08 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One)  1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One)  1 2 3 4 5  
 NUMBER OF SECTIONS: 2  3 4

CONDITION OF INVERTS: (Circle One)  1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF TABLE: (Circle One)  1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N

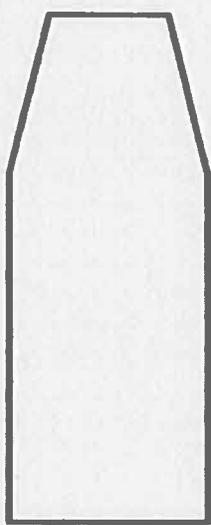
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER:  Y/ N Est. I/I \_\_\_\_\_ JOINTS:  Y/ N Est. I/I \_\_\_\_\_  
 FRAME:  Y/ N Est. I/I \_\_\_\_\_ INVERTS:  Y/ N Est. I/I \_\_\_\_\_  
 WALLS:  Y/ N Est. I/I \_\_\_\_\_ TABLES:  Y/ N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
 Rating (1-5)

**APPENDIX B**  
**Pipeline Rehabilitation Table**



**AREA A PIPELINE REHABILITATION TABLE**  
Town of Trumbull, CT  
Sewer System Rehabilitation Project 1

Street	Starting SMH	Ending SMH	Pipe Diameter	Length of Pipe	Existing Pipe Material	Defect Grade	Defect Notes	Type of Repair	Typical Joint Spacing	Repair (distance to defect measured from video inspection start manhole)
Arrowhead Rd	5-175	5-174	8	99.2	ACP	2	Light Roots at Joint.	Chemical Grout	13	test and seal main
Arrowhead Rd	5-176	5-175	8	249.8	ACP	2	Heavy roots and grit at first joint in pipe.	Chemical Grout	13	test and seal main
Country Ln	5-234	5-233	8	174.2	ACP	2	Infiltration at pipe connection; roots	Lateral liner	13	top hat lateral liner at 107.5
Craig Ln	5-190	5-195	8	100.1	ACP	2	Infiltration at pipe connection	Chemical Grout	13	test and seal main, test and seal lateral at 95.2
Deerfield Dr	5-58	5-57	12	300.1	ACP	5	Infiltration at joint and calcium build up	Chemical Grout, Cure in Place	13	test and seal main, spot liner at 93.9 - 4' long
Deerfield Dr	5-243	5-243	12	227.9	ACP	4	Infiltration runner from small hole at connection	Lateral liner	13	top hat lateral liner at 7.6'
Eastwood Rd	5-114	5-113	8	172.4	ACP	5	Offset joint; infiltration gusher	Chemical Grout	13	test and seal main
Elaine Pl	5-250	5-251	8	308.2	ACP	2	Deposits; Infiltration weeper	Cure in Place	13	spot liner at 305 - 6' long
Elaine St	5-252	5-250	8	153.9	ACP	5	Infiltration Gusher at joint	Cure in Place, Special Liner	13	spot liner at 144 - 4' long, "lateral lining" of manhole drop connection
Elaine St	5-264	5-263	8	78.1	ACP	3	Infiltration dripper; joint offset	Cure in Place	13	spot liner at 140 - 6' long
Evergreen Ln	5-187	5-186	8	301.2	ACP	2	Infiltration at joint in lateral; capped connection	Chemical Grout	13	test and seal main, test and seal lateral at 7'
Greenfield Dr	5-211	5-211	8	235.3	ACP	2	Leaking from joint inside lateral	Chemical Grout	13	test and seal main, test and seal lateral at 179.3
Grove St	5-315	5-309	8	297.3	ACP	5	Infiltration gusher at joint	Cure in Place	13	spot liner at 3 - 4' long
Main St	5-263	5-259	8	266.2	ACP	2	Leaking at pipe connection	Chemical Grout	13	test and seal main, test and seal lateral at 57'
Orchard St	5-320	5-318	8	115.8	ACP	5	Infiltration gusher at joint	Cure in Place	13	spot liner at 110 - 4' long
Garden St ESMT	5-85	5-84	10	285.2	ACP	5	Infiltration Gusher at joint	Cure in Place	13	Spot liner at 118 - 6' long
Rutlee Dr	5-123	5-122	12	301.1	ACP	4	Visible infiltration plus extra flow	Chemical Grout	13	test and seal main, test and seal lateral at 236.4'
Thorburn Ave	5-118	5-117	8	289	ACP	5	deposits blocking 30% of pipe heavy infiltration at lateral	Chemical Grout	13	test and seal main, test and seal lateral at 133.2', test and seal lateral at 265'
Whalley Ave	5-54	5-53	8	268	ACP	5	Broken Pipe; infiltration	Cure in Place 2x	13	spot liner at 133 - 4' long, spot liner at 265 - 4' long
Williams Rd	5-55	5-54	8	301.2	ACP	2	Infiltration at first joint.	Chemical Grout	13	test and seal main, test and seal lateral at 298.7'
Williams Rd	5-277	5-276	12	208.1	ACP	4	Infiltration runner with deposits and attached encrustation.	Cure in Place	13	spot liner at 12 - 4' long
Woodridge Circle	5-279	5-278	8	279.6	ACP	4	Infiltration Runner with Fine Roots	Cure in Place	13	spot liner at 31 - 4' long
Woodridge Circle	5-160	5-153	8	132	ACP	2	Mineral Deposits at Joints throughout section of pipe.	Chemical Grout	13	test and seal main
Woodside Ave	5-165	5-164	8	219.8	ACP	4	Infiltration Runner at Joint	Chemical Grout	13	test and seal main
Woodside Ave	5-167	5-166	8	269.2	ACP	2	Mineral Deposits at Majority of Joints throughout pipe	Chemical Grout	13	test and seal main, test and seal capped lateral at 26.4
Woodside Ave	5-167	5-166	8	261.9	ACP	2	Mineral Deposits at Majority of Joints throughout pipe	Chemical Grout	13	test and seal main, test and seal lateral at 179.1'



**APPENDIX C**  
**CCTV Inspection Reports**





**Green Mountain Pipeline Services, Inc.**  
 244 Waterman Road  
 So. Royalton, VT 05068  
 Tel: 802-763-7022  
 Fax: 802-763-7048  
 E-mail: dick.gmps@myfairpoint.net

## Inspection Report / Inspection: 1

Date <b>10/18/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>185</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/18/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Arrowhead Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-175</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-174</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>99.20 ft</b>	Section Length <b>99.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #12</b>	Lining Method <b>Other</b>

Add. Information :

1:255	Position	Code	Observation	Photo
	0 00	AMH	Upstream Manhole, Survey Begins / MH 5-175	
	5 60	TFA	Tap Factory Made Active. at 10 o'clock, 6", within 8 inches of joint: NO	
	25 40	TFA	Tap Factory Made Active. at 10 o'clock, 6", within 8 inches of joint: NO	
	99.20	AMH	Downstream Manhole, Survey Ends / MH 5-174	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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 So. Royalton, VT 05068  
 Tel: 802-763-7022  
 Fax: 802-763-7048  
 E-mail: dick.gmps@myfairpoint.net

## Inspection Report / Inspection: 1

Date <b>10/18/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>186</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/18/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arrowhead Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-176</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-175</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>249.80 ft</b>	Section Length <b>249.80 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #12</b>	Lining Method <b>Other</b>

Add. Information : **Manhole 5-175 Not Found.**

1:630	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-176	
	31.20	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	86.60	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	116.20	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	237.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	249.80	AMH	Downstream Manhole, Survey Ends / MH 5-175	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/13/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Light Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>235</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Bailey St</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-224</b>	Downstream MH <b>5-223</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>299.20 ft</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>		
	Length surveyed <b>299.20 ft</b>		

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #7</b>	Lining Method <b>Other</b>

Add. Information :

1:750	Position	Code	Observation	Photo
	<b>5-224</b>			
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-224	
	0.10	HSV	Hole Soil Visible, from 10 to 12 o'clock, within 8 inches of joint YES / At Manhole	56_57_338_A.JPG
	19.10	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	22.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO / Continious Flow.	
	97.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continious Flow,	
	100.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	180.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	184.10	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	226.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continious Flow	
	267.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	299.20	AMH	Downstream Manhole, Survey Ends / MH 5-223	
	<b>5-223</b>			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	0000	5	0	5	5	0	5



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Bailey St</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>235</b>
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Photo: 56\_57\_338\_A.JPG, VCR No.: disc #7  
0.1FT, Hole Soil Visible, from 10 to 12 o'clock, within 8 inches of joint:  
YES



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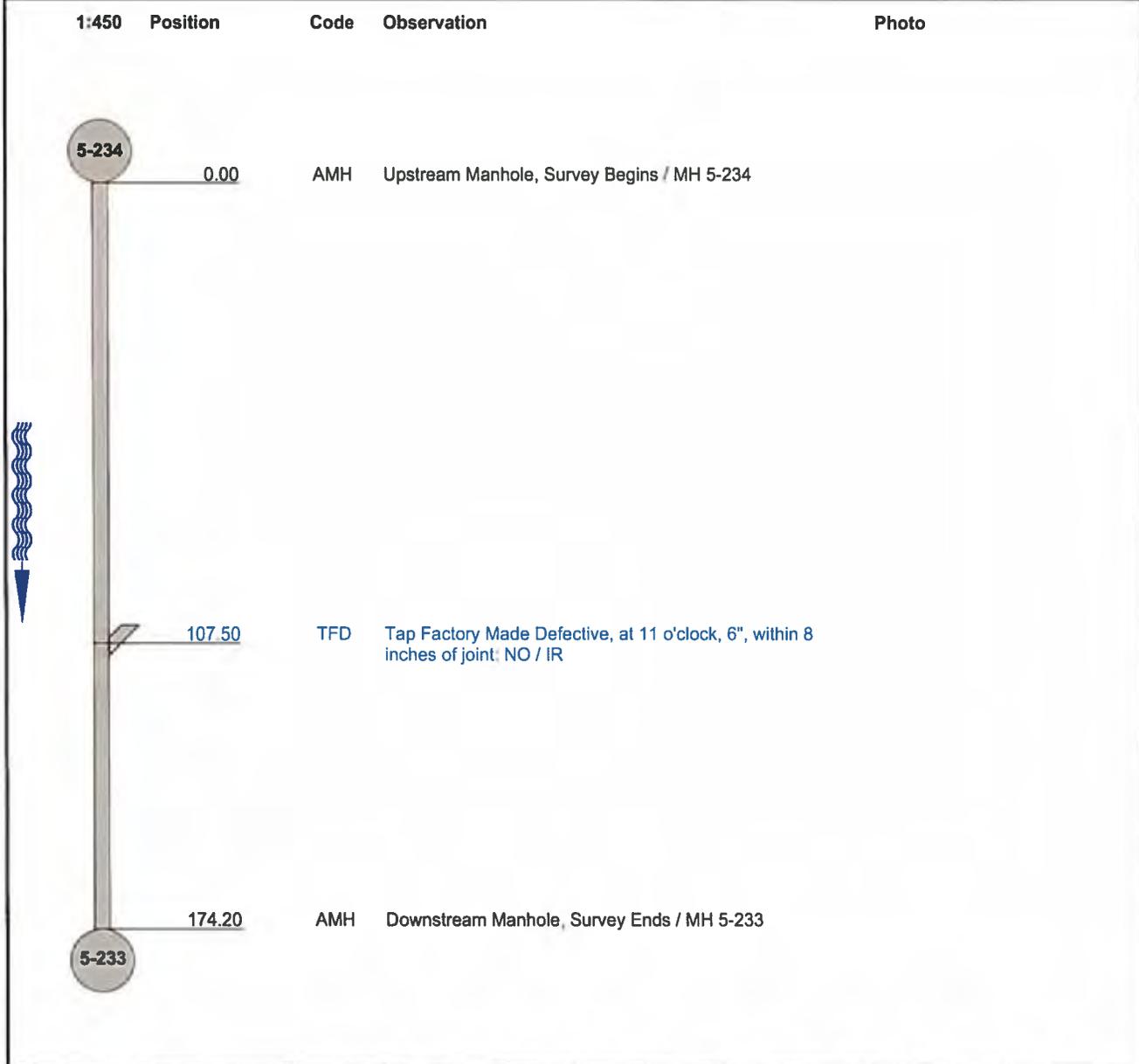
## Inspection Report / Inspection: 1

Date <b>10/11/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>244</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Country Ln</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Drainage Area	Upstream MH <b>5-234</b>	Downstream MH <b>5-233</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Length surveyed <b>174.20 ft</b>		Dir. of Survey <b>Downstream</b>	Section Length <b>174.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Year Laid	Year Rehabilitated	Tape / Media No. <b>disc #4</b>	Joint Length <b>12.00 ft</b>	Dia./Height <b>8 inch</b>
				Material <b>Asbestos Cement</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>10/11/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>201</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Craig Ln</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-190</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-195</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>100.10 ft</b>	Section Length <b>100.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #3</b>	Lining Method <b>Other</b>

Add. Information :

1:255	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 5-195	
	0.00	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / IG	
	23.60	TFA	Tap Factory Made Active, at 11 o'clock, 6", within 8 inches of joint: NO	
	85.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	100.10	AMH	Upstream Manhole, Survey Ends / MH 5-190	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>12/15/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>63</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/15/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Deerfield Dr</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-58</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>5-57</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>300.10 ft</b>	Section Length <b>300.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #22</b>	Lining Method <b>Other</b>

Add. Information :

1:750	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-58	
	51.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	93.40	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	93.90	B	Broken, at 12 o'clock, within 8 inches of joint: NO	<a href="#">232_233_1281_A.JPG</a>
	106.50	IG	Infiltration Gusher, from 12 to 01 o'clock, within 8 inches of joint: YES / IG	<a href="#">232_233_1282_A.JPG</a>
	175.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	243.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	300.10	AMH	Downstream Manhole, Survey Ends / MH 5-57	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	5100	5	5	10	5	5	5

### Inspection photos / Inspection: 1

City: <b>Trumbull, CT</b>	Street: <b>Deerfield Dr</b>	Date: <b>12/15/2011</b>	Pipe Segment Reference:	Section No.: <b>63</b>
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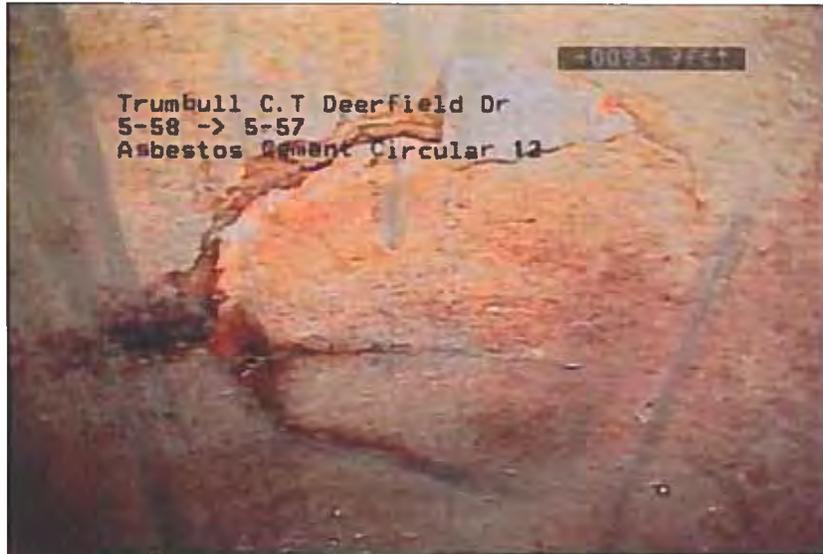


Photo: 232\_233\_1281\_A.JPG, VCR No.: disc #22  
93.9FT, Broken, at 12 o'clock, within 8 inches of joint: NO



Photo: 232\_233\_1282\_A.JPG, VCR No.: disc #22  
106.5FT, Infiltration Gusher, from 12 to 01 o'clock, within 8 inches of joint: YES



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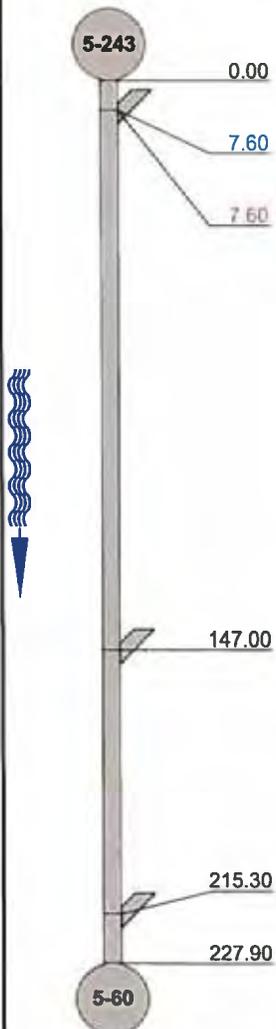
## Inspection Report / Inspection: 1

Date <b>10/19/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Light Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>255</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/19/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Deerfield Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-243</b>	Downstream MH <b>5-60</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>227.90 ft</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Joint Length <b>12.00 ft</b>	Dia./Height <b>8 inch</b>
Purpose of Survey <b>Routine Assessment</b>	Length surveyed <b>227.90 ft</b>	Material <b>Asbestos Cement</b>	Lining Method <b>Other</b>
Year Laid			
Year Rehabilitated			
Tape / Media No. <b>disc #13</b>			

Add. Information :

1:570	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-243	
	7.60	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO	<a href="#">114_115_739_A.JPG</a>
	7.60	IR	Infiltration Runner, at 10 o'clock, within 8 inches of joint NO	<a href="#">114_115_741_A.JPG</a>
	147.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	215.30	TSA	Tap Saddle Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	227.90	AOC	Drop Connection, Survey Ends / MH 5-60	



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4121	0	6	6	0	3	3

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Deerfield Dr</b>	Date : <b>10/19/2011</b>	Pipe Segment Reference :	Section No : <b>255</b>
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Photo: 114\_115\_739\_A.JPG, VCR No.: disc #13  
 7.6FT, Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO



Photo: 114\_115\_741\_A.JPG, VCR No.: disc #13  
 7.6FT, Infiltration Runner, at 10 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>119</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Eastwood Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-114</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-113</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>172.40 ft</b>	Section Length <b>172.40 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:435	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-114	
	1.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	14.70	ISSRL	Intruding Sealing Ring Loose/Poorly Fitting, 5 % of Cross Sectional Area, From 03 to 05 o'clock	
	14.70	IG	Infiltration Gusher, from 03 to 05 o'clock, within 8 inches of joint: YES / Infiltration Gusher.	14_15_105_A.jpg
	38.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continious Flow.	
	167.20	MWLS	Water Level, Sag In Pipe, 10 % of Cross Sectional Area / Start	
	172.40	MWLS	Water Level, Sag In Pipe, 10 % of Cross Sectional Area / Finish	
	172.40	AMH	Downstream Manhole, Survey Ends / MH 5-113	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5123	0	11	11	0	2.75	2.75

**Inspection photos / Inspection: 1**

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>119</b>
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Photo: 14\_15\_105\_A.jpg, VCR No.: Tape 1  
14.7FT, Infiltration Gusher, from 03 to 05 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/19/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Light Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>264</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/19/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Elaine PI</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-251</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-250</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>308.20 ft</b>	Section Length <b>308.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #13</b>	Lining Method <b>Other</b>

Add. Information :

1:780	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 5-250	
	109.60	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	165.00	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	247.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO / Continuous Flow.	
	289.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	293.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	304.80	DAE	Deposits Attached Encrustation, 5 % of Cross Sectional Area, From 12 to 12 o'clock, within 8 inches of joint: YES	118_119_768_A.JPG
	304.80	IW	Infiltration Weeper, from 12 to 12 o'clock, within 8 inches of joint: YES	118_119_769_A.JPG
	308.20	AMH	Upstream Manhole, Survey Ends / MH 5-251	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2200	0	4	4	0	2	2

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Elaine Pl</b>	Date : <b>10/19/2011</b>	Pipe Segment Reference :	Section No : <b>264</b>
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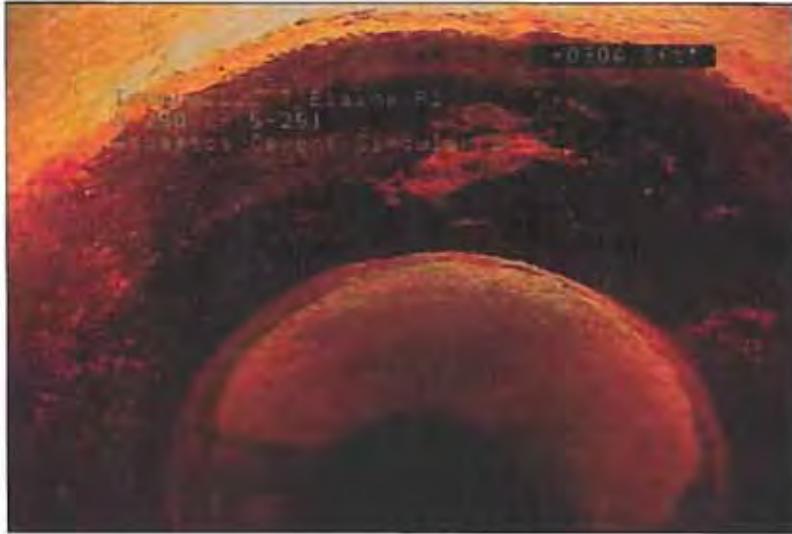


Photo: 118\_119\_768\_A.JPG, VCR No.: disc #13  
304.8FT, Deposits Attached Encrustation, 5 % of Cross Sectional Area, From 12 to 12 o'clock, within 8 inches of joint: YES



Photo: 118\_119\_769\_A.JPG, VCR No.: disc #13  
304.8FT, Infiltration Weeper, from 12 to 12 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/19/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Light Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>265</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/19/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Elaine Pl</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-252</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>5-250</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>153.90 ft</b>	Section Length <b>153.90 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #13</b>	Lining Method <b>Other</b>

Add. Information :

1:390	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-252	
	124.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	144.40	CC	Crack Circumferential, from 12 to 12 o'clock, within 8 inches of joint: NO	117_118_757_A.JPG
	144.40	IG	Infiltration Gusher, from 12 to 12 o'clock, within 8 inches of joint: NO	117_118_758_A.JPG
	153.90	AOC	Drop Connection, Survey Ends / MH 5-250	
	153.90	IG	Infiltration Gusher, at 01 o'clock, within 8 inches of joint NO / In The Drop Connection	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
1100	5200	1	10	11	1	5	3.67

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Elaine Pl</b>	Date : <b>10/19/2011</b>	Pipe Segment Reference :	Section No : <b>265</b>
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Photo: 117\_118\_757\_A.JPG, VCR No.: disc #13  
144.4FT, Crack Circumferential, from 12 to 12 o'clock, within 8 inches of joint: NO

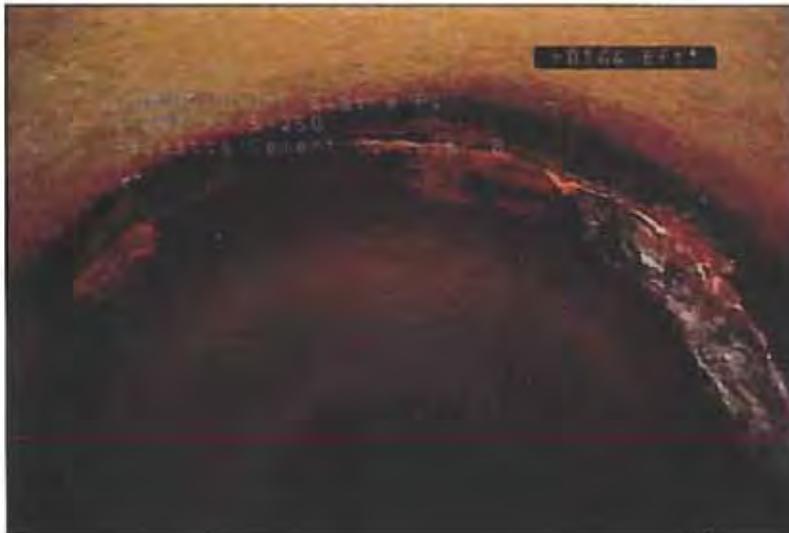


Photo: 117\_118\_758\_A.JPG, VCR No.: disc #13  
144.4FT, Infiltration Gusher, from 12 to 12 o'clock, within 8 inches of joint: NO



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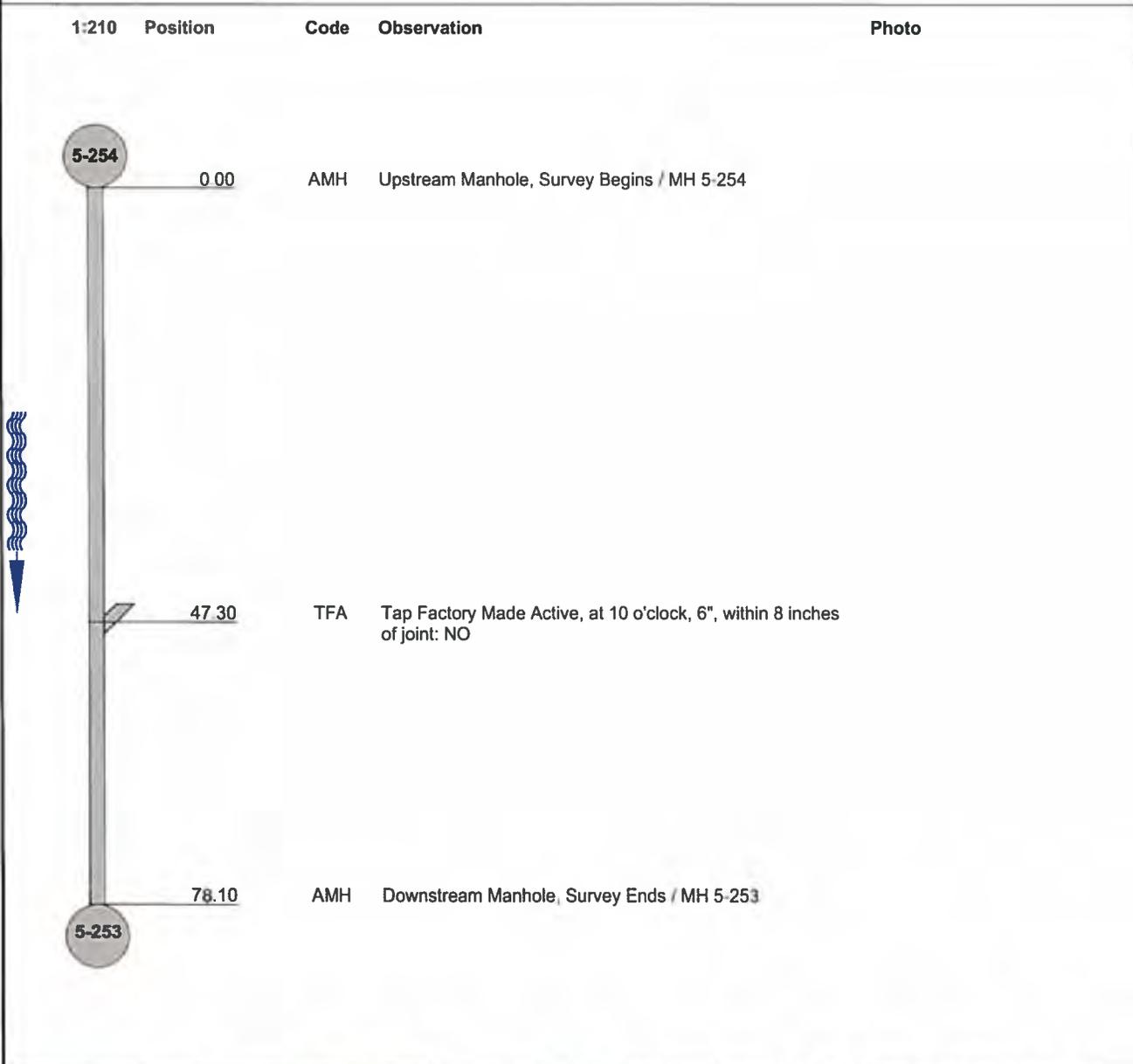
## Inspection Report / Inspection: 1

Date <b>10/19/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Light Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>267</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/19/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Elaine Pl</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-254</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-253</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>78.10 ft</b>	Section Length <b>78.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>dlsc #13</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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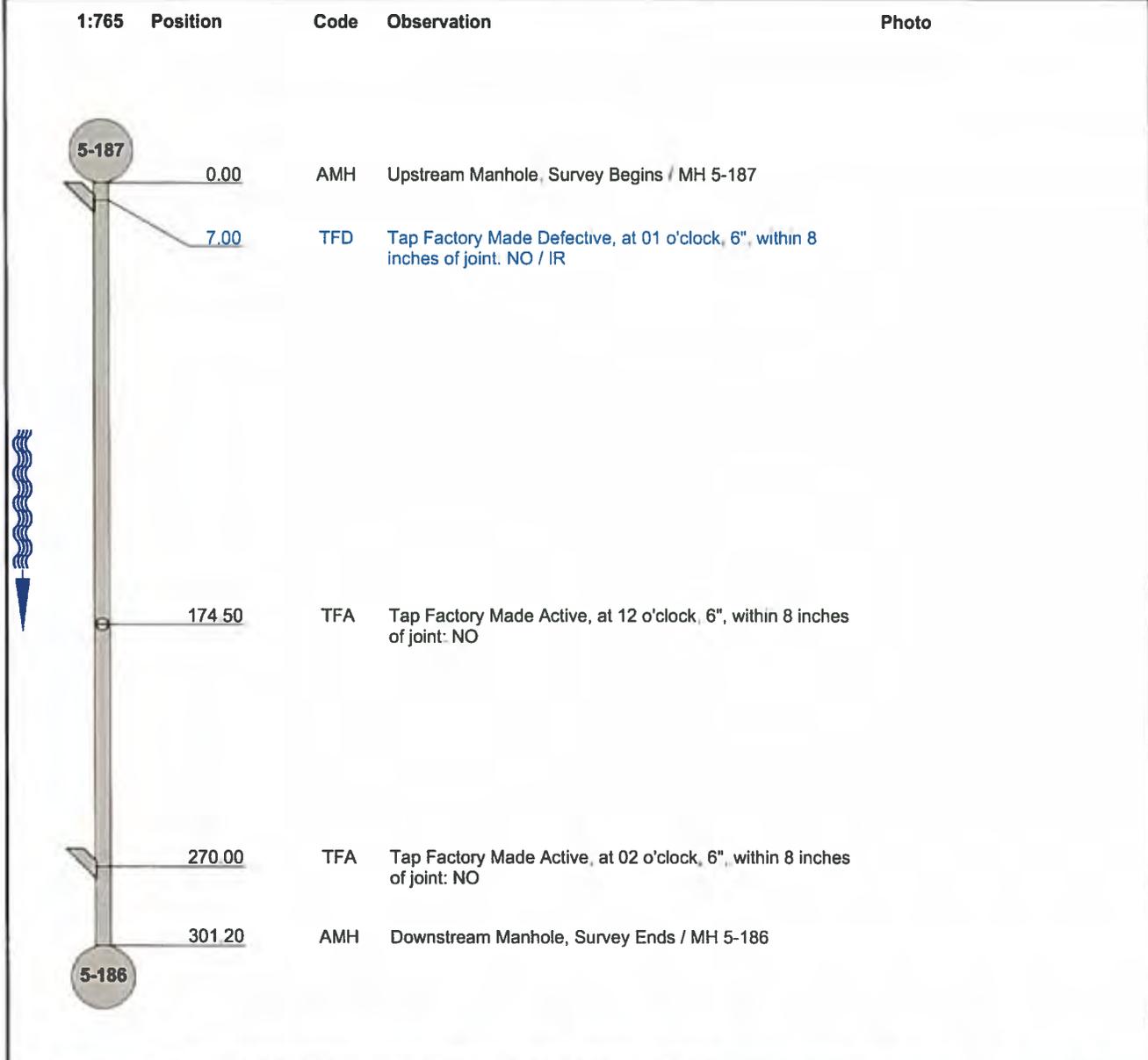
## Inspection Report / Inspection: 1

Date <b>10/11/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>197</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Evergreen Ln</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-187</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-186</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>301.20 ft</b>	Section Length <b>301.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #3</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>10/17/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>222</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/17/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Greenfield Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-211</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-210</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>235.30 ft</b>	Section Length <b>235.30 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #10</b>	Lining Method <b>Other</b>

Add. Information :

1:600	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 5-210	
	130.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	179.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	228.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	231.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	235.30	AMH	Upstream Manhole, Survey Ends / MH 5-211	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>11/15/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>328</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/15/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Grove St</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-315</b>	Downstream MH <b>5-309</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>297.30 ft</b>
Loc. details	Flow Control <b>Not Controlled</b>		
Location Code <b>Light Highway</b>	Length surveyed <b>297.30 ft</b>		

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape #4</b>	Lining Method <b>Other</b>

Add. Information :

1:750	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-315	
	3.20	IG	Infiltration Gusher, at 02 o'clock, within 8 inches of joint <b>YES</b>	<a href="#">73_74_520_A.JPG</a>
	95.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: <b>NO</b>	
	227.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: <b>NO</b>	
	297.30	AMH	Downstream Manhole, Survey Ends / MH 5-309	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5100	0	5	5	0	5	5



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Grove St</b>	Date : <b>11/15/2011</b>	Pipe Segment Reference :	Section No : <b>328</b>
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Photo: 73\_74\_520\_A.JPG, VCR No.: Tape #4  
3.2FT, Infiltration Gusher, at 02 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>11/16/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>275</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/16/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Main St</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-263</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>5-259</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>266.20 ft</b>	Section Length <b>266.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape #6</b>	Lining Method <b>Other</b>

Add. Information :

1:675	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-263	
	57.00	TSA	Tap Saddle Active, at 09 o'clock, 6", within 8 inches of joint: NO	
	157.10	TFC	Tap Factory Made Capped, at 02 o'clock, 6", within 8 inches of joint: NO	
	266.20	AMH	Downstream Manhole, Survey Ends / MH 5-259	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>11/15/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>332</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/15/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Orchard St</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-320</b>	Downstream MH <b>5-318</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>115.80 ft</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Length surveyed <b>115.80 ft</b>	

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 Inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape #5</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5100	0	5	5	0	5	5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Orchard St</b>	Date : <b>11/15/2011</b>	Pipe Segment Reference :	Section No : <b>332</b>
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Photo: 79\_80\_558\_A.JPG, VCR No.: Tape #5  
111.2FT, Infiltration Gusher, at 06 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>11/16/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Heavy Rain</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>92</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/16/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Garden St</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-85</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-84</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>284.50 ft</b>	Section Length <b>285.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>10 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape #6</b>	Lining Method <b>Other</b>

Add. Information:

1:720	Position	Code	Observation	Photo
	0.70	AMH	Upstream Manhole, Survey Begins / MH 5-85	
	62.60	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	78.80	TFC	Tap Factory Made Capped, at 10 o'clock, 6", within 8 inches of joint: NO	
	118.20	IG	Infiltration Gusher, from 08 to 11 o'clock, within 8 inches of joint: YES	118_119_790_A.JPG
	118.20	RPP	Repair Patch, at 12 o'clock, within 8 inches of joint: YES / PR	118_119_791_A.JPG
	120.30	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: YES / broke lateral	
	182.30	TBA	Tap Break-In Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	200.60	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	280.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	285.20	AMH	Downstream Manhole, Survey Ends / MH 5-84	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5121	0	7	7	0	3.5	3.5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Garden St</b>	Date : <b>11/16/2011</b>	Pipe Segment Reference :	Section No : <b>92</b>
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Photo: 118\_119\_790\_A.JPG, VCR No.: Tape #6  
118.2FT, Infiltration Gusher, from 08 to 11 o'clock, within 8 inches of joint: YES



Photo: 118\_119\_791\_A.JPG, VCR No.: Tape #6  
118.2FT, Repair Patch, at 12 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/13/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>52</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Enivornmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/13/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Rutlee Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-48</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-47</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>301.10 ft</b>	Section Length <b>301.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #17</b>	Lining Method <b>Other</b>

Add. Information :

1:765	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-48	
	67.80	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	97.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	140.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	236.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	297.90	TFC	Tap Factory Made Capped, at 03 o'clock, 8", within 8 inches of joint: NO	
	301.10	AMH	Downstream Manhole, Survey Ends / MH 5-47	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>AS</b>	Pipe Segment Reference	Section No. <b>130</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Thorburn Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-123</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-122</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>263.60 ft</b>	Section Length <b>263.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information : **Will Complete Inspection From Opposite Direction.**

1:660	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-123	
	7.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	7.70	MWM	Water Mark, 50 % of Cross Sectional Area / Continious Water Mark.	
	17.50	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / Deposits Attached Encrustation.	
	117.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	133.20	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / Infiltration Runner.	
	162.10	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continious Flow.	
	191.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	258.40	TFC	Tap Factory Made Capped, at 10 o'clock, 6", within 8 inches of joint: NO	
	263.60	TBI	Tap Break-In Intruding, at 10 o'clock, 6", 3", within 8 inches of joint: NO	
	263.60	TBD	Tap Break-In Defective, at 10 o'clock, 6", within 8 inches of joint: NO / Infiltraton Gusher. Deposits Attached Encrustation 30%.	
	263.60	IG	Infiltration Gusher, at 10 o'clock, within 8 inches of joint: NO / At Connection.	10_11_79_A.jpg
	263.60	DAE	Deposits Attached Encrustation, 30 % of Cross Sectional Area, at 10 o'clock, Within 8 inches of joint: NO	10_11_80_A.jpg
	263.60	MSA	Survey Abandoned / Due To Deposits.	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5141	0	21	21	0	3	3

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Thorburn Ave</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>130</b>
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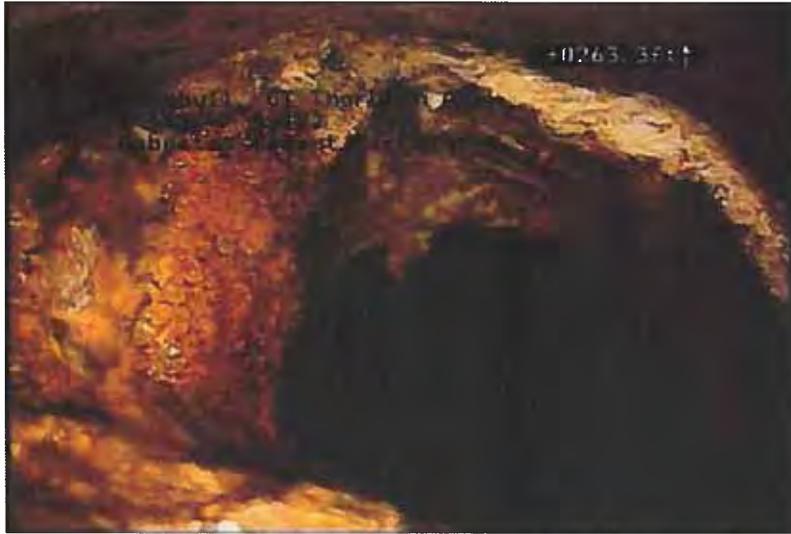


Photo: 10\_11\_79\_A.jpg, VCR No.: Tape 1  
263.6FT, Infiltration Gusher, at 10 o'clock, within 8 inches of joint: NO



Photo: 10\_11\_80\_A.jpg, VCR No.: Tape 1  
263.6FT, Deposits Attached Encrustation, 30 % of Cross Sectional Area, at 10 o'clock, Within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>131</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, Ct</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Thorburn Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-123</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-122</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>25.40 ft</b>	Section Length <b>25.40 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information : **Complete's Inspection.**

1:75	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 5-122	
	7.50	MWL	Water Level, 5 % of Cross Sectional Area	
	7.50	MWM	Water Mark, 5 % of Cross Sectional Area	
	25.40	DAE	Deposits Attached Encrustation, 30 % of Cross Sectional Area, At 02 o'clock, Within 8 inches of joint: NO	11_12_86_A.jpg
	25.40	MSA	Survey Abandoned / Due To Deposits. Complete's Inspection.	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4122	0	8	8	0	2.67	2.67



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Thorburn Ave</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>131</b>
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Photo: 11\_12\_86\_A.jpg, VCR No.: Tape 1  
25.4FT, Deposits Attached Encrustation, 30 % of Cross Sectional Area, At 02 o'clock, Within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/3/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>AS</b>	Pipe Segment Reference	Section No. <b>125</b>
Certificate No. <b>123456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/3/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Whalley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-118</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-117</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>268.00 ft</b>	Section Length <b>268.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>10.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:675	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-118	
	6.50	TFA	Tap Factory Made Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	39.00	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	93.70	TFA	Tap Factory Made Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	133.10	B	Broken, at 12 o'clock, within 8 inches of joint: NO / Infiltrating 700 GPD	1_1_6_A.JPG
	148.10	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	260.20	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	265.40	FC	Fracture Circumferential, from 10 to 02 o'clock, within 8 inches of joint: NO / Slow Drip.	
	268.00	AMH	Downstream Manhole, Survey Ends / MH 5-117	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5121	0000	7	0	7	3.5	0	3.5

**Inspection photos / Inspection: 1**

City : <b>Trumbull, CT</b>	Street : <b>Whalley Ave</b>	Date : <b>10/3/2011</b>	Pipe Segment Reference :	Section No : <b>125</b>
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Photo: 1\_1\_6\_A.JPG, VCR No.: Tape 1  
133.1FT, Broken, at 12 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

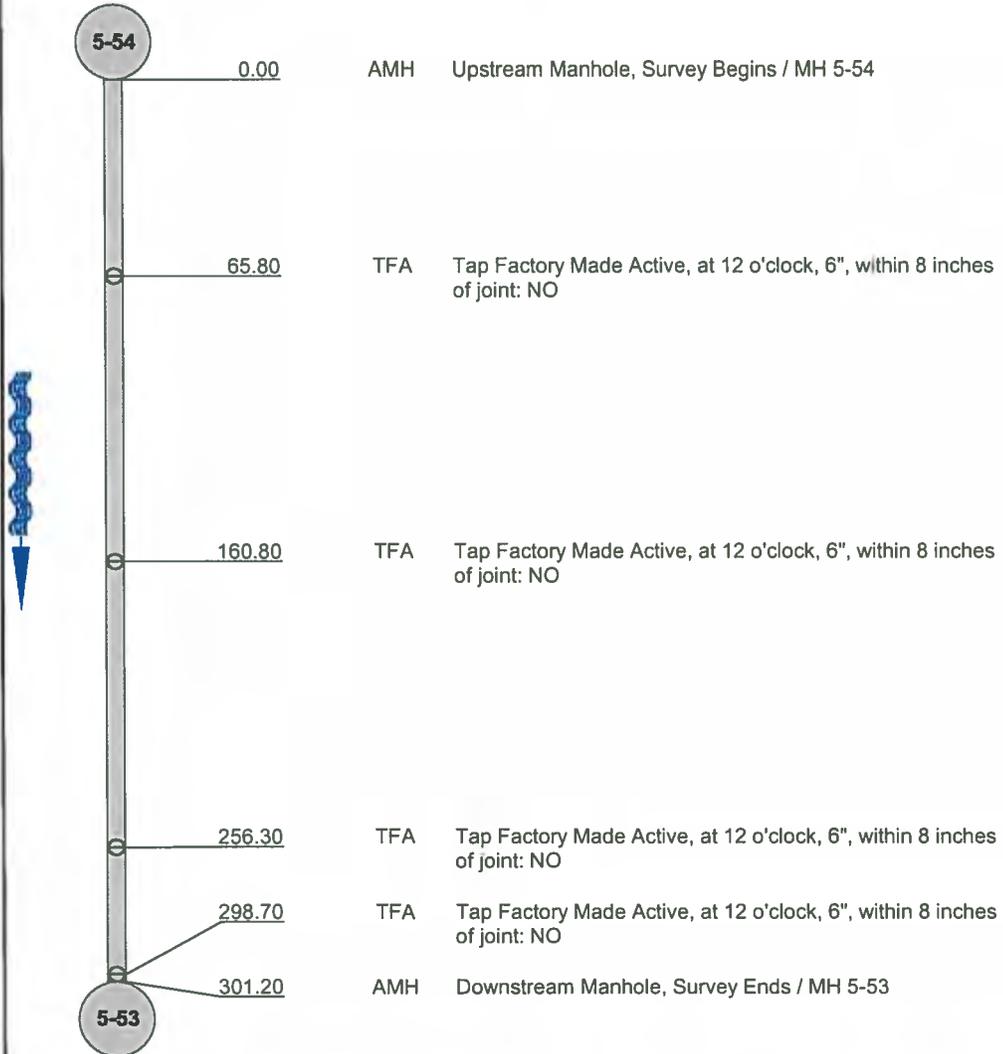
Date <b>12/15/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>59</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/15/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Williams Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-54</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-53</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>301.20 ft</b>	Section Length <b>301.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #21</b>	Lining Method <b>Other</b>

Add. Information

**1:765**    **Position**                      **Code**    **Observation**                                      **Photo**



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>12/15/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>60</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/15/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Williams Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-55</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-54</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>208.10 ft</b>	Section Length <b>208.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #21</b>	Lining Method <b>Other</b>

Add. Information :

1:525	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 5-54	
	12.70	DAE	Deposits Attached Encrustation, 15% of Cross Sectional Area, at 11 o'clock, within 8 inches of joint. YES / DAE	220_221_1222_A.JPG
	12.70	IR	Infiltration Runner, at 11 o'clock, within 8 inches of joint: YES / IR	359_360_2137_A.jpg
	175.80	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	208.10	AMH	Upstream Manhole, Survey Ends / MH 5-55	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4131	0	7	7	0	3.5	3.5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Williams Rd</b>	Date : <b>12/15/2011</b>	Pipe Segment Reference :	Section No : <b>60</b>
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Photo: 220\_221\_1222\_A.JPG, VCR No.: disc #21  
 12.7FT, Deposits Attached Encrustation, 15 % of Cross Sectional Area, at 11 o'clock, within 8 inches of joint: YES

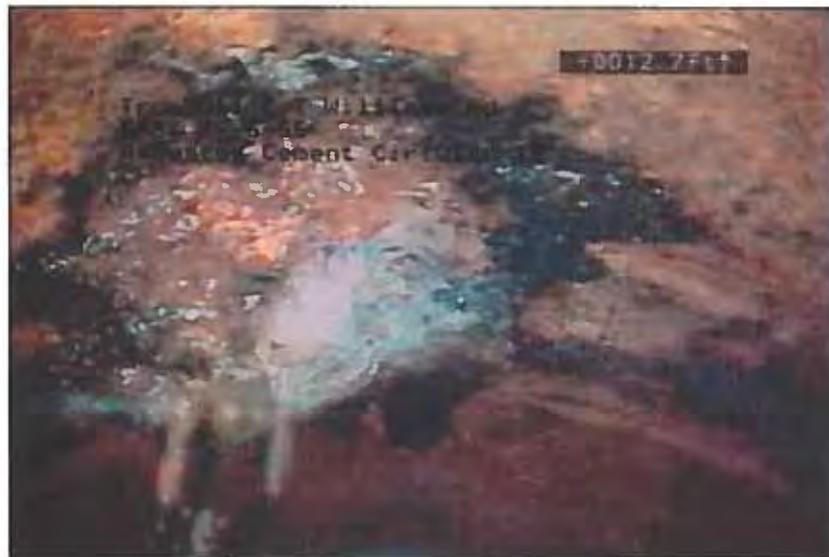


Photo: 359\_360\_2137\_A.jpg, VCR No.: disc #21  
 12.7FT, Infiltration Runner, at 11 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/17/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>289</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/17/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woodridge Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-277</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-276</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>279.60 ft</b>	Section Length <b>279.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #10</b>	Lining Method <b>Other</b>

Add. Information :

1:705	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-277	
	8.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	31.10	RFJ	Roots Fine Joint, from 12 to 12 o'clock, within 8 inches of joint: YES	<a href="#">84_85_541_A.JPG</a>
	31.10	IR	Infiltration Runner, from 12 to 12 o'clock, within 8 inches of joint: YES	<a href="#">84_85_542_A.JPG</a>
	76.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	183.40	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	279.60	AMH	Downstream Manhole, Survey Ends / MH 5-276	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4121	0	6	6	0	3	3

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Woodridge Cir</b>	Date : <b>10/17/2011</b>	Pipe Segment Reference :	Section No : <b>289</b>
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Photo: 84\_85\_541\_A.JPG, VCR No.: disc #10  
31.1FT, Roots Fine Joint, from 12 to 12 o'clock, within 8 inches of joint:  
YES



Photo: 84\_85\_542\_A.JPG, VCR No.: disc #10  
31.1FT, Infiltration Runner, from 12 to 12 o'clock, within 8 inches of joint: YES



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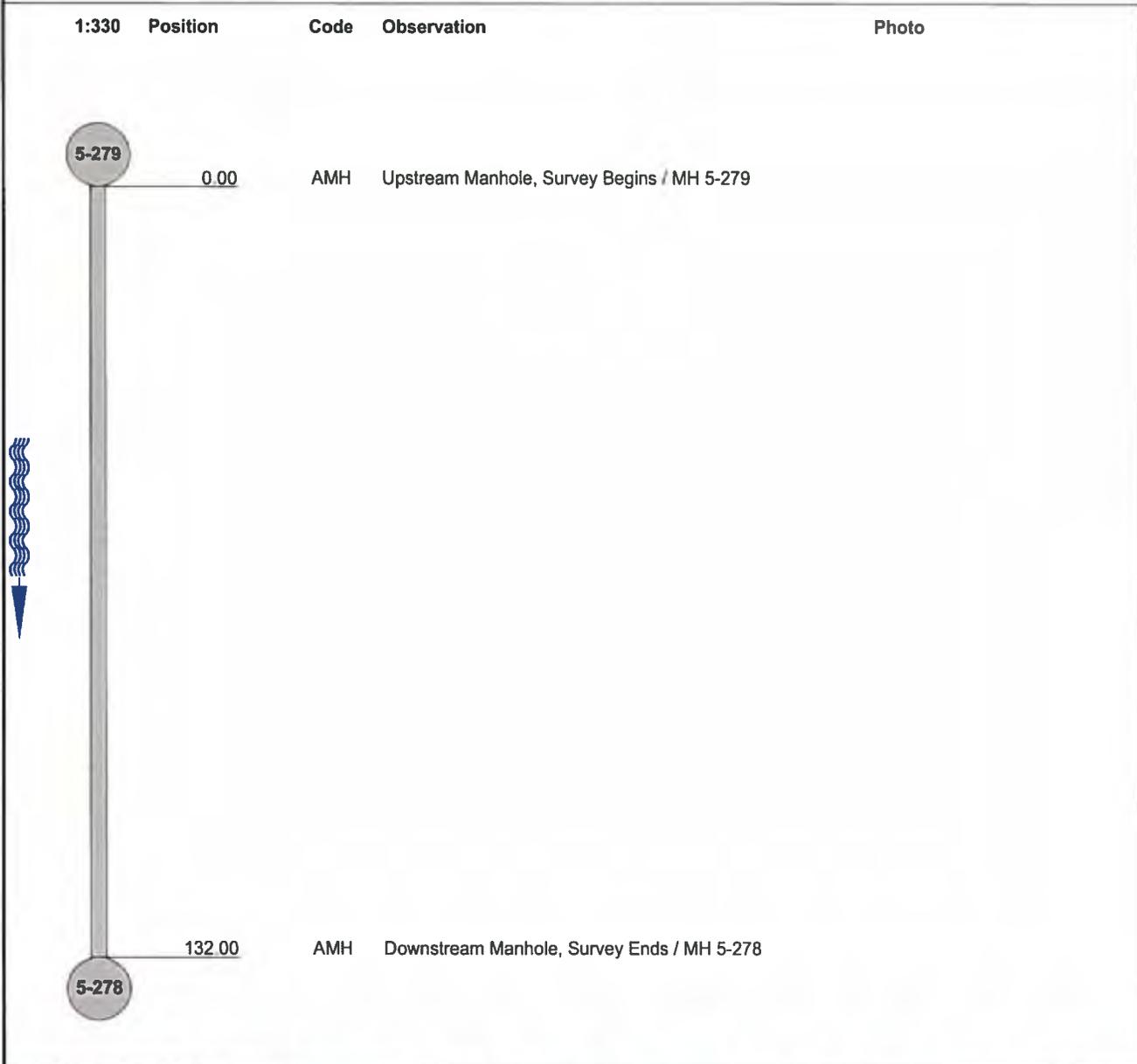
## Inspection Report / Inspection: 1

Date <b>10/17/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>291</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/17/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woodridge Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-279</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-278</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>132.00 ft</b>	Section Length <b>132.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #10</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/17/2011</b>	P/O. No. <b>10251B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>293</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/17/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woodridge Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-281</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-280</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>301.00 ft</b>	Section Length <b>301.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #9&amp;10</b>	Lining Method <b>Other</b>

Add. information :

1:765	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-281	
	2.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	3.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	44.40	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	74.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	77.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	93.60	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	123.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	178.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	253.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	299.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	301.00	AMH	Downstream Manhole, Survey Ends / MH 5-280	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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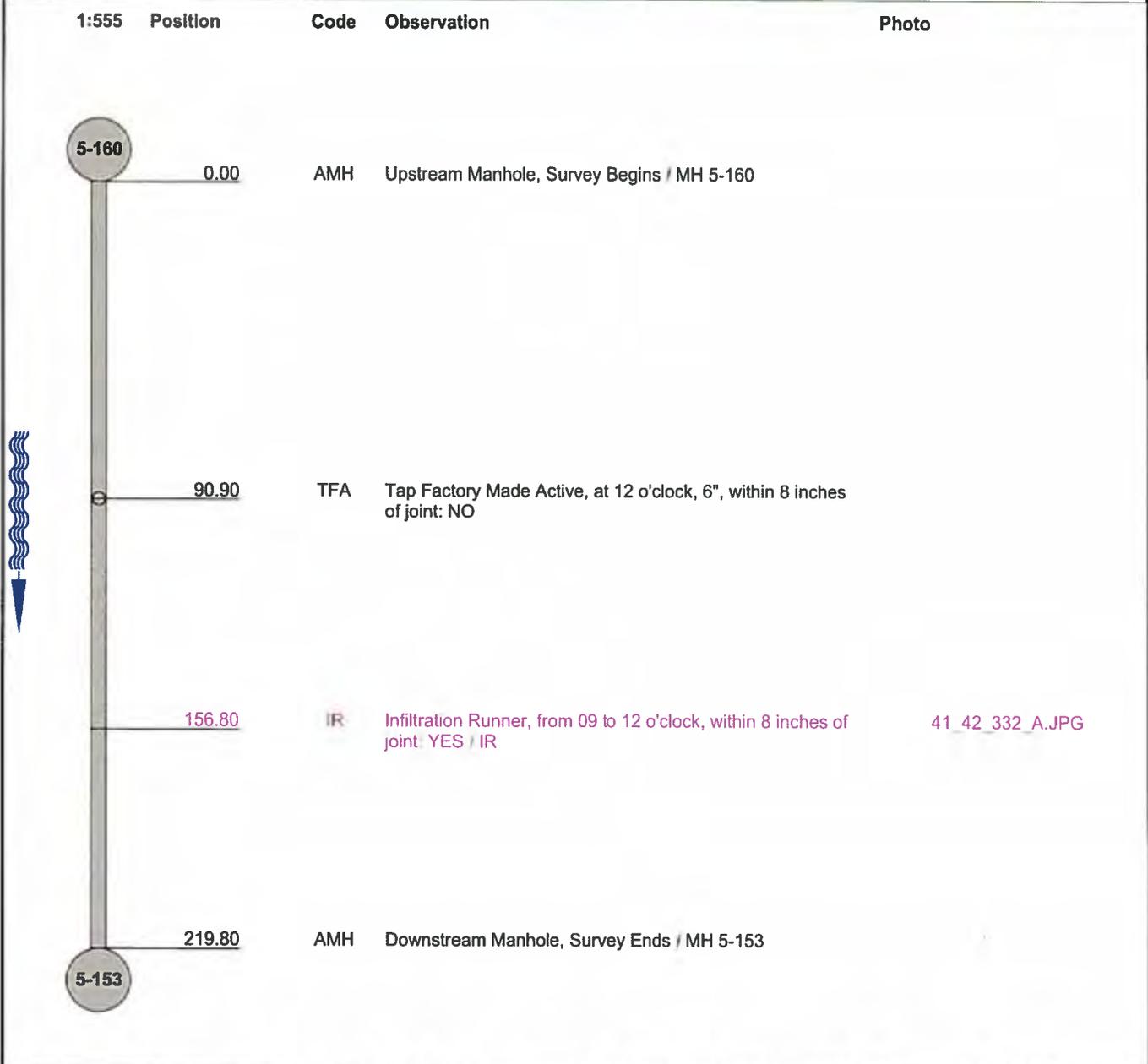
## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>170</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadiyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-160</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-153</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>219.80 ft</b>	Section Length <b>219.80 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4100	0	4	4	0	4	4

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Woolsley Ave</b>	Date : <b>10/6/2011</b>	Pipe Segment Reference :	Section No : <b>170</b>
-------------------------------	---------------------------------	----------------------------	--------------------------	----------------------------

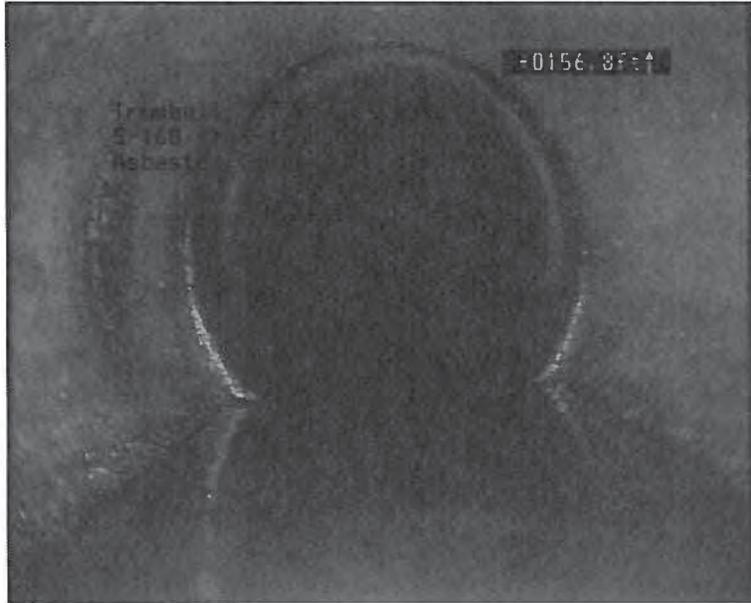


Photo: 41\_42\_332\_A.JPG, VCR No.: Tape 1  
156.8FT, Infiltration Runner, from 09 to 12 o'clock, within 8 inches of joint: YES



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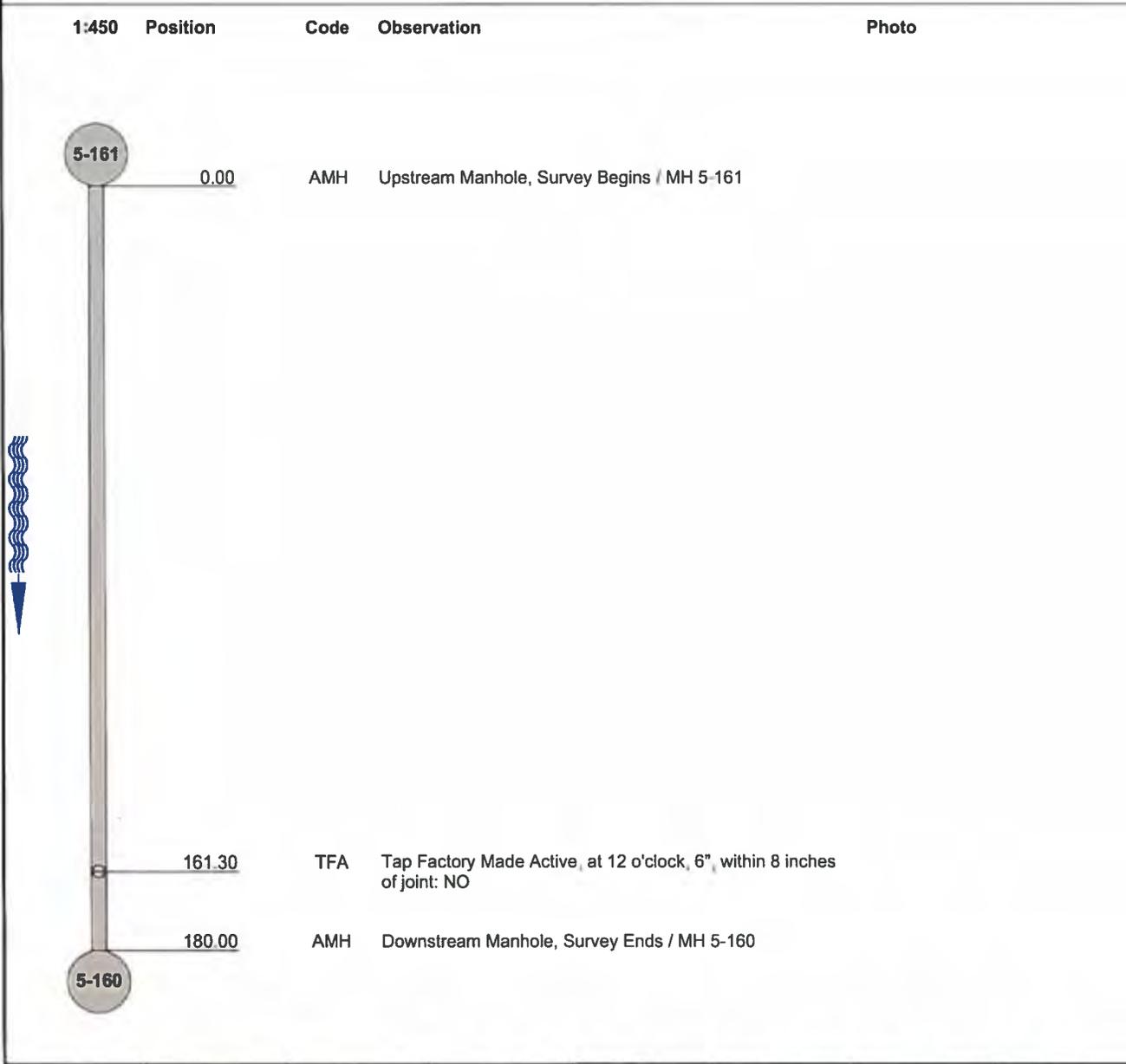
## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>171</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-161</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-160</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>180.00 ft</b>	Section Length <b>180.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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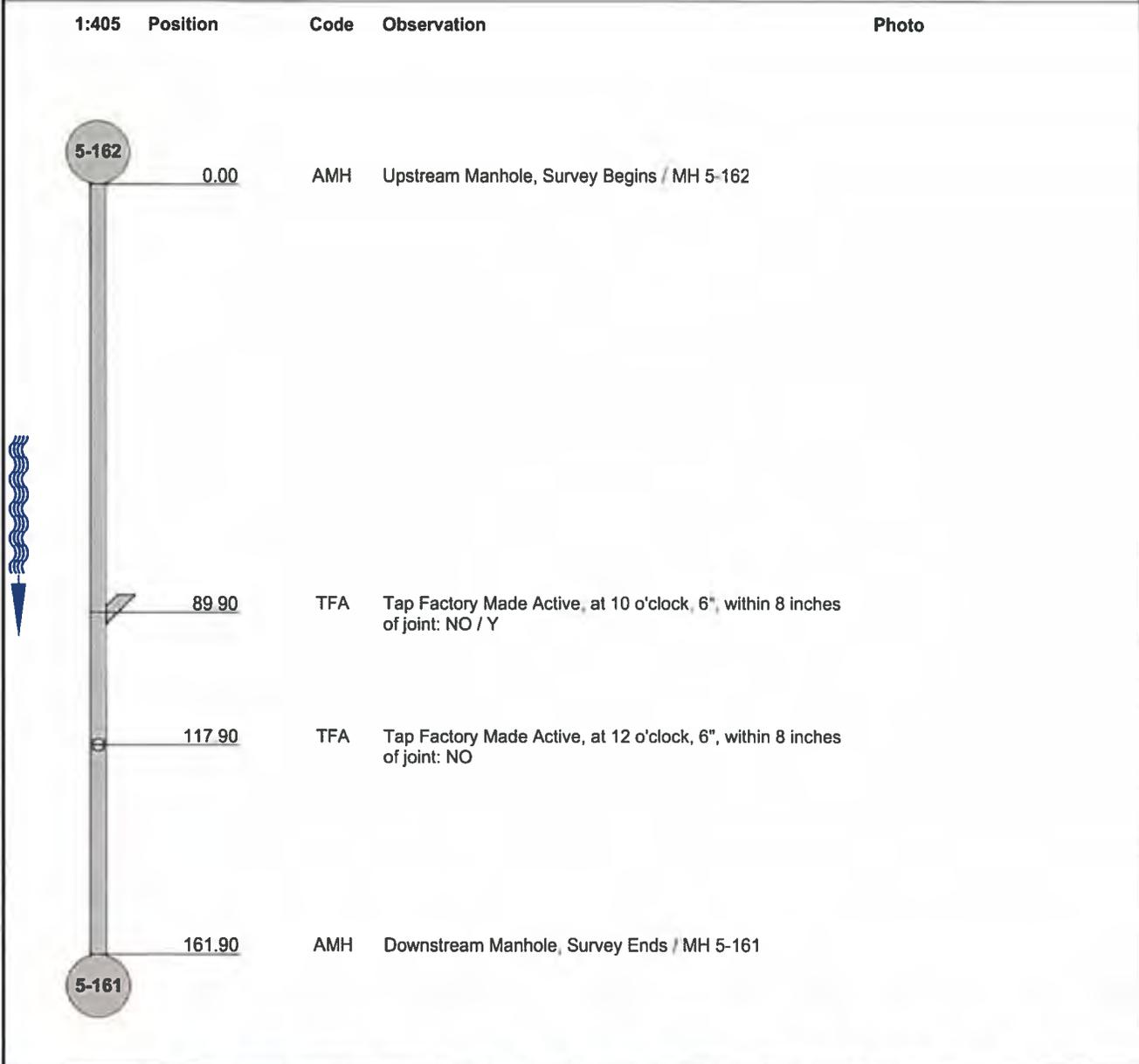
## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>172</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadiyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woosley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-162</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-161</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>161.90 ft</b>	Section Length <b>161.90 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>173</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-163</b>	Downstream MH <b>5-162</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>271.20 ft</b>
Loc. details	Flow Control <b>Not Controlled</b>		
Location Code <b>Light Highway</b>	Length surveyed <b>271.20 ft</b>		

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:690	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-163	
	22.50	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	38.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	67.30	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO / Continuous Flow.	
	211.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	227.10	TFA	Tap Factory Made Active, at 12 o'clock, 6" within 8 inches of joint: NO	
	271.20	AMH	Downstream Manhole, Survey Ends / MH 5-162	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>174</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-164</b>	Downstream MH <b>5-163</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>260.40 ft</b>
Loc. details	Flow Control <b>Not Controlled</b>		
Location Code <b>Light Highway</b>	Length surveyed <b>260.40 ft</b>		
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>		
Year Laid	Dia./Height <b>8 inch</b>		
Year Rehabilitated	Material <b>Asbestos Cement</b>		
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>		

Add. Information :

1:660	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-164	
	4.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	64.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	157.20	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO / DAE	
	185.90	TF	Tap Factory Made, at 12 o'clock, 6", within 8 inches of joint: NO / Possibly Capped.	
	214.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	260.40	AMH	Downstream Manhole, Survey Ends / MH 5-163	

QSR <b>0000</b>	QMR <b>2100</b>	SPR <b>0</b>	MPR <b>2</b>	OPR <b>2</b>	SPRI <b>0</b>	MPRI <b>2</b>	OPRI <b>2</b>
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## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>175</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-165</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-164</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>269.20 ft</b>	Section Length <b>269.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:675	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-165	
	26.40	TFC	Tap Factory Made Capped, at 10 o'clock, 6", within 8 inches of joint: NO	
	42.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	84.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	100.30	TFC	Tap Factory Made Capped, at 12 o'clock, 6", within 8 inches of joint: NO	
	167.60	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	209.30	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	212.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	269.20	AMH	Downstream Manhole, Survey Ends / MH 5-164	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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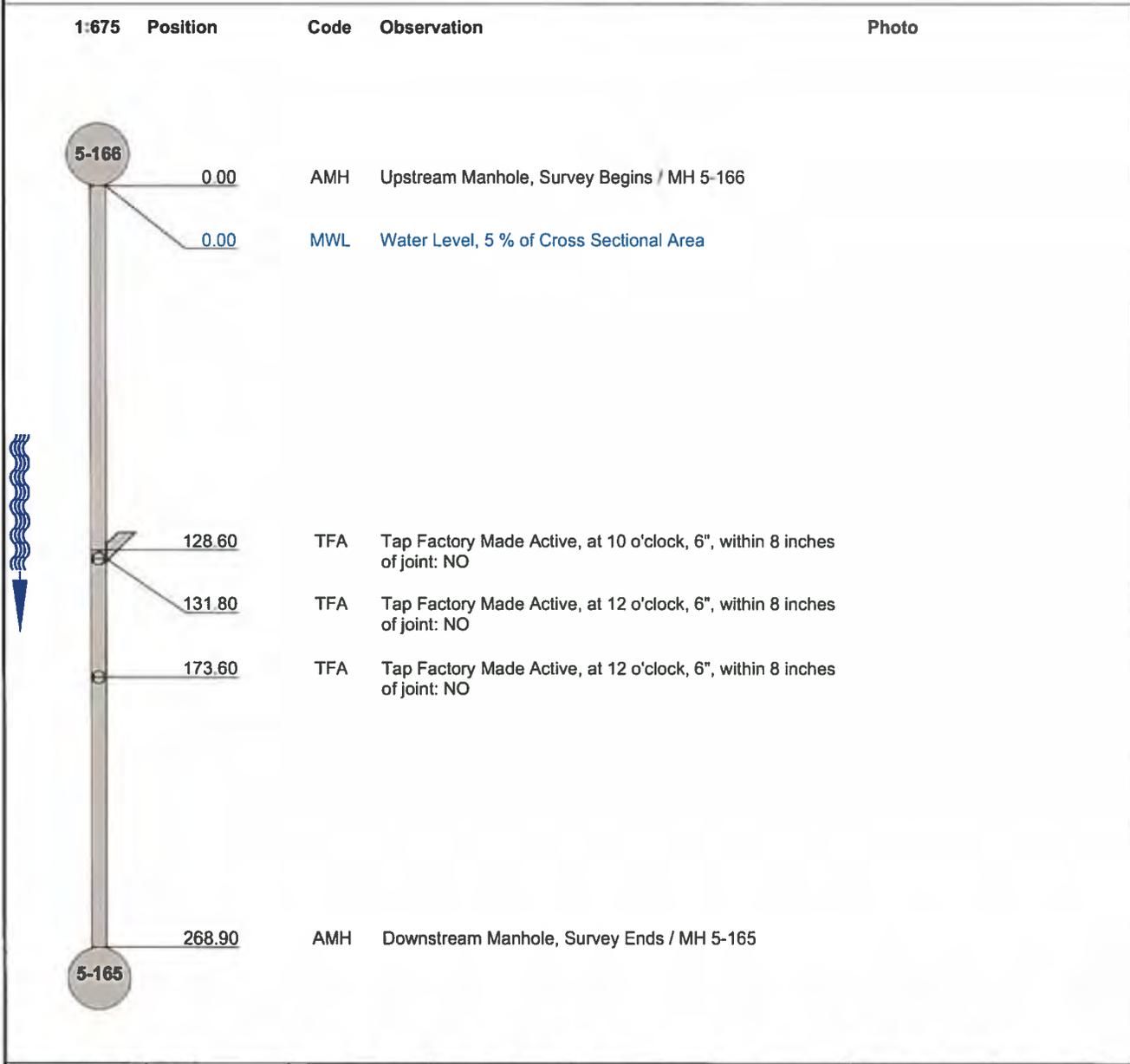
## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>176</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-166</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-165</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>268.90 ft</b>	Section Length <b>268.90 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>177</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Enviornmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-167</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-166</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>261.90 ft</b>	Section Length <b>261.90 ft</b>
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>	
Year Laid	Dia./Height <b>8 inch</b>	
Year Rehabilitated	Material <b>Asbestos Cement</b>	
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>	

Add Information :

1:660	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-167	
	0.00	MWL	Water Level, 5 % of Cross Sectional Area	
	63.40	TFC	Tap Factory Made Capped, at 12 o'clock, 6", within 8 inches of joint: NO	
	137.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	179.10	TFD	Tap Factory Made Defective, at 12 o'clock, 6", within 8 inches of joint: NO / IR	
	240.10	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	256.20	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	261.90	AMH	Downstream Manhole, Survey Ends / MH 5-166	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2200	0	4	4	0	2	2



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## Inspection Report / Inspection: 1

Date <b>10/6/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>178</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/6/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woolsley Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-168</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-167</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>280.50 ft</b>	Section Length <b>280.50 ft</b>
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>	
Year Laid	Dia./Height <b>8 Inch</b>	
Year Rehabilitated	Material <b>Asbestos Cement</b>	
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>	

Add. Information :

1:705	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole; Survey Begins / MH 5-167	
	3.20	MWL	Water Level, 5 % of Cross Sectional Area	
	43.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	123.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	127.00	TFA	Tap Factory Made Active, at 11 o'clock, 6", within 8 inches of joint: NO	
	168.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	235.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	277.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	280.50	AMH	Upstream Manhole, Survey Ends / MH 5-168	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2

**APPENDIX D**  
**Area B Manhole Inspection Reports**



**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-98

**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

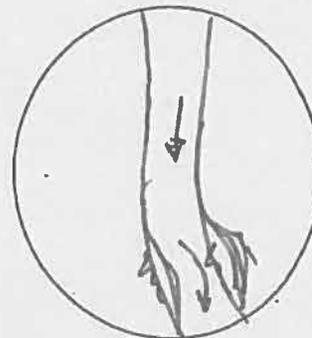
*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
DATE: 8/31/2011 WEATHER: Sunny TIME: 10:43AM INSPECTOR: EAL/NLO

LOCATION DATA:  
STREET: Lawrence Road (Address # & Street or Closest Intersection)  
BURIED: Yes/No Yes/No PAVED AREA: Yes/No SHEETING: Yes/No Yes/No PONDING: Yes/No Yes/No Depth     in.  
DRAINAGE AREA:     Sq.ft.

**MANHOLE DATA:**

COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow) Yes/No  
Inner Cover-Yes/No (not inflow dish) Yes/No



PLAN

COVER DIAMETER: 18" 24" 26" 30"

NO. OF COVER HOLES: 0

SIZE OF COVER HOLES: \_\_\_\_\_

AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.

EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5

FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N

RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 15.17 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_

CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF STEPS: (Circle One) 1 2 3 4 5

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Y/N Est. I/I \_\_\_\_\_

FRAME: Y/N Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Y/N Est. I/I \_\_\_\_\_

WALLS: Y/N Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Y/N Est. I/I 1-2 gpm

TOTAL ESTIMATED I/I (GPM): 1-2 gpm

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): lots of flow



SECTION

Overall MH Condition  
Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-23

**Rating System (NASSCO)**

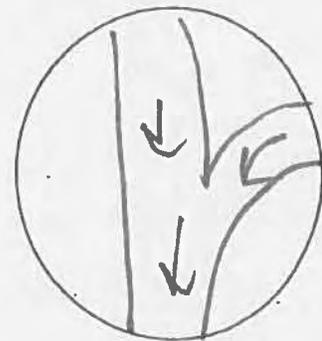
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trombull, CT PROJECT NO.: 12051D  
DATE: 8/30/2011 WEATHER: Sunny TIME: 2:07 INSPECTOR: MD/ERL

LOCATION DATA:  
STREET: Reservoir Ave (Address # & Street or Closest Intersection)  
BURIED: Yes  No  PAVED AREA: Yes  No  SHEETING: Yes  No  PONDING: Yes  No  Depth     in.  
DRAINAGE AREA:     Sq. ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One) 1  2  3  4  5   
COVER TYPE: None  Solid  Vented/Slotted   
Concealed Pick Holes Bolted Locked  
Gasketed-Yes  No  (to prevent inflow)  
Inner Cover-Yes  No  (not inflow dish)  
18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 6  
SIZE OF COVER HOLES: \_\_\_\_\_  
 ABOVE  BELOW GRADE 1.5 in.

SURCHARGED AT INSPECTION? Y  N  Height     in.  
EVIDENCE OF SURCHARGE? Y  N  Height     in.  
CONDITION OF RIM: (Circle One) 1  2  3  4  5   
FRAME CONDITION: (Circle One) 1  2  3  4  5

RISER CONDITION: (Circle One) 1  2  3  4  5  buildup of dirt  
EVIDENCE OF INFLOW? Y  N   
RISERS ARE:  BRICK  BLOCK  PRECAST

MANHOLE DIAMETER 2FT  3FT  4FT  OTHER: \_\_\_\_\_

MANHOLE IS: BRICK  BLOCK  PRECAST  OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 4.58 FT (Rim to Invert)

EVIDENCE OF INFLOW Y  N   
CONDITION OF WALLS: (Circle One) 1  2  3  4  5   
EVIDENCE OF INFILTRATION Y  N   
CONDITION OF STEPS: (Circle One) 1  2  3  4  5   
NUMBER OF SECTIONS: 2

CONDITION OF INVERTS: (Circle One) 1  2  3  4  5 Filled up w/ straw  
EVIDENCE OF INFILTRATION Y  N   
CONDITION OF TABLE: (Circle One) 1  2  3  4  5   
EVIDENCE OF INFILTRATION Y  N   
GROUNDWATER LEVEL     ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y  N  Est. I/I \_\_\_\_\_ JOINTS: Y  N  Est. I/I \_\_\_\_\_  
FRAME: Y  N  Est. I/I \_\_\_\_\_ INVERTS: Y  N  Est. I/I \_\_\_\_\_  
WALLS: Y  N  Est. I/I \_\_\_\_\_ TABLES: Y  N  Est. I/I 0-1 gpm

TOTAL ESTIMATED I/I (GPM): 0-1 gpm

CORROSION PROBLEMS? Y  N

COMMENTS (REQUIRED): seepage along table



SECTION

Overall MH Condition  
Rating (1-5)

**2**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-11

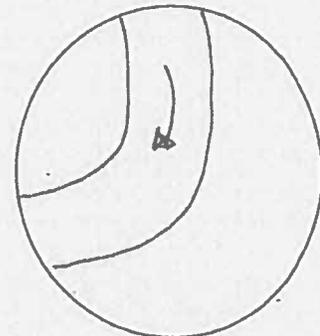
**Rating System (NASSCO)**

- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
DATE: 8/30/2011 WEATHER: Sunny TIME: 9:22 AM INSPECTOR: ERL/ULO  
LOCATION DATA:  
STREET: Reservoir Ave ROW (Address # & Street or Closest Intersection)  
BURIED: Yes/ No PAVED AREA:  Yes/ No SHEETING: Yes/ No PONDING: Yes/ No Depth     in.  
DRAINAGE AREA:     Sq.ft.

MANHOLE DATA:  
COVER CONDITION: (Circle One)  1 2 3 4 5  
COVER TYPE: None  Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/ No (to prevent inflow)  
Inner Cover-Yes/ No (not inflow dish)  
18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
NO. OF COVER HOLES: 6  
SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.

SURCHARGED AT INSPECTION?  Y/ N Height     in.  
EVIDENCE OF SURCHARGE?  Y/ N Height     in.  
CONDITION OF RIM: (Circle One)  1 2 3 4 5  
FRAME CONDITION: (Circle One)  1 2 3 4 5

RISER CONDITION: (Circle One)  1 2 3 4 5  
EVIDENCE OF INFLOW?  Y/ N = Fine  
RISERS ARE:  BRICK  BLOCK  PRECAST

MANHOLE DIAMETER 2FT 3FT  4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK  PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: 8.33 FT (Rim to Invert)

EVIDENCE OF INFLOW?  Y/ N  
CONDITION OF WALLS: (Circle One)  1 2 3 4 5  
EVIDENCE OF INFILTRATION  Y/ N  
CONDITION OF STEPS: (Circle One)  1 2 3 4 5  
NUMBER OF SECTIONS: 2  3 4

CONDITION OF INVERTS: (Circle One)  1 2 3 4 5  
EVIDENCE OF INFILTRATION  Y/ N  
CONDITION OF TABLE: (Circle One)  1 2 3 4 5  
EVIDENCE OF INFILTRATION  Y/ N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

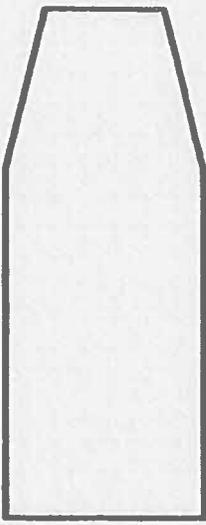
DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER:  Y/ N Est. I/I \_\_\_\_\_ JOINTS:  Y/ N Est. I/I \_\_\_\_\_  
FRAME:  Y/ N Est. I/I \_\_\_\_\_ INVERTS:  Y/ N Est. I/I \_\_\_\_\_  
WALLS:  Y/ N Est. I/I \_\_\_\_\_ TABLES:  Y/ N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): < 1 gpm

CORROSION PROBLEMS?  Y/ N

COMMENTS (REQUIRED): \_\_\_\_\_



SECTION

Overall MH Condition  
Rating (1-5)



**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-20

**Rating System (NASSCO)**

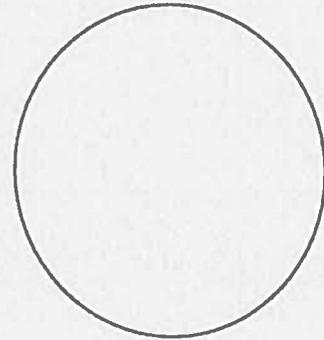
- 1 = Excellent - No defects or minor defects present
- 2 = Good - Minor defects present but have not started to deteriorate
- 3 = Fair - Moderate defects present that will continue to deteriorate
- 4 = Poor - Severe defects that will become grade 5 in near future
- 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trambully Ct PROJECT NO.: 12051D  
DATE: 8/30/2011 WEATHER: Sunny TIME: 9:15 AM INSPECTOR: NLO/EAL

LOCATION DATA:  
STREET off Reservoir Arc Row (Address # & Street or Closest Intersection)  
BURIED: Yes/No PAVED AREA: Yes/No SHEETING: Yes/No PONDING: Yes/No Depth in.

DRAINAGE AREA: \_\_\_\_\_ Sq.ft.  
**MANHOLE DATA:**  
COVER CONDITION: (Circle One) 1 2 3 4 5  
COVER TYPE: None Solid Vented/Slotted  
Concealed Pick Holes Bolted Locked  
Gasketed-Yes/No (to prevent inflow)  
Inner Cover-Yes/No (not inflow dish)  
COVER DIAMETER: 18" 24" 30"



PLAN

NO. OF COVER HOLES: \_\_\_\_\_  
SIZE OF COVER HOLES: \_\_\_\_\_  
AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
SURCHARGED AT INSPECTION? Y/N Height \_\_\_\_\_ in.  
EVIDENCE OF SURCHARGE? Y/N Height \_\_\_\_\_ in.  
CONDITION OF RIM: (Circle One) 1 2 3 4 5  
FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFLOW? Y/N  
RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
DEPTH OF MANHOLE: \_\_\_\_\_ FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
EVIDENCE OF INFILTRATION Y/N  
GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

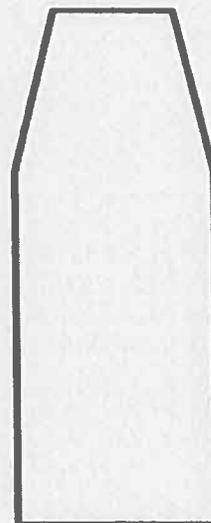
**DEFECTS/LEAKAGE POINTS:** (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_  
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_  
WALLS: Y/N Est. I/I \_\_\_\_\_ TABLES: Y/N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): \_\_\_\_\_

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): • Could not locate MH



SECTION

Overall MH Condition  
Rating (1-5)

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-31

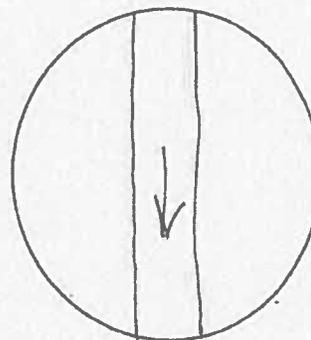
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form  
for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
 DATE: 7/25/11 WEATHER: Cloudy TIME: \_\_\_\_\_ INSPECTOR: JDM

LOCATION DATA:  
 STREET Reservoir Interceptor (Address # & Street or Closest Intersection)  
 BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No \_\_\_\_\_ PONDING: Yes/No \_\_\_\_\_ Depth in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow)  
 Inner Cover-Yes/No (not inflow dish)



PLAN

COVER DIAMETER: 18" 24" 26" 30"  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_

AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N \_\_\_\_\_ Height \_\_\_\_\_ in.

CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5

RISER CONDITION: (Circle One) 1 2 3 4 5

EVIDENCE OF INFLOW? Y/N \_\_\_\_\_  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_

DEPTH OF MANHOLE: 7.58 FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N \_\_\_\_\_  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

CONDITION OF STEPS: (Circle One) 1 2 3 4 5 N/A

NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

CONDITION OF TABLE: (Circle One) 1 2 3 4 5

EVIDENCE OF INFILTRATION Y/N \_\_\_\_\_

GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N Est. I/I \_\_\_\_\_ JOINTS: Y/N Est. I/I \_\_\_\_\_

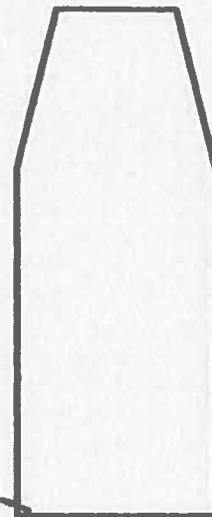
FRAME: Y/N Est. I/I \_\_\_\_\_ INVERTS: Y/N Est. I/I \_\_\_\_\_

WALLS: Y/N Est. I/I .5 TABLES: Y/N Est. I/I .5

TOTAL ESTIMATED I/I (GPM): 1

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): EVIDENCE OF LEAKING WALLS SECTION



Overall MH Condition  
Rating (1-5)

**3**

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-89

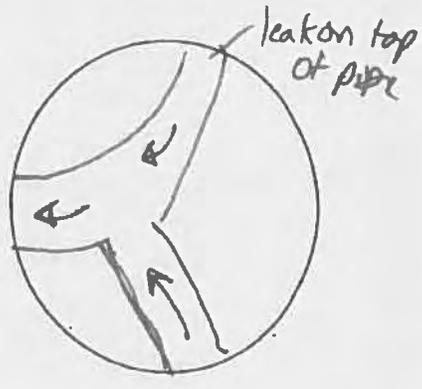
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 12051 D  
 DATE: 8/31/2011 WEATHER: sunny TIME: 9:56 AM INSPECTOR: ERL/MLC

LOCATION DATA:  
 STREET: Sunnycast (Address # & Street or Closest Intersection)  
 BURIED: Yes/No /No PAVED AREA: Yes/No /No SHEETING: Yes/No /No PONDING: Yes/No /No Depth     in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

MANHOLE DATA:  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow) No  
 Inner Cover-Yes/No (not inflow dish) No  
 COVER DIAMETER: 18" 24" 26" 30"



PLAN

NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_ in.  
 AT ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N N  
 RISERS ARE: BRICK BLOCK PRECAST

MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_  
 MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: \_\_\_\_\_ FT (Rim to Invert)

EVIDENCE OF INFLOW Y/N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

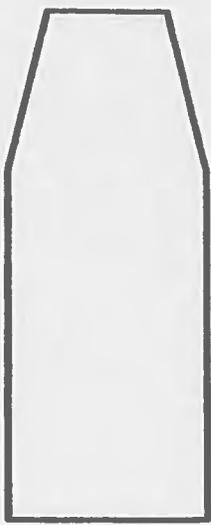
CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N  
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)

DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)  
 COVER: Y/N Y Est. I/I \_\_\_\_\_ JOINTS: Y/N Y Est. I/I \_\_\_\_\_  
 FRAME: Y/N Y Est. I/I \_\_\_\_\_ INVERTS: Y/N Y Est. I/I \_\_\_\_\_  
 WALLS: Y/N Y Est. I/I 0-1 TABLES: Y/N Y Est. I/I 0-1

TOTAL ESTIMATED I/I (GPM): 2

CORROSION PROBLEMS? Y/N

COMMENTS (REQUIRED): infiltration coming through lift hole = top of riser pipe



SECTION

Overall MH Condition Rating (1-5)

2

**WRIGHT-PIERCE  
MANHOLE INSPECTION REPORT**

Project Name: \_\_\_\_\_  
Subsystem Name/No. 5

Manhole ID No. 5-97

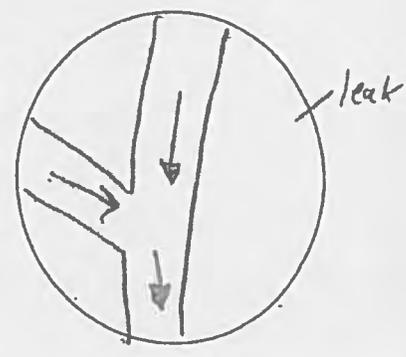
**Rating System (NASSCO)**  
 1 = Excellent - No defects or minor defects present  
 2 = Good - Minor defects present but have not started to deteriorate  
 3 = Fair - Moderate defects present that will continue to deteriorate  
 4 = Poor - Severe defects that will become grade 5 in near future  
 5 = Immediate Attention Required - Defects present that require immediate attention

*Note: See Reverse Side of Form for Standard Photos Required*

PROJECT LOCATION: Trumbull, CT PROJECT NO.: 120510  
 DATE: 8/31/2011 WEATHER: sunny TIME: 10:48 AM INSPECTOR: NLO/ERL

LOCATION DATA:  
 STREET: Sunnycrest (Address # & Street or Closest Intersection)  
 BURIED: Yes/No No PAVED AREA: Yes/No No SHEETING: Yes/No No PONDING: Yes/No No Depth     in.  
 DRAINAGE AREA: \_\_\_\_\_ Sq.ft.

**MANHOLE DATA:**  
 COVER CONDITION: (Circle One) 1 2 3 4 5  
 COVER TYPE: None Solid Vented/Slotted  
 Concealed Pick Holes Bolted Locked  
 Gasketed-Yes/No (to prevent inflow) \_\_\_\_\_  
 Inner Cover-Yes/No (not inflow dish) \_\_\_\_\_  
 18" 24" 26" 30"



PLAN

COVER DIAMETER: \_\_\_\_\_  
 NO. OF COVER HOLES: 0  
 SIZE OF COVER HOLES: \_\_\_\_\_  
 AT/ABOVE/BELOW GRADE? \_\_\_\_\_ in.  
 SURCHARGED AT INSPECTION? Y/N N Height \_\_\_\_\_ in.  
 EVIDENCE OF SURCHARGE? Y/N N Height \_\_\_\_\_ in.  
 CONDITION OF RIM: (Circle One) 1 2 3 4 5  
 FRAME CONDITION: (Circle One) 1 2 3 4 5  
 RISER CONDITION: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFLOW? Y/N N  
 RISERS ARE: BRICK BLOCK PRECAST  
 MANHOLE DIAMETER 2FT 3FT 4FT OTHER: \_\_\_\_\_

MANHOLE IS: BRICK BLOCK PRECAST OTHER: \_\_\_\_\_  
 DEPTH OF MANHOLE: 9.17 FT (Rim to Invert)  
 EVIDENCE OF INFLOW Y/N N  
 CONDITION OF WALLS: (Circle One) 1 2 3 4 5 *b/c of hole in wall*  
 EVIDENCE OF INFILTRATION Y/N N  
 CONDITION OF STEPS: (Circle One) 1 2 3 4 5  
 NUMBER OF SECTIONS: 2 3 4

CONDITION OF INVERTS: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N N  
 CONDITION OF TABLE: (Circle One) 1 2 3 4 5  
 EVIDENCE OF INFILTRATION Y/N N  
 GROUNDWATER LEVEL \_\_\_\_\_ ft (above invert)  
 DEFECTS/LEAKAGE POINTS: (Note hole/crack size if any, length/width)

COVER: Y/N N Est. I/I \_\_\_\_\_ JOINTS: Y/N N Est. I/I 0-1  
 FRAME: Y/N N Est. I/I \_\_\_\_\_ INVERTS: Y/N N Est. I/I \_\_\_\_\_  
 WALLS: Y/N N Est. I/I 3-5 gpm TABLES: Y/N N Est. I/I \_\_\_\_\_

TOTAL ESTIMATED I/I (GPM): *evidence of hole in wall* 6 gpm

CORROSION PROBLEMS? \_\_\_\_\_

COMMENTS (REQUIRED): *actively leaking hole in wall (3-5 gpm) -> ~1/4" hole SECTION*  
*bottom joint is actively seeping all the way around joint*



Overall MH Condition  
 Rating (1-5)  
4

Sheet No. 133      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/20  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 11:05  
 Drainage Area 16      Location (No. & Name) 19 ALLEN DR  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 9.4 ft.      Outgoing Grade to Invert 9.4 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
---	--	----------------------------------	-------------------------------------	---------------------------------	--------------------------------

**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 133

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) 19 ALLEN DR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2: Concrete

Chimney Clear Opening:

Chimney Depth: 1.8 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Flattop

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 0.0 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.9 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 133

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) 19 ALLEN DR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.4 ft.	Out	AC	C	8 in.		S	S	GR	642
2	12	5.7 ft.	In	AC	C	8 in.		S	S	OU	642
3	12	9.3 ft.	In	AC	C	8 in.		S	S	OL	642

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
7.7 ft.		WI	IG		J				10			3 GPM



**Sheet No.** 136      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/20  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 11:25  
**Drainage Area** 16      **Location (No. & Name)** ALLEN DR  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.5 ft.      **Outgoing Grade to Invert** 9.5 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Undersized  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input checked="" type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 136

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) ALLEN DR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Missing                         |
| <input type="checkbox"/> Cracked | <input checked="" type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Coated                          |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.0 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.2 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 9.0 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 136

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) ALLEN DR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.5 ft.	Out	AC	C	8 in.		S	S	GR	624
2	8	9.4 ft.	In	AC	C	8 in.		S	S	GR	624

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
8.3 ft.		WI	IW		J					6	6		
9.3 ft.		C	IG							8			4 GPM; LEAKING FROM BOTTOM OF CHANNEL



Sheet No. 18      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/16  
 System Owner Town of Trumbull      Survey Customer      Time 11:06  
 Drainage Area 16      Location (No. & Name) Intersection of Birch St and Canterbury Ln  
 P.O. No.      Locality/City Name Trumbull

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 8.0 ft.      Outgoing Grade to Invert 8.0 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 18

Survey Date 2012/07/16

P.O. No.

Location (No. & Name) Intersection of Birch St and Canterbury Ln

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow: None

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2: Concrete

Chimney Clear Opening:

Chimney Depth: 1.4 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.6 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 7.5 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 5
- Step Material: Metal



Sheet No. 18

Survey Date 2012/07/16

P.O. No.

Location (No. & Name) Intersection of Birch St and Canterbury Ln

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	8.0 ft.	Out	AC	C	8 in.		S	S	GR	628
2	9	7.9 ft.	In	AC	C	8 in.		S	S	GR	628
3	12	7.9 ft.	In	AC	C	8 in.		S	S	GR	628

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
6.5 ft.		WI	IG		J					8			2 gpm
6.5 ft.		WI	ID		J					9			
6.5 ft.		WI	ID		J					3			



Sheet No. 81      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/17  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 15:39  
 Drainage Area 16      Location (No. & Name) BONITA AVE  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 10.6 ft.      **Outgoing Grade to Invert** 10.6 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 81

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) BONITA AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: Adjustable

MH Adjustment Ring Material: Cast Iron

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Corroded/Pitted/Worn
- Cracked
- Leaking
- Broken
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Missing
- Cracked
- Corroded/Pitted/Worn
- Broken
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Loose/Not Attached
- Cracked
- Offset
- Missing

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.6 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.6 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 9.7 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 7

Step Material: Metal



Sheet No. 81

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) BONITA AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	10.6 ft.	Out	AC	C	8 in.		S	S	GR	737
2	12	10.5 ft.	In	AC	C	8 in.		S	S	GR	737

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
9.6 ft.		WI	IG							9			5 GPM



Sheet No. 56      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/17  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 11:10  
 Drainage Area 16      Location (No. & Name) CANTERBURY LN  
 P.O. No.      Locality/City Name TRUMBULL, CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 7.4 ft.      Outgoing Grade to Invert 7.4 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surchage No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 56

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) CANTERBURY LN

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.9 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.9 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 6.7 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Concrete
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 4
Step Material: Metal



Sheet No. 56

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) CANTERBURY LN

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	7.4 ft.	Out	AC	C	8 in.		S	S	GR	631
2	12	7.3 ft.	In	AC	C	8 in.		S	S	GR	631
3	3	7.3 ft.	In	AC	C	8 in.		S	S	GR	631

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
3.7 ft.		WI	H						6			
3.7 ft.		WI	H						12			
5.9 ft.		WI	ID		J				3	6		
6.3 ft.		WI	IW						2			



Sheet No. 64      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/17  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 12:47  
 Drainage Area 16      Location (No. & Name) REGINA ST  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 9.1 ft.      Outgoing Grade to Invert 9.1 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 64

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) REGINA ST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.5 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.8 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.6 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 64

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) REGINA ST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.1 ft.	Out	AC	C	8 in.		S	S	GR	697
2	3	9.0 ft.	In	AC	C	8 in.		S	S	GR	697
3	10	8.6 ft.	In	AC	C	6 in.		S	S	LB	697

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
6.8 ft.		WI	IW		J					4			
6.8 ft.		WI	IR		J					6			1 GPM



**Sheet No.** 221      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/26  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 11:42  
**Drainage Area** 16      **Location (No. & Name)** CEDAR CREST  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 14.4 ft.      **Outgoing Grade to Invert** 14.4 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 25.3 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 221

Survey Date 2012/07/26

P.O. No.

Location (No. & Name) CEDAR CREST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 4 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |  |   |
|--|---|
| <input type="checkbox"/> Sound             | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked           | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input checked="" type="checkbox"/> Broken | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Concrete

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.6 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 4.4 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 13.8 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- |                                       |
|---------------------------------------|
| <b>Channel Material:</b> Brick        |
| <b>Channel Type:</b> Formed           |
| <b>Channel Exposure:</b> Fully Opened |
| <b>Channel Installed</b> Yes          |

**Step**

# Steps: 11

Step Material: Plastic



Sheet No. 221

Survey Date 2012/07/26

P.O. No.

Location (No. & Name) CEDAR CREST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	14.4 ft.	Out	PVC	C	8 in.		S	S	GR	537
2	11	14.3 ft.	In	PVC	C	8 in.		S	S	IL	537
3	11	5.5 ft.	In	PVC	C	8 in.		S	S	IU	537
4	2	14.3 ft.	In	PVC	C	8 in.		S	S	GR	537

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
0.7 ft.		CMI	CM	S01						3	5		
2.0 ft.		CMI	CM	F01						3	5		
11.8 ft.		WI	IW							12	12		



Sheet No. 315      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/31  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 09:40  
 Drainage Area 16      Location (No. & Name) CHURCH HILL RD  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 8.0 ft.      Outgoing Grade to Invert 8.0 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Main Highway - Suburban/Rural      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 315

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) CHURCH HILL RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Concrete

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 2.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 7.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 4
- Step Material: Metal



Sheet No. 315

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) CHURCH HILL RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	8.0 ft.	Out	AC	C	12 in.		S	S	GR	579
2	12	7.9 ft.	In	AC	C	12 in.		S	S	GR	579
3	10	7.3 ft.	In	AC	C	8 in.		S	S	GR	579

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
7.3 ft.		B	IR							4			
7.3 ft.		B	IW							1	2		



**Sheet No.** 306      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 08:12  
**Drainage Area** 16      **Location (No. & Name)** CHURCHHILL RD  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 14.2 ft.      **Outgoing Grade to Invert** 14.2 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Main Highway - Suburban/Rural      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 306

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) CHURCHHILL RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 13.6 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 11

Step Material: Metal



Sheet No. 306

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) CHURCHHILL RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	14.2 ft.	Out	AC	C	10 in.		S	S	GR	754
2	1	14.1 ft.	In	AC	C	10 in.		S	S	GR	754

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
13.6 ft.		B	IW							5			



**Sheet No.** 312      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 09:14  
**Drainage Area** 16      **Location (No. & Name)** EDISON RD  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 11.4 ft.      **Outgoing Grade to Invert** 11.4 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Main Highway - Suburban/Rural      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 312

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) EDISON RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: Adjustable

MH Adjustment Ring Material: Cast Iron

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Corroded/Pitted/Worn
- Cracked
- Leaking
- Broken
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- Sound
- Missing
- Cracked
- Corroded/Pitted/Worn
- Broken
- Coated

**Frame Seal Condition**

- Sound
- Loose/Not Attached
- Cracked
- Offset
- Missing

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.6 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 4.8 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 11.0 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 8

Step Material: Metal



Sheet No. 312

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) EDISON RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	11.4 ft.	Out	AC	C	8 in.		S	S	GR	581
2	12	11.3 ft.	In	AC	C	8 in.		S	S	GR	581
3	3	11.3 ft.	In	PVC	C	8 in.		S	S	OL	581
4	3	7.3 ft.	In	PVC	C	8 in.		S	S	OU	581

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
0.8 ft.		CMI	DNF				5			3	6		
9.8 ft.		WI	IW		J					12	12		
10.8 ft.		WI	IR		J					12			
11.0 ft.		WI	IR		J					5			
11.0 ft.		WI	IR		J					8			



**Sheet No.** 314      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 09:33  
**Drainage Area** 16      **Location (No. & Name)** EDISON RD  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 8.9 ft.      **Outgoing Grade to Invert** 8.9 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 314

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) EDISON RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: Adjustable

MH Adjustment Ring Material: Cast Iron

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Corroded/Pitted/Worn
- Cracked
- Leaking
- Broken
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Missing
- Cracked
- Corroded/Pitted/Worn
- Broken
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Loose/Not Attached
- Cracked
- Offset
- Missing

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.4 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 314

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) EDISON RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	8.9 ft.	Out	AC	C	8 in.		S	S	GR	589
2	12	8.8 ft.	In	AC	C	8 in.		S	S	GR	589

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
0.8 ft.		CMI	DNF		J		5			12	12		
5.0 ft.		WI	IS		J					2	4		
7.3 ft.		WI	ID							6			
8.4 ft.		WI	ID							9			



Sheet No. 318      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/31  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 10:10  
 Drainage Area 16      Location (No. & Name) 620 EDISON  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 10.7 ft.      Outgoing Grade to Invert 10.7 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Main Highway - Suburban/Rural      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Undersized  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 318

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) 620 EDISON

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Missing                         |
| <input type="checkbox"/> Cracked | <input checked="" type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Coated                          |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Other

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 0.0 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 4.7 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 10.2 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 9
Step Material: Metal



Sheet No. 318

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) 620 EDISON

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	10.7 ft.	Out	AC	C	8 in.		S	S	GR	590

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
0.7 ft.		CMI	DNF				5			4	8		
10.2 ft.		B	IW							8			
10.7 ft.		C	IG							6			



**Sheet No.** 184    **Surveyor's name** JDM    **Certificate Number** U-212-14669    **Date** 2012/07/25  
**System Owner** TOWN OF TRUMBULL    **Survey Customer**    **Time** 13:07  
**Drainage Area** 16    **Location (No. & Name)** GERALDINE PL AND GERALDINE CIR  
**P.O. No.**    **Locality/City Name** TRUMBULL CT

**Further Location Details**    **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.2 ft.    **Outgoing Grade to Invert** 9.2 ft.    **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary    **Year Laid**    **Year Rehabilitated**    **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation    **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning    **Date Cleaned**    **Weather**  
**Location Code** Light Highway    **Potential for Runoff**    **Evidence of Surcharge** No  
**Access Point Type** Manhole    **Coordinate System**  
**Northing**    **Easting**    **Elevation**    **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular    **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.    **Cover Size Width:**    **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron    **Cover Frame Fit:** Good  
**Vent Hole Diameter:**    **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 184

Survey Date 2012/07/25

P.O. No.

Location (No. & Name) GERALDINE PL AND GERALDINE CIR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.7 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.2 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.7 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 184

Survey Date 2012/07/25

P.O. No.

Location (No. & Name) GERALDINE PL AND GERALDINE CIR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.2 ft.	Out	AC	C	8 in.		S	S	GR	495
2	10	9.1 ft.	In	AC	C	8 in.		S	S	GR	495
3	1	9.1 ft.	In	AC	C	8 in.		S	S	GR	495

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
3.3 ft.		WI	IW						12			
6.2 ft.		WI	IR		J				6			
6.2 ft.		WI	IW		J				12	12		



**Sheet No.** 74      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/17  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 14:17  
**Drainage Area** 16      **Location (No. & Name)** 15 GIBSON AVE  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 11.0 ft.      **Outgoing Grade to Invert** 11.0 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 74

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) 15 GIBSON AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.5 ft.

Interior Chimney Coating/Liner: Cementitious

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 10.5 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 8
Step Material: Metal



Sheet No. 74

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) 15 GIBSON AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	11.0 ft.	Out	AC	C	8 in.		D	D	GR	638
2	9	10.9 ft.	In	AC	C	8 in.		S	S	GR	638
3	12	7.8 ft.	In	AC	C	8 in.		D	D	OU	638
4	12	10.9 ft.	In	AC	C	8 in.		S	S	OL	638

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
5.3 ft.		WI	IW		J				12	12		
6.5 ft.		WI	IW		J				12	12		
10.6 ft.		B	IR		J				5	8		1 GPM



Sheet No. 94      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/19  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 09:51  
 Drainage Area 16      Location (No. & Name) GIBSON AND ALLAN  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 8.0 ft.      **Outgoing Grade to Invert** 8.0 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 94

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) GIBSON AND ALLAN

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 7.5 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 5
- Step Material: Metal



Sheet No. 94

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) GIBSON AND ALLAN

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	8.0 ft.	Out	AC	C	8 in.		S	S	GR	641
2	12	7.9 ft.	In	AC	C	8 in.		S	S	GR	641
3	3	7.9 ft.	In	AC	C	8 in.		S	S	GR	641

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
6.5 ft.		WI	ID		J				10			
6.5 ft.		WI	IR		J				2	3		
6.5 ft.		WI	MMM						2	3		
6.5 ft.		WI	MMM						6			
6.5 ft.		WI	IW		J				6			
7.5 ft.		B	IW		J				12			



Sheet No. 273      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/30  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 11:46  
 Drainage Area 16      Location (No. & Name) INCA ROW  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 9.7 ft.      Outgoing Grade to Invert 8.2 ft.      Rim to Grade 1.5 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Easement/Right of Way      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input checked="" type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
--	--	----------------------------------	--	---------------------------------	--------------------------------

**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input checked="" type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 273

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) INCA ROW

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Missing                         |
| <input type="checkbox"/> Cracked | <input checked="" type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Coated                          |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 2.4 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.0 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.0 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 6
Step Material: Metal



Sheet No. 273

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) INCA ROW

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.7 ft.	Out	AC	C	24 in.		S	S	GR	948A
2	12	9.6 ft.	In	AC	C	24 in.		S	S	GR	948A
3	3	8.5 ft.	In	PVC	C	8 in.		S	S	GR	948A

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
9.5 ft.		C	IR							5			



**Sheet No.** 4      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/06/08  
**System Owner** Town of Trumbull      **Survey Customer**      **Time** 09:26  
**Drainage Area** 16      **Location (No. & Name)** Jerome  
**P.O. No.**      **Locality/City Name** Trumbull

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 10.7 ft.      **Outgoing Grade to Invert** 10.7 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
---	--	----------------------------------	-------------------------------------	---------------------------------	--------------------------------

**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 4

Survey Date 2012/06/08

P.O. No.

Location (No. & Name) Jerome

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Corroded/Pitted/Worn
- Cracked
- Leaking
- Broken
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow: None

**Frame Condition**

- Sound
- Missing
- Cracked
- Corroded/Pitted/Worn
- Broken
- Coated

**Frame Seal Condition**

- Sound
- Loose/Not Attached
- Cracked
- Offset
- Missing

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.7 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 10.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 8
- Step Material: Metal



Sheet No. 4

Survey Date 2012/06/08

P.O. No.

Location (No. & Name) Jerome

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	10.7 ft.	Out	AC	C	8 in.		S	S	GR	656
2	12	10.6 ft.	In	AC	C	8 in.		S	S	OL	656
3	12	6.5 ft.	In	AC	C	8 in.		S	S	OU	656

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
9.2 ft.		WI	IG		J					2	8		Infiltration gusher at joint, continuous, ~3gpm



**Sheet No.** 120      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/20  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 09:42  
**Drainage Area** 16      **Location (No. & Name)** SUTTON PL  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 7.7 ft.      **Outgoing Grade to Invert** 7.7 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 120

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) SUTTON PL

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2: Concrete

Chimney Clear Opening:

Chimney Depth: 2.0 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.1 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 7.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 4
- Step Material: Metal



Sheet No. 120

Survey Date 2012/07/20

P.O. No.

Location (No. & Name) SUTTON PL

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	7.7 ft.	Out	AC	C	8 in.		S	S	GR	607
2	12	7.6 ft.	In	AC	C	8 in.		S	S	GR	607



Sheet No. 102      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/19  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 10:53  
 Drainage Area 16      Location (No. & Name) 56 LINLEY RD  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 10.0 ft.      Outgoing Grade to Invert 10.0 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surchage No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 102

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) 56 LINLEY RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.8 ft.

Interior Chimney Coating/Liner: Cementitious

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.0 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 9.5 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 102

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) 56 LINLEY RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	10.0 ft.	Out	AC	C	8 in.		S	S	GR	605
2	9	9.9 ft.	In	AC	C	8 in.		S	S	OL	605
3	9	4.7 ft.	In	AC	C	8 in.		S	S	OU	605
4	3	9.9 ft.	In	AC	C	8 in.		S	S	GR	605

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
5.0 ft.		COI	IS		J				8			
8.0 ft.		WI	IW		J				7	8		
9.5 ft.		B	IR		J				8			
9.5 ft.		B	IR		J				3			



**Sheet No.** 290      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/30  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 14:03  
**Drainage Area** 16      **Location (No. & Name)** 27 CLIFF VIEW  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.9 ft.      **Outgoing Grade to Invert** 9.9 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 290

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) 27 CLIFF VIEW

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.6 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.7 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.9 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 7
Step Material: Metal



Sheet No. 290

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) 27 CLIFF VIEW

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.9 ft.	Out	AC	C	12 in.		S	S	GR	783
2	9	9.8 ft.	In	AC	C	12 in.		S	S	GR	783
3	3	9.8 ft.	In	PVC	C	8 in.		S	S	GR	783

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
1.0 ft.		CMI	MML						2			
6.8 ft.		WI	IR						7			
8.8 ft.		WI	IW		J				12	12		
8.8 ft.		WI	IR		J				1	2		
8.8 ft.		WI	IR		J				4	5		



**Sheet No.** 15      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/06/13  
**System Owner** Town of Trumbull      **Survey Customer**      **Time** 09:38  
**Drainage Area** 16      **Location (No. & Name)** MacArthur and Gibson  
**P.O. No.**      **Locality/City Name** Trumbull

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.1 ft.      **Outgoing Grade to Invert** 9.1 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:**      **Cover Bearing Surface Diameter:**  
**Cover Size:**      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:**      **Cover Frame Fit:**  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 15

Survey Date 2012/06/13

P.O. No.

Location (No. & Name) MacArthur and Gibson

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance:

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.4 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.7 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 6

Step Material: Metal



Sheet No. 15

Survey Date 2012/06/13

P.O. No.

Location (No. & Name) MacArthur and Gibson

Inspection Level Level 2

Locality/City Name Trumbull

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.1 ft.	Out	AC	C	8 in.		S	S	GR	644
2	9	9.0 ft.	In	AC	C	8 in.		S	S	GR	644
3	3	9.0 ft.	In	AC	C	8 in.		S	S	GR	644

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
7.6 ft.		WI	IR		J					7			Total II in MH 3 GPM
7.6 ft.		WI	IR		J					11			
7.6 ft.		WI	IR		J					1			
7.6 ft.		WI	IR		J					3			
7.6 ft.		WI	IR		J					5			



Sheet No. 255      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/27  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 11:04  
 Drainage Area 16      Location (No. & Name) 7 MANOR  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 13.7 ft.      Outgoing Grade to Invert 13.7 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 255

Survey Date 2012/07/27

P.O. No.

Location (No. & Name) 7 MANOR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.4 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.0 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 12.4 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 9

Step Material: Metal



Sheet No. 255

Survey Date 2012/07/27

P.O. No.

Location (No. & Name) 7 MANOR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	13.7 ft.	Out	RCP	C	24 in.		S	S	GR	772
2	11	13.7 ft.	In	RCP	C	24 in.		S	S	GR	772

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
12.4 ft.		B	IR							7	10		



**Sheet No.** 331      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 12:59  
**Drainage Area** 16      **Location (No. & Name)** MIDDLEBROOKS  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 14.8 ft.      **Outgoing Grade to Invert** 14.8 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 331

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) MIDDLEBROOKS

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.6 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 7.1 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 14.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 11

Step Material: Metal



Sheet No. 331

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) MIDDLEBROOKS

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	14.8 ft.	Out	AC	C	8 in.		S	S	GR	694
2	12	14.7 ft.	In	AC	C	8 in.		S	S	GR	694

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
13.0 ft.		WI	DNF		J		5			10	4		



**Sheet No.** 332      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 13:04  
**Drainage Area** 16      **Location (No. & Name)** MIDDLEBROOKS  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 11.7 ft.      **Outgoing Grade to Invert** 11.7 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 332

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) MIDDLEBROOKS

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 2.2 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I: Infil Weeper

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.2 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 11.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 8
Step Material: Metal



Sheet No. 332

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) MIDDLEBROOKS

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	11.7 ft.	Out	AC	C	8 in.		S	S	GR	695
2	9	11.6 ft.	In	AC	C	8 in.		S	S	GR	695
3	12	11.6 ft.	In	AC	C	8 in.		S	S	OL	695
4	12	7.7 ft.	In	AC	C	8 in.		S	S	OU	695

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
1.0 ft.		CMI	IW							6			
7.7 ft.		WI	SMW							12			



**Sheet No.** 89      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/19  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 08:34  
**Drainage Area** 16      **Location (No. & Name)** PALISADE AVE  
**P.O. No.**      **Locality/City Name** TRUMBULL CT  
**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.4 ft.      **Outgoing Grade to Invert** 9.4 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **# of Vent Holes:**      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 89

Survey Date 2012/07/19

P.O. No.

Location (No. & Name)

PALISADE AVE

Inspection Level Level 2

Locality/City Name

TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: Adjustable

MH Adjustment Ring Material Cast Iron

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Corroded/Pitted/Worn
- Cracked
- Leaking
- Broken
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Offset Distance: 0 in.

Frame Bearing Surface Width: 1.0 in.

Frame Depth:

Frame Bearing Surface Depth: 2.0 in.

Frame Seal Inflow:

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Missing
- Cracked
- Corroded/Pitted/Worn
- Broken
- Coated

**Frame Seal Condition**

- Sound
- Loose/Not Attached
- Cracked
- Missing
- Offset

**Chimney**

Chimney Material 1: Brick

Interior Chimney Coating/Liner:

Chimney Material 2:

Exterior Chimney Coating/Liner:

Chimney Clear Opening:

Chimney I/I:

Chimney Depth: 1.7 ft.

**Cone**

Cone Type: Conical off centered

Cone Depth: 5.8 ft.

Exterior Cone Coating/Liner:

Cone Material: Concrete (reinforced)

Interior Cone Coating/Liner:

**Wall**

Wall Diameter 1:

Wall Depth: 8.8 ft.

Wall Diameter 2:

Interior Wall Coating/Liner:

Wall Material: Concrete (reinforced)

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

Channel Material: Brick  
 Channel Type: Formed  
 Channel Exposure: Fully Opened  
 Channel Installed Yes

**Step**

# Steps: 7  
 Step Material: Metal



Sheet No. 89	Survey Date 2012/07/19	P.O. No.
Location (No. & Name)	PALISADE AVE	Inspection Level Level 2
Locality/City Name	TRUMBULL CT	Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	9.4 ft.	Out	AC	C	9 in.		S	S	GR	
	<b>Comments</b>										
2	7	9.3 ft.	In	AC	C	8 in.		S	S	GR	
	<b>Comments</b>										
3	1	9.3 ft.	In	AC	C	8 in.		S	S	GR	
	<b>Comments</b>										

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef
5.8 ft.		WI	IG							1		
		<b>Remarks</b> 3 GPM										



**Sheet No.** 266      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/30  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 10:10  
**Drainage Area** 16      **Location (No. & Name)** 40 PARK ST  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 21.8 ft.      **Outgoing Grade to Invert** 21.8 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 266

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) 40 PARK ST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.1 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.8 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 19.7 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 9

Step Material: Metal



Sheet No. 266

Survey Date 2012/07/30

P.O. No.

Location (No. & Name) 40 PARK ST

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	21.8 ft.	Out	RCP	C	24 in.		S	S	GR	931
2	9	21.7 ft.	In	RCP	C	24 in.		S	S	GR	931



PipeLogix Inc.  
 Phone: 866-299-3150  
 Fax: 760-406-6023

Sheet No. 45      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/17  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 07:46  
 Drainage Area 16      Location (No. & Name) POPLAR ST AND GRISWOLD AVE  
 P.O. No.      Locality/City Name TRUMBULL, CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 11.5 ft.      Outgoing Grade to Invert 11.5 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surchage No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection

**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:** > 1/2      **# of Vent Holes:** 1

**Cover Type**

<input type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input checked="" type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 45

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) POPLAR ST AND GRISWOLD AVE

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.8 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.2 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 11.0 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 9
Step Material: Metal



Sheet No. 45

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) POPLAR ST AND GRISWOLD AVE

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	11.5 ft.	Out	AC	C	8 in.		S	S	GR	707
2	9	11.4 ft.	In	AC	C	8 in.		S	S	OL	707
3	9	7.8 ft.	In	AC	C	8 in.		S	S	OU	707
4	12	11.4 ft.	In	AC	C	8 in.		S	S	GR	707

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
10.1 ft.		WI	IG							7			1 GPM
11.1 ft.		WI	ID							1			
11.1 ft.		WI	IW							3			



**Sheet No.** 326      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/31  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 11:26  
**Drainage Area** 16      **Location (No. & Name)** RESERVOIR AVE  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 10.0 ft.      **Outgoing Grade to Invert** 10.0 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Main Highway - Suburban/Rural      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 326

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) RESERVOIR AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |  |   |
|--|---|
| <input type="checkbox"/> Sound             | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked           | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input checked="" type="checkbox"/> Broken | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 2.5 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 6.6 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 9.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 6
Step Material: Metal



Sheet No. 326

Survey Date 2012/07/31

P.O. No.

Location (No. & Name) RESERVOIR AVE

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	10.0 ft.	Out	AC	C	18 in.		D	D	GR	532
2	12	9.9 ft.	In	AC	C	18 in.		D	D	GR	532

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
8.0 ft.		WI	IW							9			
8.8 ft.		WI	ID							11			
9.3 ft.		B	IR							8			
10.0 ft.		C	IR							6			



Sheet No. 96      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/19  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 10:10  
 Drainage Area 16      Location (No. & Name) RICHARDS PL  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 9.9 ft.      Outgoing Grade to Invert 9.9 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 96

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) RICHARDS PL

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.0 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.0 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 9.3 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

- # Steps: 7
- Step Material: Metal



Sheet No. 96

Survey Date 2012/07/19

P.O. No.

Location (No. & Name) RICHARDS PL

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.9 ft.	Out	AC	C	8 in.		S	S	GR	583
2	12	9.8 ft.	In	AC	C	8 in.		S	S	GR	583

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
5.0 ft.		COI	IW							12	12		
6.5 ft.		WI	IS							7			
9.3 ft.		B	IR							1			1 GPM
9.3 ft.		B	IG							10			3 GPM



**Sheet No.** 261      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/30  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 08:08  
**Drainage Area** 16      **Location (No. & Name)** BLCKBERRY  
**P.O. No.**      **Locality/City Name** TRUMBULL CT  
**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 11.6 ft.      **Outgoing Grade to Invert** 11.6 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Yard      **Potential for Runoff**      **Evidence of Surchage** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Eastings**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input checked="" type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
--	--	----------------------------------	--	---------------------------------	--------------------------------

**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **# of Vent Holes:**      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 261

Survey Date 2012/07/30

P.O. No.

Location (No. & Name)

BLCKBERRY

Inspection Level Level 2

Locality/City Name

TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Offset Distance: 0 in.

Frame Bearing Surface Width: 1.0 in.

Frame Depth:

Frame Bearing Surface Depth: 2.0 in.

Frame Seal Inflow:

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- |                                  |  |
|----------------------------------|--|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Missing                         |
| <input type="checkbox"/> Cracked | <input checked="" type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Coated                          |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            |   |
| <input checked="" type="checkbox"/> Missing | <input type="checkbox"/> Offset             |

**Chimney**

Chimney Material 1: Brick

Interior Chimney Coating/Liner:

Chimney Material 2:

Exterior Chimney Coating/Liner:

Chimney Clear Opening:

Chimney I/I:

Chimney Depth: 1.3 ft.

**Cone**

Cone Type: Conical off centered

Cone Depth: 5.5 ft.

Exterior Cone Coating/Liner:

Cone Material: Concrete (reinforced)

Interior Cone Coating/Liner:

**Wall**

Wall Diameter 1:

Wall Depth: 10.4 ft.

Wall Diameter 2:

Interior Wall Coating/Liner:

Wall Material: Concrete (reinforced)

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick  
 Channel Type: Formed  
 Channel Exposure: Fully Opened  
 Channel Installed Yes

**Step**

# Steps: 7  
 Step Material: Metal



Sheet No. 261	Survey Date 2012/07/30	P.O. No.
Location (No. & Name) BLCKBERRY		Inspection Level Level 2
Locality/City Name TRUMBULL CT		Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	11.6 ft.	Out	RCP	C	24 in.		S	S	GR	
	<b>Comments</b>										
2	12	10.4 ft.	In	AC	C	12 in.		S	S	GR	
	<b>Comments</b>										
3	3	11.5 ft.	In	RCP	C	24 in.		S	S	GR	
	<b>Comments</b>										

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef
9.6 ft.		WI	IR							3		
	<b>Remarks</b>											
10.4 ft.		B	IR							5		
	<b>Remarks</b> 1 GPM											



**Sheet No.** 177      **Surveyor's name** JDM      **Certificate Number** U-212-14669      **Date** 2012/07/25  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 11:18  
**Drainage Area** 16      **Location (No. & Name)** 139 SUZANNE CIR  
**P.O. No.**      **Locality/City Name** TRUMBULL CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 13.0 ft.      **Outgoing Grade to Invert** 13.0 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 177

Survey Date 2012/07/25

P.O. No.

Location (No. & Name) 139 SUZANNE CIR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: Adjustable

MH Adjustment Ring Material: Cast Iron

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.2 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.3 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 13.5 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 11

Step Material: Metal



Sheet No. 177

Survey Date 2012/07/25

P.O. No.

Location (No. & Name) 139 SUZANNE CIR

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	13.0 ft.	Out	AC	C	8 in.		S	S	GR	511
2	12	12.9 ft.	In	AC	C	8 in.		S	S	OL	511
3	12	8.4 ft.	In	AC	C	8 in.		S	S	OU	511

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
12.5 ft.		WI	IW		J					12	12		



Sheet No. 151      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/23  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 14:39  
 Drainage Area 16      Location (No. & Name) TAIT RD  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 21.3 ft.      Outgoing Grade to Invert 21.3 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surcharge No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

Cover Shape: Circular      Cover Bearing Surface Diameter: 26.0 in.  
 Cover Size: 26.0 in.      Cover Size Width:      Cover Bearing Surface Diameter Width:  
 Cover Material: Cast Iron      Cover Frame Fit: Good  
 Vent Hole Diameter:      # of Vent Holes:

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

Cover Insert Type: None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 151

Survey Date 2012/07/23

P.O. No.

Location (No. & Name) TAIT RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- Sound
- Cracked
- Broken
- Corroded/Pitted/Worn
- Leaking
- Poor Installation

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

**Frame Condition**

- Sound
- Cracked
- Broken
- Missing
- Corroded/Pitted/Worn
- Coated

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Seal Condition**

- Sound
- Cracked
- Missing
- Loose/Not Attached
- Offset

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.5 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.7 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 20.8 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

- Channel Material: Brick
- Channel Type: Formed
- Channel Exposure: Fully Opened
- Channel Installed Yes

**Step**

# Steps: 19

Step Material: Metal



Sheet No. 151

Survey Date 2012/07/23

P.O. No.

Location (No. & Name) TAIT RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	21.3 ft.	Out	AC	C	8 in.		S	S	GR	551
2	7	8.2 ft.	In	PVC	C	8 in.		S	S	IU	551
3	2	21.2 ft.	In	AC	C	8 in.		S	S	GR	551

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp %	In1	In2	Fr	To	ImRef	Remarks
8.2 ft.		WI	IS						3			
12.3 ft.		WI	IW		J				3	9		
20.8 ft.		WI	IW						2	8		
20.8 ft.		B	DAR			15			5	6		



Sheet No. 154      Surveyor's name JDM      Certificate Number U-212-14669      Date 2012/07/23  
 System Owner TOWN OF TRUMBULL      Survey Customer      Time 15:09  
 Drainage Area 16      Location (No. & Name) 48 TAIT RD  
 P.O. No.      Locality/City Name TRUMBULL CT

**Further Location Details**      Inspection Level Level 2  
 Outgoing Rim to Invert 18.6 ft.      Outgoing Grade to Invert 18.6 ft.      Rim to Grade 0.0 ft.  
 Use of Sewer Sanitary      Year Laid      Year Rehabilitated      Tape/Media Number  
 Purpose Infiltration and Inflow investigation      Sewer Category  
 Pre-Cleaning No Pre-Cleaning      Date Cleaned      Weather  
 Location Code Light Highway      Potential for Runoff      Evidence of Surchage No  
 Access Point Type Manhole      Coordinate System  
 Northing      Easting      Elevation      Accuracy of GPS  
 Inspection Status Surface Inspection  
 Additional Information

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 154

Survey Date 2012/07/23

P.O. No.

Location (No. & Name) 48 TAIT RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 0 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.7 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.8 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 18.0 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner:

**Channel/Step**

**Channel**

Channel Material: Vitrified Clay
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 15
Step Material: Metal



Sheet No. 154

Survey Date 2012/07/23

P.O. No.

Location (No. & Name) 48 TAIT RD

Inspection Level Level 2

Locality/City Name TRUMBULL CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	18.6 ft.	Out	AC	C	8 in.		S	S	GR	555
2	9	18.5 ft.	In	AC	C	8 in.		S	S	OL	555
3	9	7.7 ft.	In	AC	C	8 in.		S	S	OU	555
4	1	18.5 ft.	In	AC	C	8 in.		S	S	GR	555

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
13.0 ft.		WI	IS		J					6	12		
17.0 ft.		WI	IR		J					1	7		
17.0 ft.		WI	IR		J					10			



**Sheet No.** 53      **Surveyor's name** JDM      **Certificate Number** U-212-14667      **Date** 2012/07/17  
**System Owner** TOWN OF TRUMBULL      **Survey Customer**      **Time** 10:08  
**Drainage Area** 16      **Location (No. & Name)** 12 WHITE BIRCH  
**P.O. No.**      **Locality/City Name** TRUMBULL, CT

**Further Location Details**      **Inspection Level** Level 2  
**Outgoing Rim to Invert** 9.1 ft.      **Outgoing Grade to Invert** 9.1 ft.      **Rim to Grade** 0.0 ft.  
**Use of Sewer** Sanitary      **Year Laid**      **Year Rehabilitated**      **Tape/Media Number**  
**Purpose** Infiltration and Inflow investigation      **Sewer Category**  
**Pre-Cleaning** No Pre-Cleaning      **Date Cleaned**      **Weather**  
**Location Code** Light Highway      **Potential for Runoff**      **Evidence of Surcharge** No  
**Access Point Type** Manhole      **Coordinate System**  
**Northing**      **Easting**      **Elevation**      **Accuracy of GPS**  
**Inspection Status** Surface Inspection  
**Additional Information**

**Manhole Surface Types**

Concrete Pavement <input checked="" type="checkbox"/>	Concrete Collar <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Grass/Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other <input type="checkbox"/>
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**Cover**

**Cover Shape:** Circular      **Cover Bearing Surface Diameter:** 26.0 in.  
**Cover Size:** 26.0 in.      **Cover Size Width:**      **Cover Bearing Surface Diameter Width:**  
**Cover Material:** Cast Iron      **Cover Frame Fit:** Good  
**Vent Hole Diameter:**      **# of Vent Holes:**

**Cover Type**

<input checked="" type="checkbox"/> Solid	<input type="checkbox"/> Bolted
<input type="checkbox"/> Vented/Slots	<input type="checkbox"/> Locking
<input type="checkbox"/> Gasketed	<input type="checkbox"/> Inner Cover
<input type="checkbox"/> Hatch Single	<input type="checkbox"/> Lamphole
<input type="checkbox"/> Hatch Double	

**Cover Condition**

<input checked="" type="checkbox"/> Sound	<input type="checkbox"/> Missing
<input type="checkbox"/> Cracked	<input type="checkbox"/> Corroded/Pitted
<input type="checkbox"/> Broken	<input type="checkbox"/> Bolts Missing
<input type="checkbox"/> Restraint Missing	
<input type="checkbox"/> Restraint Defective	

**Cover Insert**

**Cover Insert Type:** None

**Cover Insert Condition**

<input type="checkbox"/> Sound	<input type="checkbox"/> Leaking
<input type="checkbox"/> Poorly Fitting	<input type="checkbox"/> Corroded
<input type="checkbox"/> Cracked/Torn/Holes	<input type="checkbox"/> Insert Fell



Sheet No. 53

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) 12 WHITE BIRCH

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Adjustment Ring**

MH Adjustment Ring Type: None

MH Adjustment Ring Material:

MH Adjustment Ring Height:

**MH Adjustment Ring**

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Sound   | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Cracked | <input type="checkbox"/> Leaking              |
| <input type="checkbox"/> Broken  | <input type="checkbox"/> Poor Installation    |

**Frame**

Frame Material: Cast Iron

Frame Bearing Surface Width: 1.0 in.

Frame Bearing Surface Depth: 2.0 in.

Frame Clear Opening Diameter: 24.0 in.

Frame Offset Distance: 2 in.

Frame Depth:

Frame Seal Inflow:

**Frame Condition**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sound | <input type="checkbox"/> Missing              |
| <input type="checkbox"/> Cracked          | <input type="checkbox"/> Corroded/Pitted/Worn |
| <input type="checkbox"/> Broken           | <input type="checkbox"/> Coated               |

**Frame Seal Condition**

- |   |   |
|---|---|
| <input type="checkbox"/> Sound              | <input type="checkbox"/> Loose/Not Attached |
| <input type="checkbox"/> Cracked            | <input type="checkbox"/> Offset             |
| <input checked="" type="checkbox"/> Missing |   |

**Chimney**

Chimney Material 1: Brick

Chimney Material 2:

Chimney Clear Opening:

Chimney Depth: 1.3 ft.

Interior Chimney Coating/Liner:

Exterior Chimney Coating/Liner:

Chimney I/I:

**Cone**

Cone Type: Conical off

Exterior Cone Coating/Liner:

Interior Cone Coating/Liner:

Cone Depth: 5.4 ft.

Cone Material: Concrete

**Wall**

Wall Diameter 1:

Wall Diameter 2:

Wall Material: Concrete

Wall Depth: 8.6 ft.

Interior Wall Coating/Liner:

Exterior Wall Coating/Liner:

**Bench**

Bench Present?: Yes

Bench Material: Brick

Bench Coating/Liner: Cementitious

**Channel/Step**

**Channel**

Channel Material: Brick
Channel Type: Formed
Channel Exposure: Fully Opened
Channel Installed Yes

**Step**

# Steps: 6
Step Material: Metal



Sheet No. 53

Survey Date 2012/07/17

P.O. No.

Location (No. & Name) 12 WHITE BIRCH

Inspection Level Level 2

Locality/City Name TRUMBULL, CT

Inspection Status Surface Inspection

**Pipe Connections**

Num	Clk Pos	Rim to Invert	Dirac	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	Connects to Access Point ID
1	6	9.1 ft.	Out	AC	C	8 in.		S	S	GR	659
2	12	9.0 ft.	In	AC	C	8 in.		S	S	GR	659

**Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	In1	In2	Fr	To	ImRef	Remarks
5.4 ft.		WI	IW		J					7	12		
7.6 ft.		WI	SAM		J					12	12		SOIL AND DEBRIS
8.6 ft.		B	IR							12	12		





**APPENDIX E**  
**Area B Pipeline Rehabilitation Table**



**AREA B PIPELINE REHABILITATION TABLE**

Town of Trumbull, CT

Sewer System Rehabilitation Project 1

Street	Starting SMH	Ending SMH	Pipe Diameter	Length of Pipe	Existing Pipe Material	Defect Grade	Defect Notes	Type of Repair	Typical Joint distance	Repair (distance to defect measured from video inspection start manhole)
Alcoquin Tr	763	762	24	139.8	RCP	4	IR - IS - Infiltration Runner at Joints	Chemical Grout	8	test and seal main
Allen Dr	642	641	8	297.3	ACP	2	W - Infiltration Stains at break	Cure in Place		spot liner at 270'-4" long
Anden Rd	5-108	5-107	8	291.1	ACP	4	Infiltration Runner with Deposits with Attached Encrustation	Cure in Place 3x		spot liner at 208'-4" long, spot liner at 257.5'-4" long, spot liner at 280'-4" long
Anden Rd	5-111	5-108	8	299.8	ACP	2	Infiltration dripper with encrustation at first lateral joint	Lateral Liner		top hat lateral liner at 149.1'
Anden Rd	5-116	5-115	8	162	ACP	5	Infiltration Gusher - 6' service	Cure in Place, Lateral Liner 2x		spot liner at 24.5'-4" long, top hat lateral liner at 9.6' and 150.9'
Anden Rd	5-124	5-122	8	222.8	ACP	5	Hole in Pipe with Infiltration Dropper	Cure in Place 2x		spot liner at 87'-4" long, spot liner at 172'-4" long
Anden Rd	5-129	5-125	8	195.3	ACP	5	Infiltration Gusher at 6' lateral connection point.	Lateral Liner		top hat lateral liner at 111'
Anden Rd	5-129	5-130	8	297.6	ACP	5	Crack in Pipe with Infiltration Runner.	Cure in Place		spot liner at 275.5'-4" long
Canterbury Ln	626B	617	8	127.3	ACP	2	IS - Infiltration Stain at Joints	Cure in Place	13	spot liner at 176'-13" long
Canterbury Ln	631	629	8	253.2	ACP	4	IG - Infiltration Gusher at first Joint up Lateral	Lateral Liner		top hat lateral liner at 219.2'
Church Hill Rd	753	752	10	293.6	ACP	2	W - Infiltration Weepers at break	Cure in Place		spot liner at 70.9'-4" long
Geraldine Cir	496	495	8	163.2	ACP	4	IR - Infiltration Running at first Joint up Lateral 2x	Lateral Liner 2x		top hat lateral liner at 50.0' with gasket to be trimmed, top hat lateral liner at 118.3'
Geraldine Cir	496	497	8	265	ACP	2	ID - Infiltration Dropper at Tap Break in, HSY, IS x2 at Joint	Cure in Place, Lateral Liner	13	top hat liner at 234 with 3' protruding lateral to be trimmed, spot liner at 256.5'-4" long
Grandview Dr	572	571	8	246.8	ACP	2	IS - Infiltration stain at break, IS at Joint	Cure in Place		spot liner at 261'-4" long
Lawrence Rd	5-98	5-97	8	146.1	ACP	5	Infiltration gusher at joint	Chemical Grout	7	test and seal main
Lawrence Rd	5-99	5-98	8	146.6	ACP	5	Hole voids visible; Infiltration runner	Cure in Place		spot liner at 50'-6" long
Lawrence Rd	502	501	8	166.2	ACP	4	IG - Infiltration Gusher at first Joint up Lateral	Lateral Liner		top hat lateral liner at 11.8'
Lawrence Rd	504	503	8	296.1	ACP	5	HVV - Hole, void visible, IR at fracture	Cure in Place 2x		spot liner at 76.7'-4" long, spot liner at 166.8'-4" long
Lillian Dr	5-135	5-134	8	236.6	ACP	2	Infiltration gusher at joint	Chemical Grout, Cure in Place	13	test and seal main, test and seal lateral at 111', spot liner at 185'-4" long
Lindeman Dr	5-15	5-8	8	106.9	ACP	4	Infiltration at joint	Chemical Grout	13	test and seal main
Linley Rd ESMT	584	583	8	296.5	ACP	2	IS - Infiltration Stain, FM - Fracture Multiple	Cure in Place		spot liner at 178.4'-4" long
Minor Dr	771	770	24	159.5	RCP	2	ID - Infiltration Dropper at Lateral Connection, DAE x2, IS x3, IW x2	Chemical Grout	8	test and seal main
Middlebrooks Ave	682	681A	8	209.2	ACP	5	IG, IW, IS - Infiltration Gusher at Joints	Chemical Grout	13	test and seal main
Middlebrooks Ave	702	695	8	191.1	ACP	3	IR - Infiltration Runner at first Joint up Lateral	Lateral Liner		top hat lateral liner at 135.9'
Norwood Terr	1125	1124	8	80.0	ACP	5	DAE - Deposits Attached Encrustation, 15%	Chemical Grout	20	test and seal main
Old Hollow Rd ESMT	937A	936	20	274.0	RCP	2	IS - IW x2, RF ISx3 - Infiltration Stain at Joint	Chemical Grout	8	test and seal main
Old Town Rd ESMT	67	66	12	250.0	VCP	4	IR - Infiltration Runner, ID, IW x2, IS x4 at Joints	Chemical Grout	3	test and seal main
Old Town Rd ESMT	68	67	12	17.6	VCP	4	IR - Infiltration Runner at Joint, IW x2 at joints	Chemical Grout	3	test and seal main
Park St ESMT	929	928	24	306	RCP	2	ID - Infiltration Dropper at lateral connection	Lateral Liner		top hat lateral liner at 215.6'
Park St ESMT	931	930	24	225.2	RCP	3	ID, ISx5, IW, DAE - Infiltration Dropper at Joints	Chemical Grout, Cure in Place	8	test and seal main, spot liner at 103'-4" long
Park St ESMT	932	931	24	100.5	RCP	4	IR - Infiltration Runner at Joint, IS x3	Chemical Grout	8	test and seal main
Park St ESMT	932	933	24	106.9	RCP	4	IR - Infiltration Runner at Deposits, IW, DAE	Lateral Liner		top hat lateral liner at 102.3'
Park St ESMT	934	933	24	226.6	RCP	4	DAE x3, ID x2, IS	Chemical Grout, Lateral Liner		test and seal main, top hat lateral liner at 167.7'
Park St ESMT (Under State Hwy 25)	935	934	24	559.5	RCP	2	Infiltration Gusher at Joint	Cure in Place x2	8	spot liner at 10-6" long, spot liner at 18-6" long
Reservoir Ave (ROW)	5-34	5-33	14	118.1	ACP	5	Encrustation at joint; infiltration dropper	Chemical Grout, Cure in Place	13	test and seal main, spot liner at 42'-4" long
Reservoir Ave	5-8	5-7	8	299.1	ACP	3	Hole in Pipe with infiltration runner	Cure in Place		spot liner at 288'-4" long
Reservoir Ave	5-11	5-10	8	210.1	ACP	4	Infiltration Runner; at joint tight before P.S. Influent channel	Cure in Place		spot liner at 124.5'-4" long
Reservoir Ave (ROW)	5-31	5-30	14	128.6	ACP	4	W - Infiltration Weeper at joint	Cure in Place		spot liner at 126'-4" long
Rexview Cir	599	598	8	70.6	ACP	2	W - Infiltration Weeper at fracture	Cure in Place		spot liner at 64.8'-4" long
Riverbend Rd ESMT	914	777	24	347	RCP	2	W - Infiltration Weeper at joint	Chemical Grout	8	test and seal main
Riverbend Rd ESMT	924	923	24	276.9	RCP	2	W - Infiltration Weeper at lateral connection, DAE	Cure in Place, Lateral Liner		spot liner at 264'-4" long, top hat lateral liner at 80.7'
Riverbend Rd ESMT	927	926	24	257	RCP	2	IW - Infiltration Weeper at Fracture, DAE x2	Cure in Place	8	spot liner at 256'-4" long
Rockland Cir	1130	1129	8	162.5	ACP	5	IG - Infiltration Gusher at fracture	Cure in Place		spot liner at 3.7'-4" long
Sunnycrest Rd ESMT	5-97	5-96	8	68.5	ACP	4	roots at joint; joint offset medium	Cure in Place		spot liner at 62.3'-4" long
Sunset Ave	527	526	8	282	ACP	5	IG, IW, at Joints, IS at fracture	Lateral Liner x2,		top hat lateral liner at 7.5', top hat lateral liner at 118'-4" long, spot liner at 239'-4" long
Suzanne Cir	514	522	8	282.7	ACP	3	IG - Infiltration Gusher at first Joint up lateral	Cure in Place x2		top hat lateral liner at 137.6'
Tait Rd	555	554	8	227.4	ACP	3	ID - Infiltration Dropper at lateral	Lateral Liner		top hat lateral liner at 59.5'
Tails Mill Rd	550A	551	8	184.5	ACP	5	IG - Infiltration Gusher at Joint	Cure in Place		spot liner at 182.5'-4" long
White Oak Rd	5-109	5-108	8	259.3	ACP	3	Infiltration Dropper with Deposits and Attached Encrustation at Joint.	Cure in Place, Top Hat Liner		spot liner at 81'-4" long, top hat lateral liner at 8.1'
White Plains Rd	471	470	24	282.0	RCP	5	IG - Infiltration Gusher	Cure in Place		spot liner at 176'-4" long
White Plains Rd	489	488	24	297.0	RCP	4	B-Broken, TFD IR	Cure in Place		spot liner at 160'-4" long, top hat liner at 168.5'
Woodlawn Dr	1139A	1138	8	93.5	ACP	5	IG - Infiltration Gusher at lateral connection	Lateral Liner		top hat lateral liner at 53.3'



**APPENDIX F**  
**Area B Pipeline CCTV Inspection Reports**





**Green Mountain Pipeline Services, Inc.**  
 244 Waterman Road  
 So. Royalton, VT 05068  
 Tel: 802-763-7022  
 Fax: 802-763-7048  
 E-mail: dick.gmps@myfairpoint.net

## Inspection Report / Inspection: 1

Date <b>10/5/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>113</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/5/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-108</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-107</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>291.10 ft</b>	Section Length <b>291.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:735	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-108	
	0.00	MWL	Water Level, 15 % of Cross Sectional Area	
	57.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	138.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / DAE	
	180.10	TFC	Tap Factory Made Capped, at 02 o'clock, 6", within 8 inches of joint: NO	
	207.00	DAE	Deposits Attached Encrustation, 5 % of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: YES	31_32_262_A.JPG
	257.60	RPPD	Repair Patch Defective, at 10 o'clock, within 8 inches of joint: NO / IR DAE	31_32_263_A.JPG
	257.60	ID	Infiltration Dripper, at 10 o'clock, within 8 inches of joint: NO	31_32_264_A.JPG
	280.00	IR	Infiltration Runner, at 10 o'clock, within 8 inches of joint: YES / IR	31_32_265_A.JPG
	280.00	DAE	Deposits Attached Encrustation, 5 % of Cross Sectional Area, At 10 o'clock, Within 8 inches of joint: YES / DAE	31_32_266_A.JPG
	291.10	AMH	Downstream Manhole, Survey Ends / MH 5-107	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
<b>4100</b>	<b>4131</b>	<b>4</b>	<b>13</b>	<b>17</b>	<b>4</b>	<b>2.6</b>	<b>2.83</b>

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Arden Rd</b>	Date : <b>10/5/2011</b>	Pipe Segment Reference :	Section No : <b>113</b>
-------------------------------	-----------------------------	----------------------------	--------------------------	----------------------------



Photo: 31\_32\_262\_A.JPG, VCR No.: Tape 1  
207FT, Deposits Attached Encrustation, 5 % of Cross Sectional Area,  
From 12 to 12 o'clock, Within 8 inches of joint: YES



Photo: 31\_32\_263\_A.JPG, VCR No.: Tape 1  
257.6FT, Repair Patch Defective, at 10 o'clock, within 8 inches of joint:  
NO



### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Arden Rd</b>	Date : <b>10/5/2011</b>	Pipe Segment Reference :	Section No : <b>113</b>
-------------------------------	-----------------------------	----------------------------	--------------------------	----------------------------



Photo: 31\_32\_266\_A.JPG, VCR No.: Tape 1  
280FT, Deposits Attached Encrustation, 5 % of Cross Sectional Area,  
At 10 o'clock, Within 8 inches of joint: YES



**Green Mountain Pipeline Services, Inc.**  
 244 Waterman Road  
 So. Royalton, VT 05068  
 Tel: 802-763-7022  
 Fax: 802-763-7048  
 E-mail: dick.gmps@myfairpoint.net

## Inspection Report / Inspection: 1

Date <b>10/5/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>116</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/5/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-111</b>	Downstream MH <b>5-108</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>299.80 ft</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Length surveyed <b>299.80 ft</b>	
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>	Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>	Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:750	Position	Code	Observation	Photo
	<b>5-111</b>			
	7.50	AMH	Upstream Manhole, Survey Begins / MH 5-111	
	91.10	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	94.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / DAE	
	135.10	MWL	Water Level, 10 % of Cross Sectional Area	
	149.10	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO / DAE IR	<a href="#">28_29_224_A.JPG</a>
	216.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	290.00	S1	MCU	Camera Underwater, Start
	299.80	F1	MCU	Camera Underwater, Finish
	299.80	AMH	Downstream Manhole, Survey Ends / MH 5-108	
	<b>5-108</b>			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4222	0	12	12	0	3	3



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### Inspection photos / Inspection: 1

City :  
**Trumbull, CT**

Street :  
**Arden Rd**

Date :  
**10/5/2011**

Pipe Segment Reference :

Section No :  
**116**



Photo: 28\_29\_224\_A.JPG, VCR No.: Tape 1  
149.1FT, Tap Factory Made Defective, at 10 o'clock, 6", within 8  
inches  
of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/5/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>122</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadiyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/5/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-116</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-115</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>182.00 ft</b>	Section Length <b>182.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:465	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-116	
	9.60	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Infiltration Gusher	
	10.00	MWL	Water Level, 10 % of Cross Sectional Area	
	24.60	HSV	Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO	24_25_193_A.JPG
	31.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continuous Flow.	
	106.90	MWLS	Water Level, Sag In Pipe, 35 % of Cross Sectional Area	
	142.10	H	Hole, at 12 o'clock, within 8 inches of joint: NO / not through pipe	24_25_196_A.jpg
	150.90	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / Infiltration Gusher	
	150.90	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / Deposits Attached Encrustation.	
	182.00	AMH	Downstream Manhole, Survey Ends / MH 5-115	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5200	3123	10	9	19	5	2.25	3.17

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Arden Rd</b>	Date : <b>10/5/2011</b>	Pipe Segment Reference :	Section No : <b>122</b>
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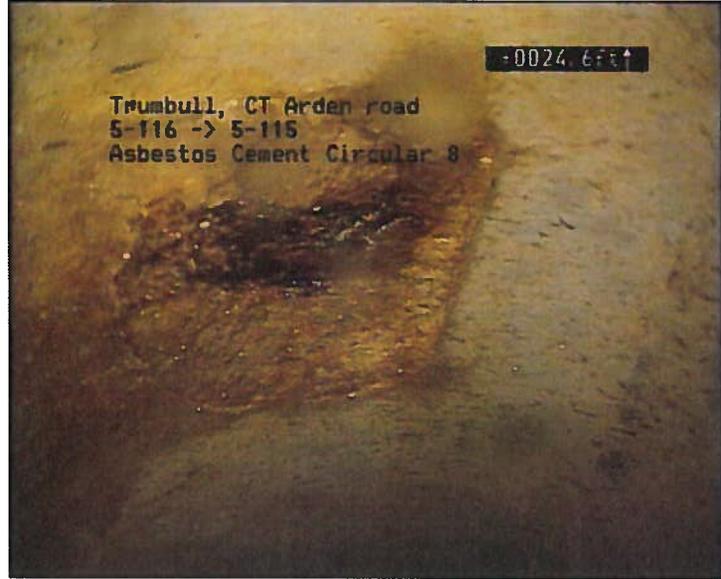


Photo: 24\_25\_193\_A.JPG, VCR No.: Tape 1  
24.6FT, Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO

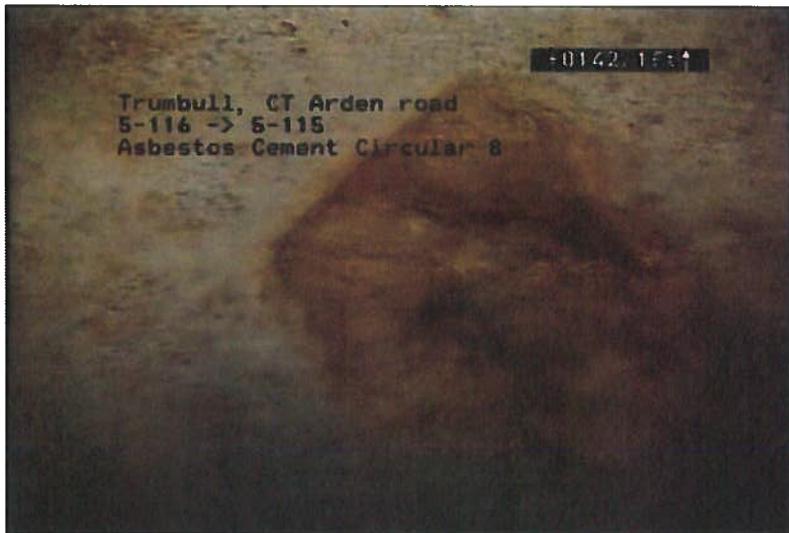


Photo: 24\_25\_196\_A.jpg, VCR No.: Tape 1  
142.1FT, Hole, at 12 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>12/19/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CJ</b>	Pipe Segment Reference	Section No. <b>135</b>
Certificate No. <b>1234</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/19/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-125</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-124</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Main Highway - Urban</b>	Length surveyed <b>222.80 ft</b>	Section Length <b>222.80 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>22</b>	Lining Method <b>Other</b>

Add. Information :

1:570	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-125	
	52.90	TFA	Tap Factory Made Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	91.40	H	Hole, at 12 o'clock, within 8 inches of joint: NO / dripping	4_5_28_A.JPG
	108.70	TFA	Tap Factory Made Active, at 09 o'clock, 4", within 8 inches of joint: NO	
	123.30	TFA	Tap Factory Made Active, at 03 o'clock, 4", within 8 inches of joint: NO	
	125.10	TFA	Tap Factory Made Active, at 03 o'clock, 4", within 8 inches of joint: YES	
	161.50	TBA	Tap Break-In Active, at 09 o'clock, 4", within 8 inches of joint: NO / spl	
	171.70	BSV	Broken Soil Visible, from 07 to 06 o'clock, within 8 inches of joint: NO	375_376_2231_A.jpg
	190.90	TFA	Tap Factory Made Active, at 09 o'clock, 4", within 8 inches of joint: NO	
	201.60	TBA	Tap Break-In Active, at 09 o'clock, 4", within 8 inches of joint: NO	
	222.80	AMH	Downstream Manhole, Survey Ends / MH 5-124	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5200	0000	10	0	10	5	0	5



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Tel: 802-763-7022  
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E-mail: dick.gmps@myfairpoint.net

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Arden Rd</b>	Date : <b>12/19/2011</b>	Pipe Segment Reference :	Section No : <b>135</b>
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Photo: 4\_5\_28\_A.JPG, VCR No.: 22  
91.4FT, Hole, at 12 o'clock, within 8 inches of joint: NO



Photo: 375\_376\_2231\_A.jpg, VCR No.: 22  
171.7FT, Broken Soil Visible, from 07 to 06 o'clock, within 8 inches of joint: NO



**Green Mountain Pipeline Services, Inc.**  
 244 Waterman Road  
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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>139</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-129</b>	
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-125</b>	
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>	
Location Code <b>Light Highway</b>	Length surveyed <b>230.00 ft</b>	Section Length <b>230.00 ft</b>	
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>	Dia./Height <b>8 inch</b>	
Year Laid	Material <b>Asbestos Cement</b>	Lining Method <b>Other</b>	
Year Rehabilitated			
Tape / Media No. <b>Tape 1</b>			

Add. Information :

1:585	Position	Code	Observation	Photo
	7.50	AMH	Upstream Manhole, Survey Begins / MH 5-129	
	109.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	110.70	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO	
	110.70	IG	Infiltration Gusher, at 10 o'clock, within 8 inches of joint: NO	<a href="#">19_20_148_A.JPG</a>
	189.40	MWLS	Water Level, Sag In Pipe, 20 % of Cross Sectional Area / Start	
	195.30	MWLS	Water Level, Sag In Pipe, 55 % of Cross Sectional Area / Continues Into Manhole.	
	211.70	MWL	Water Level, 5 % of Cross Sectional Area	
	230.00	AMH	Downstream Manhole, Survey Ends / 5-125	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5141	0	15	15	0	3	3

### Inspection photos / Inspection: 1

City :  
**Trumbull, CT**

Street :  
**Arden Rd**

Date :  
**10/4/2011**

Pipe Segment Reference :

Section No :  
**139**



Photo: 19\_20\_148\_A.JPG, VCR No.: Tape 1  
110.7FT, Infiltration Gusher, at 10 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>140</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadiyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Arden Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-130</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-129</b>
Loc. details Location Code <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
	Length surveyed <b>297.60 ft</b>	Section Length <b>297.60 ft</b>
Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>	
Year Laid	Dia./Height <b>8 inch</b>	
Year Rehabilitated	Material <b>Asbestos Cement</b>	
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>	

Add. Information :

1:750	Position	Code	Observation	Photo
	<b>5-129</b>			
	3.40	AMH	Downstream Manhole, Survey Begins / MH 5-129	
	3.40	MWL	Water Level, 5 % of Cross Sectional Area	
	18.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	105.90	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	135.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO / Continious Flow.	
	164.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	231.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	275.60	CC	Crack Circumferential, from 12 to 11 o'clock, within 8 inches of joint: NO	18_19_139_A.JPG
	275.60	IG	Infiltration Gusher, from 04 to 08 o'clock, within 8 inches of joint: NO	18_19_140_A.JPG
	297.60	AMH	Upstream Manhole, Survey Ends / MH 5-130	
	<b>5-130</b>			

QSR <b>1100</b>	QMR <b>5121</b>	SPR <b>1</b>	MPR <b>7</b>	OPR <b>8</b>	SPRI <b>1</b>	MPRI <b>3.5</b>	OPRI <b>2.67</b>
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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Arden Rd</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>140</b>
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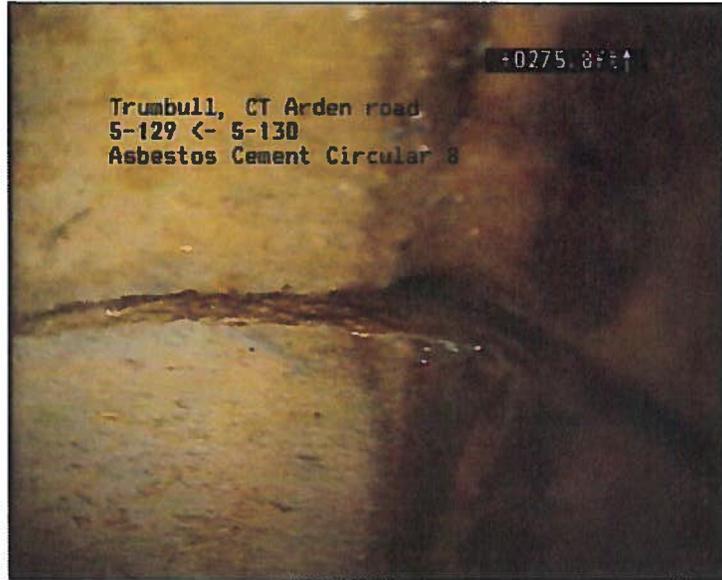


Photo: 18\_19\_139\_A.JPG, VCR No.: Tape 1  
275.6FT, Crack Circumferential, from 12 to 11 o'clock, within 8 inches of joint: NO

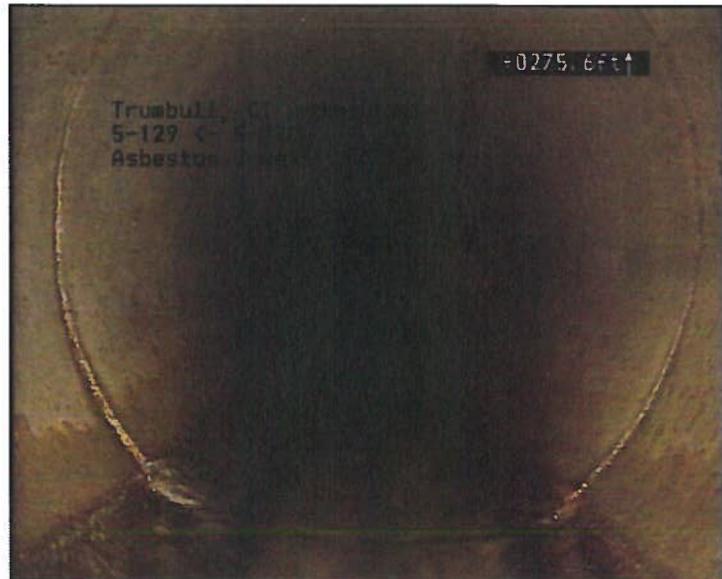


Photo: 18\_19\_140\_A.JPG, VCR No.: Tape 1  
275.6FT, Infiltration Gusher, from 04 to 08 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/12/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>102</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Eastwood Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-97</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-96</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>68.50 ft</b>	Section Length <b>68.50 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #6</b>	Lining Method <b>Other</b>

Add. Information :

1:180	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-97	
	62.30	JOM	Joint Offset Medium	
	62.30	RMJ	Roots Medium Joint, from 12 to 12 o'clock, 10 %, within 8 inches of joint: YES	96_97_677_A.jpg
	68.50	AOC	Drop Connection, Survey Ends / MH 5-96	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
1100	4100	1	4	5	1	4	2.5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>102</b>
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Photo: 96\_97\_677\_A.jpg, VCR No.: disc #6  
62.3FT, Roots Medium Joint, from 12 to 12 o'clock, 10 %, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/12/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>103</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Eastwood Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-98</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-97</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>242.10 ft</b>	Section Length <b>242.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #6</b>	Lining Method <b>Other</b>

Add. Information :

1:615	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-98	
	48.60	IG	Infiltration Gusher, from 04 to 08 o'clock, within 8 inches of joint: YES / IG	47_48_280_A.JPG
	81.20	JAM	Joint Angular Medium	
	115.90	TFC	Tap Factory Made Capped, at 02 o'clock, 6", within 8 inches of joint: NO	
	191.10	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO / DAE	
	242.10	AMH	Downstream Manhole, Survey Ends / MH 5-97	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
1100	5121	1	7	8	1	3.5	2.67

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>103</b>
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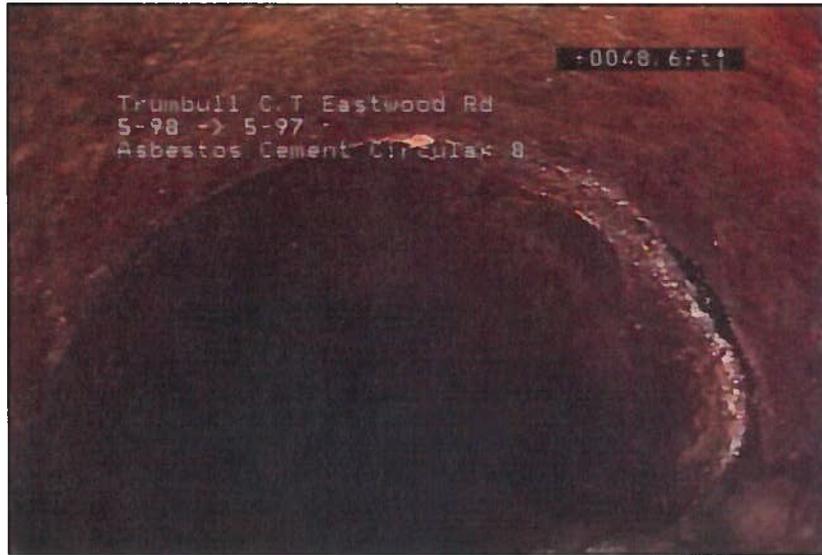


Photo: 47\_48\_280\_A.JPG, VCR No.: disc #6  
48.6FT, Infiltration Gusher, from 04 to 08 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/12/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>104</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/11/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Eastwood Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-99</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-98</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>146.60 ft</b>	Section Length <b>146.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #6</b>	Lining Method <b>Other</b>

Add. Information :

1:375	Position	Code	Observation	Photo			
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-99				
	50.00	H	Hole, at 01 o'clock, within 8 inches of joint: NO	46_47_270_A.JPG			
	50.00	IW	Infiltration Weeper, at 01 o'clock, within 8 inches of joint: NO	46_47_271_A.JPG			
	51.50	HVV	Hole Void Visible, at 02 o'clock, within 8 inches of joint: NO	46_47_272_A.JPG			
	51.50	IW	Infiltration Weeper, at 02 o'clock, within 8 inches of joint: NO	46_47_273_A.JPG			
	53.00	HVV	Hole Void Visible, at 02 o'clock, within 8 inches of joint: YES	46_47_274_A.JPG			
	53.00	IR	Infiltration Runner, at 02 o'clock, within 8 inches of joint: YES	46_47_275_A.JPG			
	107.80	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / DAE, Roots				
	146.60	AOC	Drop Connection, Survey Ends / MH 5-98				
QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5241	4123	14	10	24	4.67	2.5	3.43

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>104</b>
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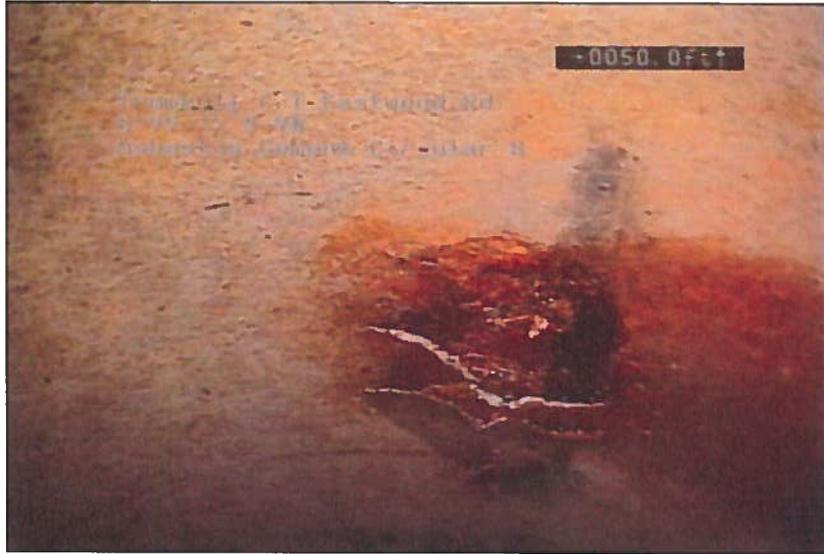


Photo: 46\_47\_270\_A.JPG, VCR No.: disc #6  
 50FT, Hole, at 01 o'clock, within 8 inches of joint: NO

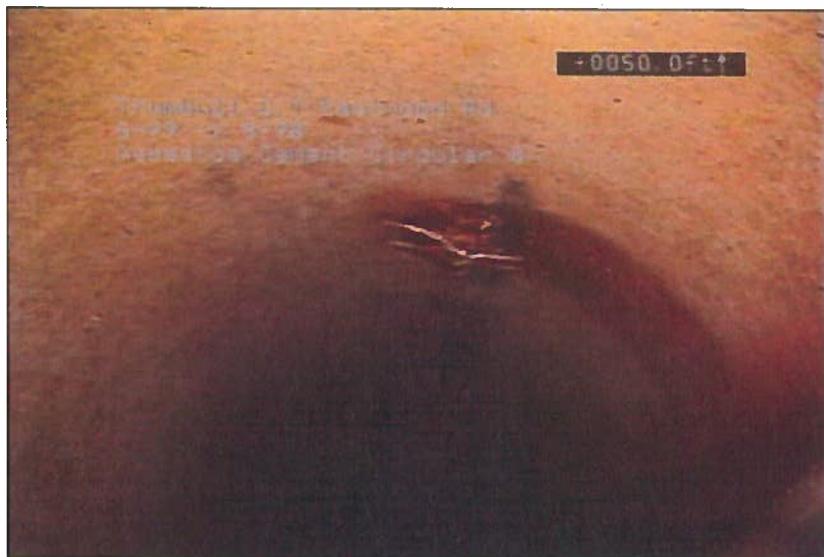


Photo: 46\_47\_271\_A.JPG, VCR No.: disc #6  
 50FT, Infiltration Weeper, at 01 o'clock, within 8 inches of joint: NO

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>104</b>
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Photo: 46\_47\_272\_A.JPG, VCR No.: disc #6  
51.5FT, Hole Void Visible, at 02 o'clock, within 8 inches of joint: NO

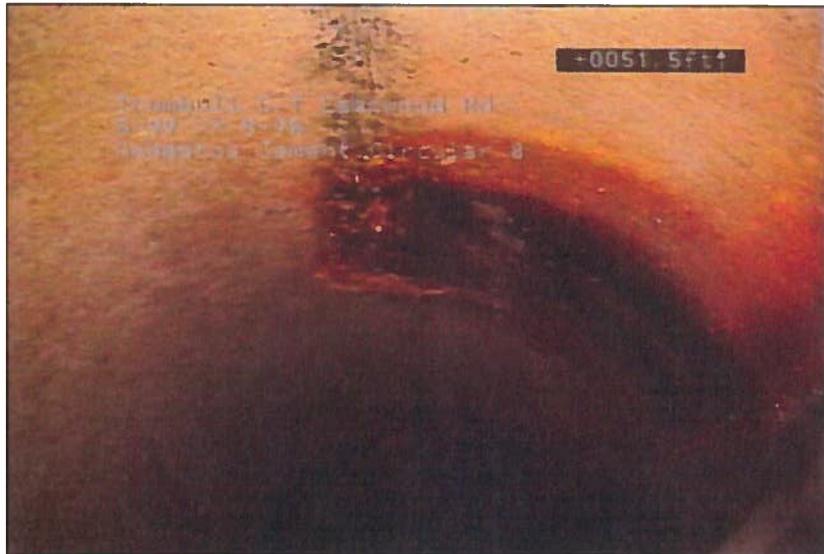


Photo: 46\_47\_273\_A.JPG, VCR No.: disc #6  
51.5FT, Infiltration Weeper, at 02 o'clock, within 8 inches of joint: NO

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Eastwood Rd</b>	Date : <b>10/11/2011</b>	Pipe Segment Reference :	Section No : <b>104</b>
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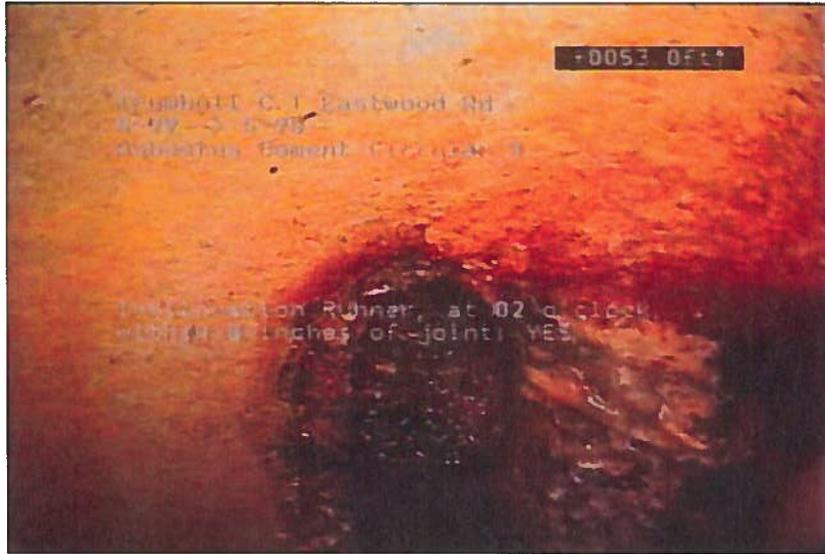


Photo: 46\_47\_274\_A.JPG, VCR No.: disc #6  
53FT, Hole Void Visible, at 02 o'clock, within 8 inches of joint: YES



Photo: 46\_47\_275\_A.JPG, VCR No.: disc #6  
53FT, Infiltration Runner, at 02 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/4/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>146</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/4/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Lillian Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-135</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-134</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>236.60 ft</b>	Section Length <b>236.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information :

1:600	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-135	
	27.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	35.10	MWL	Water Level, 5 % of Cross Sectional Area	
	43.60	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	111.00	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO / Infiltration Gusher.	17_18_127_A.JPG
	166.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	185.90	FC	Fracture Circumferential, from 12 to 11 o'clock, within 8 inches of joint: NO	17_18_129_A.JPG
	186.00	IG	Infiltration Gusher, from 06 to 09 o'clock, within 8 inches of joint: NO	17_18_130_A.JPG
	236.60	AMH	Downstream Manhole, Survey Ends / MH 5-134	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	5122	2	9	11	2	3	2.75

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Lillian Dr</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>146</b>
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Photo: 17\_18\_127\_A.JPG, VCR No.: Tape 1  
111FT, Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO

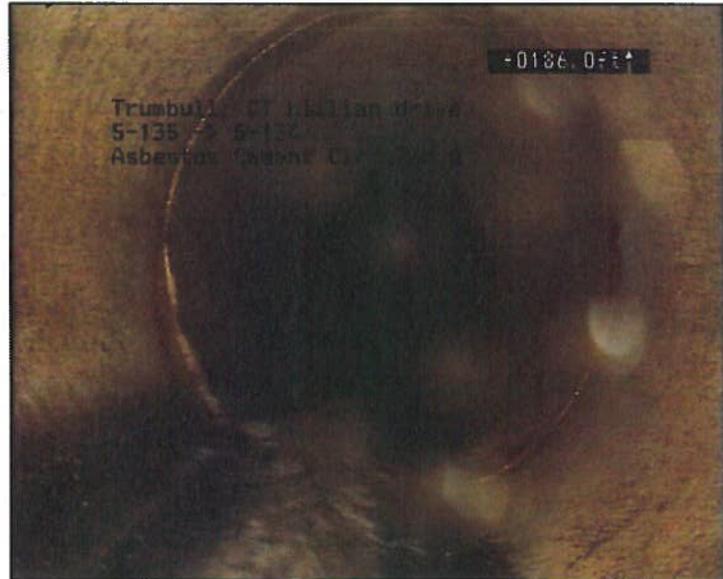


Photo: 17\_18\_129\_A.JPG, VCR No.: Tape 1  
185.9FT, Fracture Circumferential, from 12 to 11 o'clock, within 8 inches of joint: NO



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Lillian Dr</b>	Date : <b>10/4/2011</b>	Pipe Segment Reference :	Section No : <b>146</b>
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Photo: 17\_18\_130\_A.JPG, VCR No.: Tape 1  
186FT, Infiltration Gusher, from 06 to 09 o'clock, within 8 inches of joint:  
NO



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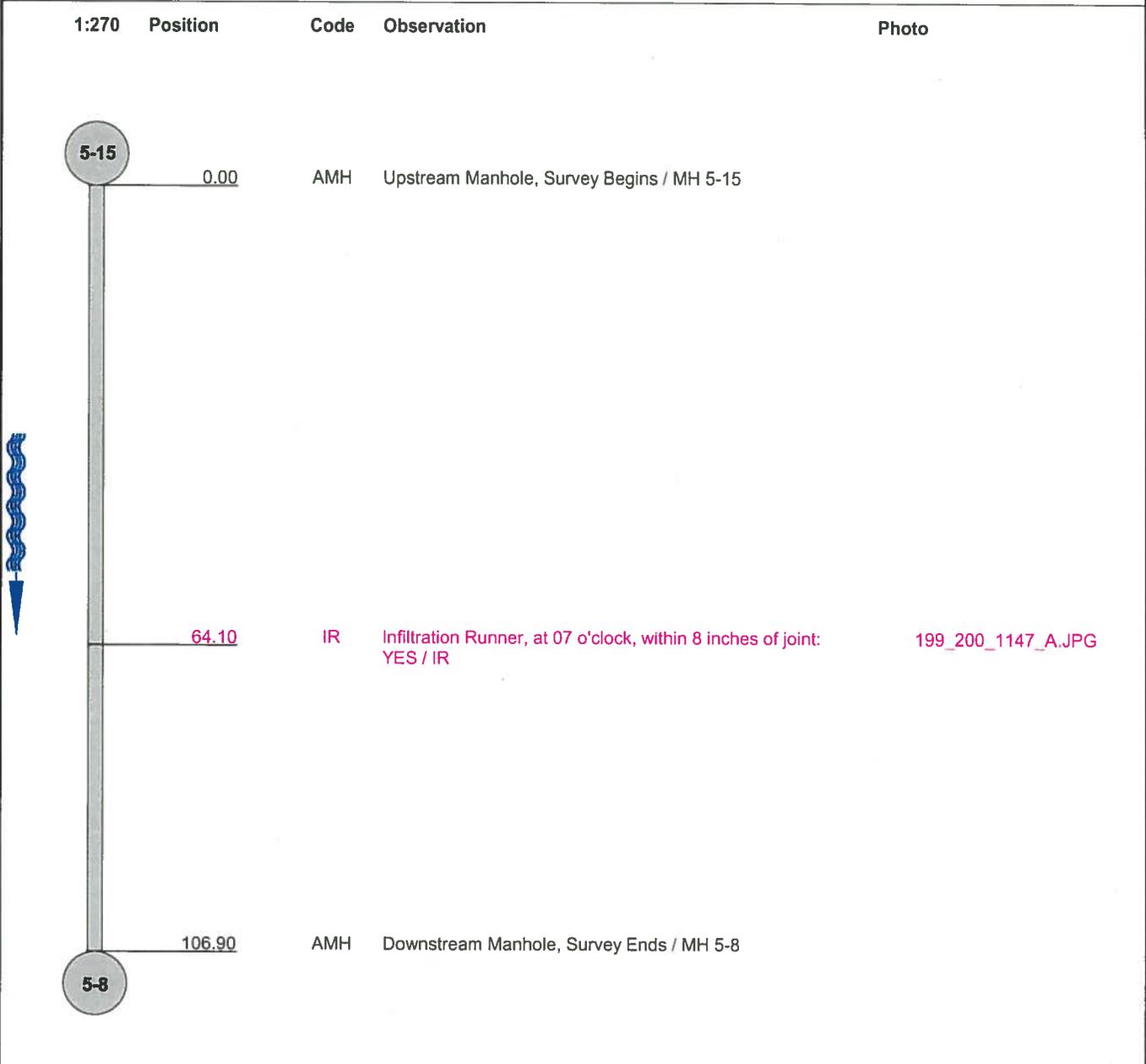
## Inspection Report / Inspection: 1

Date <b>12/14/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>15</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/14/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Lindeman Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-15</b>	Downstream MH <b>5-8</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>106.90 ft</b>
Loc. details <b>Light Highway</b>	Flow Control <b>Not Controlled</b>	Length surveyed <b>106.90 ft</b>	

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #20</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4100	0	4	4	0	4	4

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Lindeman Dr</b>	Date : <b>12/14/2011</b>	Pipe Segment Reference :	Section No : <b>15</b>
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Photo: 199\_200\_1147\_A.JPG, VCR No.: disc #20  
64.1FT, Infiltration Runner, at 07 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/12/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>36</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/12/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>14" Easement</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-34</b>
Loc. details	Location Code <b>Easement/Right of Way</b>	Drainage Area	Downstream MH <b>5-33</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>118.10 ft</b>	Section Length <b>118.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>15 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #17</b>	Lining Method <b>Other</b>

Add. Information :

1:300	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-34	
	42.30	IG	Infiltration Gusher, from 12 to 12 o'clock, within 8 inches of joint: YES / IG	154_155_960_A.JPG
	87.80	IG	Infiltration Gusher, at 08 o'clock, within 8 inches of joint: YES / IG	154_155_961_A.JPG
	118.10	AMH	Downstream Manhole, Survey Ends / MH 5-33	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5200	0	10	10	0	5	5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>14" Easement</b>	Date : <b>12/12/2011</b>	Pipe Segment Reference :	Section No : <b>36</b>
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Photo: 154\_155\_960\_A.JPG, VCR No.: disc #17  
42.3FT, Infiltration Gusher, from 12 to 12 o'clock, within 8 inches of joint: YES



Photo: 154\_155\_961\_A.JPG, VCR No.: disc #17  
87.8FT, Infiltration Gusher, at 08 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/14/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>8</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/14/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>Reservoir Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-8</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-7</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>299.10 ft</b>	Section Length <b>299.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #19</b>	Lining Method <b>Other</b>

Add. Information :

1:750	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-8	
	88.10	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	143.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	237.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	287.90	DAE	Deposits Attached Encrustation, 5 % of Cross Sectional Area, From 12 to 12 o'clock, within 8 inches of joint: YES / DAE	
	287.90	ID	Infiltration Dropper, at 12 o'clock, within 8 inches of joint: YES / ID	182_183_1073_A.JPG
	299.10	AMH	Downstream Manhole, Survey Ends / MH 5-7	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	3121	0	5	5	0	2.5	2.5

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Reservoir Ave</b>	Date : <b>12/14/2011</b>	Pipe Segment Reference :	Section No : <b>8</b>
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Photo: 182\_183\_1073\_A.JPG, VCR No.: disc #19  
287.9FT, Infiltration Dripper, at 12 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/14/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>11</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/14/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Reservoir Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-11</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-10</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>210.10 ft</b>	Section Length <b>210.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #18</b>	Lining Method <b>Other</b>

Add. Information :

1:525	Position	Code	Observation	Photo
	<b>5-11</b>			
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-11	
	7.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	30.60	TBA	Tap Break-In Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	62.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	92.10	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	124.50	H	Hole, at 11 o'clock, within 8 inches of joint: YES	179_180_1054_A.JPG
	124.50	IR	Infiltration Runner, at 11 o'clock, within 8 inches of joint: YES / IR	179_180_1055_A.JPG
	202.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	210.10	AMH	Downstream Manhole, Survey Ends / MH 5-10	
	<b>5-10</b>			

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Reservoir Ave</b>	Date : <b>12/14/2011</b>	Pipe Segment Reference :	Section No : <b>11</b>
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Photo: 179\_180\_1054\_A.JPG, VCR No.: disc #18  
124.5FT, Hole, at 11 o'clock, within 8 inches of joint: YES



Photo: 179\_180\_1055\_A.JPG, VCR No.: disc #18  
124.5FT, Infiltration Runner, at 11 o'clock, within 8 inches of joint: YES



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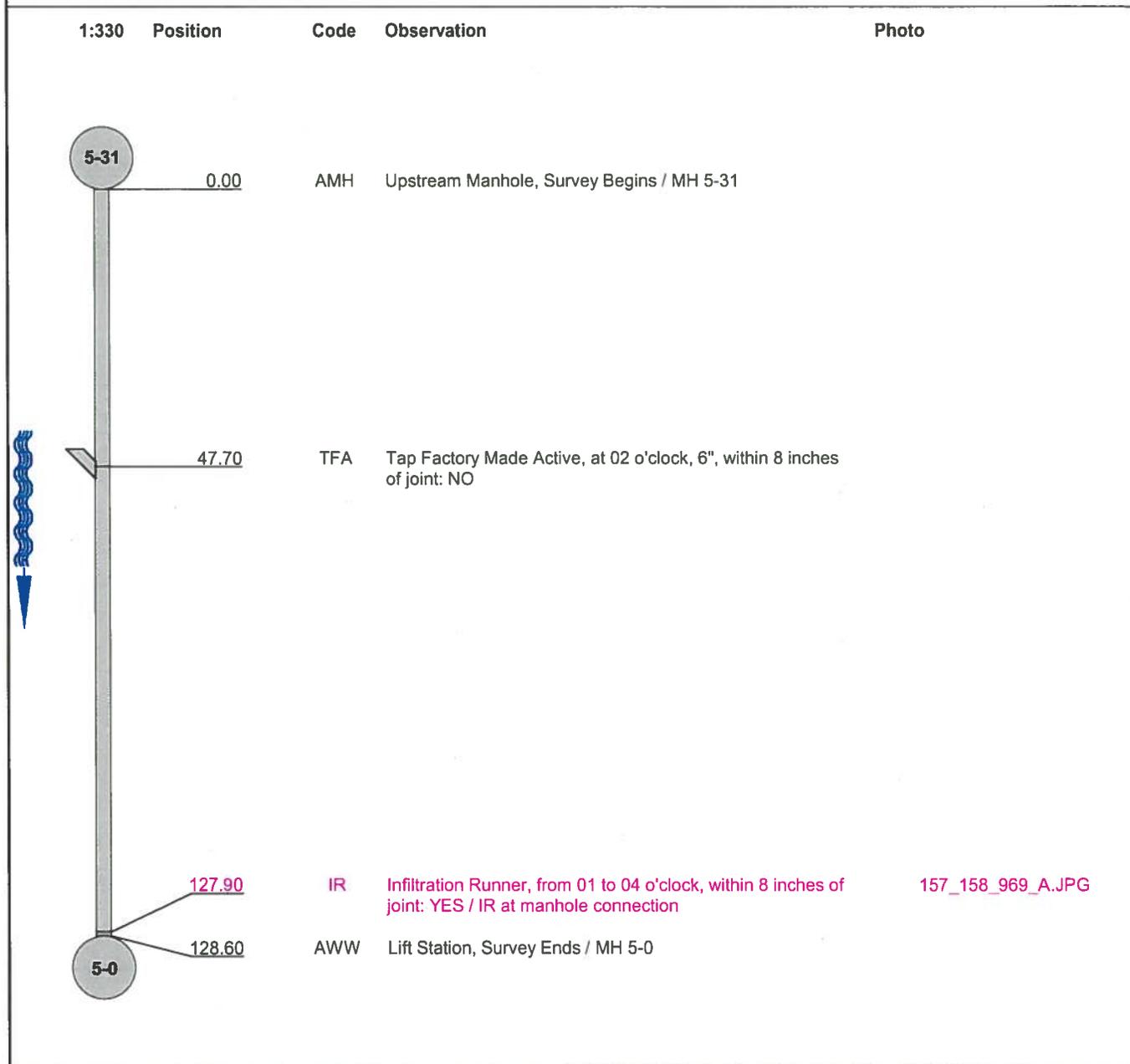
## Inspection Report / Inspection: 1

Date <b>12/12/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>33</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/12/2011</b>	Pre-Cleaning <b>No Pre-Cleaning</b>	Sewer Category

Street <b>14" Easement</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-31</b>	City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-0</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>	Location Code <b>Easement/Right of Way</b>	Length surveyed <b>128.60 ft</b>	Section Length <b>128.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>12.00 ft</b>
Year Laid	Dia./Height <b>15 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>disc #17</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4100	0	4	4	0	4	4

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>14" Easement</b>	Date : <b>12/12/2011</b>	Pipe Segment Reference :	Section No : <b>33</b>
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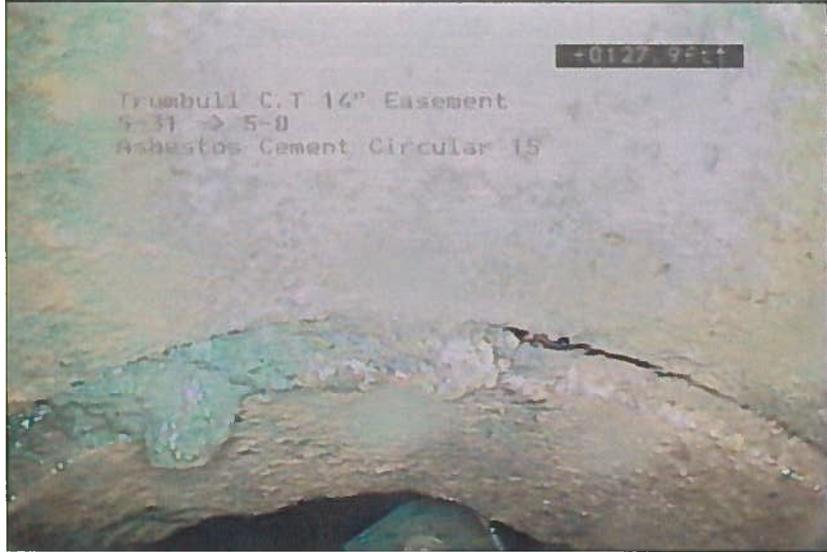


Photo: 157\_158\_969\_A.JPG, VCR No.: disc #17  
127.9FT, Infiltration Runner, from 01 to 04 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/5/2011</b>	P/O. No. <b>12051B</b>	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>114</b>
Certificate No. <b>789456</b>	Survey Customer <b>Hadlyme Environmental</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/5/2011</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>White Oak Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>5-109</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>5-108</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>259.30 ft</b>	Section Length <b>259.30 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Tape 1</b>	Lining Method <b>Other</b>

Add. Information : **Footage Overlay Is Incorrect.**

1:660	Position	Code	Observation	Photo
	<b>5-109</b>			
	0.00	AMH	Upstream Manhole, Survey Begins / MH 5-109	
	0.00	MWL	Water Level, 5 % of Cross Sectional Area	
	8.10	TSD	Tap Saddle Defective, at 02 o'clock, 6", within 8 inches of joint: NO / DAE	30_31_249_A.JPG
	8.10	DAE	Deposits Attached Encrustation, 5 % of Cross Sectional Area, From 12 to 04 o'clock, Within 8 inches of joint: NO	30_31_250_A.JPG
	37.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	81.90	DAE	Deposits Attached Encrustation, 10 % of Cross Sectional Area, From 12 to 11 o'clock, Within 8 inches of joint: YES	30_31_252_A.JPG
	81.90	ID	Infiltration Dripper, at 01 o'clock, within 8 inches of joint: YES	
	117.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	184.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	259.30	AMH	Downstream Manhole, Survey Ends / 5-108	
	<b>5-108</b>			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	3124	0	11	11	0	2.2	2.2

**Inspection photos / Inspection: 1**

City :  
**Trumbull, CT**

Street :  
**White Oak Rd**

Date :  
**10/5/2011**

Pipe Segment Reference :

Section No :  
**114**



Photo: 30\_31\_249\_A.JPG, VCR No.: Tape 1  
8.1FT, Tap Saddle Defective, at 02 o'clock, 6", within 8 inches of joint:  
NO



Photo: 30\_31\_250\_A.JPG, VCR No.: Tape 1  
8.1FT, Deposits Attached Encrustation, 5 % of Cross Sectional Area,  
From 12 to 04 o'clock, Within 8 inches of joint: NO

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>White Oak Rd</b>	Date : <b>10/5/2011</b>	Pipe Segment Reference :	Section No : <b>114</b>
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Photo: 30\_31\_252\_A.JPG, VCR No.: Tape 1  
81.9FT, Deposits Attached Encrustation, 10 % of Cross Sectional  
Area, From 12 to 11 o'clock, Within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/11/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>333</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/11/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Algonquin Tr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>763</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>762</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Easement/Right of Way</b>	Length surveyed <b>141.80 ft</b>	Section Length <b>142.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>47</b>	Lining Method <b>Other</b>

Add. Information :

1:364	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 763	
	95.40	IR	Infiltration Runner, from 06 to 09 o'clock, within 8 inches of joint: YES	516_516_2604_A.jpg
	119.80	IS	Infiltration Stain, from 06 to 09 o'clock, within 8 inches of joint: YES	
	141.80	AMH	Downstream Manhole, Survey Ends / MH 762	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
<b>0000</b>	<b>4100</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>4</b>



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Algonquin Tr</b>	Date : <b>12/11/2012</b>	Pipe Segment Reference :	Section No : <b>333</b>
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Photo: 516\_516\_2604\_A.jpg, VCR No.: 47  
95.4FT, Infiltration Runner, from 06 to 09 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>9/25/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>EH</b>	Pipe Segment Reference	Section No. <b>210</b>
Certificate No. <b>123456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>9/25/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Allen</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>642</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>641</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>298.30 ft</b>	Section Length <b>300.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 7</b>	Lining Method <b>Other</b>

Add. Information :

1:756	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 642	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	0.40	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	42.80	TFA	Tap Factory Made Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	85.20	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	86.70	JSM	Joint Separated Medium	
	107.70	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	124.00	TFA	Tap Factory Made Active, at 02 o'clock, 4", within 8 inches of joint: NO	
	270.60	B	Broken, at 11 o'clock, within 8 inches of joint: NO	56_56_328_A.jpg
	298.30	AMH	Downstream Manhole, Survey Ends / MH 641	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4111	2100	5	2	7	2.5	2	2.33

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Allen</b>	Date : <b>9/25/2012</b>	Pipe Segment Reference :	Section No : <b>210</b>
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Photo: 56\_56\_328\_A.jpg, VCR No.: Disc 7  
270.6FT, Broken, at 11 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/2/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>193</b>
Certificate No. <b>123456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/2/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Canterbury Ln</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>626B</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>617</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>129.80 ft</b>	Section Length <b>129.80 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 12</b>	Lining Method <b>Other</b>

Add. Information :

1:336	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 626B	
	0.00	MWL	Water Level, 10 % Of Cross Sectional Area	
	83.40	B	Broken, from 12 to 01 o'clock, within 8 inches of joint: NO	155_155_856_A.jpg
	83.40	MWLS	Water Level, Sag In Pipe, 40 % Of Cross Sectional Area / Start	
	87.30	B	Broken, from 12 to 01 o'clock, within 8 inches of joint: NO	155_155_857_A.jpg
	91.40	TFA	Tap Factory Made Active, at 03 o'clock, 6", within 8 inches of joint: NO	
	107.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	129.70	MWLS	Water Level, Sag In Pipe, 40 % Of Cross Sectional Area / Ends	
	129.80	AMH	Downstream Manhole, Survey Ends / MH 617	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4200	2300	8	6	14	4	2	2.8

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Canterbury Ln</b>	Date : <b>10/2/2012</b>	Pipe Segment Reference :	Section No : <b>193</b>
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Photo: 155\_155\_856\_A.jpg, VCR No.: Disc 12  
83.4FT, Broken, from 12 to 01 o'clock, within 8 inches of joint: NO



Photo: 155\_155\_857\_A.jpg, VCR No.: Disc 12  
87.3FT, Broken, from 12 to 01 o'clock, within 8 inches of joint: NO



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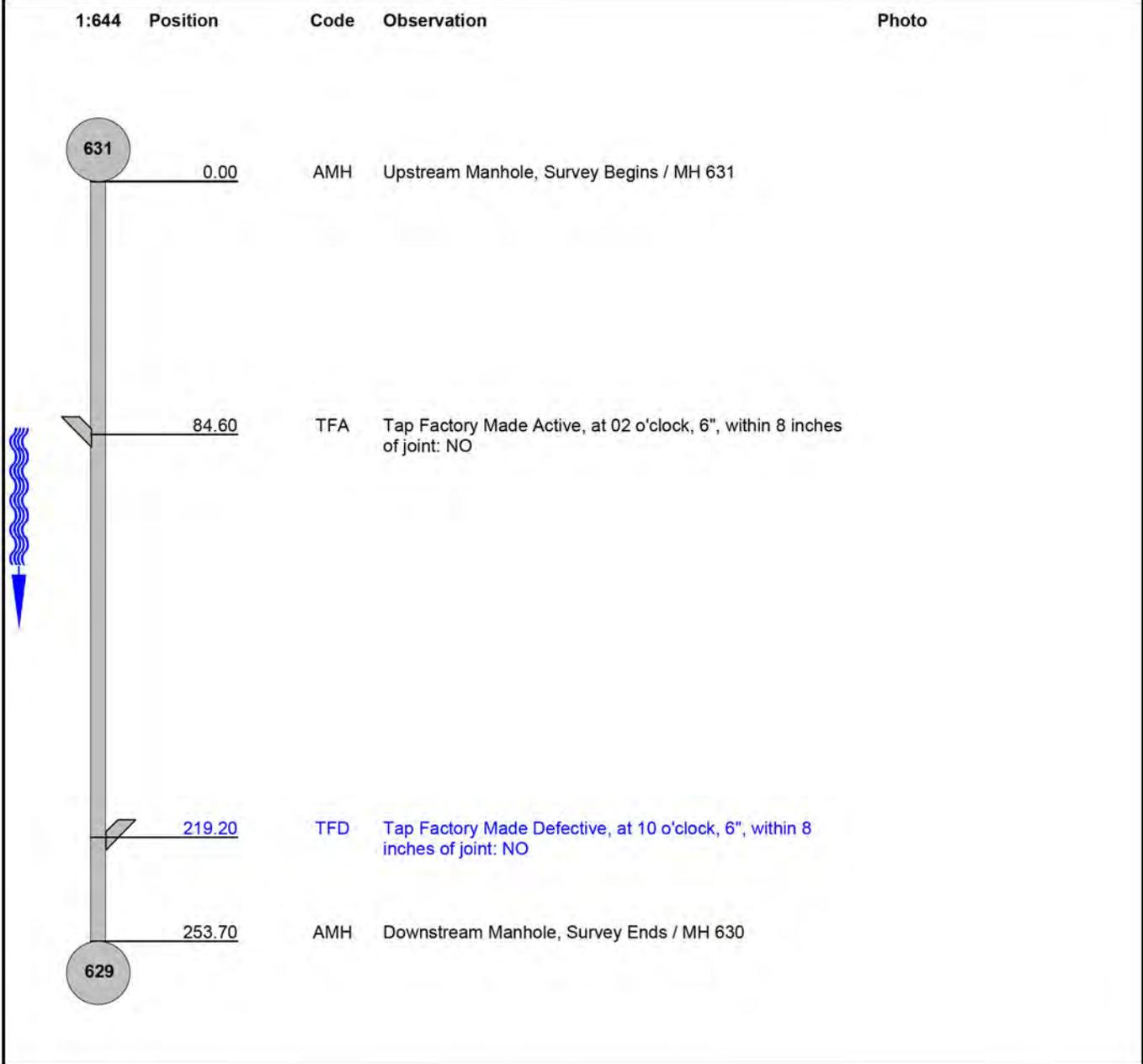
## Inspection Report / Inspection: 1

Date <b>10/2/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>198</b>
Certificate No. <b>123456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/2/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Canterbury Ln</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>629</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>630</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>253.70 ft</b>	Section Length <b>253.70 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 12</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>11/5/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CJ</b>	Pipe Segment Reference	Section No. <b>320</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/5/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Church Hill Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>753</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>752</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>298.10 ft</b>	Section Length <b>298.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>10 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 33</b>	Lining Method <b>Other</b>

Add. Information :

1:756	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 753	
	0.00	MWL	Water Level, 10 % Of Cross Sectional Area	
	13.80	TFC	Tap Factory Made Capped, at 09 o'clock, 6", within 8 inches of joint: YES	
	55.10	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: YES	
	70.90	B	Broken, at 12 o'clock, within 8 inches of joint: YES	378_378_1886_A.jpg
	70.90	IW	Infiltration Weeper, from 02 to 07 o'clock, within 8 inches of joint: NO	
	133.70	TFA	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES	
	253.80	TFA	Tap Factory Made Active, at 09 o'clock, 6", within 8 inches of joint: YES	
	298.10	AMH	Downstream Manhole, Survey Ends / MH 752	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	2200	5	4	9	5	2	3



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## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Church Hill Rd</b>	Date : <b>11/5/2012</b>	Pipe Segment Reference :	Section No : <b>320</b>
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Photo: 378\_378\_1886\_A.jpg, VCR No.: Disc 33  
70.9FT, Broken, at 12 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/9/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>48</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/9/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Geraldine Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>496</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>495</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>163.20 ft</b>	Section Length <b>164.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 17</b>	Lining Method <b>Other</b>

Add. Information :

1:420	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 496	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	7.50	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	50.00	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO / IR	
	50.00	ISSRH	Intruding Sealing Ring Hanging, 5 % Of Cross Sectional Area, From 11 to 06 o'clock	
	50.00	IG	Infiltration Gusher, at 12 o'clock, within 8 inches of joint: NO / In Service.	215_215_2845_A.jpg
	118.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	163.20	AMH	Downstream Manhole, Survey Ends / MH 495	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5123	0	11	11	0	2.75	2.75

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Geraldine Cir</b>	Date : <b>10/9/2012</b>	Pipe Segment Reference :	Section No : <b>48</b>
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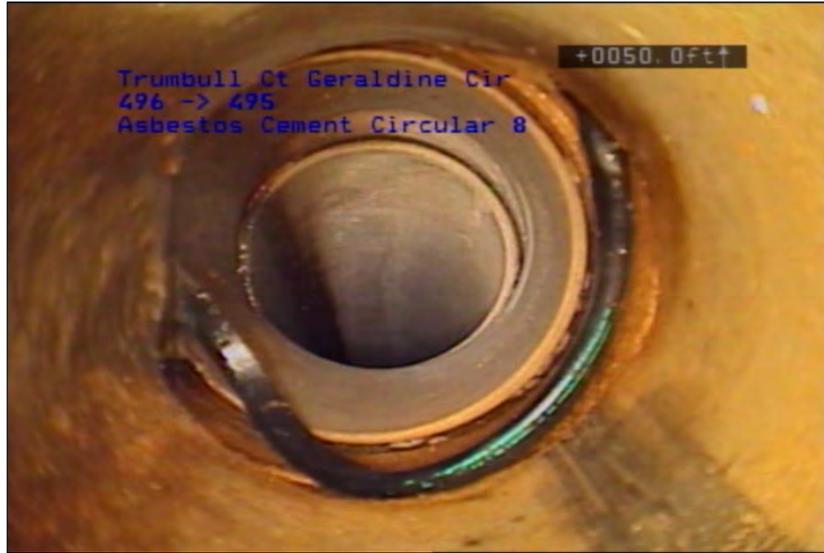


Photo: 215\_215\_2845\_A.jpg, VCR No.: Disc 17  
50FT, Infiltration Gusher, at 12 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/15/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>49</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/9/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Geraldine Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>497</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>496</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>234.00 ft</b>	Section Length <b>234.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 16</b>	Lining Method <b>Other</b>

Add. Information :

1:588	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 497	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	92.50	IS	Infiltration Stain, from 02 to 05 o'clock, within 8 inches of joint: YES	
	131.50	IS	Infiltration Stain, from 02 to 05 o'clock, within 8 inches of joint: NO	
	146.80	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	234.00	TBI	Tap Break-In Intruding, at 02 o'clock, 6", 3", within 8 inches of joint: NO	
	234.00	MSA	Survey Abandoned / Due To Intruding Tap. Complete's Inspection.	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2200	0	4	4	0	2	2



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## Inspection Report / Inspection: 1

Date <b>10/9/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>50</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/9/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Geraldine Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>497</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>496</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>31.00 ft</b>	Section Length <b>31.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 16</b>	Lining Method <b>Other</b>

Add. Information :

1:84	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 497	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	8.30	HSV	Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO	213_213_1121_A.jpg
	8.30	IS	Infiltration Stain, at 12 o'clock, within 8 inches of joint: NO	
	11.60	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	31.00	TBI	Tap Break-In Intruding, at 10 o'clock, 6", 3", within 8 inches of joint: NO	
	31.00	MSA	Survey Abandoned / Due To Intruding Tap.	213_213_1125_A.jpg

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	2200	5	4	9	5	2	3

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Geraldine Cir</b>	Date : <b>10/9/2012</b>	Pipe Segment Reference :	Section No : <b>50</b>
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Photo: 213\_213\_1121\_A.jpg, VCR No.: Disc 16  
8.3FT, Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO



Photo: 213\_213\_1125\_A.jpg, VCR No.: Disc 16  
31FT, Survey Abandoned



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## Inspection Report / Inspection: 1

Date <b>10/18/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>133</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/18/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Grandview Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>572</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>571</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>247.80 ft</b>	Section Length <b>248.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 22</b>	Lining Method <b>Other</b>

Add. Information :

1:630	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 572	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	19.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	25.00	B	Broken, from 09 to 10 o'clock, within 8 inches of joint: NO	<a href="#">252_252_1324_A.jpg</a>
	25.00	IS	Infiltration Stain, from 09 to 10 o'clock, within 8 inches of joint: NO	
	178.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	247.80	AMH	Downstream Manhole, Survey Ends / MH 571	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4100	2100	4	2	6	4	2	3

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Grandview Dr</b>	Date : <b>10/18/2012</b>	Pipe Segment Reference :	Section No : <b>133</b>
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Photo: 252\_252\_1324\_A.jpg, VCR No.: Disc 22  
25FT, Broken, from 09 to 10 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/18/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>55</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/18/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Lawrence Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>502</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>501</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>167.00 ft</b>	Section Length <b>168.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 21</b>	Lining Method <b>Other</b>

Add. Information :

1:420	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 502	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	1.00	H	Hole, at 10 o'clock, within 8 inches of joint: YES	<a href="#">245_245_2873_A.jpg</a>
	8.30	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	11.80	TFD	Tap Factory Made Defective, at 02 o'clock, 6", within 8 inches of joint: NO / IG	
	93.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	97.40	HVV	Hole Void Visible, from 11 to 01 o'clock, within 8 inches of joint: YES	<a href="#">245_245_1286_A.jpg</a>
	97.40	IS	Infiltration Stain, at 12 o'clock, within 8 inches of joint: NO	
	167.00	AMH	Downstream Manhole, Survey Ends / MH 501	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5141	2200	9	4	13	4.5	2	3.25

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Lawrence Rd</b>	Date : <b>10/18/2012</b>	Pipe Segment Reference :	Section No : <b>55</b>
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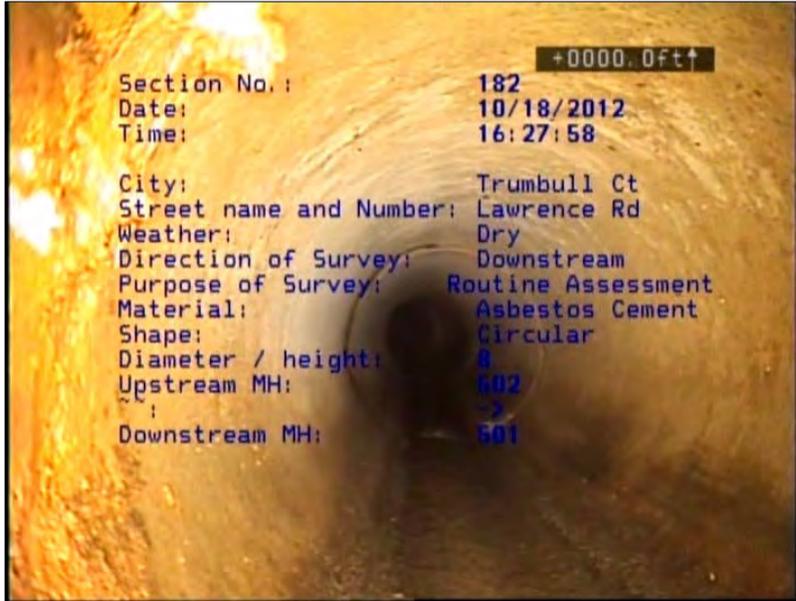


Photo: 245\_245\_2873\_A.jpg, VCR No.: Disc 21  
1FT, Hole, at 10 o'clock, within 8 inches of joint: YES



Photo: 245\_245\_1286\_A.jpg, VCR No.: Disc 21  
97.4FT, Hole Void Visible, from 11 to 01 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/18/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>57</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/18/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Lawrence Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>504</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>503</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>299.10 ft</b>	Section Length <b>300.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 20</b>	Lining Method <b>Other</b>

Add. Information :

1:756	Position	Code	Observation	Photo
	504			
	0.00	AMH	Upstream Manhole, Survey Begins / MH 504	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	16.00	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	76.70	FC	Fracture Circumferential, from 12 to 12 o'clock, within 8 inches of joint: NO	
	76.70	IR	Infiltration Runner, from 12 to 11 o'clock, within 8 inches of joint: NO	<a href="#">241_241_1251_A.jpg</a>
	152.50	RPP	Repair Patch, from 12 to 11 o'clock, within 8 inches of joint: NO / Outside Repair Of CF.	
	166.80	HVV	Hole Void Visible, at 01 o'clock, within 8 inches of joint: NO	<a href="#">241_241_1253_A.jpg</a>
	166.80	IS	Infiltration Stain, from 01 to 06 o'clock, within 8 inches of joint: NO	
	200.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	229.40	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	299.10	AMH	Downstream Manhole, Survey Ends / MH 503	
	503			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5121	4121	7	6	13	3.5	3	3.25

### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Lawrence Rd</b>	Date : <b>10/18/2012</b>	Pipe Segment Reference :	Section No : <b>57</b>
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Photo: 241\_241\_1251\_A.jpg, VCR No.: Disc 20  
76.7FT, Infiltration Runner, from 12 to 11 o'clock, within 8 inches of joint: NO



Photo: 241\_241\_1253\_A.jpg, VCR No.: Disc 20  
166.8FT, Hole Void Visible, at 01 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/3/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>146</b>
Certificate No. <b>123456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/3/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Linely Rd ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>584</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>583</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>298.10 ft</b>	Section Length <b>298.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 15</b>	Lining Method <b>Other</b>

Add. Information :

1:756	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 583	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	106.30	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	135.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	178.40	B	Broken, from 01 to 02 o'clock, within 8 inches of joint: NO	187_187_979_A.jpg
	178.40	IS	Infiltration Stain, from 01 to 05 o'clock, within 8 inches of joint: NO	
	294.80	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	298.10	AMH	Downstream Manhole, Survey Ends / MH 583	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4100	2100	4	2	6	4	2	3



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Linely Rd ESMT</b>	Date : <b>10/3/2012</b>	Pipe Segment Reference :	Section No : <b>146</b>
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Photo: 187\_187\_979\_A.jpg, VCR No.: Disc 15  
178.4FT, Broken, from 01 to 02 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>340</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Manor Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>771</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>770</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>161.00 ft</b>	Section Length <b>161.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>46</b>	Lining Method <b>Other</b>

Add. Information :

1:406	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 771	
	81.20	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	81.20	IW	Infiltration Weeper, from 11 to 06 o'clock, within 8 inches of joint: NO	
	87.80	IW	Infiltration Weeper, from 01 to 06 o'clock, within 8 inches of joint: YES	
	126.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	126.20	IW	Infiltration Weeper, at 02 o'clock, within 8 inches of joint: NO	
	137.30	IW	Infiltration Weeper, at 11 o'clock, within 8 inches of joint: NO	
	153.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	161.00	AMH	Downstream Manhole, Survey Ends / MH 770	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2400	0	8	8	0	2	2



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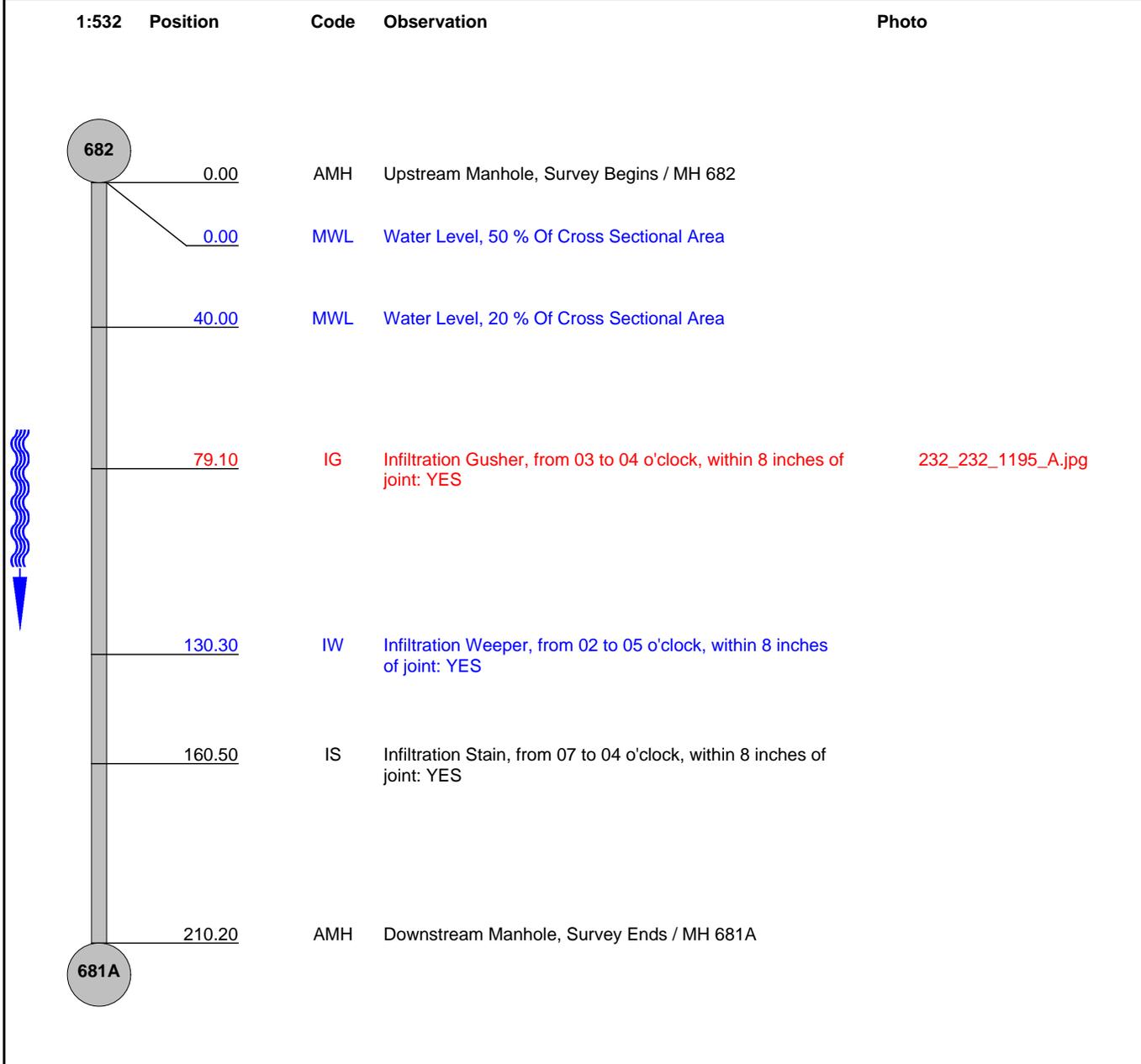
## Inspection Report / Inspection: 1

Date <b>10/16/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>252</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/16/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Middlebrooks Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>682</b>	Downstream MH <b>681A</b>
City <b>Trumbull, CT</b>	Drainage Area	Dir. of Survey <b>Downstream</b>	Section Length <b>210.20 ft</b>
Loc. details	Flow Control <b>Not Controlled</b>		
Location Code <b>Light Highway</b>	Length surveyed <b>210.20 ft</b>		

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 19</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5123	0	11	11	0	2.75	2.75



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Middlebrooks Ave</b>	Date : <b>10/16/2012</b>	Pipe Segment Reference :	Section No : <b>252</b>
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Photo: 232\_232\_1195\_A.jpg, VCR No.: Disc 19  
79.1FT, Infiltration Gusher, from 03 to 04 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/16/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>269</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/16/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Middlebrooks Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>702</b>	City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>695</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>	Location Code <b>Light Highway</b>	Length surveyed <b>192.60 ft</b>	Section Length <b>192.60 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 19</b>	Lining Method <b>Other</b>

Add. Information :

1:490	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 702	
	67.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	135.90	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	192.60	AMH	Downstream Manhole, Survey Ends / MH 695	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/24/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>418</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/24/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Norwood Ter</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>1125</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>1124</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>81.70 ft</b>	Section Length <b>82.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>20.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 27</b>	Lining Method <b>Other</b>

Add. Information :

1:210	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 1125	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	3.00	S1 DAE	Deposits Attached Encrustation, 15 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: NO, Start	
	40.30	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: YES	
	59.80	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: YES	
	81.50	F1 DAE	Deposits Attached Encrustation, 15 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: NO, Finish	
	81.70	AMH	Downstream Manhole, Survey Ends / MH 1124	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	3B23	0	54	54	0	2.84	2.84



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## Inspection Report / Inspection: 1

Date <b>12/4/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>398</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/4/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Old Hollow Rd ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>937A</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>936</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>278.00 ft</b>	Section Length <b>278.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>20 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>42</b>	Lining Method <b>Other</b>

Add. Information :

1:700	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 937A	
	0.00	MWL	Water Level, 20 % Of Cross Sectional Area	
	1.70	RFJ	Roots Fine Joint, from 02 to 10 o'clock, within 8 inches of joint: YES	
	96.00	IW	Infiltration Weeper, from 02 to 06 o'clock, within 8 inches of joint: NO	
	105.60	DAE	Deposits Attached Encrustation, 15 % Of Cross Sectional Area, From 12 To 06 o'clock, Within 8 inches of joint: NO	
	138.80	DAE	Deposits Attached Encrustation, 15 % Of Cross Sectional Area, From 01 to 06 o'clock, Within 8 inches of joint: YES	
	155.10	DAE	Deposits Attached Encrustation, 15 % Of Cross Sectional Area, From 12 to 06 o'clock, Within 8 inches of joint: YES	
	189.90	FC	Fracture Circumferential, from 06 to 02 o'clock, within 8 inches of joint: NO	
	189.90	DAE	Deposits Attached Encrustation, 20 % Of Cross Sectional Area, From 06 to 12 o'clock, Within 8 inches of joint: NO	
	251.80	DAE	Deposits Attached Encrustation, 20 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: YES	
	278.00	AMH	Downstream Manhole, Survey Ends / MH 936	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	3523	2	21	23	2	2.63	2.56



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## Inspection Report / Inspection: 1

Date <b>12/17/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>15</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/17/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Old Town Rd ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>67</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>66</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>254.00 ft</b>	Section Length <b>254.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Vitrified Clay Pipe</b>
Tape / Media No. <b>49</b>	Lining Method <b>Other</b>

Add. Information :

1:644	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 67	
	3.00	IR	Infiltration Runner, from 12 to 12 o'clock, within 8 inches of joint: YES	<a href="#">535_535_2700_A.jpg</a>
	9.30	IS	Infiltration Stain, from 02 to 10 o'clock, within 8 inches of joint: YES	
	15.40	IS	Infiltration Stain, from 10 to 02 o'clock, within 8 inches of joint: YES	
	18.10	IS	Infiltration Stain, from 10 to 02 o'clock, within 8 inches of joint: YES	
	21.70	IW	Infiltration Weeper, from 02 to 05 o'clock, within 8 inches of joint: YES	
	25.80	IS	Infiltration Stain, from 09 to 11 o'clock, within 8 inches of joint: NO	
	73.60	IS	Infiltration Stain, from 02 to 04 o'clock, within 8 inches of joint: YES	
	82.20	IS	Infiltration Stain, from 09 to 03 o'clock, within 8 inches of joint: YES	
	254.00	AMH	Downstream Manhole, Survey Ends / MH 66	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4121	0	6	6	0	3	3



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## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Old Town Rd ESMT</b>	Date : <b>12/17/2012</b>	Pipe Segment Reference :	Section No : <b>15</b>
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Photo: 535\_535\_2700\_A.jpg, VCR No.: 49  
3FT, Infiltration Runner, from 12 to 12 o'clock, within 8 inches of joint:  
YES



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## Inspection Report / Inspection: 1

Date <b>12/17/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>14</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/17/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Old Town Rd ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>68</b>	City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>67</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>	Location Code <b>Light Highway</b>	Length surveyed <b>19.60 ft</b>	Section Length <b>20.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>3.00 ft</b>
Year Laid	Dia./Height <b>12 inch</b>
Year Rehabilitated	Material <b>Vitrified Clay Pipe</b>
Tape / Media No. <b>49</b>	Lining Method <b>Other</b>

Add. Information :

1:56	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 68	
	1.90	IW	Infiltration Weeper, at 02 o'clock, within 8 inches of joint: YES	
	8.50	IS	Infiltration Stain, at 12 o'clock, within 8 inches of joint: YES	
	11.70	IS	Infiltration Stain, at 12 o'clock, within 8 inches of joint: NO	
	19.60	AMH	Downstream Manhole, Survey Ends / MH 67	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>387</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>929</b>
Loc. details	Location Code <b>Easement/Right of Way</b>	Drainage Area	Downstream MH <b>928</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>307.00 ft</b>	Section Length <b>307.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>45</b>	Lining Method <b>Other</b>

Add. Information :

1:770	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 929	
	87.50	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	89.50	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	215.60	TBA	Tap Break-In Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	291.70	TFC	Tap Factory Made Capped, at 12 o'clock, 6", within 8 inches of joint: NO	
	294.60	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	307.00	AMH	Downstream Manhole, Survey Ends / MH 928	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>389</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>931</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>930</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>227.00 ft</b>	Section Length <b>227.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>45</b>	Lining Method <b>Other</b>

Add. Information :

1:574	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 931	
	14.50	IS	Infiltration Stain, from 06 to 12 o'clock, within 8 inches of joint: YES	
	29.80	IS	Infiltration Stain, from 02 to 06 o'clock, within 8 inches of joint: YES	
	38.10	ID	Infiltration Dropper, at 12 o'clock, within 8 inches of joint: YES	
	38.10	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, At 12 o'clock, Within 8 inches of joint: YES	
	71.00	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 06 To 01 o'clock, Within 8 inches of joint: YES	
	103.00	B	Broken, from 10 to 12 o'clock, within 8 inches of joint: YES	<a href="#">499_499_2517_A.jpg</a>
	119.00	TFA	Tap Factory Made Active, at 01 o'clock, 6", within 8 inches of joint: NO	
	136.30	IS	Infiltration Stain, from 12 to 12 o'clock, within 8 inches of joint: YES	
	144.20	IS	Infiltration Stain, from 06 to 10 o'clock, within 8 inches of joint: YES	
	176.40	IW	Infiltration Weeper, from 06 to 12 o'clock, within 8 inches of joint: YES	
	227.00	AMH	Downstream Manhole, Survey Ends / MH 930	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4100	3123	4	9	13	4	2.25	2.6

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St</b>	Date : <b>12/10/2012</b>	Pipe Segment Reference :	Section No : <b>389</b>
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Photo: 499\_499\_2517\_A.jpg, VCR No.: 45  
103FT, Broken, from 10 to 12 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>390</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>932</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>931</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>102.00 ft</b>	Section Length <b>102.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>44</b>	Lining Method <b>Other</b>

Add. Information :

1:266	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 932	
	0.00	MWL	Water Level, 15 % Of Cross Sectional Area	
	15.20	IS	Infiltration Stain, from 01 to 06 o'clock, within 8 inches of joint: NO	
	47.20	IS	Infiltration Stain, from 12 to 12 o'clock, within 8 inches of joint: YES	
	55.20	IS	Infiltration Stain, from 12 to 12 o'clock, within 8 inches of joint: YES	
	71.50	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 06 to 02 o'clock, Within 8 inches of joint: YES	
	71.50	IR	Infiltration Runner, from 06 to 10 o'clock, within 8 inches of joint: YES	<a href="#">498_498_2509_A.jpg</a>
	73.10	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	102.00	AMH	Downstream Manhole, Survey Ends / MH 931	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4122	0	8	8	0	2.67	2.67

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St</b>	Date : <b>12/10/2012</b>	Pipe Segment Reference :	Section No : <b>390</b>
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Photo: 498\_498\_2509\_A.jpg, VCR No.: 44  
71.5FT, Infiltration Runner, from 06 to 10 o'clock, within 8 inches of joint: YES



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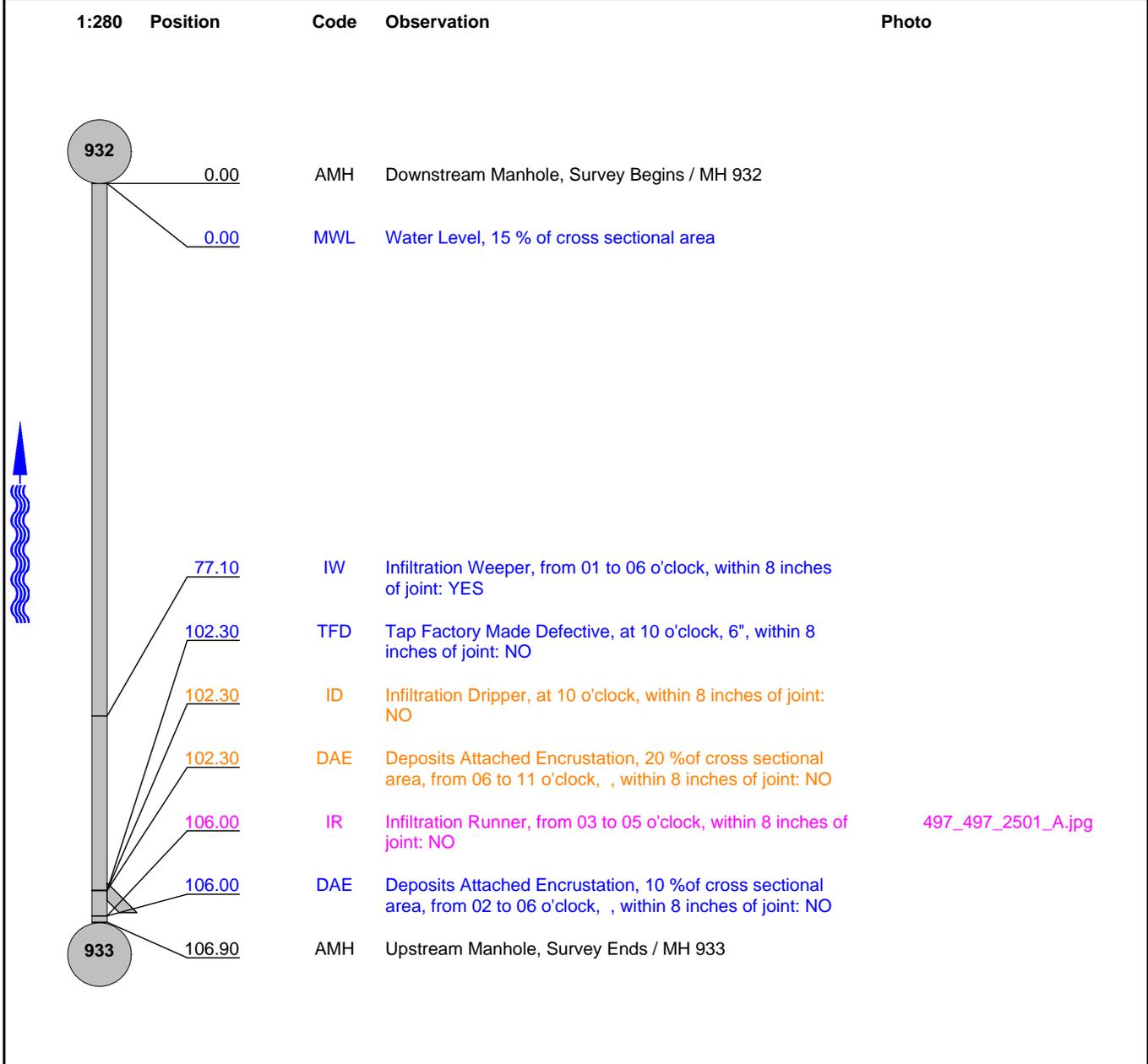
## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>391</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street City Loc. details Location Code	<b>Park St Trumbull, CT Light Highway</b>	Use of Sewer Drainage Area Flow Control Length surveyed	<b>Sanitary Not Controlled 106.90 ft</b>	Upstream MH Downstream MH Dir. of Survey Section Length	<b>933 932 Upstream 107.00 ft</b>
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Purpose of Survey Year Laid Year Rehabilitated Tape / Media No.	<b>Routine Assessment  44</b>	Joint Length Dia./Height Material Lining Method	<b>8.00 ft 24 inch Reinforced Concrete Pipe Other</b>
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Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4132	0	18	18	0	2.57	2.57



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St</b>	Date : <b>12/10/2012</b>	Pipe Segment Reference :	Section No : <b>391</b>
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Photo: 497\_497\_2501\_A.jpg, VCR No.: 44  
106FT, Infiltration Runner, from 03 to 05 o'clock, within 8 inches of joint:  
NO



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## Inspection Report / Inspection: 1

Date <b>12/5/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>392</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/5/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>934</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>933</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>57.40 ft</b>	Section Length <b>57.40 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>43</b>	Lining Method <b>Other</b>

Add. Information :

1:154	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 934	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	57.30	DAE	Deposits Attached Encrustation, 30 % Of Cross Sectional Area, From 02 to 06 o'clock, Within 8 inches of joint: NO	
	57.40	MSA	Survey Abandoned / Ragging From Lateral. Complete's Inspection.	485_485_2456_A.jpg

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4121	0	6	6	0	3	3



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## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St ESMT</b>	Date : <b>12/5/2012</b>	Pipe Segment Reference :	Section No : <b>392</b>
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Photo: 485\_485\_2456\_A.jpg, VCR No.: 43  
57.4FT, Survey Abandoned



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## Inspection Report / Inspection: 1

Date <b>12/5/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>393</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/5/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>934</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>933</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>169.20 ft</b>	Section Length <b>169.20 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>43</b>	Lining Method <b>Other</b>

Add. Information :

1:434	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 934	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	32.80	IS	Infiltration Stain, from 03 to 10 o'clock, within 8 inches of joint: YES	
	129.00	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, At 01 o'clock, Within 8 inches of joint: YES	
	144.70	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, from 12 to 01 o'clock, Within 8 inches of joint: YES	
	144.70	ID	Infiltration Dripper, from 12 to 01 o'clock, within 8 inches of joint: YES	
	165.90	DAR	Deposits Attached Ragging, 15 % Of Cross Sectional Area, From 06 to 11 o'clock, Within 8 inches of joint: NO	
	167.70	TBA	Tap Break-In Active, at 11 o'clock, 6", within 8 inches of joint: NO	
	167.70	DAE	Deposits Attached Encrustation, 30 % Of Cross Sectional Area, From 06 to 11 o'clock, Within 8 inches of joint: NO	
	169.20	MSA	Survey Abandoned / Roots With Deposites Attached.	484_484_2454_A.jpg

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	4132	0	16	16	0	2.67	2.67

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St ESMT</b>	Date : <b>12/5/2012</b>	Pipe Segment Reference :	Section No : <b>393</b>
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Photo: 484\_484\_2454\_A.jpg, VCR No.: 43  
169.2FT, Survey Abandoned



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## Inspection Report / Inspection: 1

Date <b>12/5/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>394</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/5/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Park St ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>935</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>934</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>561.00 ft</b>	Section Length <b>561.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>4.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>43</b>	Lining Method <b>Other</b>

Add. Information :

1:1414	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 935	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	1.70	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, from 06 to 11 o'clock, Within 8 inches of joint: YES	
	10.30	HSV	Hole Soil Visible, at 12 o'clock, within 8 inches of joint: YES / Lift Hole	483_483_2438_A.jpg
	10.30	IW	Infiltration Weeper, at 12 o'clock, within 8 inches of joint: YES	
	14.70	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 03 to 06 o'clock, Within 8 inches of joint: YES	
	18.60	HSV	Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO / Lift Hole	483_483_2441_A.jpg
	18.60	IW	Infiltration Weeper, at 12 o'clock, within 8 inches of joint: NO	
	21.60	RFJ	Roots Fine Joint, from 06 to 12 o'clock, within 8 inches of joint: YES / 5%	
	21.60	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 06 to 06 o'clock, Within 8 inches of joint: YES	
	354.60	IS	Infiltration Stain, from 02 to 06 o'clock, within 8 inches of joint: YES	
	561.00	AMH	Downstream Manhole, Survey Ends / MH 934	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5200	2700	10	14	24	5	2	2.67

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Park St ESMT</b>	Date : <b>12/5/2012</b>	Pipe Segment Reference :	Section No : <b>394</b>
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Photo: 483\_483\_2438\_A.jpg, VCR No.: 43  
10.3FT, Hole Soil Visible, at 12 o'clock, within 8 inches of joint: YES



Photo: 483\_483\_2441\_A.jpg, VCR No.: 43  
18.6FT, Hole Soil Visible, at 12 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

Date <b>10/24/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>120</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/24/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Rexview Dr</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>559</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>558</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>73.60 ft</b>	Section Length <b>75.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 27</b>	Lining Method <b>Other</b>

Add. Information :

1:196	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 559	
	15.00	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	64.80	FC	Fracture Circumferential, from 12 to 12 o'clock, within 8 inches of joint: NO	
	64.80	IW	Infiltration Weeper, from 12 to 12 o'clock, within 8 inches of joint: NO	
	73.60	AMH	Downstream Manhole, Survey Ends / MH 558	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	2100	2	2	4	2	2	2



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## Inspection Report / Inspection: 1

Date <b>12/10/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>370</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/10/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Riverbend Easement</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>914</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>777</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Easement/Right of Way</b>	Length surveyed <b>349.00 ft</b>	Section Length <b>349.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>45</b>	Lining Method <b>Other</b>

Add. Information :

1:882	Position	Code	Observation	Photo
	914	AMH	Upstream Manhole, Survey Begins / MH 913	
	0.00			
	0.00	MWL	Water Level, 15 % Of Cross Sectional Area	
	126.30	MGO	General Observation / Calcium Deposit?	502_502_2532_A.jpg
	156.10	RFJ	Roots Fine Joint, from 06 to 10 o'clock, within 8 inches of joint: YES	
	156.10	IW	Infiltration Weeper, from 06 to 11 o'clock, within 8 inches of joint: YES	
	349.00	AMH	Downstream Manhole, Survey Ends / MH 777	
	777			

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2300	0	6	6	0	2	2

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Riverbend Easement</b>	Date : <b>12/10/2012</b>	Pipe Segment Reference :	Section No : <b>370</b>
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Photo: 502\_502\_2532\_A.jpg, VCR No.: 45  
126.3FT, General Observation



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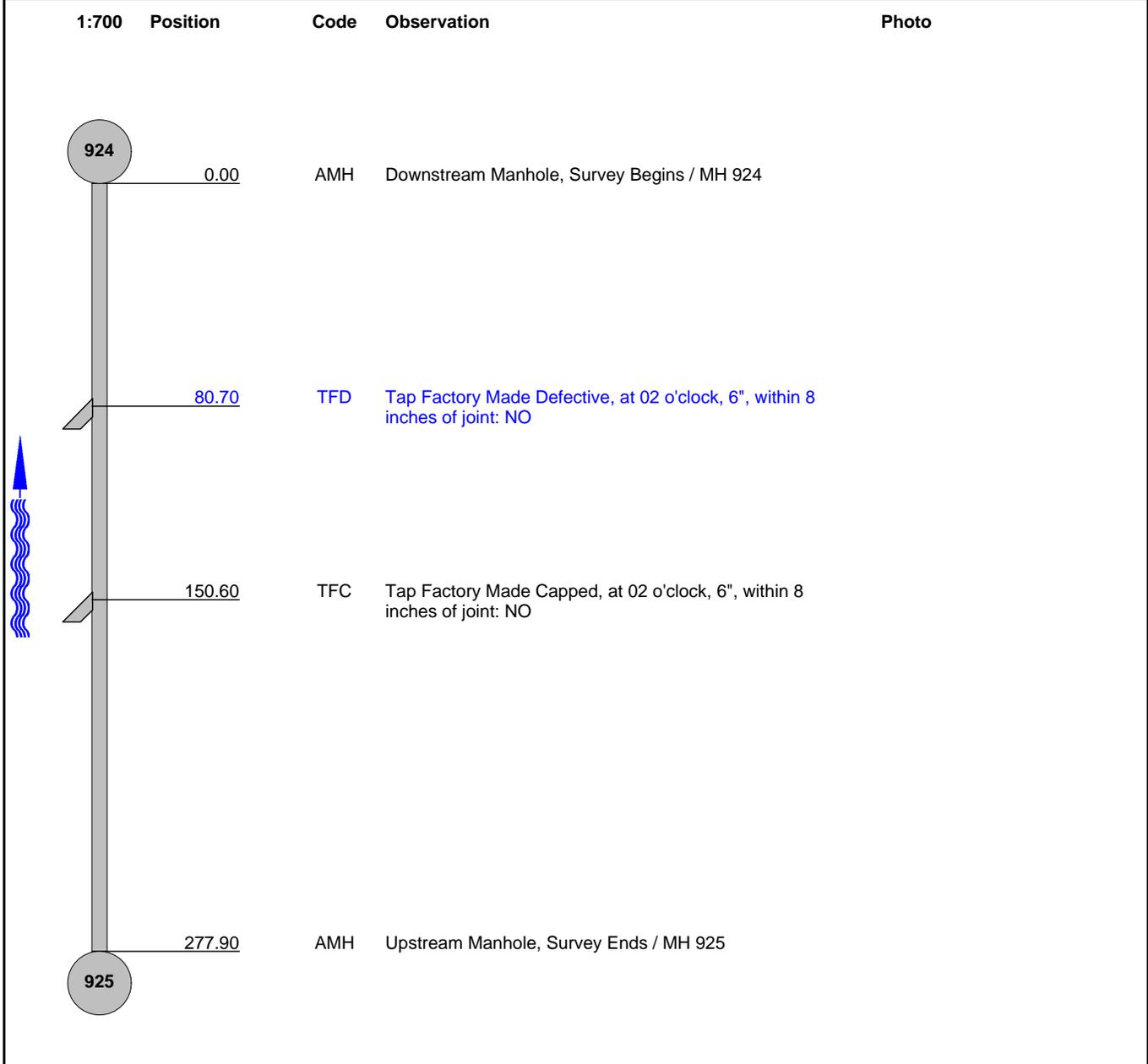
## Inspection Report / Inspection: 1

Date <b>12/6/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>383</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/6/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Riverbend ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>925</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>924</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>277.90 ft</b>	Section Length <b>278.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>43</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
<b>0000</b>	<b>2100</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>2</b>



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## Inspection Report / Inspection: 1

Date <b>12/6/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>385</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/6/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Riverbend ESMT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>927</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>926</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>259.00 ft</b>	Section Length <b>259.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>43</b>	Lining Method <b>Other</b>

Add. Information :

1:658	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 927	
	0.00	MWL	Water Level, 20 % Of Cross Sectional Area	
	124.30	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 06 to 12 o'clock, Within 8 inches of joint: YES	
	131.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	235.80	TFC	Tap Factory Made Capped, at 11 o'clock, 6", within 8 inches of joint: NO	
	256.60	DAE	Deposits Attached Encrustation, 5 % Of Cross Sectional Area, From 12 to 12 o'clock, Within 8 inches of joint: YES	
	256.60	IW	Infiltration Weeper, from 06 to 11 o'clock, within 8 inches of joint: YES	
	259.00	AMH	Downstream Manhole, Survey Ends / MH 926	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2400	0	8	8	0	2	2



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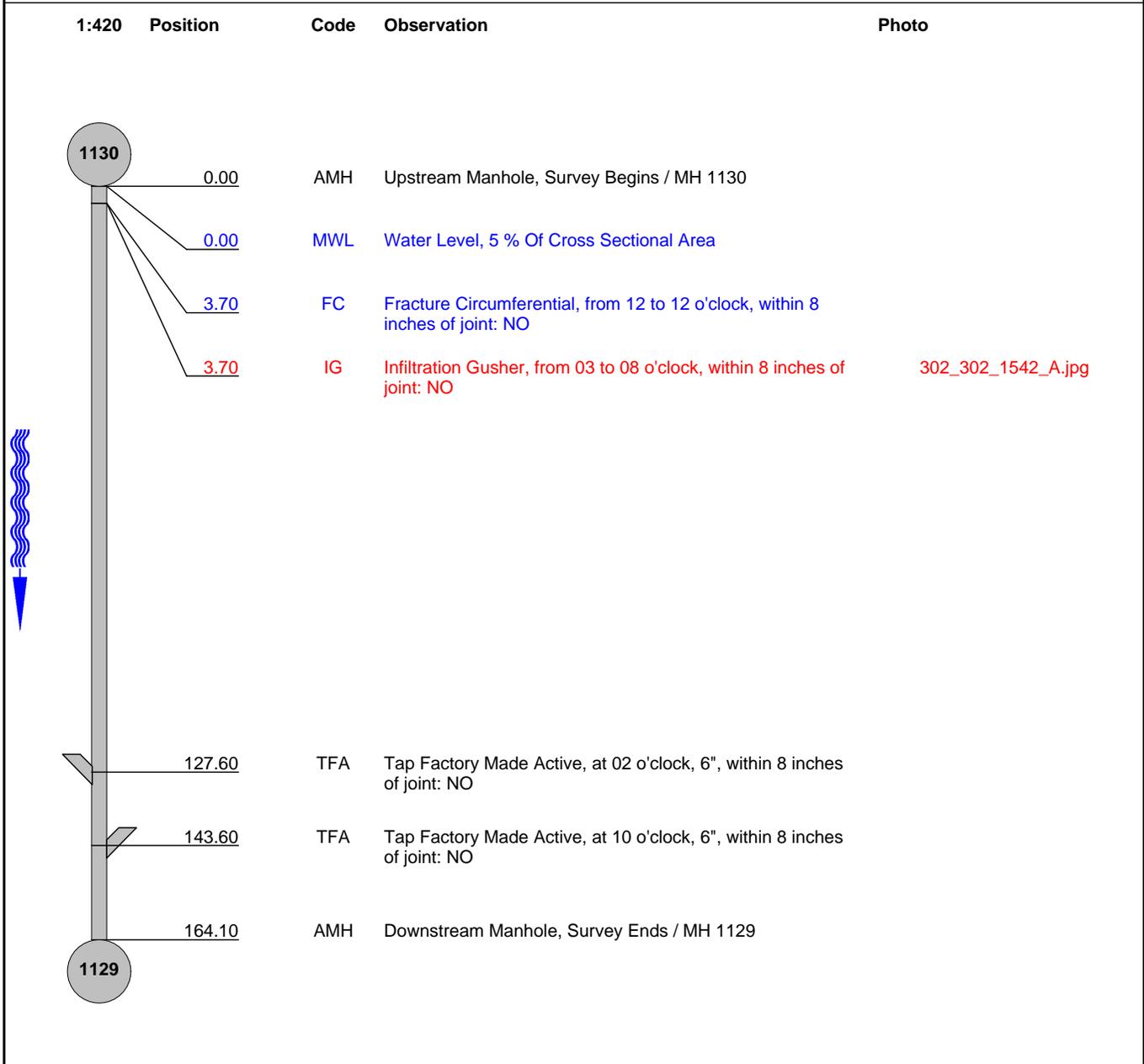
## Inspection Report / Inspection: 1

Date <b>10/23/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>423</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/23/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Rockland Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>1130</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>1129</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>164.10 ft</b>	Section Length <b>164.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 26</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
2100	5121	2	7	9	2	3.5	3

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Rockland Cir</b>	Date : <b>10/23/2012</b>	Pipe Segment Reference :	Section No : <b>423</b>
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Photo: 302\_302\_1542\_A.jpg, VCR No.: Disc 26  
3.7FT, Infiltration Gusher, from 03 to 08 o'clock, within 8 inches of joint:  
NO



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## Inspection Report / Inspection: 1

Date <b>10/23/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>80</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/23/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Sunset Ave</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>527</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>526</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>293.00 ft</b>	Section Length <b>293.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 24</b>	Lining Method <b>Other</b>

Add. Information :

1:612	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 527	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	7.50	TSA	Tap Saddle Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	10.30	TFD	Tap Factory Made Defective, at 12 o'clock, 6", within 8 inches of joint: NO	
	39.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	95.50	TSA	Tap Saddle Active, at 10 o'clock, 4", within 8 inches of joint: NO	
	98.10	TFC	Tap Factory Made Capped, at 10 o'clock, 6", within 8 inches of joint: NO	
	117.40	TFA	Tap Factory Made Active, at 12 o'clock, 6", within 8 inches of joint: NO	
	118.90	FL	Fracture Longitudinal, at 01 o'clock, within 8 inches of joint: YES	
	118.90	IS	Infiltration Stain, at 01 o'clock, within 8 inches of joint: YES	
	159.80	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	173.40	TSA	Tap Saddle Active, at 11 o'clock, 6", within 8 inches of joint: NO	
	239.00	IG	Infiltration Gusher, at 06 o'clock, within 8 inches of joint: YES	<a href="#">281_281_1459_A.jpg</a>
	241.10	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	



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## Inspection Report / Inspection: 1

Date : <b>10/23/2012</b>	Job number :	Weather : <b>Dry</b>	Operator : <b>CK</b>	Counter : <b>80</b>	Section name :
Present :	Vehicle :	Camera :	Preset :	Cleaned : <b>Jetting</b>	Rate :

1:612	Position	Code	Observation	Photo			
		TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO				
		TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO				
		AMH	Downstream Manhole, Survey Ends / MH 526				
QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
3100	5122	3	9	12	3	3	3

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Sunset Ave</b>	Date : <b>10/23/2012</b>	Pipe Segment Reference :	Section No : <b>80</b>
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Photo: 281\_281\_1459\_A.jpg, VCR No.: Disc 24  
239FT, Infiltration Gusher, at 06 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/8/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>75</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/8/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Suzanne Cir</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>522</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>514</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Upstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>284.70 ft</b>	Section Length <b>284.70 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 16</b>	Lining Method <b>Other</b>

Add. Information :

1:714	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 514	
	137.60	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	245.40	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	248.70	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	278.20	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	284.70	AMH	Upstream Manhole, Survey Ends / MH 522	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	0000	0	0	0	0	0	0



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## Inspection Report / Inspection: 1

Date <b>10/25/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>110</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/25/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Taits Mill Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>550A</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>551</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>185.90 ft</b>	Section Length <b>187.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 28</b>	Lining Method <b>Other</b>

Add. Information :

1:476	Position	Code	Observation	Photo
	0.00	AMH	Downstream Manhole, Survey Begins / MH 550A	
	0.00	MWL	Water Level, 15 % Of Cross Sectional Area	
	183.40	IG	Infiltration Gusher, at 04 o'clock, within 8 inches of joint: YES	334_334_1689_A.jpg
	185.90	MGO	Reversal Inspection	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5121	0	7	7	0	3.5	3.5

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Taits Mill Rd</b>	Date : <b>10/25/2012</b>	Pipe Segment Reference :	Section No : <b>110</b>
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Photo: 334\_334\_1689\_A.jpg, VCR No.: Disc 28  
183.4FT, Infiltration Gusher, at 04 o'clock, within 8 inches of joint: YES



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## Inspection Report / Inspection: 1

Date <b>10/24/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>115</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/24/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Tait Rd</b>	City <b>Trumbull, CT</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>555</b>
Loc. details	Location Code <b>Light Highway</b>	Drainage Area	Downstream MH <b>554</b>
		Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
		Length surveyed <b>230.40 ft</b>	Section Length <b>230.40 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 28</b>	Lining Method <b>Other</b>

Add. Information :

1:588	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 555	
	59.50	TFD	Tap Factory Made Defective, at 10 o'clock, 6", within 8 inches of joint: NO	
	91.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	230.40	AMH	Downstream Manhole, Survey Ends / MH 554	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	2100	0	2	2	0	2	2



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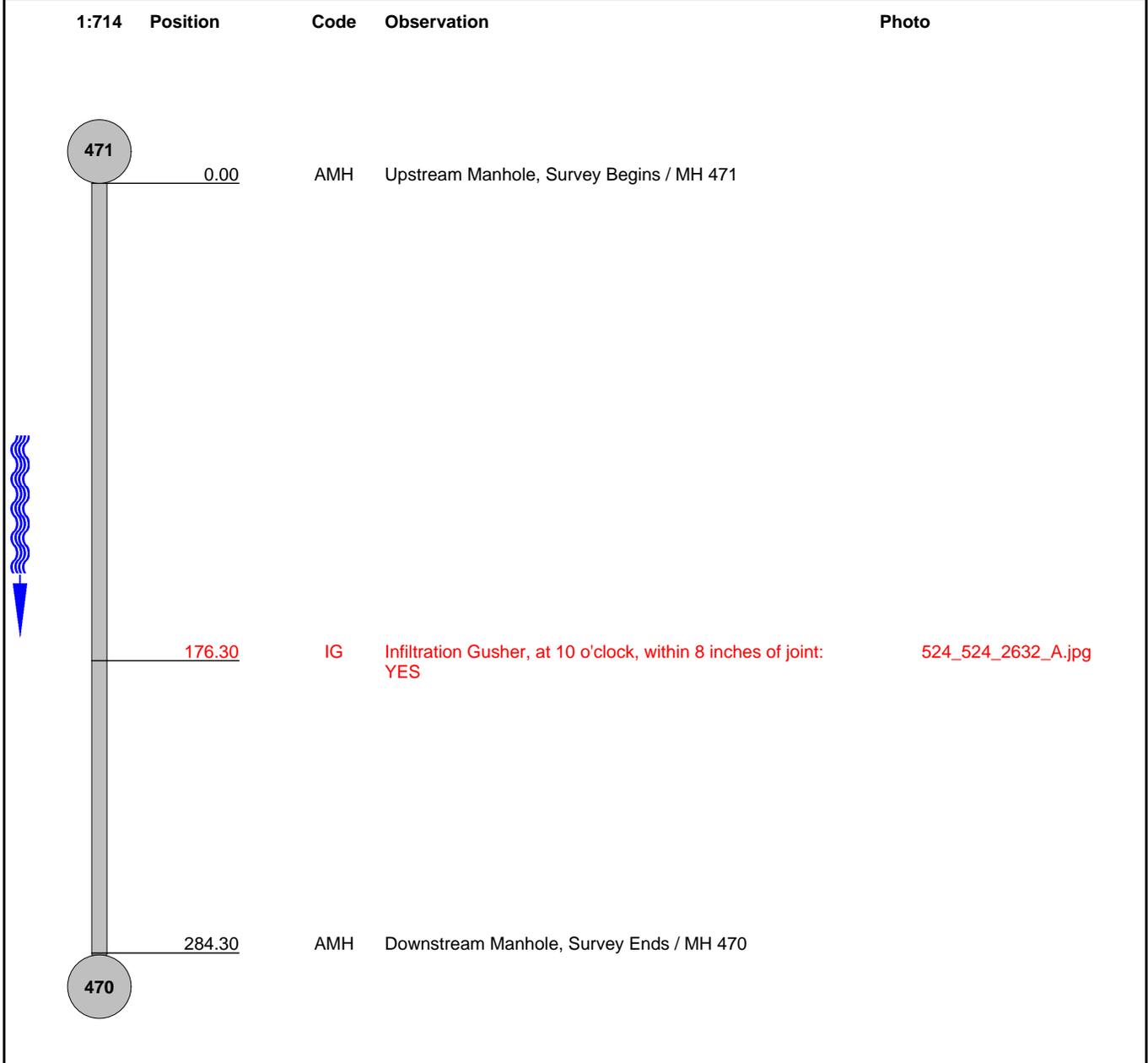
## Inspection Report / Inspection: 1

Date <b>12/12/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>20</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>12/12/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>White Plains Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>471</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>470</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>284.30 ft</b>	Section Length <b>285.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>8.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>47</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
<b>0000</b>	<b>5100</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>5</b>



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## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>White Plains Rd</b>	Date : <b>12/12/2012</b>	Pipe Segment Reference :	Section No : <b>20</b>
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Photo: 524\_524\_2632\_A.jpg, VCR No.: 47  
176.3FT, Infiltration Gusher, at 10 o'clock, within 8 inches of joint: YES



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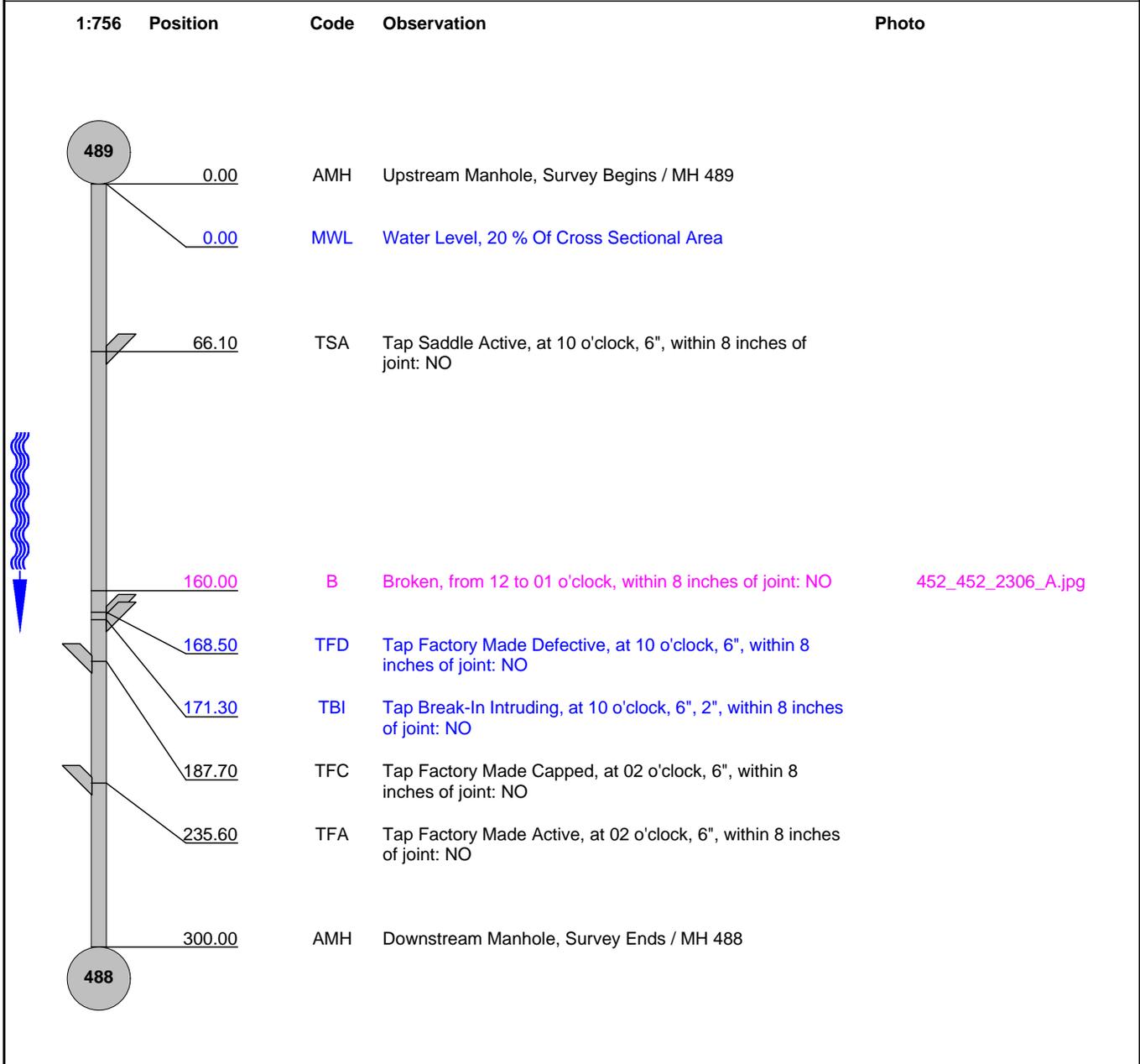
## Inspection Report / Inspection: 1

Date <b>11/29/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>40</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>11/29/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>White Plains Rd</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>489</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>488</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>300.00 ft</b>	Section Length <b>300.00 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>10.00 ft</b>
Year Laid	Dia./Height <b>24 inch</b>
Year Rehabilitated	Material <b>Reinforced Concrete Pipe</b>
Tape / Media No. <b>39</b>	Lining Method <b>Other</b>

Add. Information :



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4100	2300	4	6	10	4	2	2.5



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### Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>White Plains Rd</b>	Date : <b>11/29/2012</b>	Pipe Segment Reference :	Section No : <b>40</b>
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Photo: 452\_452\_2306\_A.jpg, VCR No.: 39  
160FT, Broken, from 12 to 01 o'clock, within 8 inches of joint: NO



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## Inspection Report / Inspection: 1

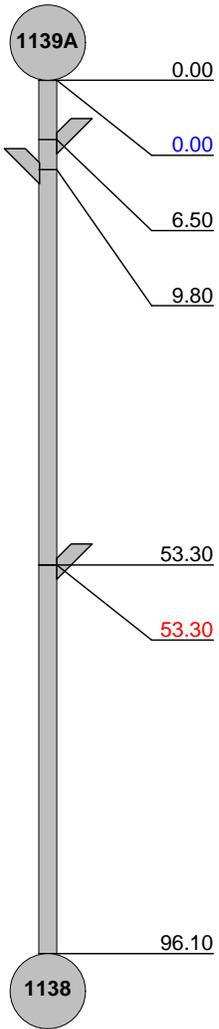
Date <b>10/23/2012</b>	P/O. No.	Weather <b>Dry</b>	Surveyor's Name <b>CK</b>	Pipe Segment Reference	Section No. <b>435</b>
Certificate No. <b>789456</b>	Survey Customer <b>Town of Trumbull</b>	System Owner <b>Trumbull, CT</b>	Date Cleaned <b>10/23/2012</b>	Pre-Cleaning <b>Jetting</b>	Sewer Category

Street <b>Woodlawn Dr</b>	Use of Sewer <b>Sanitary</b>	Upstream MH <b>1139A</b>
City <b>Trumbull, CT</b>	Drainage Area	Downstream MH <b>1138</b>
Loc. details	Flow Control <b>Not Controlled</b>	Dir. of Survey <b>Downstream</b>
Location Code <b>Light Highway</b>	Length surveyed <b>96.10 ft</b>	Section Length <b>96.10 ft</b>

Purpose of Survey <b>Routine Assessment</b>	Joint Length <b>13.00 ft</b>
Year Laid	Dia./Height <b>8 inch</b>
Year Rehabilitated	Material <b>Asbestos Cement</b>
Tape / Media No. <b>Disc 25</b>	Lining Method <b>Other</b>

Add. Information : **Video Overlay Is Incorrect. Is Actually Manhole 1139A - 1138.**

1:252	Position	Code	Observation	Photo
	0.00	AMH	Upstream Manhole, Survey Begins / MH 1139A	
	0.00	MWL	Water Level, 5 % Of Cross Sectional Area	
	6.50	TFA	Tap Factory Made Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	9.80	TFA	Tap Factory Made Active, at 02 o'clock, 6", within 8 inches of joint: NO	
	53.30	TSA	Tap Saddle Active, at 10 o'clock, 6", within 8 inches of joint: NO	
	53.30	IG	Infiltration Gusher, from 09 to 01 o'clock, within 8 inches of joint: NO	291_291_1500_A.jpg
	96.10	AMH	Downstream Manhole, Survey Ends / MH 1138	



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	5121	0	7	7	0	3.5	3.5

## Inspection photos / Inspection: 1

City : <b>Trumbull, CT</b>	Street : <b>Woodlawn Dr</b>	Date : <b>10/23/2012</b>	Pipe Segment Reference :	Section No : <b>435</b>
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Photo: 291\_291\_1500\_A.jpg, VCR No.: Disc 25  
53.3FT, Infiltration Gusher, from 09 to 01 o'clock, within 8 inches of joint: NO

**APPENDIX G**  
**Trumbull Road Classifications**



FUTURE ROAD CLASSIFICATIONEXPRESSWAY:

Route 25  
Route 15 (Merritt Parkway)  
Route 8

PRINCIPAL ARTERIAL:

Route 111 (Main St.)	Route 127 (White Plains Rd.)
Route 111 (Monroe Tpke.)	Route 108 (Huntington Tpke.)
Route 25 (Main St. north of Monroe Tpke.)	Route 108 (Nichols Ave.)
Route 127 (Church Hill Rd.)	Route 711 (Huntington Tpke.)

MINOR ARTERIAL:

Madison Ave.	Whitney Ave.
Buck Hill Rd.	Daniels Farm Rd.
Chestnut Hill Rd.	Reservoir Ave.
Old Town Rd.	Booth Hill Rd.
Edison Rd.	

COLLECTOR:

Tashua Rd.	Moose Hill Rd.
Stonehouse Rd.	Hurd Rd.
Lake Ave.	Strobel Rd.
Park Lane	MacDonald Rd.
Blackhouse Rd.	Mischa Hill Rd.
Plattsville Rd.	Unity Rd.
Teller Rd.	Shelton Rd.
Porters Hill Rd.	

a/s/f





