

MARCIA A. LECLERC  
MAYOR

# TOWN OF EAST HARTFORD

740 Main Street

East Hartford, Connecticut 06108

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PURCHASING DEPARTMENT

WWW.EASTHARTFORDCT.GOV

## TOWN OF EAST HARTFORD, CT INVITATION TO BID

BID #16-19

RE: R.F.P. Design Services for the Forbes Street Culverts Replacement Project, East Hartford, CT

Proposals will be received at the Office of the Purchasing Agent, Town Hall, 740 Main Street, East Hartford, Connecticut, 06108 until Thursday, March 24, 2016 at 11:00 a.m. at which time they will be publicly opened and recorded.

There will be an optional pre-bid project scoping meeting held in the Welling Conference Room located on the second floor of the East Hartford Town Hall, 740 Main Street, East Hartford, CT on Thursday, March 10, 2016 at 2:00 p.m.

Information and Specifications are available at the above office or on the Town of East Hartford bid's website at <http://www.easthartfordct.gov/bids>

The right is reserved to reject any or all bids when such action is deemed to be in the best interest of the Town of East Hartford, Connecticut

Michelle A. Enman  
Purchasing Agent  
(860) 291-7271

TOWN OF EAST HARTFORD  
ENGINEERING DIVISION

DEPARTMENT OF PUBLIC WORKS SCOPE OF  
SERVICES REQUEST FOR PROPOSAL (RFP)  
BID NUMBER #16-19

FOR  
DESIGN SERVICES FOR THE FORBES STREET  
CULVERTS REPLACEMENT PROJECT

ENGINEERING DIVISION

February 18, 2016

The following information is included in the RFP for the Project.

- Forbes Street Culverts Replacement Project (Conceptual plan - GIS level data) – 2 sheets
- Local Bridge Inspection Report – dated June 15, 2012
- Temporary Repair – Plate Reinforcement for Box Culvert Pewterpot @ Forbes Street
- Forbes Street – plan & profile –dated July 1962 – for informational purposes only
- 2011 Road Improvement Project – Forbes Street (PLN-15) – for informational purposes only
- 2015 Road Improvement Plan – Forbes Street (PLN-15) – for informational purposes only
- CNG Forbes Street Gas Main Plans – for informational purposes only
- MDC data – Northeast Transmission Main Forbes Street – for informational purposes only
- MDC data - Forbes Street Sewer – for informational purposes only
- MDC data – Forbes Street & Leonard Drive Sewer - for informational purposes only

TOWN OF EAST HARTFORD

ENGINEERING DIVISION

DEPARTMENT OF PUBLIC WORKS SCOPE  
OF SERVICES REQUEST FOR PROPOSAL (RFP)  
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DESIGN SERVICES FORBES STREET  
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ENGINEERING DIVISION

February, 2016

GENERAL INFORMATION AND BACKGROUND

The Town of East Hartford is seeking proposals for professional engineering services pertaining to the following project:

**REPLACEMENT OF FORBES STREET CULVERTS**

The project will involve the replacement of two existing culverts on Forbes Street associated with Pewterpot Brook and an unnamed tributary of Pewterpot Brook. The culvert located at the Pewterpot Brook crossing consists of a 3' x 3' concrete culvert, drainage structures and associated corrugated metal pipes. The crossing of the unnamed tributary consists of a 36" corrugated metal culvert and associated drainage structures. Local municipal bond funds will be utilized to complete the design of the project. It is anticipated that the construction of the project will occur in 2019 and be funded by future local municipal bond funds to be submitted to the voters for approval in November 2018.

The professional services solicited by this Request for Proposal (RFP) are for the design of the replacement of the culverts and roadway reconstruction / resurfacing on a portion of Forbes Street. The Engineering Design Services shall include all phases of engineering; field surveys; preparation of plans and specifications; staged construction to maintain vehicular access through the site; evaluation of water quality issues; public involvement process, assistance in obtaining the necessary property rights; obtaining all applicable permits, certifications and approvals from the Federal, State and Local Agencies with jurisdiction; assistance in the public bidding and construction consultation services. Construction administration and inspection services will be covered by a separate contract.

The plans and specifications to be developed shall be prepared in accordance with latest Connecticut Department of Transportation (CTDOT) and Town of East Hartford standards. The Consultant selected in response to the RFP shall recommend the type and size of the structures to replace the culverts, subject to the approval of the Town Engineer.

## Scope of Services

The selected Consultant will provide comprehensive engineering services (hydraulic, geotechnical, site, civil, structural, traffic, environmental or any other function as required) for the preparation of documents required for the project. The selected Consultant will be required to provide comprehensive engineering services for the development of complete engineering drawings, specifications, estimates, and related services

In addition, the Consultant must have the capability to provide the Town of East Hartford with expertise in performing other functions, such as, but not limited to, preparation of environmental documents, inland wetland delineation, permit applications, geotechnical engineering, pavement design, liaison functions, coordination activities, clerical assistance and property right acquisition including property appraisals, negotiations with property owners, legal services, etc.

The Consultant may also be required to provide special consultation or services through sub-consultants. The Consultant will provide consultation services and review of shop drawing / submittals during construction activities. The Consultant will be required attend meetings with the Contractor and inspection firm during the construction phase of the project to address unanticipated conditions, if required.

The Consultant will attend all meetings with Town, State, and Federal Agencies necessary for the completion of the project.

The Consultant shall visit the site and become familiar with the project before submitting the Proposal. The Consultant's Proposal shall provide a detailed description of the Consultant's approach to completing the project. The following provides an overview of the anticipated tasks but should not be considered all inclusive.

1. Data Collection Phase - Collection of all available data pertinent to the project including but not limited to: rights of way, easements, floodplain, inland wetlands (Federal & State defined), public utilities, etc. Collect and review available data and resource information on file with the Town of East Hartford, state agencies, and other sources. This information may include past studies / inspections, watershed history, information regarding abutting property owners, threatened or endangered species, existing archeological or historical reports, mapping of the project area, aerial photographs, natural resource information, geologic data and mapping, hydrologic data and analysis, fisheries data, and FEMA studies and modeling. Prior studies of the brook and watershed, if available, will also be reviewed (Note: The Town does not have a detailed study of the watercourses in question.)
2. Design phase
  - A. All necessary field investigations shall be included in the Proposal, including but is not limited to the following:
    - 1) Inland Wetland Determinations shall be performed as necessary. The location / limits of both State and Federal defined inland wetlands are to be identified and surveyed. The appropriate information is to be included in the base mapping for the project and the Wetland

Scientist's report concerning the effort submitted as part of the project documentation.

- 2) All Land Surveying work and analysis necessary for establishing the roadway right of way, drainage easements, topography, inland wetlands limits, flood plain limits, existing field conditions including but not limited to the existing culverts, drainage structures, public utilities, boring / test pit data, roadway, driveways, curbs, storm sewers, utility poles, roadway signage, pavement markings, retaining walls, etc. All survey monuments / merestones (Town of East Hartford or private), iron pins, etc. shall be shown on the plans and all Town monuments / merestones shall be crossed and tied. The Consultants effort is to include a report compiling all of the deed research conducted as part of the surveyor's efforts.
  - a. All survey work shall be performed in accordance with the latest edition of CTDOT's Location Survey Manual and be certified by a surveyor licensed by the State of Connecticut.
  - b. Develop the appropriate base mapping including all necessary field work for the elements listed above. The scale of the mapping is to be appropriate for the required work.
  - c. Land Surveying efforts to establish roadway profiles and cross sections as well as the waterway profiles and cross sections required for design and permitting.
  - d. Establishment of all right of way, easement and property lines within the project areas in accordance with the land records and other best available information.
  - e. The FEMA floodplain (limits and elevations) are to be shown on the base mapping.
  - f. The need for property maps is anticipated for securing the appropriate easements (temporary / permanent) to accommodate the proposed improvements. **The proposals submitted shall provide a unit cost per map with an assumed quantity of 6 property maps as a separate line item in the proposal.**
  - g. The Consultant shall identify the survey control (horizontal & vertical). Permanent benchmarks in the vicinity of the proposed improvements, at locations that will not be disturbed by construction operations are to be established based on the NAVD 1988 datum. Horizontal survey control points are to be established based on the NAD 1983 datum.
  - h. Create project base map in the latest version of AutoCAD. Inland Wetlands based on field delineation are to be added to the base mapping. Test pit data and boring data are to be included on the plans. The base map will be stamped and signed by a Connecticut Licensed Land Surveyor. Electronic

and paper copies of the base mapping are to be submitted.

- 3) The Consultant will be responsible for the geotechnical engineering services and analysis required for the project. The Consultant shall plan, arrange for and coordinate whatever field, laboratory and office work associated with the geotechnical investigations associated with the design of the culverts and associated roadway pavement. The data collection shall include determinations concerning any unusual construction conditions such as groundwater, slope stability and the presence of rock. The submission of the various geotechnical reports including the boring logs and test pit data including their locations is required.
  - 4) Test Pits & Borings (Pavement, Culvert & Utility) – All necessary utility test pits to determine the horizontal and vertical location of the underground utilities which might be in conflict with the proposed construction are to be done. Test pits of the existing pavement structure including base materials are required to complete the pavement design activities. The utility test pit data, boring logs and pavement test pit data is to be incorporated into the construction drawings. Encroachment permits will be required to complete the field investigations. The Consultant will need to secure the appropriate rights to access private property for the necessary work. All costs associated with the permit fees, securing access, boring / test pit subcontractor, development of the various reports / boring logs, surveying and testing are to be included in the cost of the proposal.
  - 5) Pavement Design – The Consultant will be responsible for the development of the appropriate pavement design for Forbes Street restoration based on the existing conditions encountered on the project.
  - 6) The Consultant will be responsible for all environmental review and testing on the project. The Consultant will conduct environmental evaluations in general accordance with CTDOT Task protocols or approved equal. The Consultant shall be responsible to conduct a Task 110 Level environmental review of the project area to determine if additional environmental review is required. The Consultant might be responsible to develop additional environmental engineering tasks as required. **The cost of the Task 110 work and report is to be included in the cost of the Proposal.** If required, the Town and Consultant will negotiate the costs of the additional Environmental Tasks once the scope of the work has been determined. If the Town and Consultant cannot reach an agreement on the supplemental environmental tasks, the Town reserves the right to secure the professional services with another firm.
- B. The Consultant shall provide hydrologic and hydraulic analyses required for the design and permitting purposes. The analyses shall be prepared in accordance with the latest edition of the CTDOT Drainage Manual. The Consultant will be required to determine the upstream and downstream existing conditions based on the existing culvert / roadway configurations.

The appropriate impacts to the upstream and downstream conditions are to be identified based on the proposed improvements. The necessary reports required for the design and permitting purposes are required.

- C. Conceptual Design Phase: As part of the conceptual design phase the Consultant shall develop a report and supporting documentation for the Consultant's recommended type and size of the culverts / structures. A meeting will be held between the Town and the Consultant to discuss the proposed recommendations on the size and type of structure as well as a conceptual cost estimate for the various options. The Consultant shall prepare a conceptual design and conceptual cost estimate based on the approved recommended type and size of the culverts / structures. The conceptual design shall be presented at meeting between the Town and the Consultant. No work on the preliminary design phase plans will allowed until the Consultant is provided a notice to proceed to the next phase of the project.
- D. Design Plans: All of the work necessary for the development of detailed construction plans and specifications for the culvert replacement and the roadway construction shall be included in the Proposal. The design shall be in conformance with the latest editions of the CTDOT Bridge Design Manual, CTDOT Highway Design Manual and the CTDOT Standard Specifications for Road, Bridge and Incidental Construction. The design is to include a vicinity map, plan and profile drawings (roadway, channel, etc.), typical sections, cross sections (roadway, channel, etc.), handling of water / groundwater, construction / structure details, staged construction plan and any other drawings necessary to obtain the required permits and the construction of the improvements.

A design report for the project will be required. The report shall provide information on the roadway design as well as the culvert replacement activities. The report shall include but is not limited to: design criteria, identification of design exceptions, identification of privately properties which are affected by the project, requirements of the Americans with disability Act (ADA), etc.

The design plans must identify all existing utilities and address any utility relocations that might be necessary for the project. The Consultant will be responsible for all coordination activities with the various utility companies.

Design plans and supporting documentation including cost estimates are to be submitted for review at the 35%, 90% and 100% design stage. The Consultant will be responsible to submit three copies and an electronic version (PDF) of the construction plan and supporting documentation at each phase of the design for review purposes. The Consultant must receive approval of the Town of East Hartford prior entering a subsequent design phase. The Consultant shall be responsible to incorporate all of the necessary revisions based on the Town review at each design phase.

- E. Drainage – The Consultant will be responsible for all drainage studies and analyses required for the project which are to be completed in accordance with the latest edition of the CTDOT Drainage Manual. Drainage Reports shall be submitted with each design phase of the project. The report should include an overview contour map showing the watershed areas to major cross culverts, storm drainage system catchment areas and all environmental permit requirements.

The proposed drainage system and culverts are to be evaluated with respect to its effect on adjacent properties including upstream and downstream impacts associated with the project.

Any special conditions or drainage issues that the designer is aware of, i.e. diversions, existing flooding problems, hydraulic controls or limitations) should be addressed in the design report.

- F. Water Quality (Alternate Item) - Portions of the Forbes Street storm drainage system connect to the Forbes Street culverts. Evaluate if water quality elements can be incorporated into the design of the project. **The cost associated with the exploring the possibility of incorporating water quality elements is to be included in the base bid lump sum.** The design of the water quality elements is to be an optional item and is to be identified separately in the proposal and fee structure.
- G. Approvals and Permitting: The Consultant shall prepare and furnish all plans, reports, supporting documentation, permit applications, etc. for each of the applicable Federal, State and Local permits required. The Consultant shall attend all of the meetings necessary with each of the governmental agencies or Commissions for the various permits. The permitting is anticipated to include approvals from the United States Army Corps of Engineers (USACE), Connecticut Department of Energy and Environmental Protection, East Hartford Inland Wetland Commission and the East Hartford Planning & Zoning Commission. Multiple permits and approvals might be required from the various Agencies and Commissions listed and is not to considered definitive list. The Consultant shall clearly note the anticipated approvals and permits required in their Proposal as well as the fees associated with all of the required plans, investigations, reports, specifications, meetings, etc. are to be included. **All permit fees will be billed as a direct cost with no markup for profit.**
- H. Public Involvement Process: The consultant will provide the necessary personnel, visual aids and make all presentations for any public informational meetings. The Town anticipates an informational meeting at the conclusion of the preliminary design phase of the project. The public involvement meeting will be held at the East Hartford Town Hall. The Consultant will be required to coordinate notice of the meeting with Town oversight/approval and submit the notice to the Hartford Courant along with the associated fees. The work will involve the development of the presentation materials, sign-in sheets, agenda, preparation of the meeting minutes, etc. Subsequent to the meeting, the Consultant shall prepare a report of meeting, evaluate public comments and prepare a

response to the Town concerning the comments or concerns raised at the meeting as well as incorporate/address appropriate public comment elements in the design.

- I. Cost Estimates: The Consultant shall prepare a construction cost estimate at each of the design phases as well as the submission of the final bid documents.
- J. Bid Documents: Detailed specifications are to be prepared for competitive public bidding of the project. All bid documents shall conform to the latest edition of the CTDOT Standard Specifications for Road, Bridge and Incidental Construction as well as the Town of East Hartford's bidding requirements. The bid documents are subject to the review and approval by the Town of East Hartford. The Consultant's proposal shall include the preparation and submission of three sets of the draft bid documents to the Town of East Hartford. The Consultant shall provide three hard copies and an electronic (PDF) version of final bid documents to the Town of East Hartford.

### 3. Bidding Phase

- A. The Consultant shall be responsible incorporate the Town of East Hartford Purchasing Requirements and Instruction for Bidders into the Bid documents. The Consultant shall produce a complete contract for the construction project which is acceptable to the Town of East Hartford. **The Town of East Hartford will not supply front end contract language other than the Town's Purchasing requirements.** The final bid documents will include but is not limited to the following: invitation to bid, construction contract, notice to contractors, bid sheet, inclusion of the appropriate prevailing wages, special conditions, technical specifications, permitting approvals, notice to contractors, coordination information, etc.
- B. The Town of East Hartford will be responsible to publish the advertisement for bid which shall include project information that is to be provided by the Consultant. The advertisement will provide information on the instructions for obtaining the bid documents.
- C. The Consultant shall be responsible to electronically host bid documents during the bidding process. The Consultant must have a means to register prospective bidders to assist in bidding procedure.
- D. Bid Addendum & Contractor's Questions during Bidding - The Consultant shall be responsible to assist in answering technical questions submitted by the prospective Contractors and develop any addendum required. The consultant will attend a pre-bid meeting with prospective bidders.
- E. Bid Evaluation & Recommendation – The Consultant shall be responsible to evaluate all of the submitted bids, conduct reference checks and provide a recommendation on the lowest responsible contractor.

4. **Property Maps (Optional Item)** – A preliminary review of the available information indicates that acquiring easements and property rights will likely be required to complete the project. The Consultant will be responsible to research the land records to determine what easements and property rights are required for the project. The Consultant will be responsible for establishing the appropriate taking lines, easements and rights in accordance with last edition of the CTDOT's Policies and Procedures for Property Maps. The right of way acquisition process shall commence after the Consultant is authorized to begin the semi-final design process. The Consultant will perform the required title searches and prepare the necessary property maps for all proposed property acquisitions required for the project. The title searches and the property maps shall conform to all Federal, State and Local requirements. **The Consultant shall provide the unit cost for title searches and preparation of the property maps as part of the negotiation process. All proposals are to be based on the need for 6 property maps.**
5. **Property Acquisition (Optional Item)** - The Consultant will be responsible for coordinating the acquisition of all necessary property, easements and rights for the project in accordance with the current CTDOT Bureau Of Engineering and Construction – Division of Rights Of Way procedures. The Consultant shall be responsible for coordinating the selection of an appraiser (acceptable to the Town) through a bidding process to assist in the acquisition of the necessary property, easements and rights. The Consultant will be responsible to secure the necessary legal services associated with the negotiations with the affected property owners and property rights acquisition. The Town's Corporation Counsel's Office will be responsible to secure Town Council approval of the real estate acquisition. **All proposals are to be based on six affected properties. The Consultant shall provide a unit cost for the appraisal, coordination legal services and appropriate maps for the property acquisition phase as separate items in the proposal.**
6. Construction Consultation Phase - The Consultant shall attend the preconstruction conference in order to assist in answering questions relative to the design. The Consultant will be responsible to review and approve all shop drawings / submittals for the project. If any unexpected field conditions are encountered during construction, the Consultant shall attend all meetings and resolve all problems associated with the unexpected conditions as it relates to their design. The Consultant shall be compensated on an hourly basis for this phase of the project. The proposal shall include a budget for this phase of the project with a not exceed value for the total amount of the line item.
7. Record Drawings / As-built Plans of the project will be required. The Consultant shall submit an electronic PDF, AutoCAD file and one (1) mylar drawing set of all as-built public improvements to the Town of East Hartford at the completion of the project.

The following general information is to be provided on the record drawings. The Town reserves the right to request additional information beyond what is listed below.

- A. Show all Geometry pertaining to roadway, property lines and easement

lines. Datum is to be the same as called for on the approved construction plan.

- B. As-built locations or sidewalks, handicap ramps, and driveway openings.
- C. As-built locations of all drainage structures (i.e. culverts, catch basins, manholes, headwalls, flared end, retention basins, etc.) together with top of frame elevations invert elevations, size of pipes, top of headwall elevations and flared end elevations. Revised drainage design calculations based on as-built modifications must be submitted if directed by the Town Engineer.
- D. As-built locations of all utilities and utility services, including top of frame elevations, size of pipe and invert elevation.
- E. As-built locations of all street light poles with numbers designated by the utility company.
- F. As-built locations of underground utilities (i.e. water, electric, telephone, cable TV, gas) as well as all above ground utility transformer pads, manholes, junction boxes.
- G. All monumentation set and found for project perimeter, street line, lot corners and angle points, and easements. The above locations are to be certified to an A-2 Standard of Accuracy by a licensed professional Land Surveyor in the State of Connecticut.
- H. Location of all permanent benchmarks and survey control points
- I. Scale of drawings to be in accordance with the original site plan. Maximum sizes of sheet two (2) feet by three (3) feet.
- J. Title block indicating "As-Built" or "Record Drawing" with date.
- K. Paper prints and mylars are to be stamped (ink & embossed seal and signature) by the Licensed professional Land Surveyor in the State of Connecticut responsible for their production.

The following information is to be provided on the profile sheets:

- A. Scale of profiles to be in accordance with original plan submission.
- B. Existing and finished grade of the Forbes Street center line profile at every 50 foot interval including elevations at all low, high and intersection points.
- C. The following underground utilities (water sanitary sewer, storm sewer, gas, electricity, telephone, Cable TV) along with pipe sizes and material, top of frame elevations, flow lines, and slope of pipes shall be shown on the "As-Built Profile". The drawings shall include information on the horizontal and vertical geometry for the roadway, storm drainage facilities (including top of frame, invert elevations, pipe size, types, etc.), utility locations, etc.

**Managing Authority** - The Managing Authority will be the Department of Public Works, Division of Engineering. The Consultant will report to the Town Engineer or authorized designee.

**Project Coordination** - The Consultant shall coordinate his activities with the Town of East Hartford and, if needed, contractors, utility companies, residents, and others to insure conformance to the project schedule, scope, and requirements. Integrate outcome of coordination into work products.

**Monthly Project Updates** – The Consultant will be reporting formally to the Town of East Hartford monthly. A Project Management Report will be submitted which will outline the activities completed and any variance from plan for the previous month and planned activities for the upcoming month. The monthly updates are to include a brief project status update that summarizes progress, critical issues, interim submission dates, and overall schedule.

**Project Coordination Meetings** – The Consultant will coordinate the activities of the surveyors, utility companies, sub-consultants and others to insure conformance to the project schedules. Advance notification to utility companies shall be made in writing. A pre-construction meeting will be held prior to the start of construction. The Consultant will be required to prepare all written communication relative to the completion of the project. This effort will include requests for utility relocations and replies to questions from construction contractors, Town residents, and Town Departments. The Consultant will be responsible to attend monthly project coordination meetings with the Town in addition to the project kick-off meeting. The Consultant shall prepare meeting minutes for all meetings.

**Record Keeping** - The Consultant shall submit copies of all project correspondence to the Managing Authority. The Consultant will be responsible for the preparation of meeting minutes for all meetings. In addition, the Consultant will maintain a duplicate set of files and a complete set of reproducible record drawings. All engineering plans, reports, studies and map files shall be provided in paper copy and electronic PDF files to the Town of East Hartford for review. All work and documentation produced under this agreement is to become the property of the Town of East Hartford. All original documents and electronic versions will be turned over to the Town of East Hartford upon project completion or request. Upon completion of the contract, the Consultant will provide the Town with all test reports, survey data, inspections, field notes, measurements, mylar reproducible of all plans which meet the State of Connecticut filing requirements, any other copies of material, and any other pertinent data regarding the contract. These records shall be bound in chronological order, or as otherwise specified by the Town. The Consultant shall supply the Town with the electronic AutoCAD drawing files and PDF files for the final construction plan set. The CAD files shall be in a “DWG” format (latest version of AutoCAD) which is compatible with the Town’s existing AutoCAD system. Prior to final plan submission, the Consultant is to contact the Project Engineer to determine the appropriate version of AutoCAD to create the final electronic drawing files.

**Design Schedule** - The Consultant shall submit to the Town a proposed schedule of engineering activities for approval prior to entering into an agreement with the Town. The Town desires an overall project duration of approximately 24 months for the project. The schedule must include time frames for milestones and critical steps in the design.

**Personnel** - The Consultant must have sufficient personnel to assure task continuity and project completion. A roster of anticipated employees is to be provided in the proposal and the agreement. If a change in project personnel is required, the Town shall be notified and will determine if the change in personnel is acceptable so as not to impair the success of the project. The Town's written approval of roster changes will be required prior to making a change, including adding supplemental personnel.

**Incidental Expenses** - All direct costs and incidental costs for the project are to be included in the Consultant's proposal. These costs include but are not limited to: reproduction costs, postage /mailing, mileage, laboratory testing, police expenses, soils testing, miscellaneous testing, advertising fees, permit fees, etc. The incidental expenses are to be included in the proposal and are not to be billed separately.

**Subcontractors / Sub-Consultants** - The Consultant shall identify the name of the Subcontractors / Sub-consultants, the work the Subcontractors / Sub-consultants is expected to perform. The successful responder shall submit copies of the Subcontractor's insurance which shall conform to those insurance requirements outlined below. The Town of East Hartford reserves the right to reject a Subcontractor / Sub-consultant submitted. Nothing in terms of the project agreement shall constitute any contractual relationship between any Subcontractors / Sub-consultants and the Town, or any obligation on the part of the Town to pay or see to the payment of any monies due to any Subcontractor / Sub-consultant, except as may otherwise be required by law. The Consultant agrees to specifically bind every Subcontractor / Sub-consultant to all applicable terms and conditions of the project agreement. Every Subcontractor / Sub-consultant, by undertaking to perform any of the work, will thereby automatically be deemed to be bound by such terms and conditions.

**Compensation** - The fee for the services rendered for engineering services will be on a lump sum basis for the base contract. The fee shall include all incidental costs associated with the work. Unit costs or lump sums which include all of associated incidental costs are to be provided accordingly for the optional items noted in the proposal. The construction consultation phase will be based on a not to exceed cost basis determined by an estimated number of man-hours by staff positions to perform the work, approved labor rates, approved multipliers and a direct cost budget.

Engineering services will be paid within 30 calendar days of receipt of approved periodic invoices from the Consultant. These invoices may be submitted according to the agreed project schedule but shall not be submitted more frequently than monthly.

**Applicable Laws** - The Consultant agrees to conform to all applicable laws, ordinances, and statutes of the United States federal government, State of Connecticut, and Town of East Hartford.

**Termination** - The Consultant agrees that the Town reserves the right to terminate this agreement at any time with the assurance that the Consultant shall be entitled to compensation for any services rendered prior to receipt of the Notice of Termination.



## TOWN OF EAST HARTFORD, CT.

### STANDARD INSTRUCTIONS FOR PROPOSAL

1. Sealed proposals will be received by the Purchasing Agent until the date and time specified on the title sheet. Proposals received later than the date and time specified will not be considered and will be returned unopened. **Proposals will not be accepted via fax or e-mail.**
2. All proposals will be opened and recorded and are subject to public inspection. Firms may be present or be represented at all openings.
3. Municipalities are exempt from any sales, excise or federal taxes. Fees must be exclusive of taxes and will be so construed.
4. The Town of East Hartford reserves the right to reject any or all proposals or any part of any or all proposals and to waive any informality when such action is in the best interest of the town and also reserves the right to extend an awarded proposal by mutual consent and negotiate any terms, conditions and prices if it is in the best interest of the town.
5. Firms should familiarize themselves with the items and/or conditions set forth in the Request for Proposal specifications. Failure to be informed will not be accepted as an excuse from fulfillment of the requirements.
6. In case of an error in the extension or addition of prices, the unit price will govern. The Town will not be subject to any price increases after an award if not part of the original proposal terms.
7. For professional services - a selected town committee will evaluate all responses and make a recommendation to the Mayor. **If deemed necessary** by the committee, an interview may be required as part of the selection process.
8. Please include a corporate resolution with your submittal. Sample formats for Corporations and Professional Corporations, Limited Liability Company and Partnerships (including Limited Partnership and Limited Liability Partnership) are attached in this packet.
9. Per Town Ordinance Sec. 10-10 (d): The Town shall not award a bid to any bidder who owes a delinquent tax to the Town. Bidders certify by virtue of their signature on the bid sheet that neither the bidder nor any business or corporation in which the bidder owns and interest is delinquent in tax obligations to the town.
10. The bidding entity is required to provide evidence from the Connecticut Secretary of State that they are in good standing and qualified to conduct business in the State of Connecticut.

## **Submission and Deadline**

All proposals must be received by 11:00 A.M., E.S.T., local time, on Thursday March 24, 2016. Three (3) copies [1 original & 2 copies] of the proposal shall be submitted to:

Ms. Michelle Enman, Purchasing Agent  
Town of East Hartford  
740 Main Street  
East Hartford, CT 06108

Proposals shall be plainly marked on the envelope “Design Services for the Forbes Street Culverts Replacement Project”

All questions concerning the Request for Proposal are to be directed to Ms. Michelle Enman in Purchasing at (860) 291-7270.

## **Organization and Content**

1. General Proposal Guidelines
  - A. A letter shall be submitted along with a statement by the Consultant, accepting all the terms and conditions contained in this RFP.
  - B. The letter shall include general information on the firm and proposed sub-consultants, the firm brochure, experience of the firms, administration plan and a resume of key personnel. The administration plan must outline the project team and the role each will have during project design. Any references should be sufficiently detailed to allow the Town to contact prior clients.
  - C. The letter must include a detailed statement indicating the organizational structure under which the firm proposes to conduct business.
  - D. The relations to any “parent” firm or subsidiary firm, with any of the parties concerned must be clearly defined.
  
2. Detailed Proposal
  - A. Project Understanding: A discussion in whatever detail is necessary to demonstrate an understanding of the service required.
  - B. Experience: A detailed summary of the Consultant’s experience with similar services.
  - C. Staff plan: An identification of staff personnel who will be assigned to the projects, their background and experience and their areas and levels of responsibility; include resumes of all proposed project personnel.
  - D. Sub-consultants: All sub-consultants proposed to be engaged by the Engineer for services during the term of the contract must be listed.
  - E. Management plan: Describe the project management system and how it will function to ensure the timely delivery of quality services.
  - F. Service plan: Provide a detailed, itemized plan of proposed services.
  - G. Services expected of the Town: Define the nature and scope of all services to be provided by the Town.
  - H. Construction Consultation: The consultant will be responsible for the

review, comment, and approval of shop drawings. Provide a payroll roster, approved BF&O multipliers, man-hour projection to establish a not to exceed budget for this effort. The maximum profit amount is 10%.

3. Costs

- A. The proposals must include a total fee and a detailed description of the proposed method for compensation. The proposals must be broken down by the various project tasks and include a man-hour projection for each of the identified tasks. The costs should include but are not limited to the following items.

**Base Contract / Fee**

- Engineering conceptual design phase
- Project coordination
- Preliminary and Final Design phase as well as regulatory permitting to address various deficiencies noted in the comprehensive report, which will not likely be impacted by the findings of the accreditation study.
- Survey including as-built requirements
- Public Involvement & Informational meetings
- Drainage design & analysis
- Environmental Engineering
- Subsurface Exploration and design
- Bidding and Bid Evaluation
- Direct Costs

Separate Lines Item in the fee proposal – The following items will not be paid unless the Town provides written authorization to complete the tasks

- Construction Consultation – (time & material basis)
- Property Map Development – (unit cost / each for 6 property maps)
- Property Acquisition – (unit cost / each for 6 affected properties)
- Design of Water Quality Elements – (lump sum)

Elements to be negotiated at a later date if required

- Environmental Engineering – based on the findings of the Task 110 which the cost of is to be included in the in the base contract / fee.

- B. This RFP is intended to include the design activities and all other services required to develop bid documents related to the replacement of the two culverts and the resurfacing of Forbes Street within the project limits. If required, the Town and the Consultant will enter into a separate negotiation for elements such as a potential Environmental Task 210 / 230 once the scope of the work has been developed. The Town reserves the right to secure the services which require separate negotiation if the Consultant and the Town can not reach an agreement.
- C. The consultant shall indicate any costs that they consider necessary for the completion of the project but either have not been asked for in this RFP or not included in the consultant's fee.

#### 4. Conditions

The Consultant must be willing to adhere to the following conditions with the Town for work, and he must have a positive statement to that affect in his proposal:

- A. Have personnel reserve sufficient to assure task continuity, and agree that all personnel proposed are committed for the full duration of the contract. If a change is required, the Town shall be notified and will judge whether the substitution will impair the success of the project. Written approval of personnel changes is required.
- B. Agree that all sub-consultants hired by the Consultant must be included in the credentials submitted with the proposal and must be approved by the Town of East Hartford prior to working on the project.
- C. Agree that all work produced under this agreement is to become the property of the Town of East Hartford and to turn over to the Town all original documents upon completion or demand.
- D. Agree to accept the following management direction from the Town and specifically, the Managing Authority.
- E. Agree to conform to all applicable laws and ordinances and statutes of the Federal Government, State of Connecticut and Town of East Hartford.
- F. Agree that the Town reserves the right to terminate the contract at any time with the assurance that the consultant shall be entitled to reimbursement for any services rendered prior to Receipt of Notice of Termination.
- G. Provide a statement that the consultant has no conflicting financial interests and is qualified to perform the service.

#### **SELECTION PROCEDURE**

1. All proposals submitted in response to this RFP will be reviewed against criteria listed noted in the “Request for Proposal” and award of contract shall be made in accordance with the Town’s purchasing procedures.
2. A Selection Committee composed of Town staff will assist the Managing Authority in selecting an Engineer to provide the requested services
3. The Town intends to award a contract to the most responsible offeror or to the offeror whose proposal is determined to be in the best interest of the Town. The Town reserves the right to reject or modify any proposal or parts thereof for any reason, to negotiate changes to the proposal terms and to waive minor inconsistencies within this RFP.

#### **CRITERIA FOR SELECTION**

Proposals will be evaluated in accordance with the following criteria:

1. The Consultant’s understanding of the services required and ability to handle a variety of similar projects.
2. The Consultant’s proposed method of assuring the achievement of acceptable performance of work.
3. Availability and competence of personnel proposed for the project.
4. The nature of the Engineer’s project management approach.
5. The background and experience of the firm in providing similar services

elsewhere.

6. Competitiveness of proposed fees and costs

## TOWN OF EAST HARTFORD INSURANCE REQUIREMENTS

### A CERTIFICATE OF INSURANCE WILL ONLY BE REQUIRED OF THE AWARDED BIDDER

#### INSURANCE INDEMNIFICATION CLAUSE

The Town of East Hartford, CT is to be named as an “**additional insured**” and an additional insured policy endorsement must be submitted with the certificate of insurance and the nature of the project is to be stated on the certificate.

#### INDEMNIFICATION

**AGENCY** agrees to indemnify and hold the Town of East Hartford, CT harmless against and from any and all claims by or on behalf of any person arising from or in connection with:

A: Any act, error, omission, negligence or fault of **AGENCY** or any of its agents, servants, employees and sub-contractors.

B: Any accident, injury or damage whatsoever caused to any person occurring during the performance of this contract.

Further, the **AGENCY** agrees to indemnify and hold harmless the Town of East Hartford, CT against and from all reasonable costs, counsel fees, expenses and liabilities incurred in or with respect to any such claim and any action or proceeding brought thereon; and in any case any action or proceeding shall be brought against the contractor by reason of any such claim, contractor upon notice from the Town of East Hartford, CT agrees to resist and defend such action proceeding, unless **AGENCY** causes the same to be discharged and satisfied.

#### A. GENERAL REQUIREMENTS

The **AGENCY** shall be responsible for maintaining insurance coverage in force for the life of this contract of the kinds and adequate amounts to secure all of the **AGENCY** obligations under this contract with an insurance company(ies) with an AM Best Rating of A-VII or better licensed to write such insurance in the State of Connecticut and acceptable to the Town of East Hartford, CT

The insurer shall provide the Town of East Hartford, CT with **Certificates of Insurance signed by an authorized representative of the insurance AGENCY(ies)** prior to the performance of this contract describing the coverage and providing that the insurer shall give the Town of East Hartford, CT written notice at least thirty (30) days in advance of any termination, expiration, or any and all changes in coverage. Such insurance or renewals or replacements thereof shall remain in force during the **AGENCY** responsibility under this contract.

The **AGENCY** at the **AGENCY’S** own cost and expense, shall procure and maintain all insurance required and shall name the Town of East Hartford, CT as Additional Insured on all contracts, except Workers’ Compensation and Professional Errors & Omissions coverage’s.

B. SPECIFIC REQUIREMENTS:

1) Workers' Compensation Insurance

The **AGENCY** shall provide Statutory Workers' Compensation Insurance, including Employer's Liability with Limits of:

\$100,000 Each Accident  
\$500,000 Disease, Policy Limit  
\$100,000 Disease, Each Employee

2) Commercial General Liability Insurance

The **AGENCY** shall carry Commercial General Liability Insurance (Insurance Services Officer Incorporated Form CG-0001 or equivalent). As per occurrence limit \$1,000,000 is required. The Aggregate Limit will be not less than \$2,000,000. Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

3) Business Automobile Liability Insurance

The **AGENCY** shall carry Business Automobile Liability Insurance (Insurance Services Office Incorporated Form CA-00001 or equivalent). A per occurrence limit of \$1,000,000 is required. "Auto Auto" (symbol 1 or equivalent) is required. Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

C. **OTHERS: PROFESSIONAL SERVICES – ARCHITECTS, ENGINEERS, ET AL.**

The **AGENCY** shall carry Errors & Omissions coverage in the amount \$1,000,000 per occurrence for all professional services contracts only. If the insurance coverage is written on a claims made basis, an extended reporting period of at least 3 years after substantial completion of the project is required.

The Town reserves the right to amend amounts of coverage required and type of coverage provided based on work or service to be performed.

D. SUBCONTRACTOR'S REQUIREMENTS:

The **AGENCY** shall require its subcontractors and independent contractors to carry the coverages set forth in section B and C above and will obtain appropriate Certificates of Insurance before the subcontractors and independent contractors are permitted to begin work.

The **AGENCY** shall require that the Town of East Hartford, CT be named as Additional Insured on all subcontractors and independent contractors insurance before permitted to begin work.

The **AGENCY** and all subcontractors and independent contractors and their insurers shall waive all rights of subrogation against the Town of East Hartford, CT, and its officers, agents, servants and employees for losses arising from work performed by each on this contract.

## **EQUAL OPPORTUNITY EMPLOYER**

In order for a firm to be considered for business with the Town of East Hartford, that firm must be an Equal Opportunity Employer.

## **ADDITIONAL INFORMATION AND REVISIONS TO PROPOSALS**

Information may be provided to responsible respondents who anticipate submitting a proposal for the purpose of clarification to assure full understanding of, and responsiveness to, the solicitation requirements. Offerors shall be afforded fair and equal treatment with respect to access to additional information and revision of proposals.

### Deliverables

- Written Monthly Project Updates (electronic PDF format)
- Meeting Minutes (hard copy and electronic PDF format)
- Presentation Materials (hard copy and electronic PDF format)
- Evaluation of public comments and suggested modifications to the study based on public comment. (electronic PDF format)
- List of Resource Material Collected (electronic PDF format)
- Field Assessment Forms, Notes, and Photographic Documentation (electronic PDF format)
- Copies of Correspondence (cc of email and hard copies of any formal written correspondence)
- Base Mapping (electronic PDF , AutoCAD format and three hard copies)
- Modeling Input and Output Files (electronic PDF and raw computer data)
- Computations (electronic PDF format)
- Floodplain Delineation Mapping (GIS 10.1, AutoCAD, electronic PDF, and six hard copies)
- Modeling Computer Files (i.e. input and output files from the latest version of HEC-RAS)
- Preliminary Engineering Report (PDF and three hard copies, including mapping)
- Final Engineering Report (PDF and three hard copies, including mapping)
- As-built Plans (electronic PDF , AutoCAD format and three hard copies)

A hard copy of all deliverables noted above, correspondence, reports and other files associated with the project will need to be provided as a hardcopy and electronic file (PDF) in the final permanent project file.

RESOLUTION FOR CORPORATIONS AND PROFESSIONAL CORPORATIONS  
(required)

(TO BE TYPED ON CORPORATION LETTERHEAD PAPER)

I \_\_\_\_\_, Secretary of \_\_\_\_\_  
(Name of Corporation's Secretary) (Legal name of Corporation)

a Corporation duly organized and operating under the laws of \_\_\_\_\_ and  
(State)

Qualified and authorized to do business in the State of Connecticut, DO  
HEREBY CERTIFY that the following is a true, correct and accurate copy of a  
Resolution duly adopted at a meeting of the Board of Directors of such  
Corporation, duly convened and held on \_\_\_\_\_, at which meeting  
a duly constituted quorum of the Board of Directors was present and voted in  
favor of such Resolution. I further CERTIFY that such Resolution has not been  
modified, rescinded or revoked since the date on which it was enacted, and it is  
at present in full force and effect:

RESOLVED: That the following Officers of this Corporation, or any one  
them: \_\_\_\_\_

\_\_\_\_\_,  
(Name and title of Officer or Officers)  
is empowered to execute and deliver in the name and on behalf of this  
Corporation contracts, bids and other documents to the Town of East Hartford, State  
of Connecticut, and are further authorized to affix the Corporate Seal to such  
documents and to bind the Corporation to such contracts, bids and other documents.

IN WITNESS WHEREFORE, the undersigned has affixed his/her signature and  
the Corporate Seal of the Corporation, this \_\_\_\_\_ day of \_\_\_\_\_.

(Affix Corporate Seal Below)

\_\_\_\_\_  
(Typed name of Corporation's Secretary)

\_\_\_\_\_  
SIGNATURE OF SECRETARY

Resolution for Limited Liability Company (required)  
(TO BE TYPED ON LIMITED LIABILITY COMPANY LETTERHEAD PAPER)

The undersigned, all of the members [or, if applicable, the managing member] of

\_\_\_\_\_ (legal name of LLC)  
A Limited Liability Company duly organized and operating under the laws of  
\_\_\_\_\_ and \_\_\_\_\_ (State)  
qualified and authorized to do business in the State of Connecticut, DO

HEREBY CERTIFY that the following is a true, correct and accurate copy of a Resolution duly adopted at a meeting of the Members of such Limited Liability Company, duly convened and held on \_\_\_\_\_, at which meeting a duly constituted quorum of the voting Members was present and voted in favor of such Resolution. We further CERTIFY that such Resolution has not been modified, rescinded or revoked since the date on which it was enacted, and it is at present in full force and effect:

RESOLVED: That the following Members of this Limited Liability Company, or any one them: \_\_\_\_\_

\_\_\_\_\_,  
(Name and title of Members)  
is empowered to execute and deliver in the name and on behalf of this Limited Liability Company, contracts bids and other documents to the Town of East Hartford, State of Connecticut, and are further authorized to seal to such documents and to bind the Limited Liability Company to such contracts, bids and other documents.

IN WITNESS WHEREFORE, the undersigned have executed this resolution, this \_\_\_\_\_ day of \_\_\_\_\_.

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

Have all necessary parties sign and indicate their name and title, such as member, managing member etc..

Resolution for Partnership (including Limited Partnership and Limited Liability Partnership) (required)

(TO BE TYPED ON PARTNERSHIP LETTERHEAD PAPER)

The undersigned, all of the partners (or, if a Limited Partnership, all of the general partners, or if a Limited Liability Partnership, all of the partners) of \_\_\_\_\_, a partnership (or, if applicable, a Limited Partnership or Limited Liability Partnership) duly organized and operating under the laws of \_\_\_\_\_ and qualified and authorized to do business in the State of Connecticut, DO

HEREBY CERTIFY that the following is a true, correct and accurate copy of a Resolution duly adopted at a meeting of the voting partners of such partnership duly convened and held on \_\_\_\_\_, at which meeting a duly constituted quorum of the voting partners was present and voted in favor of such Resolution. We further CERTIFY that such Resolution has not been modified, rescinded or revoked since the date on which it was enacted, and it is at present in full force and effect:

RESOLVED: That the following partners, or any one of them: \_\_\_\_\_

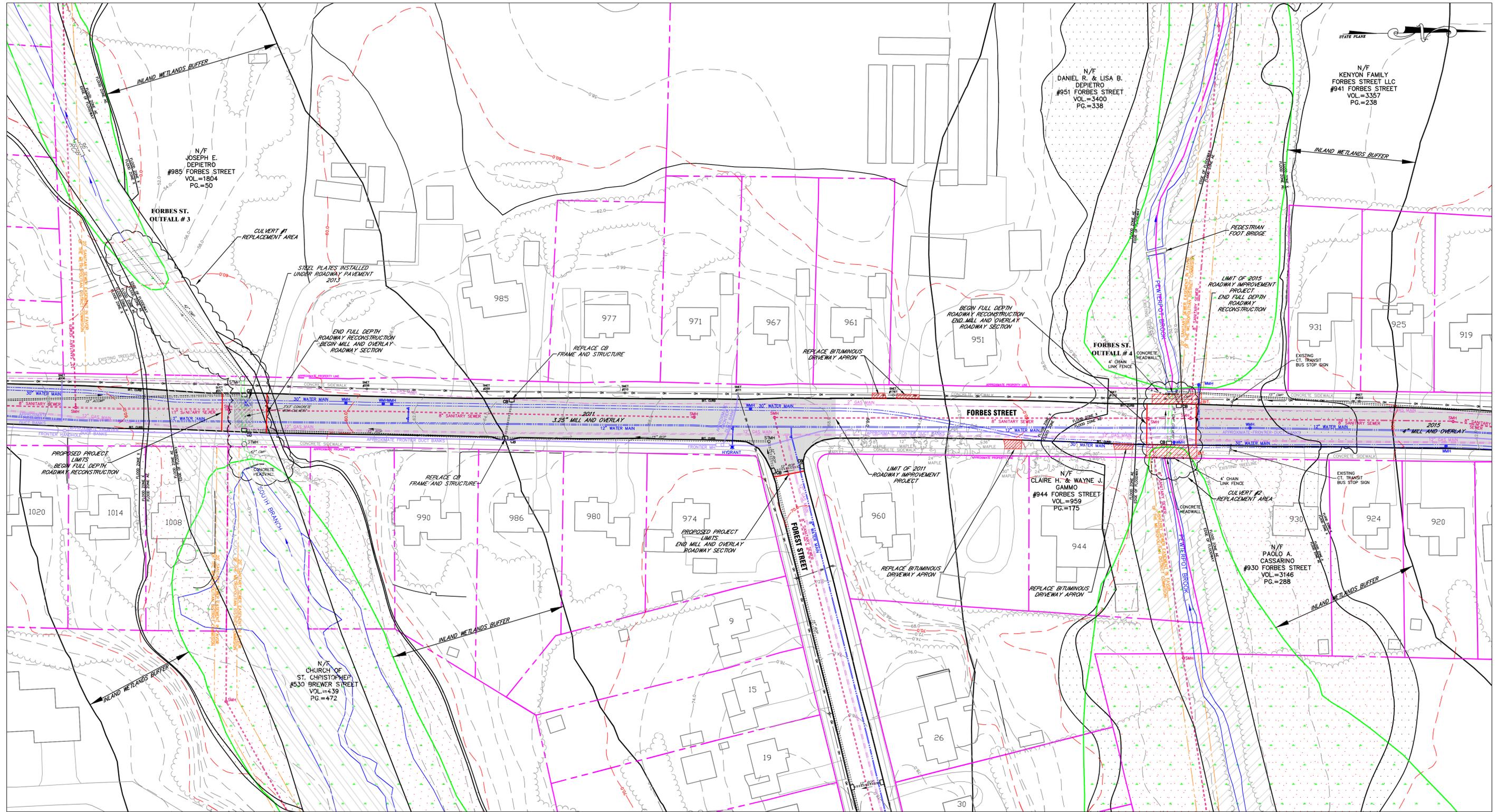
(Name and title of Partners)

is empowered to execute and deliver in the name and on behalf of this partnership, contracts, bids and other documents to the Town of East Hartford, State of Connecticut, and are further authorized to seal to such documents and to bind the partnership to such contracts, bids and other documents.

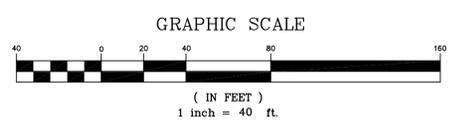
IN WITNESS WHEREFORE, the undersigned have signed this resolution on, this \_\_\_\_\_ day of \_\_\_\_\_.  
(day) (month and year)

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

Have all necessary partners sign and indicate their name and title, such as partner, general partner, etc.



- NOTES:
1. INFORMATION DEPICTED ON THIS PLAN SHOWING UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM BEST AVAILABLE MAPS, SURVEYS, AND RECORDS AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY.
  2. THIS PLAN WAS COMPILED FROM OTHER MAPS/RECORD RESEARCH OR OTHER SOURCES OF INFORMATION TO BE USED AS A COMPILATION PLAN. IT IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD SURVEY, AND IS SUBJECT TO SUCH CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.



LEGEND:

	= FLOODWAY AREA
	= ZONE AE-100 YEAR FLOOD ZONE
	= ZONE X-500 YEAR FLOOD ZONE
	= INLAND WETLANDS

TOWN OF EAST HARTFORD ENGINEERING DIVISION		CADD: FORBES.DWG
DESIGNED BY: GJM	DATE: 9/15	PLOTTED: 1/26/16
DRAWN BY: GJM/ARA	DATE: 1/16	SCALE: 1" = 40'
REV.	DATE	DESCRIPTION REVISIONS

TOWN OF  
EAST HARTFORD, CONNECTICUT

**CONCEPTUAL PLAN**

TOWN:	<b>EAST HARTFORD</b>
PROJECT:	<b>FORBES STREET CULVERTS REPLACEMENT PROJECT</b>

STATE PROJECT NO.:	
FEDERAL AID PROJECT NO.:	
SHEET NO.:	1
TOTAL SHEETS:	2



FORBES STREET OUTFALL #3  
42" CMP  
CULVERT #1



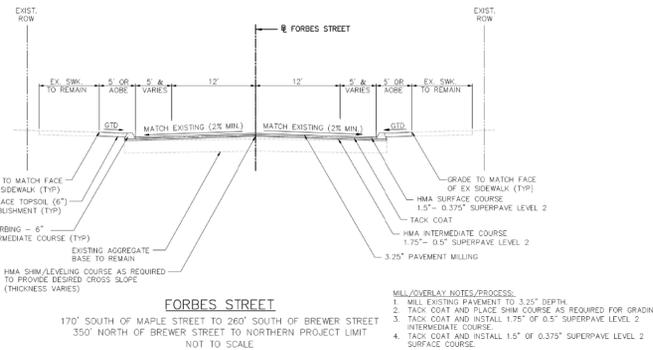
CULVERT #1  
CULVERT FAILURE IN 2012



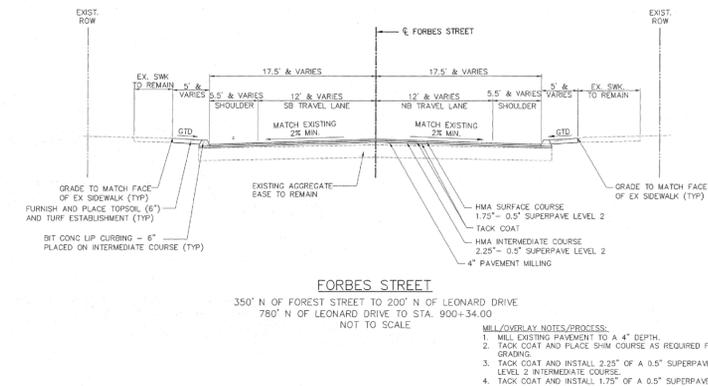
FORBES STREET OUTFALL #4  
36" CMP CULVERT, 10" CMP, 15" CMP  
WITH HEADWALL  
CULVERT #2



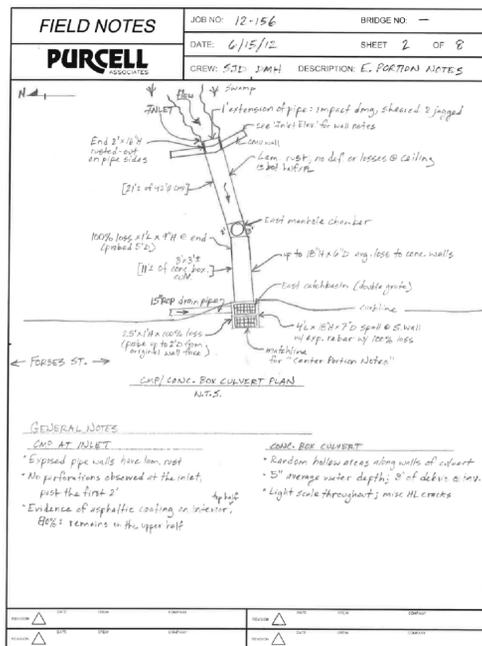
CULVERT #1  
CULVERT FAILURE IN 2012



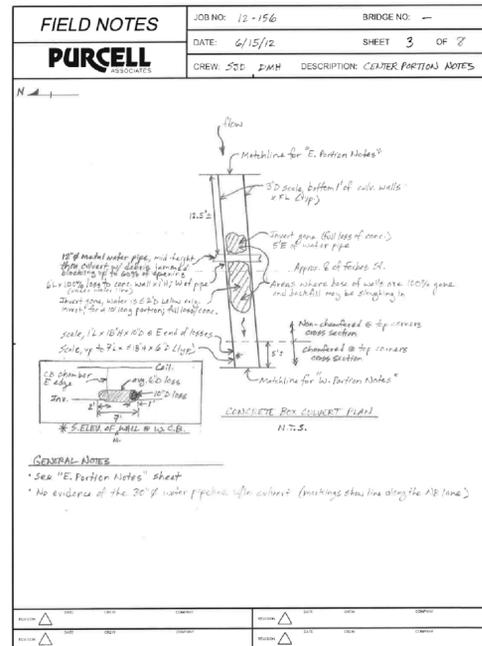
2011 ROADWAY IMPROVEMENT PROJECT  
TYPICAL ROADWAY SECTION



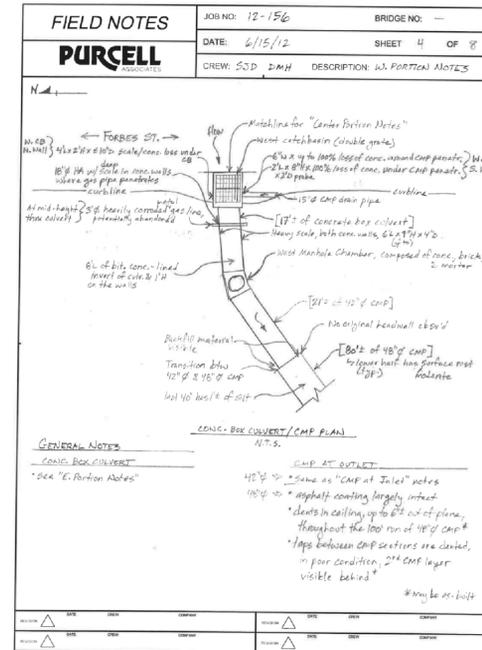
2015 ROADWAY IMPROVEMENT PROJECT  
TYPICAL ROADWAY SECTION



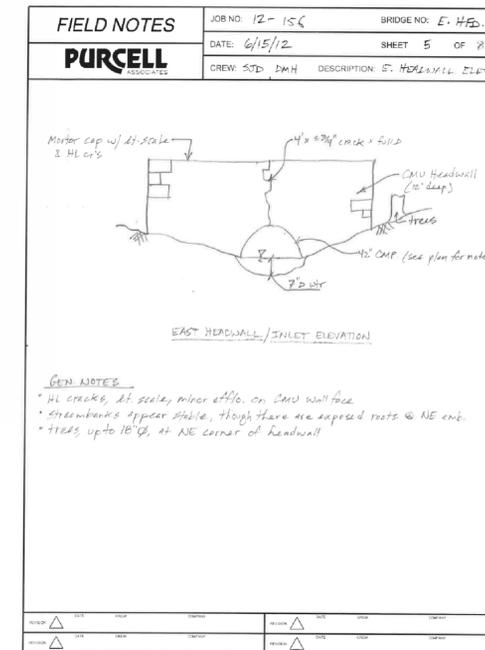
CULVERT #1



CULVERT #1



CULVERT #1



CULVERT #1

		TOWN OF EAST HARTFORD ENGINEERING DIVISION		CADD:		TOWN:		EAST HARTFORD		STATE PROJECT NO.:	
		DESIGNED BY: GJM DATE: 9/15		PLOTTED: 1/26/16		PROJECT:		FORBES STREET CULVERTS REPLACEMENT PROJECT		FEDERAL AID PROJECT NO.:	
		DRAWN BY: GJM/ARA DATE: 1/16		SCALE: N.T.S.						SHEET NO.: 2	
REV. DATE DESCRIPTION REVISIONS		CHECKED BY: DATE:								TOTAL SHEETS: 2	



TOWN OF  
EAST HARTFORD, CONNECTICUT  
**SUPPLEMENTAL INFORMATION**



TOWN:  
PROJECT:  
**EAST HARTFORD  
FORBES STREET  
CULVERTS REPLACEMENT  
PROJECT**

STATE PROJECT NO.:  
FEDERAL AID PROJECT NO.:  
SHEET NO.: 2  
TOTAL SHEETS: 2



## LOCAL BRIDGE INSPECTION REPORT

### FORBES STREET OVER PEWTERPOT BROOK

### CONCRETE BOX & CORRUGATED METAL PIPE CULVERT



**INSPECTED JUNE 15, 2012**

**PREPARED FOR:**

**TOWN OF EAST HARTFORD**

Engineering Department  
740 Main Street  
East Hartford, CT 06108

Prepared By:

CONSULTING ENGINEERS  
**PURCELL**  
ASSOCIATES

90 National Drive  
Glastonbury, CT 06033



Structure No.     —     Town EAST HARTFORD

Inspectors S. DRECHSLER, D. HINES Date 6/15/12

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Flagging Memos . . . . .	_____
BRI-11, Seismic Screening Data Sheet . . . . .	_____
BRI-12, Fracture Critical Inspection Data Sheet . . . . .	_____
BRI-19, HWY Bridge SI&A Form . . . . .	<u>2</u>
BRI-25, Under Entry SI&A Form . . . . .	_____
BRI-39, RR Bridge SI&A Form . . . . .	_____
BRI-49, Sign Structure SI&A Form . . . . .	_____
PONTIS Element Data Collection Form . . . . .	_____
Plan Sheets . . . . . Check here if already on file: <input type="checkbox"/>	_____

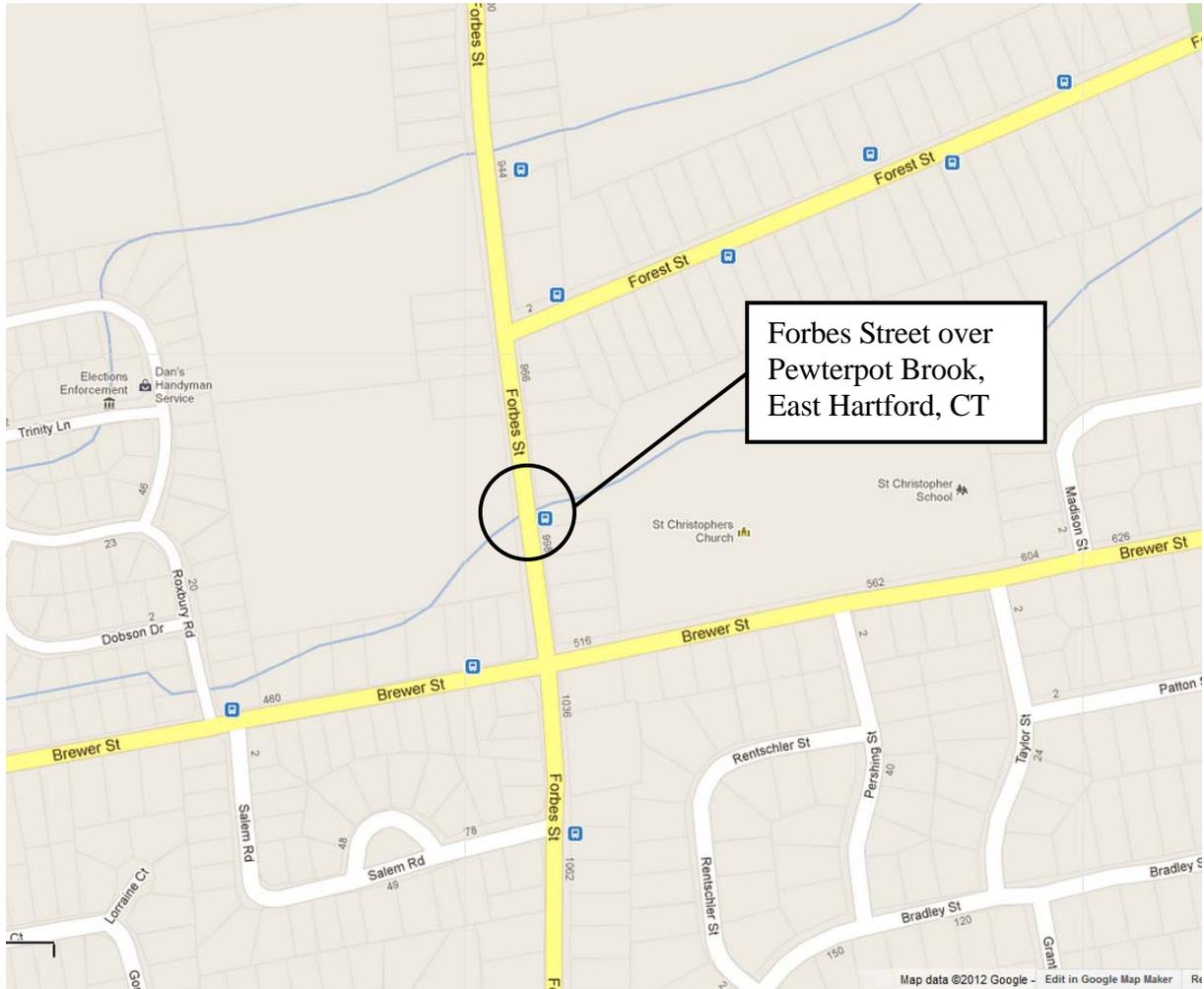
Bound Report Pages

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Field Notes (Include Forms BRI-10, BRI-13, BRI-14, BRI-15, BRI-16, BRI-17, BRI-29, BRI-30) . . . . .	<u>8</u>
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Negatives . . . . .	_____
<u>LOCATION MAP</u>	<u>1</u>
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LOCATION MAP  
(North ↑)



**EXECUTIVE SUMMARY**

6/15/2012

Pewterpot Brook passes under Forbes Street through a culvert structure located between Brewer and Forest Streets. The brook runs generally from east to west at this crossing. The flow enters through a 42" corrugated metal pipe (CMP) at the inlet (21'± long), transitioning into a 3' x 3' concrete box culvert under the roadway (63'± long), then into a 42" CMP (21'± long), and finally into a 48" CMP to the outlet (100'± long). The structure was originally constructed in 1962 with the 48" CMP section added at a later date. There are two double-grate catch basins along the roadway gutter that drain directly into the culvert. The culvert carries a two-lane roadway with a paved width of 38±' as well as two 4' wide sidewalks. There are several utilities present at this location, including overhead lines, a 30" water main, a 12" water line, sanitary sewer and natural gas services.

**OVERVIEW**

Purcell Associates performed an inspection of the structure on June 15<sup>th</sup>, 2012. Due to the confined nature of the space, ACS Underground Solutions of Brooklyn, CT was hired to supplement the inspection by performing video inspection of the culvert along its entirety. The video inspection was performed on June 15<sup>th</sup> and July 10<sup>th</sup>, 2012. The culvert was found to be in overall "Serious" condition (Condition Rating = 3).

**FIELD OBSERVATIONS**

Please see the attached field notes, photos, and video files (on the attached DVD) for reference.

The bituminous concrete is new. There is a patch in the middle of the roadway over the culvert where previous roadway settlement had occurred. The bituminous concrete lip curbing is new and in good condition. There are two concrete sidewalks, one on each side of the roadway. The concrete surface is moderately scaled and there is unevenness between adjacent slabs in some locations. There are overhead utilities along the west side of the roadway. There is a 12" water line running mid-height across the culvert opening, under the northbound lane. This pipe exhibits light surface rust and is trapping debris. There is a severely rusted gas pipeline running mid-height across the culvert opening, between the west catch basin and the west manhole. A nearby CNG Gas crew informed that this pipe is abandoned and that the active gas line runs over the culvert through the fill along the west edge of road. Paint markings indicate that there is a 30" water main as well as a sanitary sewer running under the southbound lane. It is assumed that these utilities run underneath the concrete culvert. There are double-grate catch basins at each gutter line which drain through openings in the culvert roof slab. There are also drainage pipes emptying into the culvert at the catch basin locations.

The channel is in serious condition. There is a severe build-up of debris on the upstream side of the 12" water pipe, east of the roadway centerline. It is estimated that 60% of the culvert opening is blocked by this debris. This blockage may be creating a localized increase in flow velocity (during periods of high flow) which may be contributing to the advanced concrete deterioration noted in this area. There is debris (mainly in the form of tree limbs) across the outlet. Some

undercutting of channel banks (with some exposed tree roots) was noted but the banks were otherwise observed to be well vegetated and stable.

The **concrete box** portion of the culvert is in serious condition. The entire concrete portion of the culvert was inspected hands-on by Purcell Associates. Video was also taken of this section by ACS Underground Solutions. (Please refer to the attached field notes, photos, and video files). Available drawings indicate that the walls, floor, and roof of the culvert are all 1' thick.

**From the East Manhole to the East Catch Basin:** (11' of cast-in-place (CIP) Concrete Box Culvert): There is up to 100% loss x 1' long x 9" high at the end of the north wall section, next to the manhole junction chamber. There is up to 6" deep scaling of the concrete, with exposed rebar, over the bottom 18" of the culvert walls.

**From the East Catch Basin (ECB) to West Catch Basin (WCB):** (35' of CIP Concrete Box Culvert): There is a 2.5' long x 1' high x 100% loss to the north wall of the culvert, immediately west of the 15" RCP drain pipe penetration in the catch basin chamber. This void was probed 2' in from the original face of the wall at this location. There is a 4' long x 18" high x 7" deep spall at bottom of the south wall of the culvert, within the catch basin chamber. There is exposed rebar with 100% section loss at this location. There is 3" deep scale x 12" high x full length at the bottom of both walls for approximately 12.5' west of the ECB chamber. There is a 12" diameter water pipe transversely penetrating the culvert opening, approximately 12.5' west of the ECB. There is debris trapped behind this pipe and approx. 60% of the culvert opening is blocked. The concrete floor of the culvert is 100% deteriorated along the 5' immediately east and 10' immediately west of the 12" diameter water pipe. The water was found to be up to 2' deep in this area (whereas the water in the rest of the culvert was 3"-4" deep.) There is a 6' long x 12" high x 100% loss to the base of the north wall, under the water line, immediately west of the 12" diameter water pipe. It is possible that backfill infiltration at this location has led to the previously repaired settlement in the roadway. There is an average loss in the base of the north wall adjacent to the WCB of 7' long x 6" deep x 12" high. 2' of this loss is east of the WCB chamber's east edge, and 5' of this area extends east of this chamber's east edge. Locally these losses are up to 18" high x 10" deep. There is a 4' long x 2' high x up to 10" deep loss to the concrete north wall of the WCB chamber. There is a 6" wide x up to 100% loss of concrete to the south wall of the culvert, around the 15" CMP drain pipe penetration in the WCB chamber. Also, there is a 2' long x 8" high x 100% loss of concrete to the south wall under the 15" CMP drain pipe penetration.

**From the WCB to West Manhole,** 21' of CIP Concrete Box Culvert: The walls between the WCB and the West Manhole Chamber (WMC) exhibit heavy scale, full length x up to 9" high x up to 4" deep. The invert and 1' up the walls of the culvert, between the WCB and WMC, is lined with asphalt for a length of approximately 8'.

The **corrugated metal pipe (CMP)** portion of the culvert is in poor condition. Portions of the CMP pipe were inspected hands-on by Purcell (at the inlet / outlet and adjacent to manhole structures). The remainder of the CMP pipe was inspected visually through video footage taken by ACS Underground Solutions. (Please refer to the attached field notes, photos, and video files).

**From Inlet to East Manhole:** 21' long, 42" Asphalt-coated Steel CMP: There is damage to the end 1' of the pipe at the inlet, where it projects from the headwall. The end 2' x 16" high of the pipe sides are corroded through. After the first 2', the CMP has laminated rust over its bottom half and approximately 80% of its asphaltic coating remains on the upper half. No deformations or bulges were observed.

**From West Manhole to CMP Transition:** 21' long, 42" Asphalt-coated Steel CMP: The CMP has laminated rust over its bottom half and approximately 80% of its asphaltic coating remains on the upper half. No deformations or bulges were observed.

**From CMP Transition to Outlet:** 100' long, 48" Asphalt-coated Steel CMP: The asphaltic coating is largely intact in the top half of the pipe. The bottom half of the pipe has moderate surface rust throughout. There are dents in the roof throughout, bulges up to 6" out of plane. The roof of the pipe sections typically shows more deformation at the lap joints. The laps between the CMP sections are misaligned and dented, with a second layer of CMP visible behind the laps. Backfill cobbles and chunks of asphalt are visible between the pipe shapes when looking upstream at the transition from 42" to 48" CMP.

The upstream headwall is made of mortared concrete masonry units (CMU). There is a full height x full depth crack running through the CMU from the top of the pipe to the top of the wall, up to 3/4" wide. There is light scale on the mortar cap of the wall, along with hairline cracks at random locations. Additionally, there is minor erosion and trees up to 12" wide at the corners of the headwall. The downstream headwall, as indicated on the 1962 plans, was not observed, as there is a 100± extension of 48" CMP extending from where the downstream headwall was indicated.

The approach condition is good. There is no guide rail present where the road crosses the brook. The approach pavement is new and no problems were observed. The approach embankments are well vegetated and stable.

### **RECOMMENDATIONS FOR REPAIR**

The following repair items have been assigned priority codes as follows:

*Priority I items should be addressed immediately, Priority II: within six months, Priority III: within one year, and Priority IV: within two years.*

1. Install road plates over the travel lanes to provide temporary structural support at the severely deteriorated portions of the culvert until a more permanent repair can be made; Priority I. (*This recommendation was previously communicated via email to the Town on Friday, June 15<sup>th</sup>, 2012*)
2. Clean the debris from behind the 12" water pipe within the culvert opening, near the East Catch Basin; Priority I.
3. Seal the crack in the east headwall to prevent further deterioration from freeze/thaw action; Priority III.
4. Clear the vegetation from above the corrugated metal pipe segments; Priority IV.

**RECOMMENDATIONS FOR REHABILITATION**

1. It is recommended that this culvert be replaced; especially the concrete portion supporting Forbes Street. The severe deterioration of the concrete walls and floor indicate that the structure is at the end of its useful life. If unaddressed, further backfill migration and roadway settlement/instability may result. The corrugated metal pipe sections also exhibit deterioration with several bulged areas noted. Consideration should also be made to replace these structures as well.
2. Concurrent with the culvert replacement, relocate the 12" water main under the culvert to eliminate obstruction to the channel.

**ADDITIONAL RECOMMENDATIONS**

1. Inform the Connecticut Natural Gas Corporation (CNG) about the severely deteriorated gas pipe through the culvert, near the West Catch Basin, and confirm that this pipe is abandoned.
2. Due to the advanced deterioration of this culvert, we recommend that the portion of the culvert supporting the roadway be inspected on a six-month interval until permanent repairs can be made.
3. Routinely monitor the culvert for debris to ensure proper flow of the brook.



# Town of East Hartford

## Bridge Inspection Report BRI-18

BRIDGE #: 042000

INSPECTION DATE:

6/15/2012

<b>Inspection Type:</b>	<b>PREVIOUS INSPECTION DATE:</b>	<b>Snooper Required:</b> N
<b>Inspection Performed By:</b>	Purcell Associates	<b>Snooper Used:</b> N
2. EMBANKMENT EROSION	6	Undercutting of channel banks with exposed tree roots observed near the outlet. See photo no. 11.
3. DEBRIS	3	There is a severe build-up of debris on the upstream side of the 12" water pipe, east of the roadway centerline. It is estimated that 60% of the culvert opening is blocked by this debris. This blockage may be creating a localized increase in flow velocity which correlates with the advanced concrete deterioration noted in this area. See photo nos. 7-8 and field notes sheet 3.
4. VEGETATION	7	Channel banks are well vegetated and stable. See photo nos. 9-10 and field notes sheet 1.
5. CHANNEL CHANGE	7	No problems observed.
6. FENDER SYSTEM	N	
7. SPUR DIKES & JETTIES	N	
8. RIP RAP	N	

**62. CULVERTS & RETAINING WALLS**

**OVERALL RATING** **3**

	RATING	
1. BARREL	3	See below.
CONCRETE	3	<p>--E. Manhole to E. Catch Basin, 11' of CIP Conc. Box Culvert: (See field notes sheets 1-2)--</p> <ol style="list-style-type: none"> <li>1. There is up to 100% loss x 1' long x 9" high at the end of the north wall section, next to the manhole junction chamber. See Photo no. 14.</li> <li>2. There is up to 6" deep scaling of the concrete, with exposed rebar, over the bottom 18" of the culvert walls. See Photo no. 15.</li> </ol> <p>--E. Catch Basin to W. Catchbasin, 35' of CIP Conc. Box Culvert: (See field notes sheets 1-4)--</p> <ol style="list-style-type: none"> <li>1. There is a 2.5' long x 1' high x 100% loss to the north wall of the culvert, immediately west of the 15" RCP drain pipe penetration in the catch basin chamber. A ruler was probed 2' in from the original face of the wall at this location. See Photo no. 16.</li> <li>2. There is a 4' long x 18" high x 7" deep spall at the south wall of the culvert, within the catch basin chamber. There is exposed rebar with 100% section loss at this location. See photo no. 17.</li> <li>3. There is 3" deep scale x 12" high x full length at both walls for approximately 12.5' west of the East Catch Basin chamber. See photo no. 18.</li> <li>4. There is a 12" diameter water pipe transversely penetrating the culvert opening, approximately 12.5' west of the East Catch Basin. There is debris jammed on this pipe and approx. 60% of the culvert opening is blocked. There is evidence of contraction scour in this area and no concrete invert could be found in this location. See photo no. 19.</li> <li>5. The concrete invert of the culvert is 100% deteriorated along the 5' immediately east of the 12" diameter water pipe.</li> <li>6. The concrete invert of the culvert is 100% deteriorated along the 10' immediately west of the 12" diameter water pipe. The water was found to be up to 2' deep in this area (whereas the water in the rest of the culvert was 3"-4" deep.). See photo no. 20.</li> <li>7. There is a 6' long x 12" high x 100% loss to the north wall, under the water line, immediately west of the 12" diameter water pipe. It is possible that backfill infiltration at this location has led to the previously repaired settlement in the roadway. See photo no. 21.</li> <li>8. There is an average loss in the base of the north wall adjacent to the WCB of 7' long x 6" deep x 12" high. 2' of this loss is east of the WCB chamber's east edge, and 5' of this area extends east of this chamber's east edge. Locally these losses are up to 18" high x 10" deep. See photo no. 22.</li> <li>9. There is a 4' long x 2' high x up to 10" deep loss to the concrete north wall of the WCB chamber. See photo no. 23.</li> <li>10. There is a 6" wide x up to 100% loss of concrete to the south wall of the culvert, around the 15" CMP drain pipe penetration in the WCB chamber. Also, there is a 2' long x 8" high x 100% loss of concrete to the south wall under the 15" CMP drain pipe penetration. See photo no. 24.</li> </ol> <p>--W. Catch Basin to W. Manhole, 21' of CIP Conc. Box Culvert: (see field notes sheets 1-4)--</p> <ol style="list-style-type: none"> <li>1. The walls between the WCB and the West Manhole Chamber (WMC) exhibit heavy scale, full length x up to 9" high x up to 4" deep. See photo no. 25.</li> <li>2. The invert and 1' up the walls of the culvert, between the WCB and WMC, is lined with asphalt for approximately 8'. See photo no. 26.</li> </ol>
STEEL	4	<p>--21' Section of 42" Asphalt-coated Steel CMP from the Inlet to the East Manhole:--</p> <p>There is damage to the end 1' of the pipe at the inlet, where it projects from the headwall. The end 2' x 16" high of the pipe sides are corroded through. After the first 2', the CMP has laminated rust over its bottom half and approximately 80% of is asphaltic coating remains on the upper half. No deformations or bulges were observed.</p> <p>See photo nos. 27-28 and field notes sheet 2.</p> <p>--21' Section of 42" Asphalt-coated Steel CMP from the West Manhole to the CMP Transition:--</p> <p>The CMP has laminated rust over its bottom half and approximately 80% of is asphaltic coating remains on the upper half. No deformations or bulges were observed.</p> <p>See photo no. 29 and field notes sheet 4.</p>

# Town of East Hartford

## Bridge Inspection Report BRI-18

BRIDGE #: 042000

INSPECTION DATE:

6/15/2012

Inspection Type:

PREVIOUS INSPECTION DATE:

Snooper Required: N

Inspection Performed By:

Purcell Associates

Snooper Used: N

			<p>--100' Section of 48" Asphalt-coated Steel CMP from the Transition to the Outlet--                  The asphaltic coating is largely intact in the top half of the pipe. The bottom half of the pipe has moderate surface rust throughout. There are dents in the ceiling throughout, bulges up to 6" out of plane: these may be as-built. The laps between the CMP sections are misaligned and dented, with a second layer of CMP visible behind the laps. Backfill cobbles and chunks of asphalt are visible between the pipe shapes when looking upstream at the transition from 42" to 48" CMP. The ceilings of the pipes are typically dented worse at the laps. The cause of the bulging is not evident though it could be attributed to as built conditions or to damage from tree roots (as the area above this section is heavily vegetated).                  See photo nos. 30-32 and field notes sheet 4.</p>
TIMBER	N		
2. HEADWALL	5		<p>The upstream headwall is made of Cement Masonry Unit (CMU) block in a "V" shape in plan. There is a full height x full depth crack running through the CMU block from the top of the pipe to the top of the wall, up to 3/4" wide. There is light scale on the mortar cap of the wall, along with hairline cracks at random locations. Additionally, there is minor erosion and trees up to 12" wide at the corners of the headwall.                  See photo nos. 12-13 and field notes sheet 5.</p> <p>The downstream headwall, as indicated on the 1962 plans, was not observed, as there was a 80' extension of 48" CMP to the 21' run of 42" CMP where the downstream headwall was indicated.                  See field notes sheet 4.</p>
3. CUTOFF WALL	N		
4. DEBRIS	P		See 'Debris' in section 61.
5. RETAINING WALL STEM	N		
6. FOOTING	N		

### 65. APPROACH CONDITION

7

	RATING	
1. APPROACH SLAB	N	
2. RELIEF JOINTS	N	
3. APPROACH GUIDE RAIL	N	
PAVEMENT	8	Pavement is new with no problems noted.
EMBANKMENT	7	Embankments are well vegetated and stable. No problems noted.
4. TRAFFIC SAFETY FEATURE	NN	

### 66. RATED LOADING

	RATING	
1. POSTED LOADING:		
SINGLE UNIT (TONS)		
SEMI TRAILER (TONS)		
3. ADVANCE WARNING Y/N		
4. LEGIBILITY		
5. VISIBILITY/LOCATION		

### INSPECTORS APPRAISAL OF OVERALL STRUCTURE CONDITION:

3

MIN VERT. UNDERCLR.	N	
POSTED CLEARANCE:	N	
ADVANCE WARNING (Y/N):	N	
SPEED LIMIT (IF ANY):	MPH	
CHARACTER OF TRAFFIC:		Frequent (est. ADT of 6000) and of moderate speed.

**Town of East Hartford**  
**Bridge Inspection Report BRI-18**

BRIDGE #: 042000

INSPECTION DATE:

6/15/2012

Inspection Type:

PREVIOUS INSPECTION DATE:

Snooper Required: N

Inspection Performed By:

Purcell Associates

Snooper Used: N

ADDITIONAL NOTES:

ADDITIONAL COMMENTS:

Inspectors' Signatures:

1) Steve Dru Date: 7/23/12

2) David M. [Signature] Date: 7/23/12

3) \_\_\_\_\_ Date: \_\_/\_\_/\_\_

4) \_\_\_\_\_ Date: \_\_/\_\_/\_\_

P.E. Signature:

Robert Prudhan Date: 7/23/12

P.E.#:

17242

Reviewed by:

Robert Prudhan Date: 7/23/12

# FIELD NOTES

JOB NO: 12-156

BRIDGE NO: -

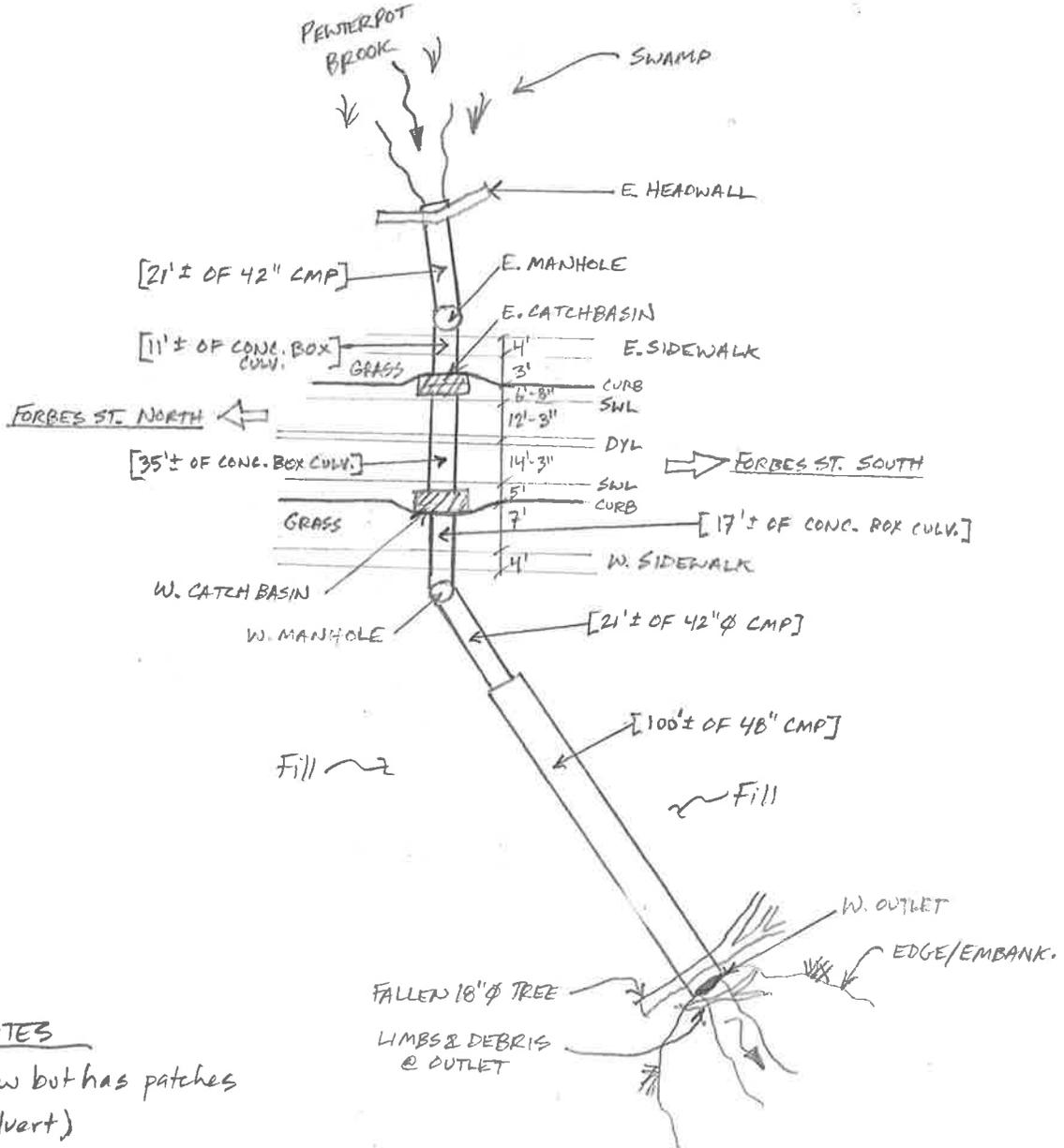
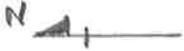
DATE: 6/15/12

SHEET 1 OF 8



CREW: SJD, DMH

DESCRIPTION: KEY/CHANNEL PLAN



## GENERAL NOTES

- overlay is new but has patches (over the culvert)
- sidewalks are moderately scaled, w/ some uneven slabs
- Channel banks are well vegetated, w/ no undercutting or <sup>scour</sup> problems observed, only minor debris

REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY
REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY

# FIELD NOTES

**PURCELL**  
ASSOCIATES

JOB NO: 12-156

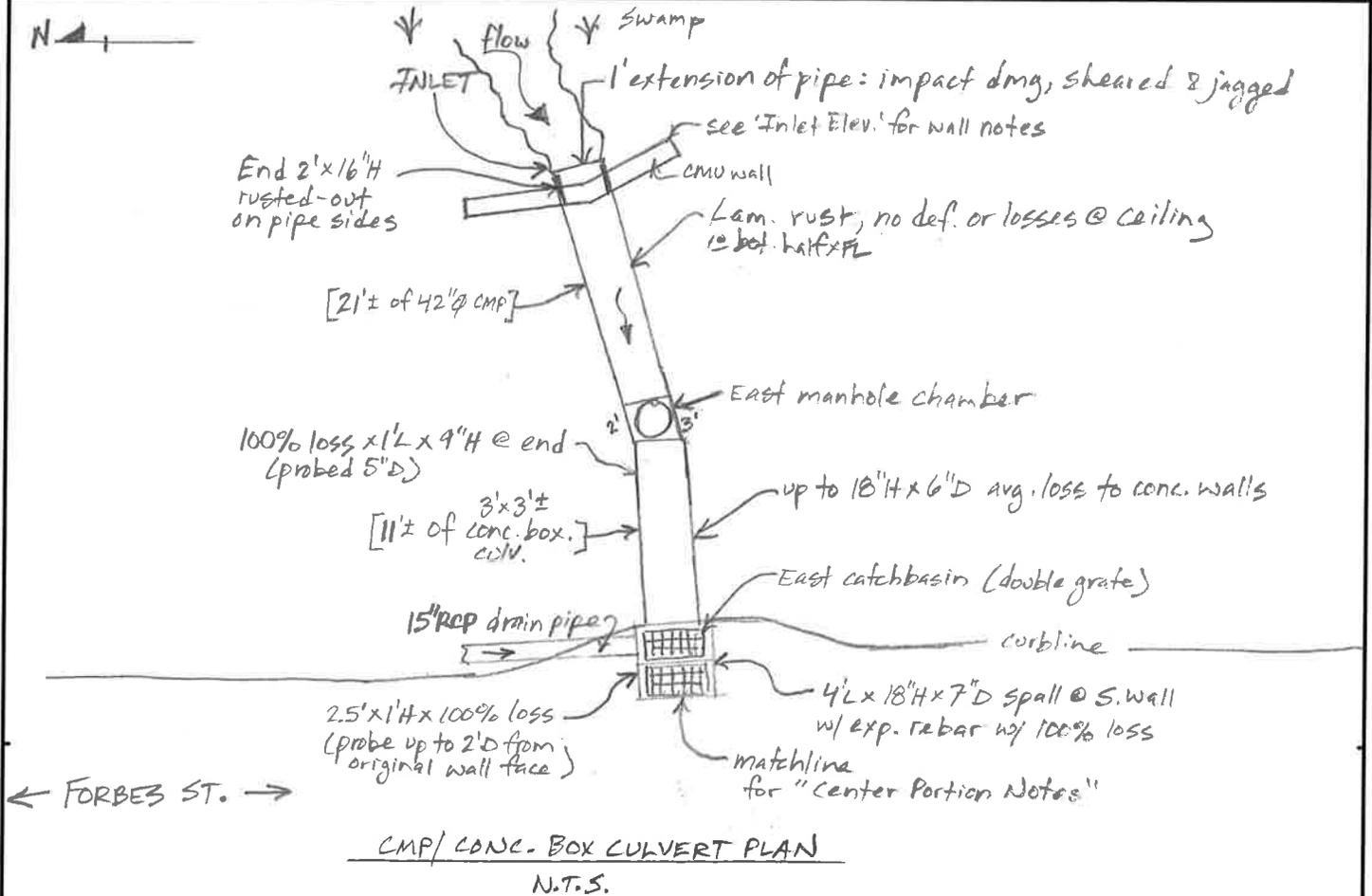
BRIDGE NO: —

DATE: 6/15/12

SHEET 2 OF 8

CREW: SJD DMH

DESCRIPTION: E. PORTION NOTES



## GENERAL NOTES

### CMP AT INLET

- Exposed pipe walls have lam. rust
- No perforations observed at the inlet, past the first 2' <sup>top half</sup>
- Evidence of asphaltic coating on interior, 80%± remains on the upper half

### CONC. BOX CULVERT

- Random hollow areas along walls of culvert
- 5" average water depth; 3" of debris @ inv.
- Light scale throughout; misc HL cracks

REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY
REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY

# FIELD NOTES

## PURCELL ASSOCIATES

JOB NO: 12-156

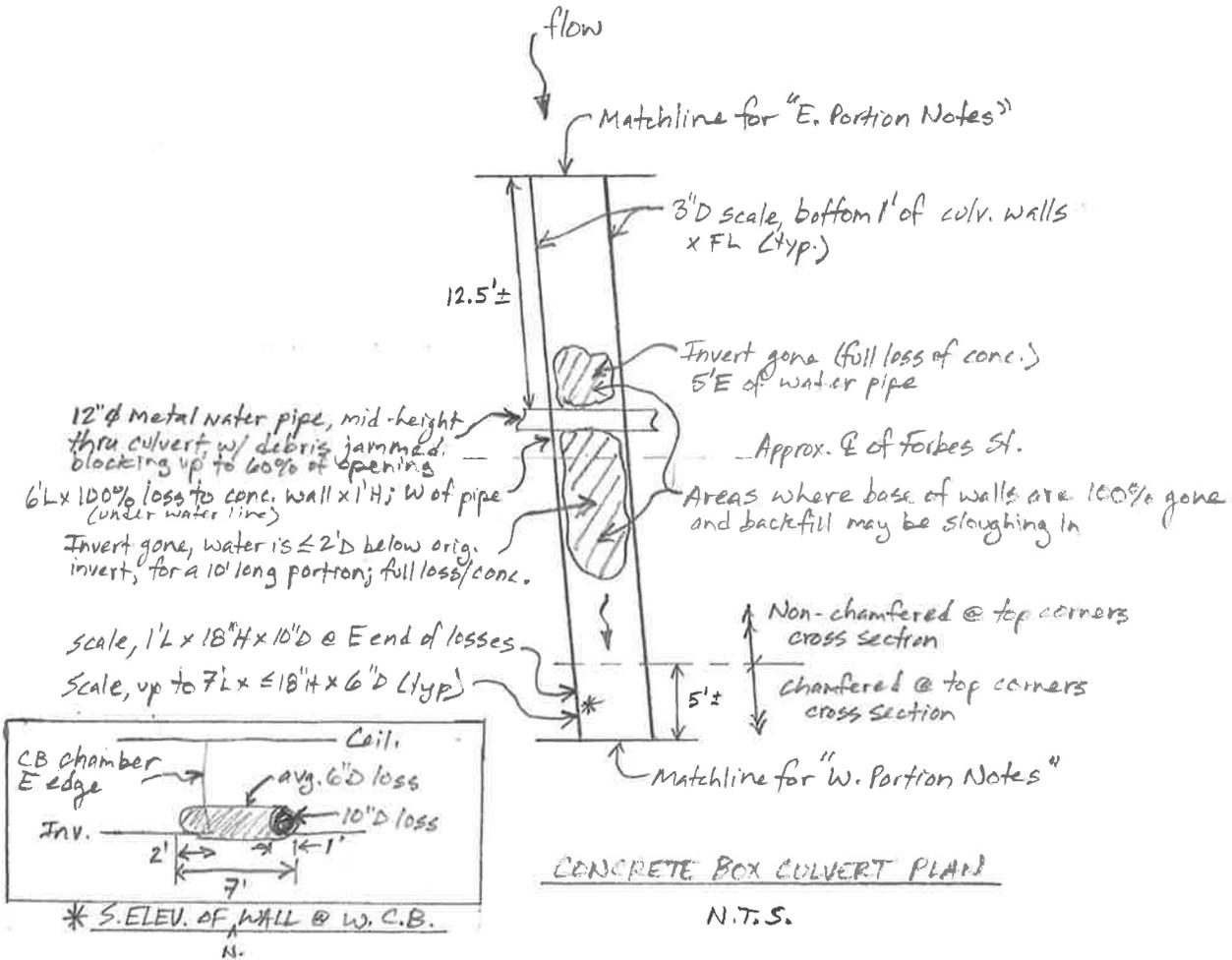
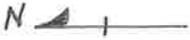
BRIDGE NO: —

DATE: 6/15/12

SHEET 3 OF 8

CREW: SSD DMH

DESCRIPTION: CENTER PORTION NOTES



### GENERAL NOTES

- see "E. Portion Notes" sheet
- No evidence of the 30"  $\phi$  water pipeline w/in culvert (markings show line along the NB lane)

REVISION  $\triangle$

DATE

CREW

COMPANY

# FIELD NOTES

## PURCELL ASSOCIATES

JOB NO: 12-156

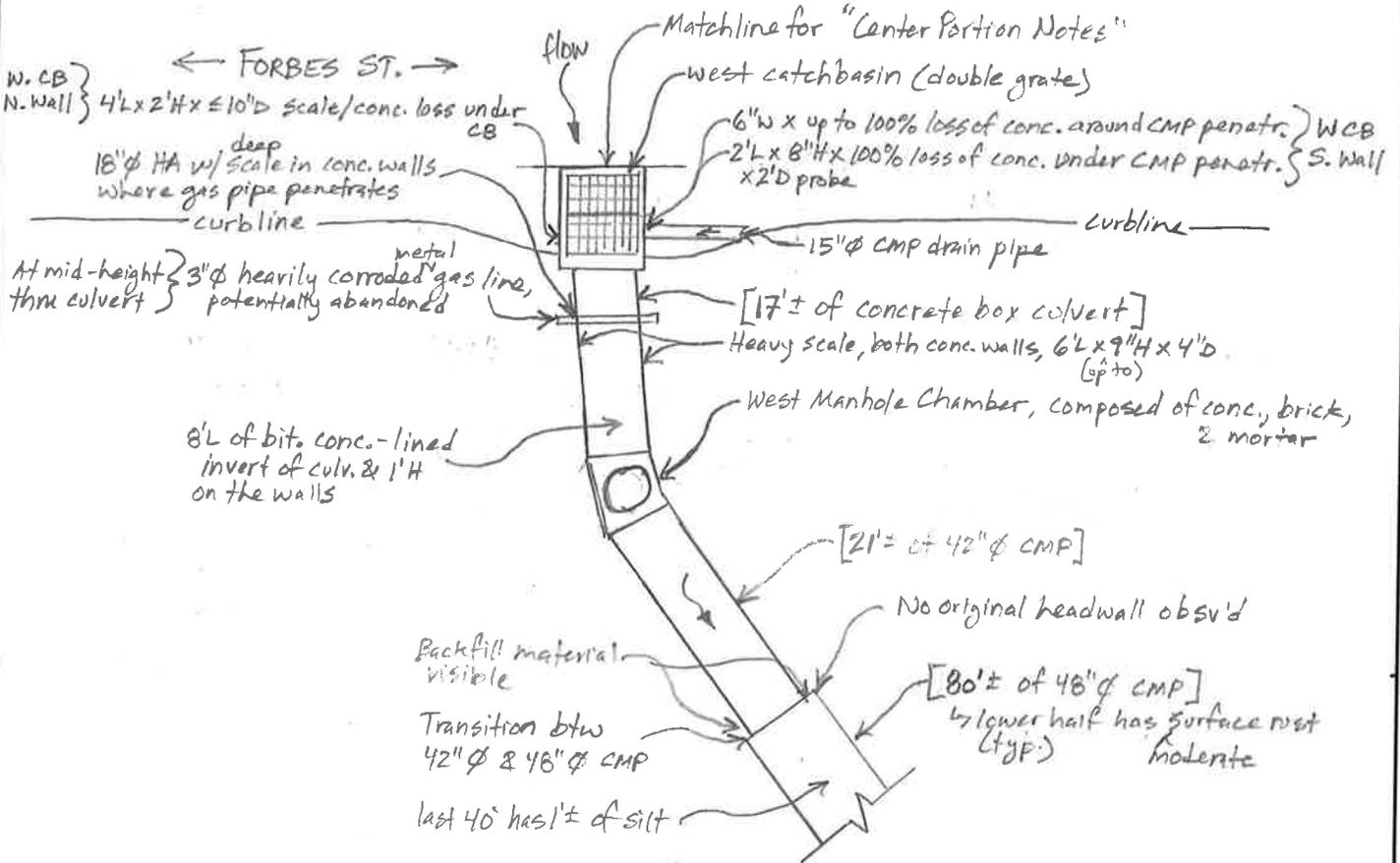
BRIDGE NO: —

DATE: 6/15/12

SHEET 4 OF 8

CREW: SJD DMH

DESCRIPTION: W. PORTION NOTES



CONC. BOX CULVERT / CMP PLAN  
N.T.S.

GENERAL NOTES

CONC. BOX CULVERT

• SEE "E. Portion Notes"

CMP AT OUTLET

- 42"φ ⇒ • Same as "CMP at Inlet" notes
- 48"φ ⇒ • asphalt coating largely intact
- dents in ceiling, up to 6"± out of plane, throughout the 100' run of 48"φ CMP\*
- laps between CMP sections are dented, in poor condition, 2<sup>nd</sup> CMP layer visible behind\*

\* may be as-built

REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY
REVISION	△	DATE	CREW	COMPANY	REVISION	△	DATE	CREW	COMPANY

# FIELD NOTES

**PURCELL**  
ASSOCIATES

JOB NO: 12-156

BRIDGE NO: E. HFD.

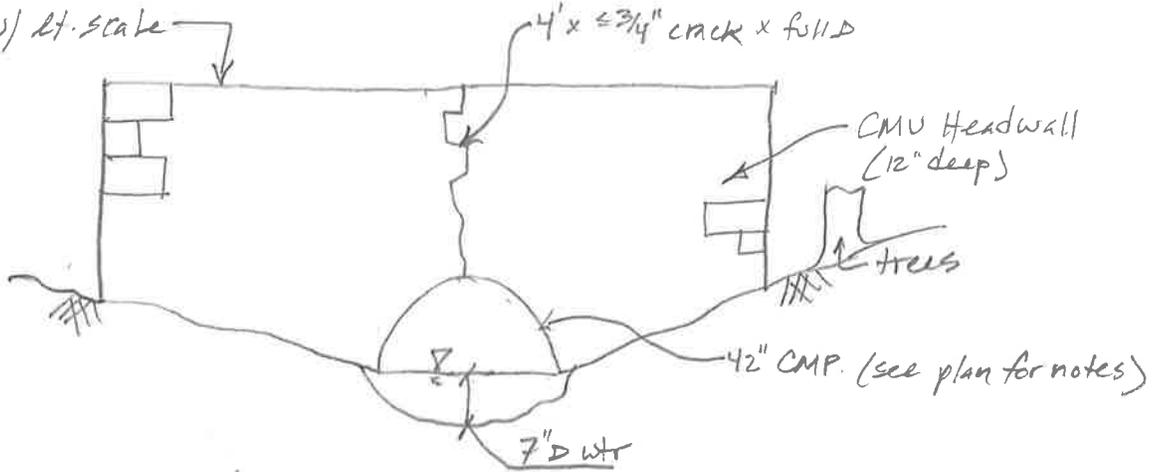
DATE: 6/15/12

SHEET 5 OF 8

CREW: SJD DMH

DESCRIPTION: E. HEADWALL ELEV.

Mortar cap w/ lt. scale  
& HL cr's



EAST HEADWALL / INLET ELEVATION

GEN. NOTES

- HL cracks, lt. scale, minor efflo. on CMU wall face
- Streambanks appear stable, though there are exposed roots @ NE emb.
- trees, upto 18"  $\phi$ , at NE corner of headwall

REVISION $\triangle$	DATE	CREW	COMPANY
REVISION $\triangle$	DATE	CREW	COMPANY

REVISION $\triangle$	DATE	CREW	COMPANY
REVISION $\triangle$	DATE	CREW	COMPANY

Bridge Information System

Sheet 6 of 8

Image Inventory

Bridge No.       -      

Date 6/15/12

Town: EAST HARTFORD

Photographer: SJD/DMH

Carried / Crossed: FORBES ST. CULVERT, NORTH OF BREWER ST

Film Frame #	Image Description *A001= movie of outlet
23	MANHOLE @ WEST
24	TOP OF ROADWAY LOOKING EAST
25	MANHOLE @ WEST, ACS SETUP
26	UPSTREAM, EAST. ELEV.
27	VIEW UPSTREAM OF BRIDGE
28-30	TRP. VIEW INSIDE CULVERT (UPSTREAM END)
31-33	CORROSION / DETEIORATION @ UPSTREAM END
34	CRACK IN UPSTREAM HEADWALL
35	EROSION @ NE EMBANKMENT
36	TOP OF EAST HEADWALL
37.	CRACK @ EAST HEADWALL, W. FACE
38.	VIEW DOWNSTREAM FROM BR.
39.	HUY VEG @ OUTLET
40-42	INFERIOR VIEW FROM OUTLET END
43-47	OUTLET ELEVATION
48	OUTLET EMBANKMENT
49.	SW FMB. w/ EXP. ROOTS
50	NW STREAM BANK
51	ROBOT INSP. SETUP
	-
	NOTE WATERMAIN
52	VIEW UPSTREAM FROM E. C.B.
53	VIEW DOWNSTREAM FROM E. C.B.

Bridge Information System

Sheet 7 of 8

Image Inventory

Bridge No.         

Date 6/15/12

Town: EAST HARTFORD

Photographer: DMH, SJD

Carried / Crossed: FORBES ST. CULVERT, N. OF BREWER ST.

Film Frame #	Image Description
54-56	S. WALL, SPALLS @ BTM OF WALL (@ ECB)
57-60	N. WALL @ E. C.B w/ 100% LOSS @ BOTTOM.
61	VIEW UP 15" Ø REP. DRAIN TO N. @ E. C.B.
62-63	VIEW UPSTREAM FROM E. MANHOLE
65-66	VIEW DOWNSTREAM FROM E. MANHOLE
	S. WALL FROM E. MANHOLE TO E. C.B. NOTE TYP LOSS @ WALL
67-68	N. WALL
64	INLET OF CONC. CULV. FROM E. MH
69	VIEW WEST FROM E. CR NOTE DEBRIS @ WATER LINE
70-71	N. WALL SPALLS BETW. E. C.B @ H2O PIPE
72	S. WALL " " " "
73	WATER PIPE LOOKING WEST
74	CEILING BTW E C.B & WTR PIPE
75-76	WATER PIPE @ 12.5' W. OF E CR (NOTE DEBRIS)
77-78	CONC. WALLS & CELL. W. OF WTR. PIPE
79	GEN. CONDIT. OF WTR. PIPE: OK
80-84	NO CONC. FLOOR OF BOX/SPALL IN INVERT, 5'± E OF WTR PIPE
	EXTENDING UNK. DIST. TO THE W (6'± @ LOC.)
85	CONC. CULV., LOOK E OF W. MANHOLE, U/S

Bridge Information System

Sheet 8 of 8

Image Inventory

Bridge No.         

Date 6/15/12

Town: EAST HARTFORD

Photographer: DAVE, S&D

Carried / Crossed: FORBES ST. CULVERT, N. OF BREWER ST.

Film Frame #	Image Description
86	42" $\phi$ CMP, LK'G W. OF W. MANHOLE
87	BIT. CONC. PAVING, <sup>@ INVERT</sup> BTW W. MANHOLE & W. CB
88	CETL. OF CONC. CULV., E. OF W. MANHOLE
89	SPALLS IN S. WALL OF CONC. CULV., E OF W. MANHOLE
90-91	CORRODED GAS MAIN BTW W. MANHOLE & W. CB.
92-93	W. M.H. JUNCT. AREA
94-95	42" CMP, W OF W. M.H., LK'G W.
96-98	48" CMP, W OF 42" CMP RUN (W OF W. M.H.)
99-100	LOCAL BULDGING IN 48" CMP CELL.
101-102	TRANSITION BTW 42" & 48" CMP, W OF W. M.H., LK'G E.
103-105	SPLICE @ CMP, WEST OF W. MANHOLE MISALIGNED
106	VIEW DOWNSTR. @ 48" CMP
107-108	CORRODED <sup>2 1/2"</sup> GAS MAIN @ SPALLS @ WALLS
109	SCALE & SEC. LOSS IN S. WALL @ CMP @ W. CATCH BASIN
110	SCALE @ N. WALL @ W. CB
111-112	CONC. CULV. LK'G UPSTR. FROM W. CB. NOTE SCALE @ BTM OF WALLS (N. WALL SHOWN)
113	CHANGE IN CULV. SECTION LK'G E FROM W. CB
114	TOP. CEILING OF CONC. CULV.
115, 116	12" $\phi$ water pipe, D/S side / conc culv btw W MH & W CB, <sup>looking</sup> U/S
117, 118	Inside of CMP drain pipe @ WCB / D/S view @ the inlet
119	typ. gutterline & CB frame (W CB shown)



**Photo #1** – Forbes Street, looking south where culvert crosses  
(note overhead utilities and pavement markings, typ.)



**Photo #2** – Forbes Street, looking north where culvert crosses



**Photo #3** – Patches in Forbes Street pavement, approximately over the culvert



**Photo #4** – Typical sidewalk condition and catch basin with debris in the gutter



**Photo #5** – 12” diameter water line crossing through the culvert opening  
(note minor surface rust on the pipe)



**Photo #6** – Rusted gas pipe through the culvert (potentially abandoned)



**Photo #7** – Debris blockage on upstream side of water pipe within the culvert



**Photo #8** – Debris within the channel at the outlet



**Photo #9** – Looking upstream from the culvert inlet



**Photo #10** – Looking downstream from the culvert inlet



**Photo #11** – Exposed tree roots and undercut stream banks, downstream of culvert



**Photo #12** – CMU headwall at inlet; note the crack in the wall



**Photo #13** – Crack in CMU headwall at inlet



**Photo #14** – Scaling of the north wall section between the East Manhole and the East Catch Basin



**Photo #15** – Scaling of concrete and exposed rebar in both walls, between the East Catchbasin and the 12” water main



**Photo #16** – 100% loss to the culvert wall under the RCP drain pipe, at the North wall of the East Catch Basin chamber



**Photo #17** – Deep spalling of the south wall of the culvert at the East Catch Basin chamber



**Photo #18** – Scaling of the walls between the East Catch Basin chamber and the 12” water pipe



**Photo #19** – 12” diameter water pipe penetrating the culvert, blocking debris, approximately 12.5’ west of the East Catch Basin chamber



**Photo #20** – Culvert concrete invert 100% deteriorated within 5’ east and 10’ west of the 12” water pipe



**Photo #21** – Scaling of the bottom of the culvert walls west of the 12” water pipe



**Photo #22** – Scaling at the West Catch Basin chamber, north wall



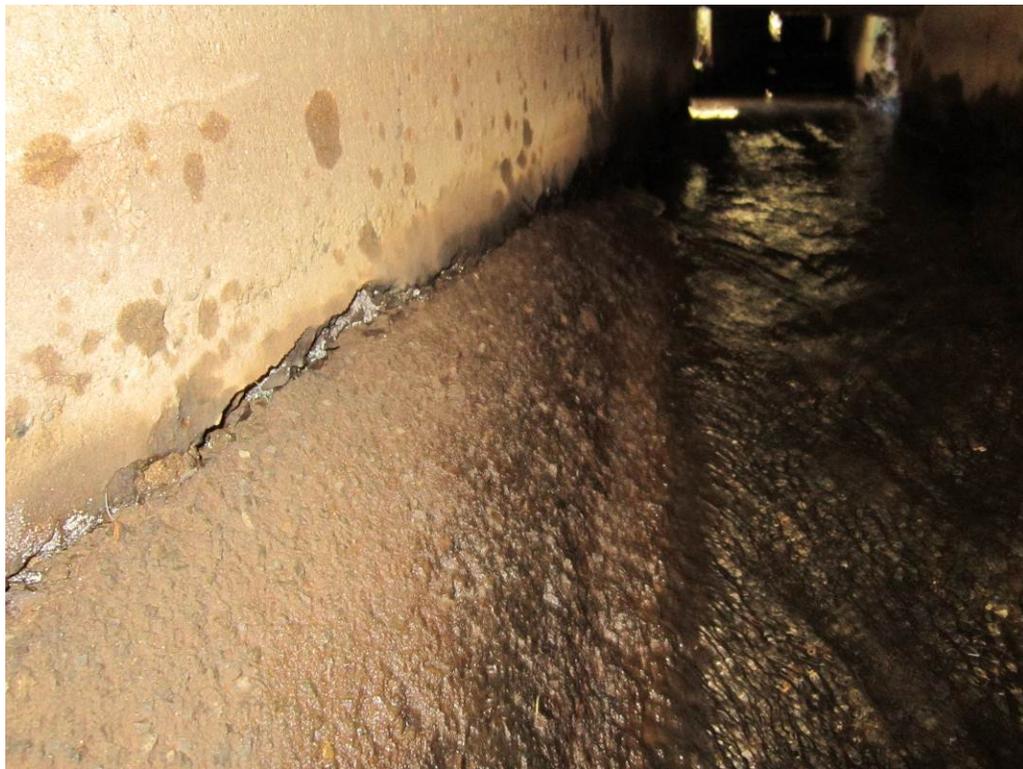
**Photo #23** – Deep scaling of the north wall of the culvert, near the West Catch Basin chamber



**Photo #24** – 100% loss of concrete under the CMP drain at the West Catch Basin chamber south wall



**Photo #25** – Deep scale to both culvert walls, between the West Catch Basin and the West Manhole



**Photo #26** – Asphalt-lined culvert inlet and lower 1' of the walls, at the West Manhole and 8' east



**Photo #27** – Laminated rust in the lower half of the 42” CMP at the inlet



**Photo #28** – Damage to the end 1’ of the 42” CMP at the inlet, as well as section losses in the first 2’



**Photo #29** – Lost asphaltic coating and rusting of the bottom half of the 42” CMP downstream of the West Manhole



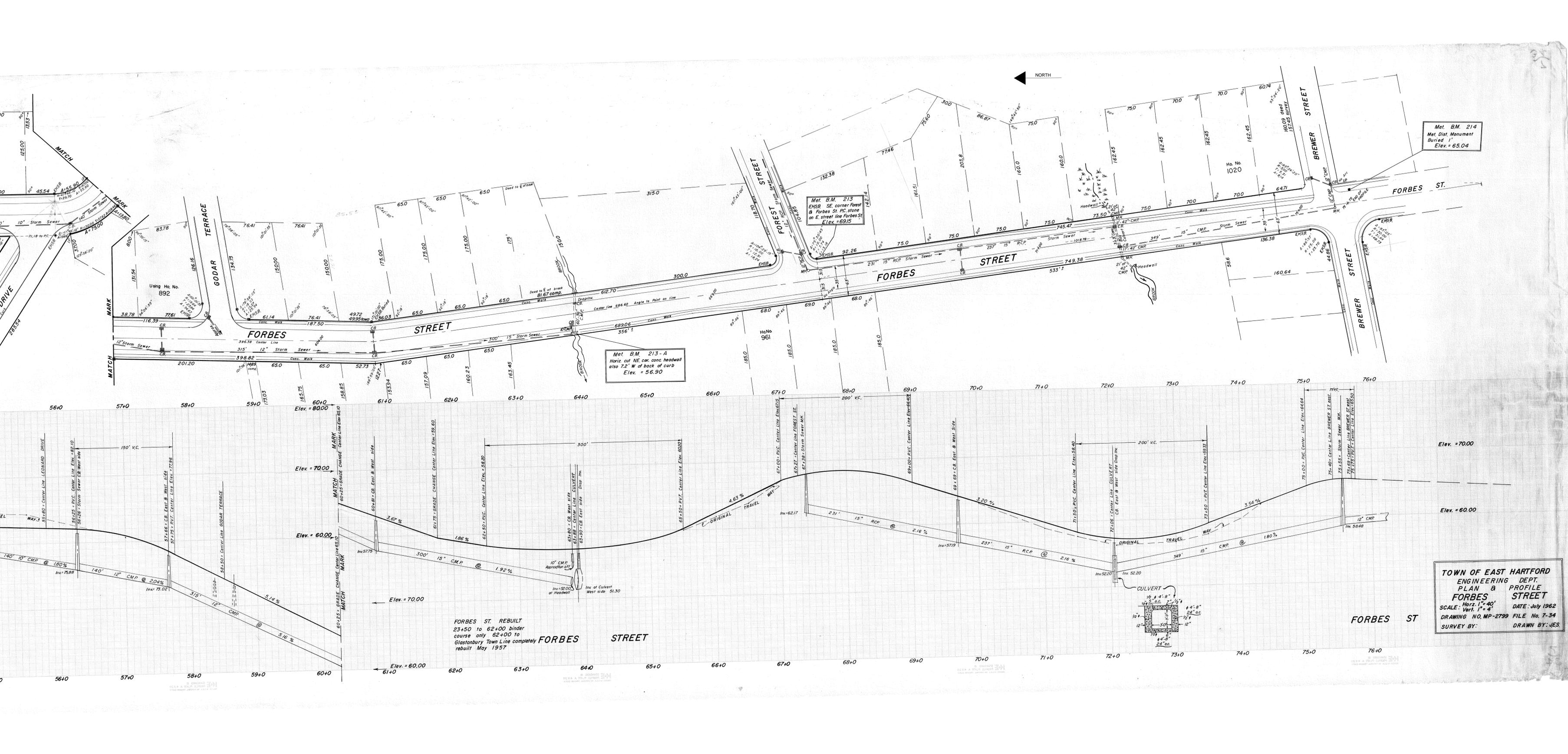
**Photo #30** – Bulging and dents in the 48” CMP extension, near the outlet; also note the moderate surface rust



**Photo #31** – Transition lap between the 42” and 48” CMP, 21’ downstream from the West Manhole; note the cobbles visible



**Photo #32** – Typical lap between 48” CMP sections; note open space



NORTH

Met. B.M. 214  
Met. Dist. Monument  
Buried 1'  
Elev. = 65.04

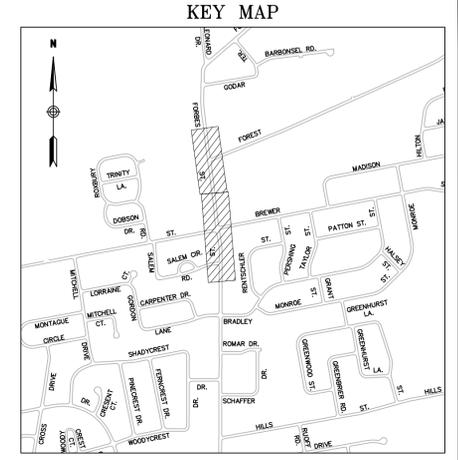
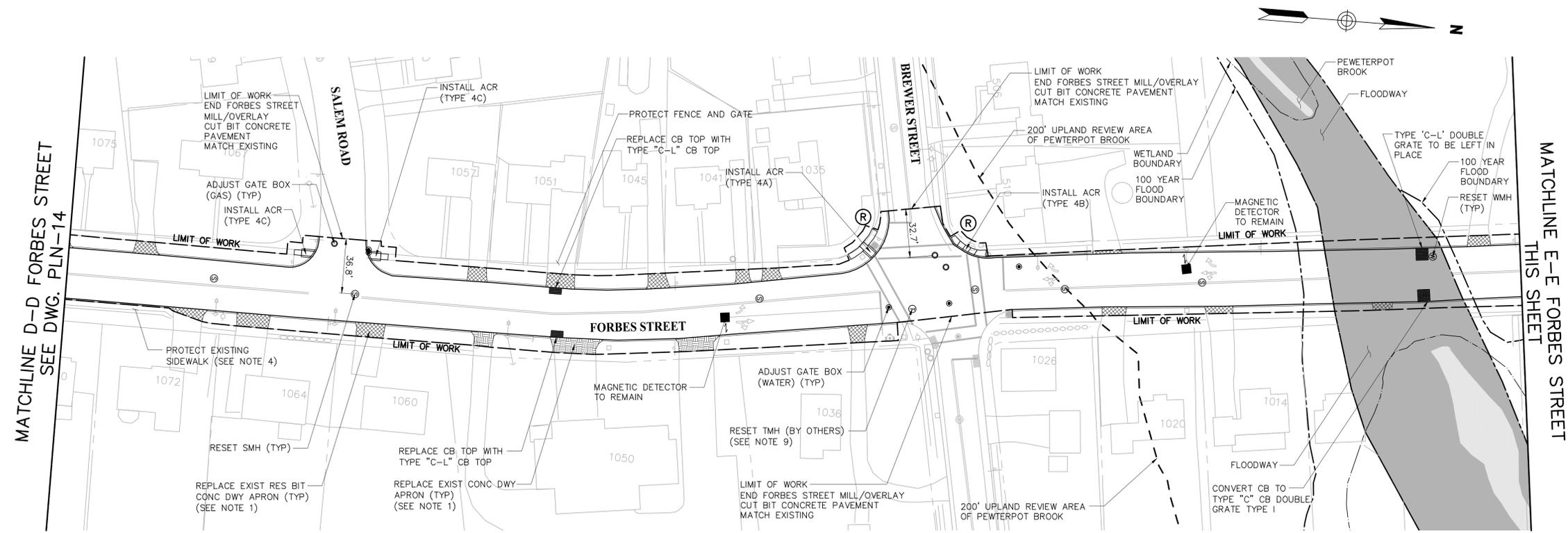
Met. B.M. 213  
EHSB SE corner Forest  
& Forbes St. PC stone  
on E. street line Forbes St.  
Elev. = 69.15

Met. B.M. 213 - A  
Horiz. cut NE cor. conc. headwall  
also 7.2' W of back of curb  
Elev. = 56.90

FORBES ST. REBUILT  
23+50 to 62+00 binder  
course only 62+00 to  
Glastonbury Town Line completely  
rebuilt May 1957

TOWN OF EAST HARTFORD  
ENGINEERING DEPT.  
PLAN & PROFILE  
FORBES STREET  
SCALE: Horz. 1"=40'  
Vert. 1"=4'  
DATE: July 1962  
DRAWING NO. MP-2799 FILE No. 7-34  
SURVEY BY: DRAWN BY: JES.



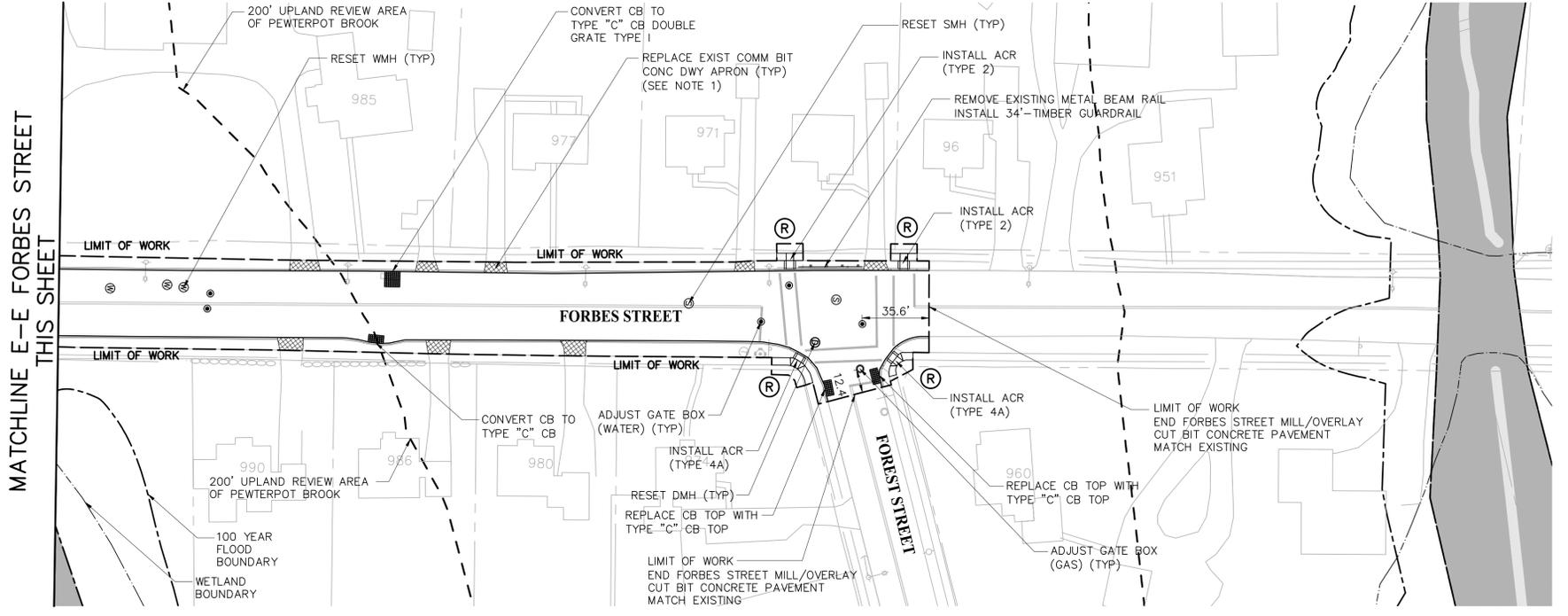


**LEGEND**

- REPLACE EX RES BIT CONC DWY APRON
- REPLACE EX COMM BIT CONC DWY APRON
- REPLACE EX CONC DWY APRON
- RIGHT OF ENTRY TO BE ACQUIRED (BY TOWN)

**NOTES:**

1. THE CONTRACTOR SHALL REPLACE ANY CURBING ALONG DRIVEWAY APRONS AND DRIVEWAYS DISTURBED OR REMOVED DURING CONSTRUCTION WITH EQUIVALENT CURBING AS APPROVED BY THE ENGINEER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE DRIVEWAY RAMP WORK AND SHALL NOT BE MEASURED FOR PAYMENT.
2. THE CONTRACTOR SHALL SEAL ALL MAJOR CRACKS AND COMPLETE LOCALIZED PARTIAL AND FULL DEPTH PATCHING AS ORDERED BY THE ENGINEER PRIOR TO PLACING THE FIRST HOT MIX ASPHALT PAVEMENT COURSE.
3. ALL CATCH BASINS SHALL BE RESET/CONVERTED TO BE IN LINE WITH THE GUTTER LINE WHERE FEASIBLE. AT THE LOCATIONS WHERE THIS IS NOT FEASIBLE THE PAVEMENT AND CURBING SHALL BE TAPERED TO MATCH THE RESET/CONVERTED STRUCTURE ACCORDING TO THE DETAIL (SEE DRAWING MDS-04).
4. THE CONTRACTOR SHALL PROTECT THE SIDEWALK WITHIN THE VICINITY OF 1072 AND 1080 FORBES STREET DURING MILLING AND REMOVAL OF THE EXISTING BITUMINOUS CONCRETE CURBING. ANY DAMAGE TO THE SIDEWALK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL COORDINATE AND EXCAVATE TEST PITS AT THE ANTICIPATED UTILITY CROSSING LOCATIONS WITH THE PROPOSED DRAINAGE STRUCTURES AND PIPES PRIOR TO CONSTRUCTING THE DRAINAGE IMPROVEMENTS AS REQUIRED AND AS APPROVED BY THE ENGINEER. MEASUREMENTS TO THE SERVICES AND MAINS SHALL BE TAKEN AND PROVIDED TO THE ENGINEER TO DETERMINE ANY CONFLICTS. THE CONTRACTOR SHALL COORDINATE ANY UTILITY ADJUSTMENTS NECESSARY WITH THE UTILITY COMPANIES AND THE ENGINEER BEFORE COMMENCING DRAINAGE IMPROVEMENTS.
6. EXCEPT WHERE NOTED OTHERWISE, IN AREAS WHERE THE ROADWAY BASE IS EXPOSED ON FORBES STREET AND ADJOINING ROADWAYS, THE CONTRACTOR SHALL PERFORM PAVEMENT AND BASE REPAIR IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE "NOTICE TO CONTRACTOR - EXPOSED BASE ON MILLED ROADWAYS AND CONSTRUCTION OF PARTIAL-DEPTH AND FULL-DEPTH PATCHES" SPECIAL PROVISION.
7. THE LIMIT OF WORK CALLOUT AT INTERSECTING ROADWAYS REPRESENTS THE PAY LIMIT FOR EACH ROADWAY.
8. THE CONTRACTOR SHALL REGRADE AND REESTABLISH VEGETATION AT THE BACK OF THE PROPOSED SIDEWALK AND SIDEWALK RAMPS TO THE LIMITS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROTECT THE RIGHT OF WAY BOUNDARY DURING THE CONSTRUCTION OF THE SIDEWALK AND SIDEWALK RAMPS. ANY DAMAGE TO THE RIGHT OF WAY BOUNDARY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. THE TELEPHONE MANHOLE WILL BE RESET BY THE TELEPHONE COMPANY. THE CONTRACTOR SHALL CONTACT THE TELEPHONE COMPANY FOUR WEEKS IN ADVANCE OF THE PAVING OPERATION.



DESIGNER:  
JPT  
DRAFTER:  
JPT  
CHECKED BY:  
BAA  
APPROVED BY: SON

**Vanasse Hangen Brustlin, Inc.**  
Transportation Land Development Environmental Services

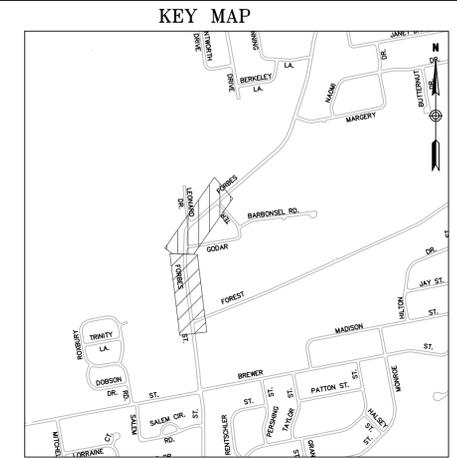
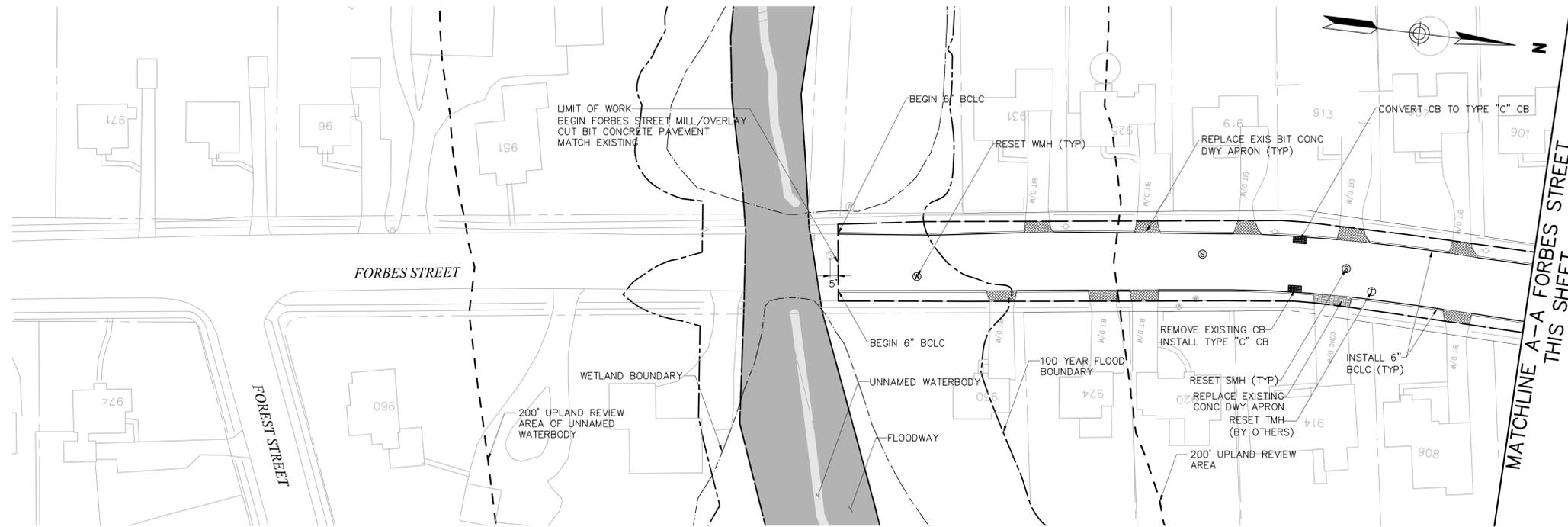


PROJECT TITLE:  
2011 ROADWAY IMPROVEMENT PROJECT  
VARIOUS LOCATIONS  
CADD FILENAME: PLN-FORBES STREET-V4164100.DWG

TOWN:  
EAST HARTFORD, CONNECTICUT  
DRAWING TITLE:  
CONSTRUCTION PLAN  
FORBES STREET

PROJECT NO.:  
41641.00  
DRAWING NO.:  
PLN-15  
SHEET NO.:  
104 OF 314

REV.	DATE	DESCRIPTION	SHEET NO.

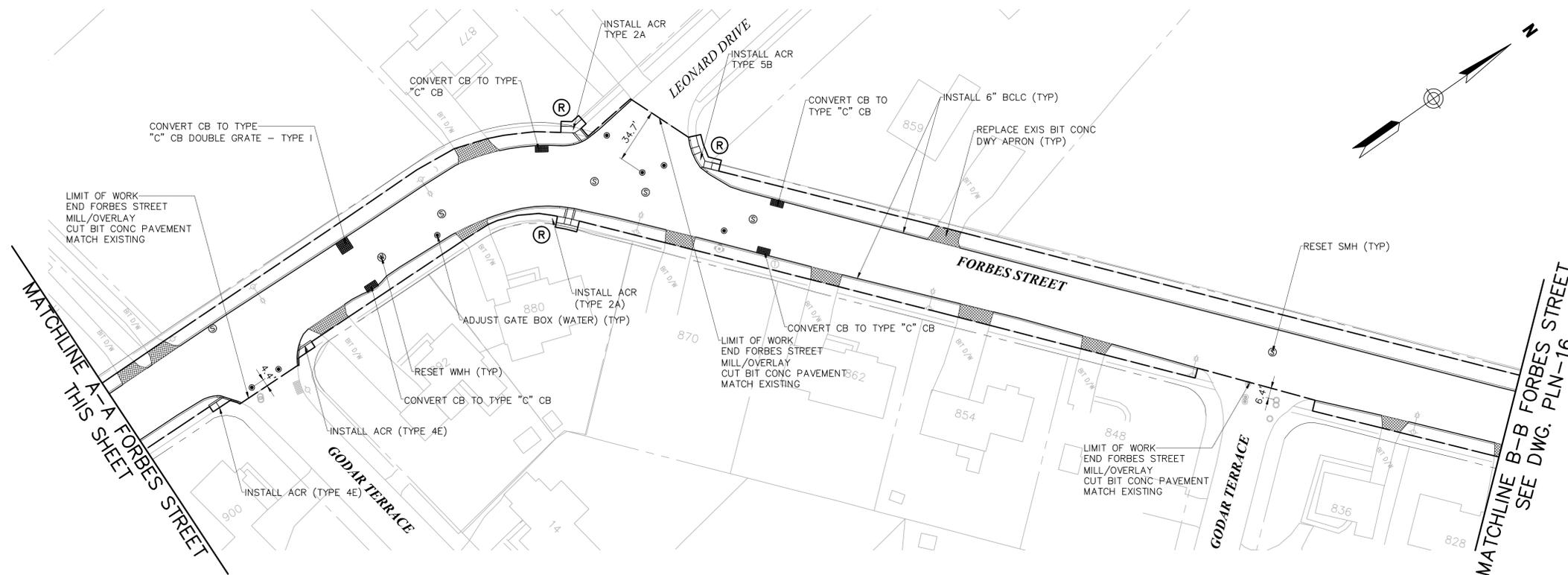


**LEGEND**

- REPLACE EX RES BIT CONC DWY APRON
- REPLACE EX COMM BIT CONC DWY APRON
- REPLACE EX CONC DWY APRON
- RIGHT OF ENTRY TO BE ACQUIRED (BY TOWN)

**NOTES:**

1. THE CONTRACTOR SHALL REPLACE ANY CURBING ALONG DRIVEWAY APRONS AND DRIVEWAYS DISTURBED OR REMOVED DURING CONSTRUCTION WITH EQUIVALENT CURBING AS APPROVED BY THE ENGINEER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE DRIVEWAY RAMP WORK AND SHALL NOT BE MEASURED FOR PAYMENT.
2. THE CONTRACTOR SHALL SEAL ALL MAJOR CRACKS AND COMPLETE LOCALIZED PARTIAL AND FULL DEPTH PATCHING AS ORDERED BY THE ENGINEER PRIOR TO PLACING THE FIRST HOT MIX ASPHALT PAVEMENT COURSE.
3. ALL CATCH BASINS SHALL BE RESET/CONVERTED TO BE IN LINE WITH THE GUTTER LINE WHERE FEASIBLE. AT THE LOCATIONS WHERE THIS IS NOT FEASIBLE THE PAVEMENT AND CURBING SHALL BE TAPERED TO MATCH THE RESET/CONVERTED STRUCTURE ACCORDING TO THE DETAIL (SEE MISCELLANEOUS DETAIL SHEETS).
4. EXCEPT WHERE NOTED OTHERWISE, IN AREAS WHERE THE ROADWAY BASE IS EXPOSED ON FORBES STREET AND ADJOINING ROADWAYS, THE CONTRACTOR SHALL PERFORM PAVEMENT AND BASE REPAIR IN ACCORDANCE WITH THE REQUIREMENTS OUTLINED IN THE "NOTICE TO CONTRACTOR - EXPOSED BASE ON MILLED ROADWAYS AND CONSTRUCTION OF PARTIAL-DEPTH AND FULL-DEPTH PATCHES" SPECIAL PROVISION.
5. THE LIMIT OF WORK CALLOUT AT INTERSECTING ROADWAYS REPRESENTS THE PAY LIMIT FOR EACH ROADWAY.
6. THE CONTRACTOR SHALL REGRADE AND REESTABLISH VEGETATION AT THE BACK OF THE PROPOSED SIDEWALK AND SIDEWALK RAMPS TO THE LIMITS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROTECT THE RIGHT OF WAY BOUNDARY DURING THE CONSTRUCTION OF THE SIDEWALK AND SIDEWALK RAMPS. ANY DAMAGE TO THE RIGHT OF WAY BOUNDARY SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR SHALL REMOVE ANY DEPRESSED AREAS NEAR THE EXISTING CATCH BASIN AND REGRADE THE AREA TO PROVIDE POSITIVE DRAINAGE TO NEARBY CATCH BASINS. THE RIM ELEVATION OF THE MANHOLE SHALL BE FLUSHED WITH THESE NEW GRADES.
8. THE TELEPHONE MANHOLE WILL BE RESET BY THE TELEPHONE COMPANY. THE CONTRACTOR SHALL COORDINATE THE ADJUSTMENT WITH THE TELEPHONE COMPANY IN ADVANCE OF THE PAVING OPERATION.



DESIGNER:  
EAN  
DRAFTER:  
EAN  
CHECKED BY:  
BAA  
APPROVED BY: SON



ISSUED FOR CONSTRUCTION DATE: FEBRUARY 13, 2015



PROJECT TITLE:  
2015 ROADWAY IMPROVEMENT PROJECT  
VARIOUS LOCATIONS

CADD FILENAME: PLN-FORBES-4203100.DWG

TOWN:  
EAST HARTFORD, CONNECTICUT

DRAWING TITLE:  
CONSTRUCTION PLAN  
FORBES STREET

PROJECT NO.:  
42031.00

DRAWING NO.:  
PLN-15

SHEET NO.:  
098 OF 299

REV.	DATE	DESCRIPTION	SHEET. NO.

6-28-40  
8-9-40  
10-9-41  
12-22-50  
3-16-56

6-28-40 G160(6-40C) 12  
908' OF STL PIPE-SCREW JTS FROM BREWER ST NORTH TO 17' S.N. STL FOREST ST.

12-22-50 G162(10-50A)  
888' OF STL PIPE-DR. COUP JOINTS FROM 3' 6" S.N. STL FOREST ST. SOUTH TO 4' 0" S.S. ST. L. BREV.

# FORBES STREET

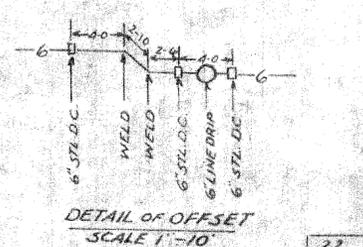
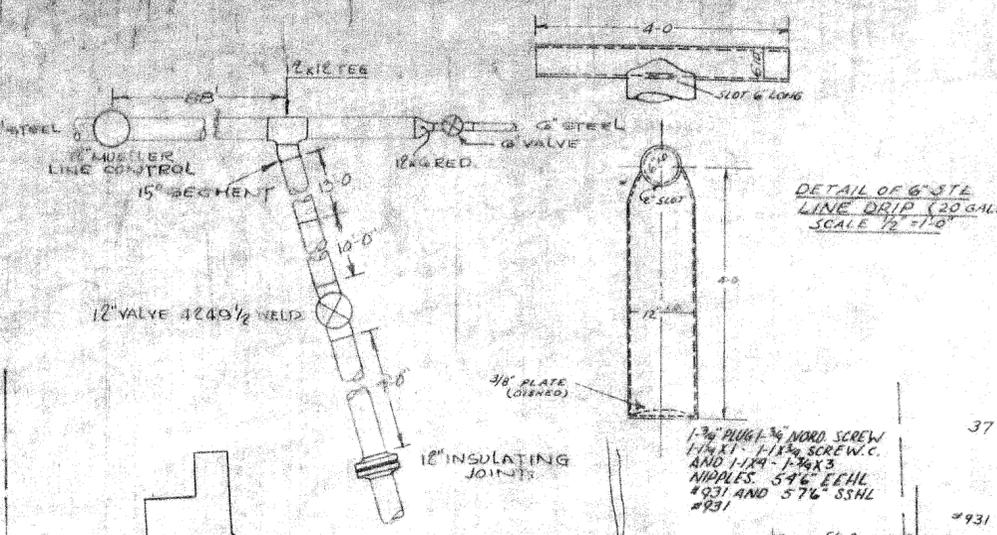
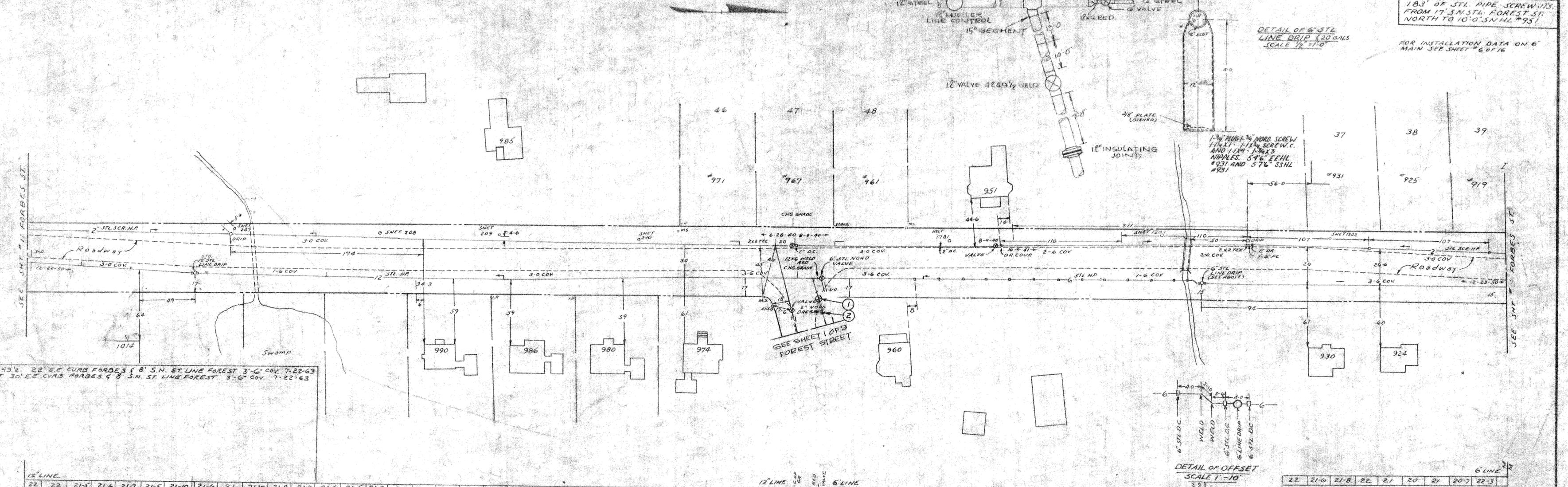
EAST HARTFORD

SCALE 1"=50'

2 10-9-47 G160(8-41K)  
652' OF STL PIPE-SCREW JTS FROM 10' 0" S.N. HL #951 NORTH TO 14' 0" S.N. HL #901

2 8-9-40 G160(7-40B)  
183' OF STL PIPE-SCREW JTS FROM 17' S.N. STL FOREST ST. NORTH TO 10' 0" S.N. HL #951

FOR INSTALLATION DATA ON 6" MAIN SEE SHEET #6 OF 16



- 1. 12\"/>
- 2. 12\"/>

12\"/>	22	22	21-5	21-6	21-7	21-5	21-10	21-6	21	21-10	21-8	21-7	21-6	21-5	21-4	21	21-5	21-6	21	22	22	21-5	21-6	21-10	18-6	21	20	22	22	20-10	21-6	21-6	18	18	21	22	22	21-8	22	21	20-8	21-10	21-10	22	20	21	21	21	21	21	21	22	22	21	21	22
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22  
219

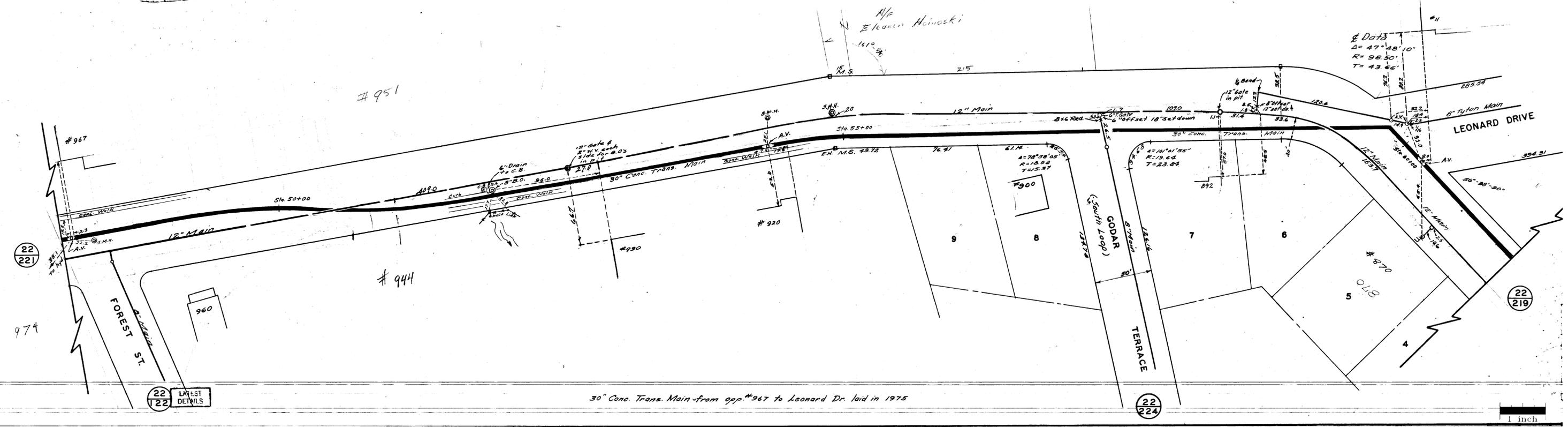
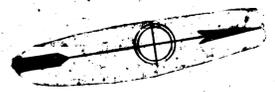
WATER BUREAU  
 THE METROPOLITAN DISTRICT  
 HARTFORD, CONNECTICUT  
 FORBES STREET. E.H.

Date 10-18-54 Scale 1"=40'  
 Drawn By A.E. KURAS  
 Checked \_\_\_\_\_ Revised \_\_\_\_\_  
 P.D. Humphrey, Engineer

1 inch

22-220

FORBES STREET. E.H.  
 SCALE 1" = 40'  
 NORTHEAST TRANSMISSION MAIN

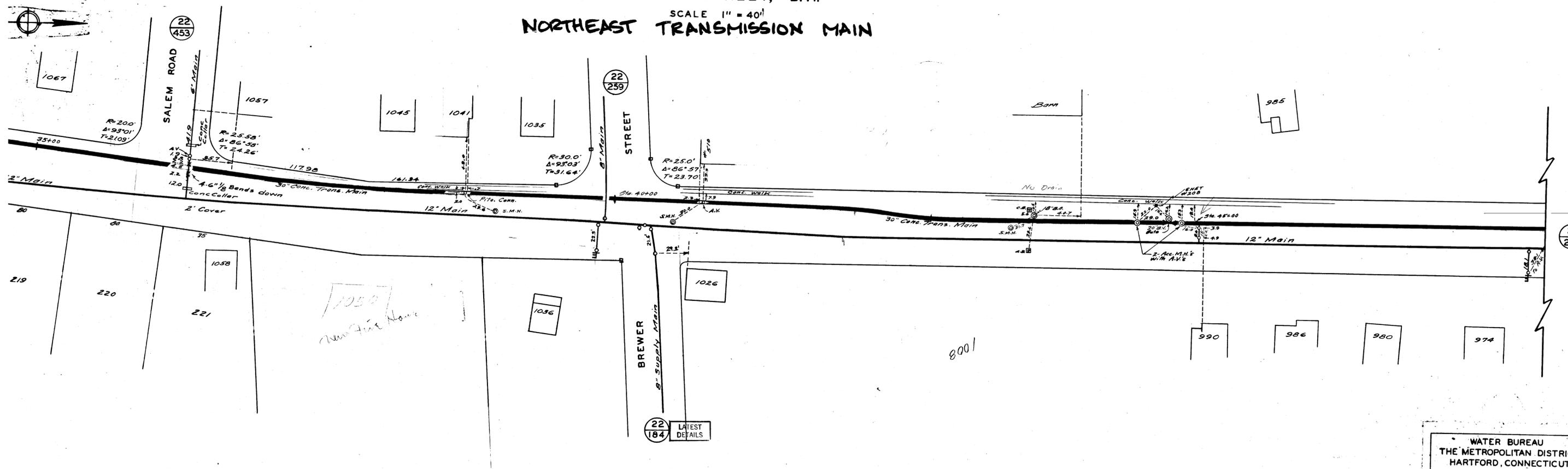


30" Conc. Trans. Main from opp. #967 to Leonard Dr. laid in 1975

1 inch

# FORBES STREET, E.H. NORTHEAST TRANSMISSION MAIN

SCALE 1" = 40'



30" Conc. Trans. Main from M.L. northerly to M.L. laid in 1975

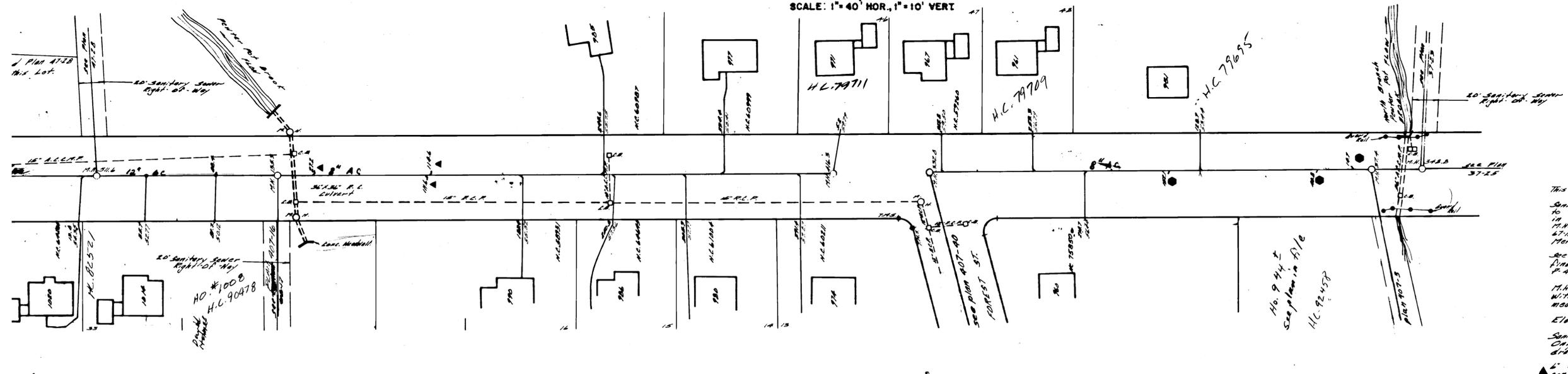
WATER BUREAU  
THE METROPOLITAN DISTRICT  
HARTFORD, CONNECTICUT  
**FORBES STREET, E.H.**

Date 10-26-54 Scale 1"=40'  
 Drawn By A.E. KURAS  
 Checked \_\_\_\_\_ Revised \_\_\_\_\_  
*A.E. Kurasa* Engineer

1 inch

### FORBES STREET, EAST HARTFORD

SCALE: 1" = 40' HOR., 1" = 10' VERT



This drawing is to be used as a Record Plan.

Sanitary Sewer from M.N. 22.0 in Forbes Street north to M.N. 416.3 in Forbes Street, thence from M.N. 332.8 in Forbes Street opposite Forest Street north to M.N. 344.8 in Forbes Street with 12.0' under Contract 6716 and with layout per M.N. 332.8 Journal of The Metropolitan District Commission No. page 209.

See Booklet P-297 pages 27-42 and 77-82 for layout, final elevations and final measurements, see Booklet P-400 pages 21-23 for the street guide.

M.N. invert elevations shown hereon are in accordance with the street grade. Use elevations as finally measured for check.

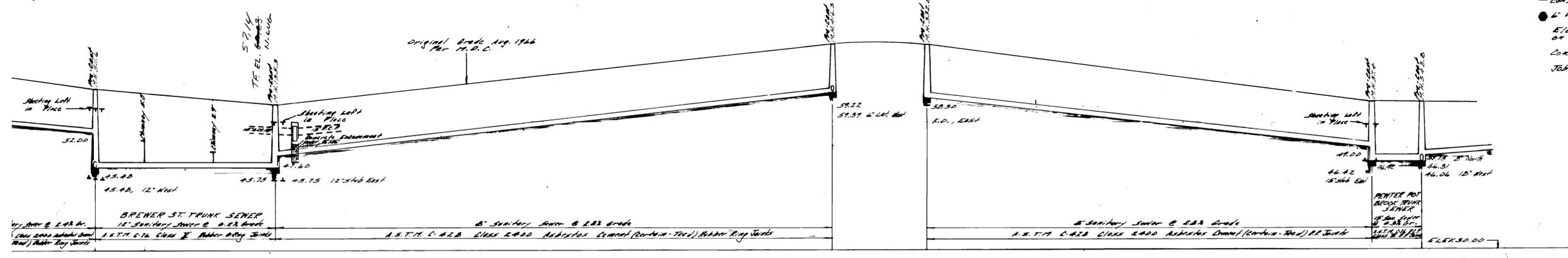
Elevations refer to U.S.C.G.S. Datum (Mean Sea Level).

Sanitary sewers shown hereon are for sanitary sewage only. All storm, surface and roof waters, 500' S.O.D. drainage and objectionable industrial wastes are excluded.

- ▲ Pipes shown hereon, unless otherwise noted, are constructed with a copped 6" as asbestos cement pipe.
- 6" pipes shown hereon.

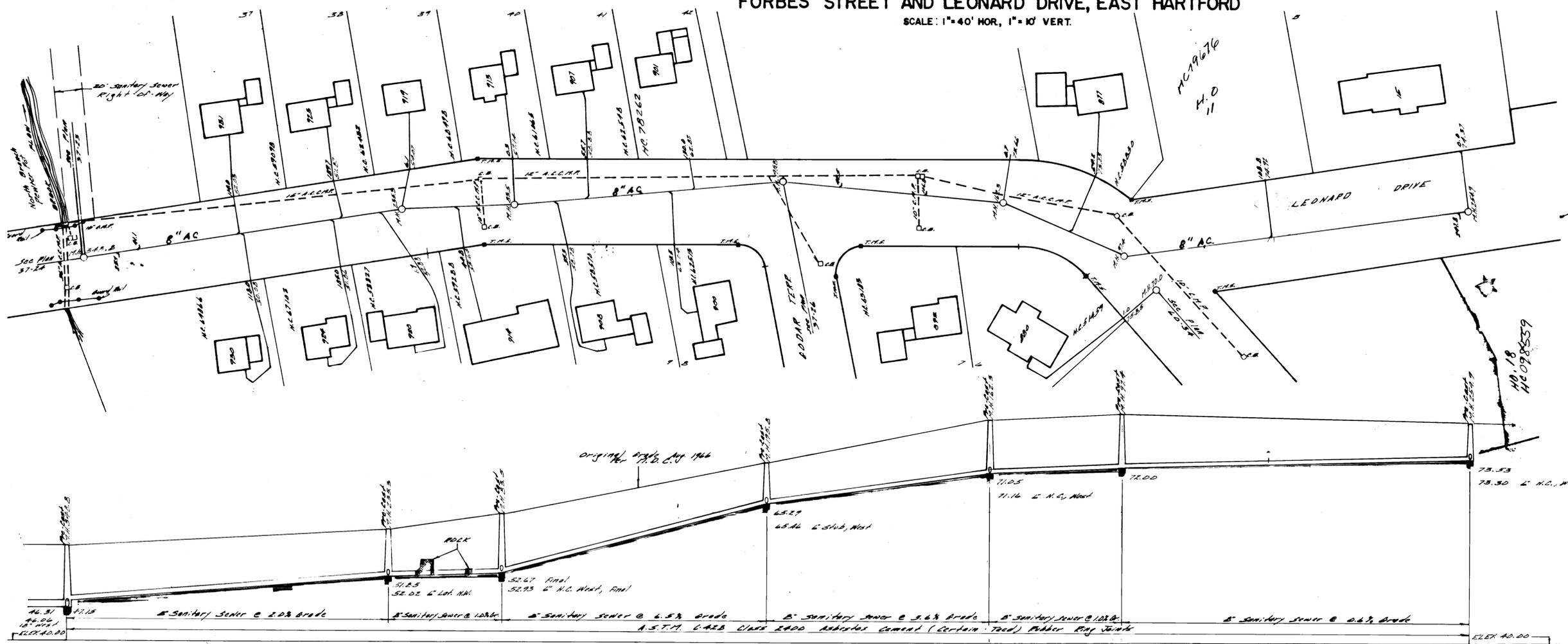
Elevations of end of lateral connections shown in red on plan.

Construction Plan: 137-6  
Job Code: Contract 67-16 Brewer Street Trunk Sewer S&S



1 inch

FORBES STREET AND LEONARD DRIVE, EAST HARTFORD  
 SCALE: 1"=40' HOR., 1"=10' VERT.



This drawing is to be used as a Record Plan.  
 Sanitary sewer from 17.N.43.2 in Forbes Street  
 north to 17.N.27.4 in Forbes Street opposite  
 Leonard Drive thence north to 17.N.25.9 in  
 Leonard Drive opposite house number 18  
 (see under Contract 67-16 and under report of  
 11.16. see Journal of the Metropolitan District Co.  
 1946 page 104.  
 See Notebook P. 377 pages 2130 for layout and  
 measurements, final elevations. See fieldbook P. 404  
 pages 910, 1521 for the staked grade.  
 M.N. manhole elevations shown hereon are in accord  
 with the staked grade. Use elevations as line  
 measured for offset.  
 Elevations refer to U.S.C.S. datum (Mean Sea Level).  
 Sanitary sewers shown hereon are for Sanitary Sewer  
 only. All storm, surface and roof waters, soil  
 drainage and objectionable industrial waste  
 are excluded.  
 4" pipe shown hereon, unless otherwise noted, are  
 constructed with a copped 4.5" asbestos cement  
 pipe.  
 Elevations at end of lateral connections shown  
 in red on plan.  
 Job Code: Contract 67-16 Brewer Street Trunk Sewer in  
 Construction Plan: 139-4

1 inch

THE MI  
 BUREAU  
 37.52  
 BERIA