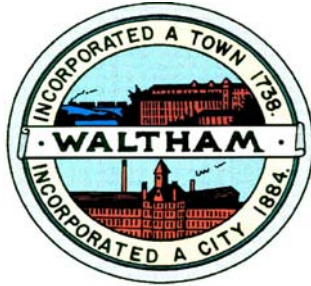


The City of Waltham



**Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:**

**Engineering Services for
Illicit Discharge Detection
And
Elimination Program – Phase 3**

Proposal is due:

Wednesday November 9, 2011 at 10:00 am

The City of Waltham Purchasing Department

REQUEST FOR PROPOSAL (RFP)

Under the rules of M.G.L. Chapter 30B, §39M the Chief Procurement Officer of the City of Waltham Purchasing Department hereby requests sealed bids for:

Engineering Services for Illicit Discharge Detection and Elimination Program – Phase 3

Price Proposals will be received at the office of the Purchasing Agent, City Hall, 610 Main Street, Waltham MA 02452, until,

Wednesday November 9, 2011 at 10:00 am

At which time and place the bids will be publicly opened and read.

Specifications and information available at the Purchasing Agent's Office or by visiting the City's web site at www.city.waltham.ma.us/purchasing/index.html

BIDS MUST BE SIGNED AND ENCLOSED IN A SEALED ENVELOPE AND MARKED:

BID FOR: IDDE, Phase 3

A 5% Bid Bond or Certified Check must accompany each bid submitted and made payable to, and become the property of the City of Waltham, if the successful bidder refuses or neglects to comply with the terms of the Contract.

If the Bidder is a corporation, state your correct corporate name and State of incorporation. If Bidder is a partnership, state names and addresses of partners. If Bidder is a trust or other legal entity, state correct names and addresses of trustees or names and address of those legally authorized to bid and enter into contracts.

EXCEPTION OR ALTERNATES TO SPECIFICATIONS, TERMS OF SALE, AND DISCOUNTS AVAILABLE, MUST BE INCLUDED IN THE BID PRIOR TO OPENING DATE.

Instructions

INSTRUCTIONS FOR BIDDERS

1. READ ALL DOCUMENTS.

Bidders should familiarize themselves with all the documents contained herein; it is mandatory that all Bids be in compliance with all the provisions contained in said documents.

2. FORMS AND ATTACHMENTS.

Bids are to be completed on the forms provided ONLY and enclosed in a sealed envelope marked on the outside "BID (title)" and the name and address of bidder. Attachments submitted in addition to the Waltham Purchasing Department produced forms may not be considered.

3. PRINTED OR TYPED RESPONSE.

All information must be typewritten or printed in ink, including the price the bidder offers in the space as provided on the bid form.

4. CORRECTIONS.

Bids that are submitted containing cross outs, white outs or erasures, will be rejected. All corrections or modifications to the original bid are to be submitted in a separate envelope, properly marked on the outside, "CORRECTION/ MODIFICATION TO BID (title)" and submitted prior to the bid opening.

ALL DOCUMENTS SUBMITTED WITH YOUR RESPONSE WILL BE INCORPORATED INTO THE CONTRACT.

5. PRICE IS ALL INCLUSIVE.

Bid prices shall encompass everything necessary for furnishing all items, materials, supplies or services as specified, and in accordance with the specifications, including proper packing, cost of delivery, and in the case of services, completion of same, as per specifications.

6. PRICE DISCREPANCY.

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall prevail.

7. EXPLANATIONS, EXCEPTIONS

Explanations, exceptions or other information pertinent to the specifications may be made in writing and included in the same envelope with the bid.

8. BID DEPOSITS.

Bid deposits are to be made payable to the City of Waltham. In the event that the successful bidder fails to execute a Contract within (10) days of the receipt of said contract, such security shall be retained by the city as liquidated damages. Unsuccessful bidders' deposits will be returned immediately following the award to said successful bidder.

9. WITHDRAW.

A Bid may be withdrawn by written request prior to the schedule for the Bid Opening. No withdrawals are permitted after the bid opening date and time. Withdrawals after the bid opening date will cause the forfeit of the bid Deposit.

10. AWARD.

Bids will be awarded not later than (90) ninety days after the scheduled bid opening date, unless otherwise stated, in the specifications. Unless otherwise specified, bids will be evaluated on the basis of, completeness of your RFP response, responsiveness, responsibility, best price and experience.

12. DISCOUNTS.
Discounts for prompt payments will be considered when making awards.
13. TAX EXEMPT.
Purchases by the City of Waltham is exempt from any Federal, State or Massachusetts Municipal Sales and/or Excise Taxes.
14. SAMPLES.
The City of Waltham may require the submission of samples either before or after the awarding of a contract. Samples are to be submitted, at no charge to the City, so as to ascertain the product's suitability. If specifically stated in the Bid that samples are required, said samples must be submitted with the Bid prior to the Official Bid Opening. Failure to submit said samples would be cause for rejection of Bid. All samples must be called for and picked up within (30) thirty days of award or said samples will be presumed abandoned and will be disposed of.
15. ACTIVE VENDOR LIST.
Vendors who wish to remain on the Active Bid List must either submit a Bid, No Bid, or a letter requesting same, no later than the Official Bid Opening. This is applicable to those vendors who have received the Invitation to Bid.
16. FUNDS APPROPRIATION.
THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.
17. THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.
18. THE TAX ATTESTATION CLAUSE, CERTIFICATION OF NON-COLLUSION AND THE CERTIFICATE OF VOTE AUTHORIZATION, are require by statute and are an integral part of the Invitation for Bid and must be completed and signed by the person submitting the Bid, or by the person/persons who are officially authorized to do so. Failure to do so may disqualify the bid.
19. STANDARD OF QUALITY.
Where, in the specifications, one certain kind, type, catalog number, brand or manufacturer of material is named, it shall be regarded as the required standard of quality. Where two or more are named, these are presumed to be equal and the Bidder may select one or the other. If the Bidder proposes to offer a substitute as an equal, he shall so indicate on the Bid Form, the kind, type, catalog number, brand, or manufacturer of material that is offered as an equal, and describe where it differs from the specifications. Substituted items must be capable of performing all the functions and/or operational features described or indicated in the specifications. Failure to indicate the description of any substitute item on the Bid will be interpreted to mean that the Bidder will furnish the item or service as specified.
20. MODIFICATION.
No agreement, understanding, alteration or variation of the agreement, terms or provisions herein contained shall bind the parties, hereto unless made and executed in writing by the parties hereto.

21. ASSIGNMENT.

The final payment for work done under this Contract shall be made only after the Contractor has signed a statement under the penalty of perjury, certifying that he has completed the work described in the final estimate. Neither party hereto shall assign this Contract or sublet it in part or as a whole without the prior written consent of the other party hereto. The Contractor shall not assign any sum or sums due or becoming due to him hereunder without the prior written consent of the City.

22. DELIVERIES:

a) The Contractor shall pay all freight and delivery charges. The Waltham Purchasing Department does not pay for shipping and packaging expenses. Items must be delivered as stipulated in the specifications. All deliveries must be made to the inside of city buildings. Sidewalk deliveries will not be accepted. City personnel are not required to assist in the deliveries and contractors are cautioned to notify their shippers that adequate assistance must be provided at the point of delivery, when necessary.

b) All items of furniture must be delivered inside the building, set up, in place and ready for use. Deliveries are to be made between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except on holidays.

c) All damaged items, or items which do not comply with specifications will not be accepted and title therefore will not vest to the Waltham Purchasing Department until such items are accepted and signed for, in good order, by the receiving department.

d) The contractor must replace, without further cost to the Waltham Purchasing Department, such damaged or non-complying items before payment will be made.

23. LABELING.

All packages cartons or other containers must be clearly marked with (a) building and room destination; (b) description of contents of item number from specifications; (c) quantity; (d) City of Waltham Purchase Order Number and (e) Vendor's name and order number.

24. GUARANTEES.

Unless otherwise stipulated in the specifications, furniture, equipment and similar durable items shall be guaranteed by the contractor for a period of not less than one year from the date of delivery and acceptance by the receiving department. In addition, the manufacturer's guarantee shall be furnished. Any items provided under this contract which are or become defective during the guarantee period shall be replaced the contractor free of charge with the specific understanding that all replacements shall carry the same guarantee as the original equipment. The contractor shall make such replacement immediately upon receiving notice from the Purchasing Agent.

25. SINGLE VENDOR.

The Waltham Purchasing Department desires to award a single contract based on the Grand Total Price. However, where applicable, the City reserves the right to make multiple awards on a unit price basis if, in the opinion of the Waltham Purchasing Department, it is in the best interest of the City of Waltham.

26. BEST AND FINAL OFFER.

The City of Waltham reserves the right to request best and final offers from one or more bidders. Best and final offer will be exercised should the City of Waltham deem it is in the best interest of the Waltham Purchasing Department in order to obtain the best value.

27. CHANGE ORDERS.

Change orders are not effective until, if, as and when signed by the Mayor and no work is to commence until the change orders are fully executed.

GENERAL CONDITIONS

GENERAL CONDITIONS

INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words "or equal as approved" are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City's property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

INSURANCE

- A. WORKMAN'S COMPENSATION: The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.
- B. COMPREHENSIVE GENERAL LIABILITY
 - Bodily Injury: \$1,000,000 Each Occurrence
\$2,000,000 Aggregate
 - Property Damage: \$1,000,000 Each Occurrence
\$2,000,000 Aggregate
- C. AUTOMOBILE (VEHICLE) LIABILITY
 - Bodily Injury \$2,000,000 Each Occurrence
 - Property Damage \$1,000,000 Aggregate
- D. UMBRELLA POLICY
 - General liability \$2,000,000

Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: "The City of Waltham is named Additional Insured". The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the

damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal

Compliance

(Required Documents.)

Compliance

The compliance documents in this section must be completed, signed and returned with your bid package.

Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

1.2 Section Index

Check when Complete

- Non-collusion form and Tax Compliance form..... _____
- Corporation Identification Form..... _____
- Certificate of Vote Authorization..... _____
- Certificate of Insurance (showing all limits of WC &GL)..... _____
- Three (3) References..... _____
- 5% Bid Bond or Certified Check..... _____
- Debarment Certificate _____

Your Company's Name: _____

Service or Product Bid _____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

(Signature of person signing bid or proposal)

(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature of person submitting bid or proposal

Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of _____ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the _____ day of _____ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that _____ is duly elected/appointed _____ of said corporation

SIGNED:

(Corporate Seal)

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of _____

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me, _____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____

President _____

Treasurer _____

Secretary _____

Federal ID Number _____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?

Yes _____, No _____

If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)

Name of partner _____

Residence _____

Name of partner _____

Residence _____

If an Individual:

Name _____

Residence _____

f an Individual doing business under a firm's name:

Name of Firm _____

Name of Individual _____

Business Address _____

Residence _____

Date _____

Name of Bidder _____

By _____

Signature _____

Title _____

Business Address (POST OFFICE BOX NUMBER NOT ACCEPTABLE)

City State

Telephone Number

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State _____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

Print name _____,

Date _____

SPECIFICATIONS

Specifications

I Description:

The City of Waltham (City) is seeking proposals from qualified engineering consulting firms to provide services associated with the City of Waltham's current United States Environmental Protection Agency (EPA) Administrative Order (AO) dated November 9, 2004. See Appendix A. The services needed are to implement Phase 3 of the City's Illicit Discharge Detection and Elimination (IDDE) Program.

The IDDE services are to be provided in accordance with U.S. EPA protocols as set forth in the AO, including outfall sampling, junction manhole sampling, analysis, CCTV inspections, smoke testing, dye testing, design, and construction oversight to remove identified sources of stormwater contamination.

The City has completed Phase 1 and Phase 2 of the program is currently completing sampling and construction efforts on Phase 2. The scope of work described below, indicates work to be performed during Phase 3.

II Scope of Work – Phase 3 – IDDE Program:

The City is seeking professional engineering services for conducting the third phase of Illicit Discharge Detection and Elimination (IDDE) Program. Phase 3 IDDE work includes stormwater outfall sampling and mapping for two sub watershed areas as shown as a gray area on the City of Waltham IDDE Program Phase Areas in Appendix B.

Professional Engineering Services include:

- A Project Administration and Reporting
- B Review and Update Existing IDDE Program Information
- C Field Investigations Program
- D Junction Manhole Sampling
- E Design/Development and Bidding of IDDE Rehabilitation Plans & Specifications

A Project Administration and Reporting:

1. Monthly Progress Reports: The CONSULTANT shall prepare monthly progress reports presenting work activities completed during the reporting period, budget status, and schedule status
2. The CONSULTANT shall employ Quality Assurance / Quality Control (QA/QC) procedures in order to maintain quality of the engineering reports and deliverables. A QA/QC review will be conducted on all submittals prior to delivery to the City
3. Participate in project coordination meetings with the City to discuss scope, project approach, progress to date and schedule for the project completion.
4. Prepare up to two (2) Semi-Annual IDDE Progress Reports to the US EPA on behalf of the City of Waltham. Reports shall include a summary of work completed to date by the City, a summary of work completed during the reporting period including sampling data in both tabular and map format, assessments of this data including potential sources of illicit connections, and planned future IDDE work.

B Review and Update Existing IDDE Program Information:

1. Obtain and review from the City relevant information to the IDDE Program, including the following documents:
 - a. Most recent GIS files
 - b. Most recent Capital Improvement Plans
 - c. Historical sampling data and reports
 - d. Record drawings of sewers and drains
 - e. Maps indicating locations of known underdrains
 - f. Maps indicating locations of known common manholes
 - g. Maps identifying locations of historical or existing industrial buildings.
2. Review the current City of Waltham IDDE Ordinance and develop recommendations related to rules and regulations associated with implementation and enforcement.
3. Review for completeness all inter-municipal connection sampling to date and provide recommendations to the City on additional sampling of stormwater connections between the City of Waltham and adjacent communities.
4. Confirm GIS information such as drain line connectivity, pipe sizes, pipe material, rim to invert depths, common manholes, and identify the presence of dry weather flow at key locations through field investigations. The purpose of this effort is to augment the historical information compiled and resolve potential conflicts between informational sources. This information will be incorporated into the updated GIS map.
5. Update the City's GIS mapping as additional data is compiled through existing reports, conversations with staff, and field investigation. Data transfer will be coordinated with City's GIS department and updates will be shared on a monthly basis to ensure timely and accurate revisions to the GIS mapping system.
6. Attend City Council or Subcommittee Meetings as directed by the City Engineer.
7. Provide public education and outreach materials associated with storm water impacts, as necessary and when requested by the City Engineer.

C Field Investigations Program:

1. Any field investigations that require access onto private property will be communicated via a flyer to the area's residents and businesses. The flyer will include a narrative and figures/graphics explaining illicit connections and how the community can participate. The flyer will be distributed two weeks prior to commencing field work.
2. The Police and Fire Department will be made aware of any work that will impact traffic flow or emergency vehicles. The CONSULTANT will meet with the Fire Department to explain the potential false alarms that may result from smoke testing, should smoke testing be required.
3. Complete an inventory of all stormwater outfalls located within the City of Waltham and discharging to Masters and Sibley Brook and Clematis Brook. This shall include outfalls from storm drains into water bodies such as ponds, brooks, streams, and rivers. Drainage systems discharging into culverted or piped portions of brooks or streams shall also be considered an outfall. In these cases, the most downstream manhole shall be considered the outfall if access to the outfall is not possible. Current estimations show approximately 25 outfalls to these water bodies. (additional outfalls may be identified in the field)
4. Field inventory shall include the use of a GPS unit with sub-meter accuracy to provide geographic coordinates of the outfall location. Additional information, such as pipe material, pipe size, and depth of sediment will be logged into the GPS unit and recorded

on a hard copy outfall inventory form. Data from the GPS unit will be downloaded periodically into an office computer. This data will then be uploaded into the GIS mapping system and saved as a separate layer/geo-database.

5. One or more photographs will be taken at each site to document visual conditions at the outfall. An index of photographs will be maintained by outfall identifier.
6. Initial screening will be conducted using a probe and turbidity meter to measure total dissolved solids (TDS), pH, temperature and conductivity as an immediate indicator of potential contamination.
7. The CONSULTANT will perform both dry-weather and wet-weather laboratory sampling at the outfalls inventoried. It is anticipated that approximately 25 outfalls will be sampled during this phase of the contract. Wet weather sampling will only be feasible during rainfall events that produce enough runoff to result in increased discharge at the outfalls. Samples collected for laboratory analysis will be evaluated for surfactants, ammonia, E.Coli, potassium, and total and dissolved phosphorous. The laboratory results for each location will be reported graphically on a sampling map and in tabular format.
8. Data collected during the field inspection and results of field screenings and laboratory analysis will be summarized in a technical memorandum for submission to the City and the US EPA.
9. Following the outfall sampling under dry weather conditions, the CONSULTANT will perform a quantitative evaluation of which outfalls should be targeted for further investigation under the Junction Manhole Sampling task. Outfall prioritization will be based on the total estimated mass pollutant loading based on sampling data collected during the IDDE Program and as approved by the US EPA. This prioritization will include not only new outfalls sampled during this Phase 3 scope, but will also evaluate all previously sampled outfalls from Phase 1 and Phase 2 of the program to come up with a comprehensive priority list of outfalls to be inspected.
10. The quantitative outfall ranking list will then be further fine-tuned based on qualitative analysis per EPA recommendations. The evaluated features will be as follows: Outfall E. Coli counts from past sampling campaigns, presence of aging sanitary infrastructure in the outfall's drainage area, age of urban development, presence of industry and/or commercial space in the drainage area, presence of culverted streams, presence of recreational areas close to the outfall location, and likelihood of skin or drinking contact.
11. Additional evaluations may include utilization of previously compiled base mapping and historical sampling data to evaluate the storm drain system watersheds to identify likely areas of storm water contamination. Specifically the following items will be analyzed:
 - a. Record of contaminated outfalls identified during previous sampling.
 - b. History of sewer breaks / sewer backups / sewer overflows
 - c. Identified neighboring community sources
 - d. Identified common manholes
 - e. Identified sewer and drain pipes greater than 50-years old
 - f. Noted complaints / concerns from local residents and businesses based on City records or conversations during scoped field investigations.
12. Provide the City with a technical memorandum summarizing priority outfalls and the action plan recommended to eliminate the illicit connections.

D **Junction Manhole Sampling:**

1. The CONSULTANT will confirm existing drainage characteristics such as drain line connectivity, pipe sizes, pipe material, rim to invert depths, common manholes, and identify the presence of dry weather flow at key locations through field investigations.
2. Utilizing the EPA recommended top-down approach; the CONSULTANT will conduct field sampling of “junction manholes” identified within outfall priority areas. Inspection will focus on junction manholes located upstream of outfalls with contaminants above allowable EPA threshold values.
3. Junction manholes will first be visually inspected for flow and signs of obvious contamination (visual or odor indicators). If contamination is found or suspected based on the visual inspection, the CONSULTANT will conduct field and laboratory testing to identify the extent of the stormwater contamination. Field kits used shall be approved by the USEPA.
4. Where there is no flow observed during dry weather inspections, the field crew will partially block/dam the upstream inlet of that junction manhole and revisit 24-hours later to determine if any illicit flow has been collected. The collected water will then be tested using the same field kit/lab analysis technique described above.
5. Where contamination is identified, the CONSULTANT shall complete field investigations at that site to locate the source of the illicit connection. Field investigations shall include CCTV of the storm drains and sanitary sewers as necessary, dye-testing of buildings, and smoke testing of sanitary sewers as required.
6. Upon completion of construction to remove illicit connections from the storm drain system, the CONSULTANT will re-test previously contaminated junction manholes to confirm elimination of the contaminant source.
7. Following the first round of investigations and construction to remove illicit connections, the CONSULTANT will continue to move downstream to other junction manholes within the priority areas and complete another round of sampling, analysis, and construction. It is anticipated that at least two rounds of junction manhole sampling will be required.
8. As additional data is compiled through review of existing documentation and field investigations, the CONSULTANT will add this data to the City’s existing GIS map. Data transfer will be coordinated with City’s GIS department and updates will be shared on a monthly basis for timely and accurate revisions to the GIS mapping system.
9. All new GPS located outfall and drainage structure data will need to be downloaded via the GPS software and differentially corrected using nearby Base Station data obtained from the internet. Once the data has been corrected, a new IDDE - GIS geo-database will be created, and then compared to the existing layers of the City’s GIS department. Once all the existing drainage structures have been identified in the new geo-database; the old/historic layers will then be deleted and replaced with the IDDE geo-database. (This will include outfalls, drain manholes, catch basins, inlet culverts, junction drain manholes, and inlet sources from neighboring communities).

E **Design/Development and Bidding of IDDE Rehabilitation Plans & Specifications:**

1. Using the results of the junction manhole sampling program and subsequent field investigations, the CONSULTANT shall identify rehabilitation solutions for standard illicit connections. These will include, but are not limited to;
 - a. Direct connection of sanitary laterals to storm drains
 - b. Leaky joints within sewer laterals above storm drains
 - c. Leaky sanitary manholes

- d. Spot repairs for defective sanitary sewers or storm drains
 - e. Sanitary sewers or storm drains requiring cured-in-place pipe liner
 - f. Other illicit discharge connections that can be completed using a standard set of designs under an On-Call Construction Contract.
2. The CONSULTANT will identify the source of the contamination and the type of repair required, including information such as the type and length of the repair and other unique features of the site. The CONSULTANT will prepare technical specifications in Microsoft Word 2007 format including, bid forms, a thorough measurement and payment section, plans, GIS location/locus maps in an appendix in PDF format.
 3. The CONSULTANT will assist with development and bidding of an On-Call Construction Contract for remediation of standard illicit connections identified in the field under Phase 3 of the IDDE project and as directed by the City. Including, construction plans on 24" x 36" sheets prepared in Auto Cad 2010, incorporating all City standard construction details.
 4. The CONSULTANT will provide On-Call Construction Contract bidding services to the City, including attendance of pre-bid meeting, preparation of contract addenda, evaluation of contract bids, and recommendation of contract award to the City Purchasing Department.

III Qualification Criteria:

All submittals must include the following:

1. Statement of firm/team capacity, qualifications, and experience including cooperative efforts with sub consultants. Must have at least five (5) years of experience with field work, analysis, design, and construction administration of drainage and sewer rehabilitation projects. Preference will be given to teams that demonstrate knowledge and experience with stormwater quality related projects and experience with IDDE programs and repairs.
2. List of references for three (3) communities in Massachusetts where you have performed IDDE, stormwater, or sanitary sewer inspection and rehabilitation services. Preference will be given to services performed in Massachusetts and systems of similar size and complexity. References shall include contact person and telephone number.
3. Similar experience/past performance on similar projects, including IDDE, sanitary sewer, and stormwater investigations, analysis, and repairs. The Proposer shall provide up to five (5) project descriptions that are relevant to the services requested herein and shall demonstrate the teams ability to perform work similar in size, scope and complexity to that requested in this RFP. Project descriptions shall focus on the work which best illustrates the team's most relevant experience, ability and expertise to perform the services requested in this RFP, and the proposer's past performance on similar projects, ongoing or completed within the past three (3) years.
4. Identification and description of the proposed project team, key staff, and any sub-consultants that will perform the services, including resumes and specific project related experience. The proposer shall demonstrate the quality (appropriateness, capability and relevant project experience) of key personnel and continuity of the project team. Resumes shall be included for key personnel and sub-consultants assigned to the project.
5. Experience successfully working with regulatory agencies such as the EPA on IDDE projects, and an understanding of current stormwater quality discharge parameters and regulations.
6. Technical Approach, Capacity, and Management Approach. The proposer shall demonstrate the quality, completeness and methodology of the technical approach envisioned for the project, as well as the team's capacity to apply and commit itself successfully to the project tasks and to complete required services on schedule. The clarity, completeness and effectiveness of the proposed organizational structure and the proposed management approach required to successfully manage this project will be evaluated.

IV Evaluation and Ranking of Proposals:

Proposals shall be evaluated based on the following criteria:

1. **Cost. (50 points).** Appropriateness, reasonableness and competitiveness of the cost proposal, including project administration hourly rates. Costs associated with enhancements and/or deletions to the Scope of Services will receive limited consideration under this criterion.
2. **Qualifications of key personnel. (20 points).** The identity and qualifications of key personnel, team members and sub-consultants available to work on this project, including their expected project assignments. The quality (appropriateness, capability

and relevant project experience) of key personnel and continuity of the project team, key personnel and sub-consultants throughout the project.

3. **Similar experience/past performance on similar projects. (15 points).** The proposer's prior similar experience, including the work which best illustrates the team's most relevant experience, ability and expertise to perform the services requested in this RFP; and the proposer's past performance on similar projects, ongoing and completed within the past five years.
4. **Technical Approach, Capacity, Management Approach. (10 points).** The quality, completeness and methodology of the technical approach envisioned for the project in response to the Scope of Services. The proposer's capacity to apply and commit itself successfully to the project tasks and to complete required services; its absence of conflicting commitments to concurrent projects; and its scheduling. The clarity, completeness and effectiveness of the proposed organizational structure and the proposed management approach required to successfully manage this project. The demonstrated ability of the team to work together effectively, to maintain schedule and cost control, to resolve resource constraints, and to interact effectively with City operations and staff.
5. **Minority & Women-owned Business Enterprise Participation (MBE/WBE). (5 points).** The amount and significance of MBE and WBE participation and the involvement which meets or exceeds the required minimum percentage established for this project: The Minority Business Enterprise ("MBE") minimum participation requirement for this project is **8%** and the Women Business Enterprise ("WBE") minimum participation requirement is **4%**

City of Waltham Massachusetts

**Request for Proposal for Engineering Services
Illicit Discharge Detection and Elimination Program – Phase 3**

V Bid Form:

The Scope of Work for Phase 3 of the IDDE program consists of two main watersheds, the Masters and Sibley Brook Watershed and the Clematis Brook Watershed. It is the City's intention to continue working on IDDE in both watersheds simultaneously. Two separate prices are being requested to assure continuance of the IDDE program based upon available funds.

Masters and Sibley Brook Watershed IDDE – Phase 3 proposal:

Our firm's price proposal for providing engineering services as described in this request for proposal document outlining the scope of work for continuation of the City of Waltham's Illicit Discharge Detection and Elimination Work in the Masters and Sibley Brook watershed is

\$ _____

In written words: _____.

Clematis Brook Watershed IDDE – Phase 3 proposal:

Our firm's price proposal for providing engineering services as described in this request for proposal document outlining the scope of work for the continuation of the City of Waltham's Illicit Discharge Detection and Elimination Work in the Clematis Brook watershed is

\$ _____

In written words: _____.

Our firm's price proposal for providing engineering services as described in this request for proposal document outlining the scope of work for the continuation of the City of Waltham's Illicit Discharge Detection and Elimination Work in the Masters and Sibley Brooks watershed is

\$ _____ and for continuation of the City's IDDE Phase 3 program in the Clematis Brook watershed is \$ _____, for a total price proposal of

\$ _____.

In written words: _____.

ATTACHMENT – A

U.S.E.P.A Administrative Order – 2004

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF:)	DOCKET NO.05-06
)	
CITY OF WALTHAM)	FINDINGS OF VIOLATION
MASSACHUSETTS)	
)	AND
Proceedings under Section 309(a)(3))	
of the Clean Water Act, as amended,)	ORDER FOR COMPLIANCE
33 U.S.C. §1319(a)(3))	

STATUTORY AUTHORITY

The following findings are made and ORDER issued pursuant to Section 309(a)(3) of the Clean Water Act, as amended (the "Act"), 33 U.S.C. § 1319(a)(3). Section 309(a)(3) grants to the Administrator of the U.S. Environmental Protection Agency ("EPA") the authority to issue orders requiring persons to comply with Sections 301, 302, 306, 307, 308, 318 and 405 of the Act and any permit condition or limitation implementing any of such sections in a National Pollutant Discharge Elimination System ("NPDES") permit issued under Section 402 of the Act, 33 U.S.C. § 1342. This authority has been delegated to EPA's Regional Administrators and to the Director of the Office of Environmental Stewardship, Region I (the "Director").

The Order herein is based on findings of violations of Section 301 of the Act, 33 U.S.C. § 1311. Pursuant to Section 309(a)(5)(A) of the Act, 33 U.S.C. § 1319(a)(5)(A), the Order provides a schedule for compliance which the Director has determined to be reasonable.

FINDINGS

The Director makes the following findings of fact:

1. The City of Waltham (the "City") is a municipality, as defined in Section 502(4) of the Act, 33 U.S.C. §1362(4), established under the laws of the Commonwealth of Massachusetts, and, as such, is a person under Section 502(5) of the Act, 33 U.S.C. § 1362(5).
2. The City is the owner and operator of a municipal separate stormwater system consisting of drains, which are designed to collect, convey, and discharge stormwater to receiving waters. These drains discharge to the Charles River and its tributaries, Class B waterways and navigable waters under Section 502(7) of the Act, 33 U.S.C. § 1362(7) and are point sources, as defined in Section 502(14) of the Act, 33 U.S.C. § 1362(14).
3. From June 2003 through October 2003, EPA caused to be collected and analyzed water samples from the Charles River at the ends of storm drains operated by Waltham and in nearby receiving waters of the Charles River and its tributaries. This data is summarized in Attachment 1 and indicates that Waltham is discharging sewage through its storm drains into the Charles River and its tributaries and contributing to

violations of Massachusetts Water Quality Standards by doing so. The discharge of sewage causing violations of water quality standards is occurring at, without limitation, storm drains L11, L12, R17, R22 and R23. It is believed that sewage discharges to the Charles River from Waltham drains because of illicit connections between pipes carrying sewage and the Waltham drainage system.

4. On May 7, 2004, EPA provided this data to the City of Waltham and requested that the City undertake an effort to identify and eliminate all illicit connections in its drainage system that empties into the Charles River.
5. Waltham has not eliminated the discharge of sewage from its separate storm drains into the Charles River.
6. The discharges of pollutants from the identified storm drains described in the preceding paragraph are not discharges of "storm water" as defined in 40 C.F.R. § 122.26 (b) (13).
7. Fecal coliform bacteria is a pollutant as defined in Sections 502(6) of the Act, 33 U.S.C. § 1362(6). The Massachusetts Water Quality Standard for fecal coliform bacteria in Class B Waters such as the Charles River is a geometric mean of 200 colony forming units per 100 milliliters (cfu/100ml) with less than ten percent of the samples exceeding 400 cfu/100ml.
8. Section 301(a) of the Act, 33 U.S.C. § 1311(a), makes unlawful the discharge of pollutants to waters of the United States except in compliance with, among other things, the terms and conditions of an NPDES permit issued pursuant to Section 402

of the Act, 33 U.S.C. § 1342.

9. On May 1, 2003, EPA issued a general permit for stormwater water discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The MS4 general permit authorizes municipalities meeting population criteria to discharge stormwater from MS4s that they operate after notifying EPA of their intention to be covered by the general permit. The City of Waltham notified EPA that it was seeking coverage under the MS4 general permit on July 30, 2003 and received authorization under the general permit on December 5, 2003.
10. Part I.B.2.j of the general permit specifically provides that the stormwater permit does not authorize discharge of stormwater that is mixed with non-stormwater, unless in compliance with another NPDES permit or allowable under Part I.F of the permit. The discharges of sewage contaminated stormwater from Waltham drains are not in compliance with any other NPDES permit and are not otherwise allowable under Part I.F of the MS4 general permit.
11. Part I.B.2.k provides that the MS4 General Permit does not authorize discharges that would cause or contribute to instream exceedance of water quality standards. The discharge of sewage contaminated stormwater from Waltham drains causes or contributes to the instream exceedance of water quality standards for bacteria.
12. The discharges from Waltham storm drains identified in Attachment 1 are not authorized by an NPDES permit or any

other provision of the Act. These discharges described above are therefore a violation of Section 301 (a) of the Act, 33 U.S.C § 1311(a).

ORDER

Accordingly, pursuant to Section 309(a)(3) of the Clean Water Act, it is hereby ordered that the City shall comply with the following schedule:

1. By December 31, 2004, Waltham shall develop and submit to EPA for approval a comprehensive plan ("Plan") for identifying the sources, including illicit connections, of non-stormwater discharges from its storm drains discharging to the Charles River and its tributaries, including, without limitation, those identified in Attachment 1. Waltham should develop the Plan using applicable provisions of Attachment 2 which sets out a protocol for investigation of illicit connections. Where it cannot be demonstrated to EPA's satisfaction that in-house resources are adequate to execute the investigatory tasks ("Investigation"), Waltham shall execute a contract for completing the Investigation to determine the sources of non-stormwater pollutants in the identified storm drains.
2. By February 28, 2005, Waltham shall complete the Investigation and submit a report ("Report") to EPA and DEP documenting the findings. The Report shall include a list of illicit connections, the estimated flow from the connections, and the estimated cost of removing the connections. The Report shall also contain a monitoring plan ("Monitoring Plan") for

demonstrating the effectiveness of illicit connection removal efforts. The Monitoring Plan shall also contain a monitoring schedule that will enable the City to demonstrate by April 23, 2005 whether all illicit connections have been removed from Waltham's storm drains. The City shall implement the Monitoring Plan in accordance with the schedule contained therein until the City has completed the monitoring or until EPA directs otherwise.

3. The Report shall also state whether the City believes that third parties are responsible for the work necessary to remove any of the illicit connections. If so, the Report shall identify any such connections and describe the actions to be taken by the City to ensure that these connections are removed by April 23, 2005. The City shall thereafter take all actions necessary to ensure the removal of these connections by April 23, 2005.
4. By December 31, 2004, Waltham shall obtain funding for removal of illicit connections discovered during the Investigation (an amount of at least one hundred thousand dollars shall be budgeted for this purpose).
5. By April 23, 2005, Waltham shall remove all illicit connections in all of its storm drains discharging to the Charles River and its tributaries.
6. If the City believes that it is impossible to remove or ensure the removal of all illicit connections to the identified storm drains by April 23, 2005 despite all reasonable efforts, the

February 28, 2005 Report shall document why the City considers this to be the case, and the EPA and the City shall then discuss whether changes to this Order are appropriate.

7. The City may in some cases be entitled to reimbursement from third parties for the work necessary to remove illicit connections. Nothing in this Order shall be construed to make the City responsible for costs which would ordinarily be borne by third parties.

Impossibility of Performance

8. If the City becomes aware that circumstances beyond its control will make it impossible to comply with any requirement of this Order despite all reasonable efforts, the City shall notify EPA in writing, within 14 days of the time it becomes aware of such circumstances. This notice shall describe in detail:
 - i. The reason for and anticipated length of time the noncompliance is expected to persist.
 - ii. The measures taken and to be taken by the City to minimize the noncompliance.
 - iii. The timetable by which such measures will be implemented. EPA and the City shall then discuss whether any modification to the requirements of this Order is appropriate.

NOTIFICATION PROCEDURES

1. Where this Order requires a specific action to be performed within a certain time frame, the City shall submit a written

notice of compliance or noncompliance with each deadline. Notification must be mailed within fourteen (14) days after each required deadline. The timely submission of a required report shall satisfy the requirement that a notice of compliance be submitted.

2. If noncompliance is reported, notification should include the following information:
 - a. A description of the noncompliance;
 - b. A description of any actions taken or proposed by the City to comply with the elapsed schedule requirements;
 - c. A description of any factors which tend to explain or mitigate the noncompliance;
 - d. An approximate date by which the City will perform the required action.
3. After a notification of noncompliance has been filed, compliance with the past requirement shall be reported by submitting any required documents or providing EPA with a written report indicating that the required action has been achieved.

Submissions required by this Order shall be in writing and should be mailed to the following addresses:

Stephen Perkins, Director
Office of Environmental Stewardship
U.S. Environmental Protection Agency
JFK Federal Building - SEW
Boston, MA 02203
Attn: Water Technical Unit

Massachusetts Department of Environmental
Protection
One Winter Street
Boston, MA 02108
Attn: Madelyn Morris

GENERAL PROVISIONS

1. The City may, if it desires, assert a business confidentiality claim covering part or all of the information requested, in the manner described by 40 C.F.R. § 2.203(b). Information covered by such a claim will be disclosed by EPA only to the extent, and by means of the procedures, set forth in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when it is received by EPA, the information may be made available to the public by EPA without further notice to the City. The City should read the above-cited regulations carefully before asserting a business confidentiality claim since certain categories of information are not properly the subject of such a claim. For example, the Clean Water Act provides that "effluent data" shall in all cases be made available to the public. See Section 308(b) of the Act, 33 U.S.C. § 1318(b).
2. This Order shall become effective upon receipt by the City.

11/09/04

Date

A handwritten signature in cursive script, appearing to read "Stephen Perkins", written over a horizontal line.

Stephen Perkins, Director
Office of Environmental Stewardship
Environmental Protection Agency
Region I

Attachment 1

Date	Sample#	Site	Fecal	E.Coli	Wet/Dry	Comment
6/25/2003	162	BeB001	510	480	D	Beaver Brook*
7/24/2003	177	Elm	1,523	559	W	Center, downstream side of Elm*
7/24/2003	176	Elm North	2,000	1,300	W	N .bank downstream of Elm*
7/24/2003	175	Elm South	1,100	600	W	S bank upstream of Elm*
10/29/2003	213	Eplume	7,909	3,636	W	N bank downstream of Elm*
7/24/2003	179	Footbridge	1,100	900	W	Downstream of foot bridge*
7/24/2003	174	Midsou	900	900	W	Between Elm and Newton Sts.*
7/24/2003	180	Moody	600	600	W	Downstream of Moody St.*
7/24/2003	170	NewNor	1,766	667	W	N bank downstream of Newton St.*
7/24/2003	172	NewSouth	900	800	W	S bank downstream of Newton St.*
7/24/2003	171	Newton	1,739	541	W	Center downstream of Newton St.*
7/24/2003	178	Wal L11	14,000	18,000	W	drain upstream of Elm on N bank**
10/29/2003	214	Wal L12	12,455	7,727	W	drain under car wash at Elm**
10/29/2003	208	Wal L12	30,000	27,000	W	N bank beside Elm**
10/29/2003	215	Wal R17	8,273	4,273	W	S bank drain downstream of dam**
10/29/2003	207	Wal R22	12,818	8,818	W	S bank under Elm** St.
7/24/2003	173	Wal R23	>200,000	Too Numerous to count	W	drain upstream of Newton St.**

10/29/2003	205	WalR23	15,636	4,364	W	S bank upstream of Newton St.**
10/29/2003	211	Wal R 23	31,000	ND	W	S. bank upstream of Newton St.**

* Denotes instream sample

** Denotes sample from storm drain

Fecal and E.Coli concentrations are in colony forming units/100 ml

Attachment 2
Lower Charles River Illicit Discharge Detection & Elimination (IDDE) Protocol
November 2004

Purpose/Goal

This document provides a common framework from which lower Charles River communities can develop and implement a comprehensive plan to identify and eliminate dry and wet weather illicit discharges to their separate storm sewer systems. Adopted from BWSC (2004) and Pitt (2004), the protocol relies primarily on visual observations and the use of field test kits and portable instrumentation during dry weather to complete a thorough inspection of the communities' storm sewers in a prioritized manner. The protocol is applicable to most typical storm sewer systems, however modifications to materials and methods may be required to address situations such as open channels, systems impacted by sanitary sewer overflows or sanitary sewer system under drains, or situations where groundwater or backwater conditions preclude adequate inspection. The primary focus of the protocol is sanitary waste, however, toxic and nuisance discharges may also be identified. Implementation of the protocol would satisfy the relevant conditions under Minimum Control Measure No. 3 (IDDE) of the communities' NPDES Small MS4 General Permit.

Drainage Area/Outfall Prioritization

Areas to consider for prioritizing investigative work include:

- Areas suspected to have significant problems (documented by EPA, the community, or others)
- Direct discharges to sensitive or critical waters (e.g. water supplies, town beach)
- Areas with inadequate sewer LOS or subject of numerous/chronic customer complaints
- Areas served by common manholes or underdrains
- Remaining areas prioritized through an outfall screening & ranking process

Drainage Area Investigations

1. Public Notification/Outreach Program

Provide letter/mailer to residents and building owners located within subject drainage basin and/or sewershed notifying them of scope and schedule of investigative work, and the potential need to gain access to their property to inspect plumbing fixtures. Where necessary, notification of property owners through letter, door hanger, or otherwise will be required to gain entry. Assessors records will provide property owner identification.

2. Field verification and correction of subarea storm sewer mapping

Adequate storm and sanitary sewer mapping is a prerequisite to properly execute an illicit discharge detection and elimination program. As necessary and to the extent possible, infrastructure mapping should be verified in the field and corrected prior to investigations. This effort affords an opportunity to collect additional information such as latitude and longitude coordinates using a global position system (GPS) unit if so desired. To facilitate subsequent investigations (see Part 5. below), tributary area delineations should be confirmed and junction manholes should be identified during this process. Orthophoto coverages (available from source sources as MassGIS, MapQuest, and TerraServer) will also facilitate investigations by providing building locations and land use features.

3. Infrastructure cleaning requirements

To facilitate investigations, storm drain infrastructure should be evaluated for the need to be cleaned to remove debris or blockages that could compromise investigations. Such material should be removed to the extent possible prior to investigations, however, some cleaning may occur concurrently as problems manifest themselves.

4. Dry weather criteria

In order to limit or remove the influence of stormwater generated flows on the monitoring program, antecedent dry weather criteria need to be established. An often used rule of thumb is to wait two (2) days after cessation of a precipitation event prior to monitoring activities. This duration can be adjusted to shorter or longer periods dependent upon the relative extent, slope, and storage of the system under investigation.

5. Manhole inspection and flow monitoring methodology

Beginning at the uppermost junction manhole(s) within each tributary area, drainage manholes are opened and inspected for visual evidence of contamination after antecedent dry weather conditions are satisfied (e.g. after 48 hours of dry weather). Where **flow is observed**, and determined to be contaminated through visual observation (e.g. excrement or toilet paper present) or field monitoring (see Parts 5. & 6. below), the tributary storm sewer alignment is isolated for investigation (e.g. dye testing, CCTV; see Part 7. below). No additional downstream manhole inspections are performed unless the observed flow is determined to be uncontaminated or until all upstream illicit connections are identified and removed. Where **flow is not observed** in a junction manhole, all inlets to the structure are partially dammed for the next 48 hours when no precipitation is forecasted. Inlets are dammed by blocking a minimal percentage (approximately 20% +/- depending on pipe slope) of the pipe diameter at the invert using sandbags, caulking, weirs/plates, or other temporary barriers. The manholes are thereafter reinspected (prior to any precipitation or snow melt) for the capture of periodic or intermittent flows behind any of the inlet dams. The same visual observations and field testing is completed on any captured flow, and where contamination is identified, abatement is completed prior to inspecting downstream manholes.

In addition to documenting investigative efforts in written and photographic form, it is recommended that information and observations regarding the construction, condition, and operation of the structures also be compiled.

6. Field Measurement/Analysis:

Where flow is observed and does not demonstrate obvious olfactory evidence of contamination, samples are collected and analyzed with field instruments identified in Table 1. Measured values are then compared with benchmark values using the flow chart in Figure 1 to determine the likely prominent source of the flow. This information facilitates the investigation of the upstream stormsewer alignment described in Part 7. Benchmark values may be refined over the course of investigations when compared with the actual incidences of observed flow sources.

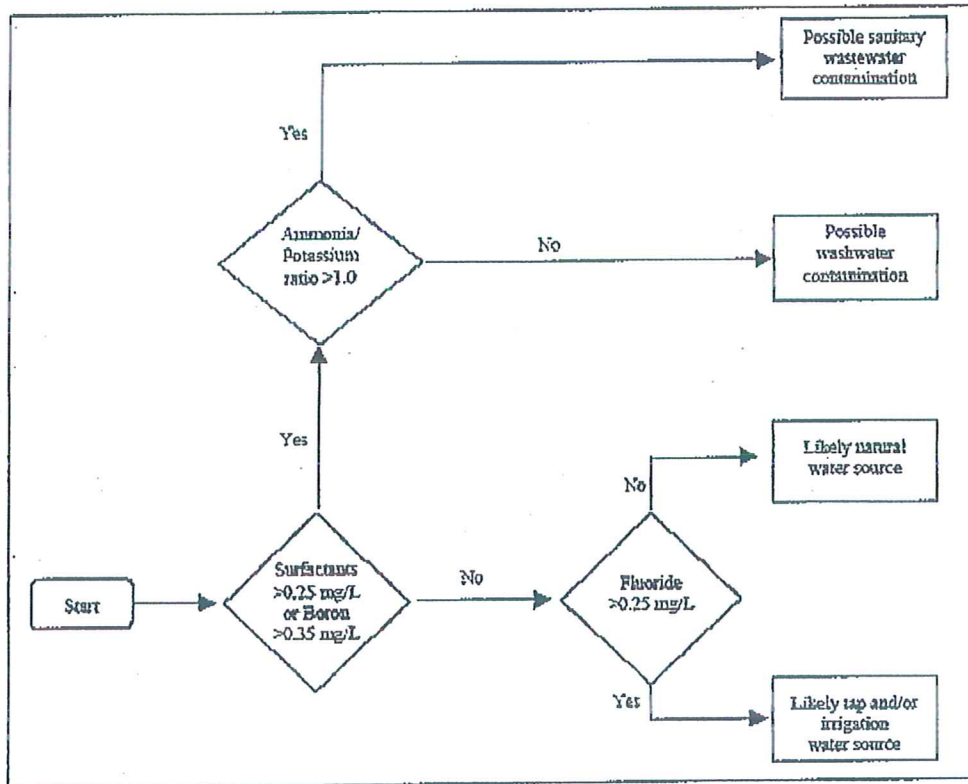
In those manholes where periodic or intermittent flow is captured through damming inlets, additional laboratory testing (e.g. toxicity, metals, etc.) should be considered where an industrial batch discharge is suspected for example.

Table 1 - Field Measurements, Benchmarks, and Instrumentation

<u>Analyte</u>	<u>Benchmark</u>	<u>Instrumentation</u> ¹
Surfactants (as MBAS)	>0.25 mg/L	MBAS Test Kit (e.g. CHEMetrics K-9400)
Potassium (K)	(ratio below)	Portable Ion Meter (e.g. Horiba Cardy C-131)
Ammonia (NH ₃)	NH ₃ /K > 1.0	Portable Colorimeter or Photometer (e.g. Hach DR/890, CHEMetrics V-2000)
Fluoride (F)	>0.25 mg/L	Portable Colorimeter or Photometer (e.g. Hach DR/890, CHEMetrics V-2000)
Temperature	Abnormal	Thermometer
pH	Abnormal	pH Meter

¹ Instrumentation manufacturers and models provided for informational purposes only. Mention of specific products does not constitute or imply EPA endorsement of same.

Figure 1. Flow Chart for Determining Likely Source of Discharge (Pitt, 2004)



7. Isolation and confirmation of illicit sources

Where field monitoring has identified storm sewer alignments to be influence by sanitary flows or washwaters, the tributary area is isolated for implementation of more detailed investigations. Additional manholes along the tributary alignment are inspected to refine the longitudinal location of potential contamination sources (e.g. individual or blocks of homes). Targeted internal plumbing inspections/dye testing or CCTV inspections are then employed to more efficiently confirm discrete flow sources.

Post-Removal Confirmation

After completing the removal of illicit discharges from a subdrainage area and before beginning the investigation of downstream areas, the subdrainage area is reinspected to verify corrections. Depending on the extent and timing of corrections, verification monitoring can be done at the initial junction manhole or the closet downstream manhole to each correction. Verification is accomplished by using the same visual inspection, field monitoring, and damming techniques as described above.

Work Progression & Schedule

Since the IDDE Protocol requires the verified removal of illicit discharges downstream through the storm sewer system, preparations should include investigations in other subareas to facilitate progress while awaiting results. Since work progress will be further constrained by the persistence of weather events, consideration must be given to providing adequate staffing to perform concurrent investigations in several subareas.

Program Evaluation

The progress of the IDDE Program should be evaluated by tracking metrics such as:

- Number/% of manholes/structures inspected
- Number/% of outfalls screened
- Number/% of illicit discharges identified through:
 - visual inspections
 - field testing results
 - temporary damming
- Number/% of homes inspected/dye tested
- Footage/% of pipe inspected by CCTV
- Number/% of illicit discharges removed
- Estimated flow/volume of illicit discharges removed
- Footage and location of infrastructure jetting/cleaning required
- Infrastructure defects identified and repaired
- Water main breaks identified and repaired
- Cost of illicit discharge removals (total, average unit costs)

References Cited

Boston Water & Sewer Commission, 2004, *A systematic Methodology for the Identification and Remediation of Illegal Connections*. 2003 Stormwater Management Report, chap. 2.1.

Pitt, R. 2004 *Methods for Detection of Inappropriate Discharge to Storm Drain Systems. Internal Project Files*. Tuscaloosa, AL, in The Center for Watershed Protection and Pitt, R., *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*: Cooperative Agreement X82907801-0, U.S. Environmental Protection Agency, variously paged. Available at: <http://www.cwp.org>.

Instrumentation Cited (Manufacturer URLs)

MBAS Test Kit - CHEMetrics K-9400: <http://www.chemetrics.com/Products/Deterg.htm>

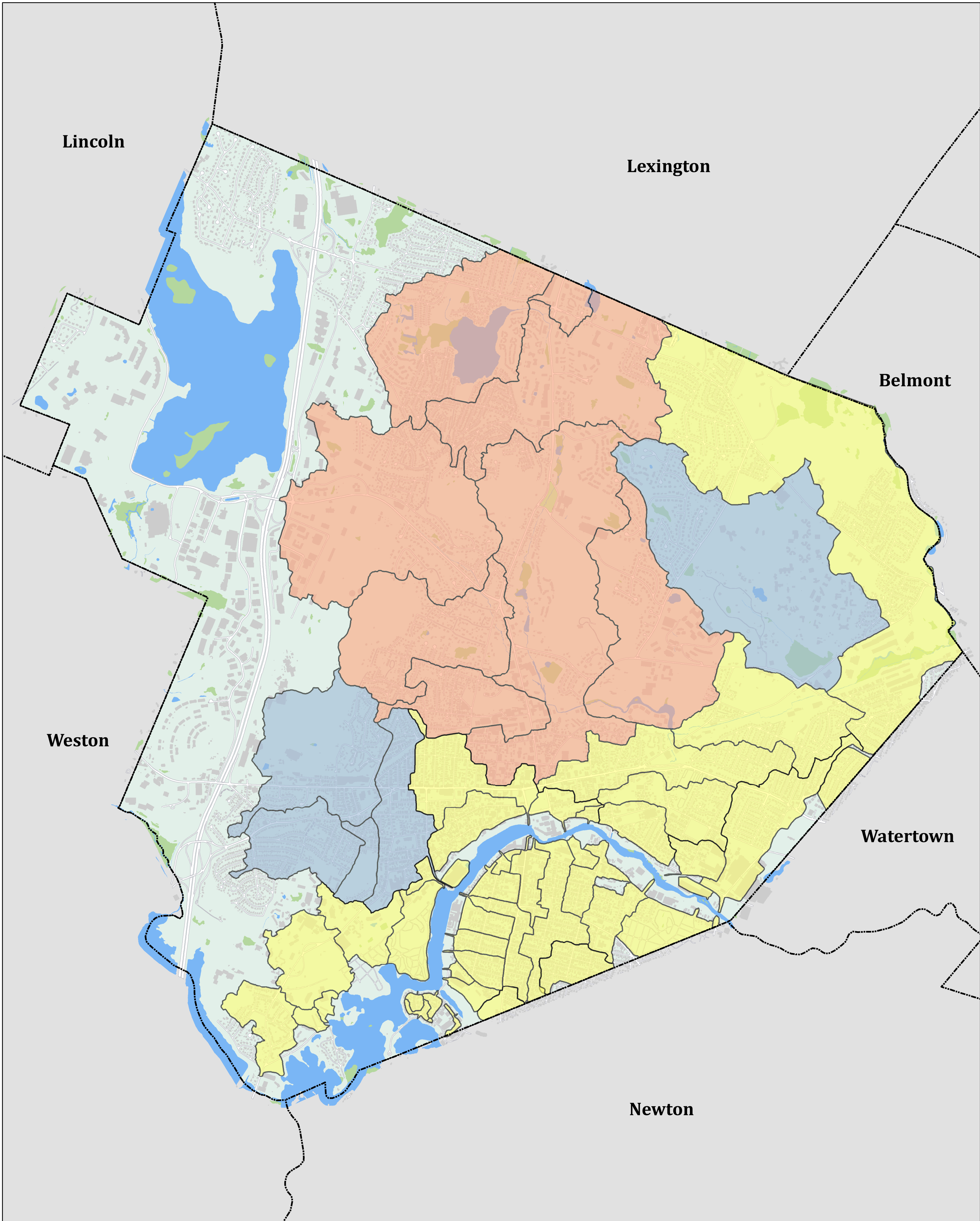
Portable Photometer - CHEMetrics V-2000: <http://www.chemetrics.com/v2000.htm>

Portable Colorimeter - Hach DR/890: <http://www.hach.com/>

Portable Ion Meter: Horiba Cardy C-131: <http://www.wq.hii.horiba.com/c.htm>

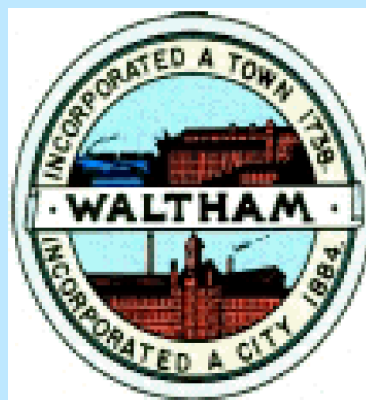
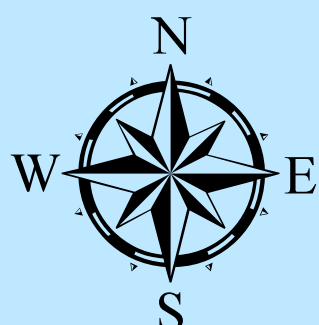
ATTACHMENT – B

IDDE Program Phase III Areas



Legend

- Phase I Areas
- Phase II Areas
- Phase III Areas



**City of Waltham
IDDE Program Phase Areas**

**Illicit Discharge Detection
& Elimination Program**



Map print date: 6/28/2010

ATTACHMENT – C

IDDE Phase I, II & III Summary

CITY OF WALTHAM
ILLICIT DISCHARGE DETECTION AND ELIMINATION
PHASES 1, 2, & 3 SUMMARY

PHASE 1:

INVENTORY AND SAMPLE (DRY & WET) - COMPLETE

Charles River – 43 Outfalls

Beaver Brook – 34 Outfalls

IMC's – 17 Outfalls

JUNCTION MANHOLE SAMPLING- COMPLETE

Round 1: 55 JM's in following priority areas: Outfalls 15, 18, 19, 23, 39A, BB3, IMC7, IMC8, IMC11

Round 2: 6 JM's re-sampled in priority areas.

ON-CALL CONSTRUCTION REPAIRS

Round 1 Construction Repairs (Work Package #1) - **COMPLETE**

Round 2 Construction Repairs: Fixes in Area 19, IMC7, IMC11 - **IN DESIGN**

PHASE 2:

INVENTORY AND SAMPLE (DRY & WET) – COMPLETE
(Pending 10/6 Wet Weather Sampling)

Beaver Brook Tributaries:

- Chester Brook (2,932 Acres) ~ 51 Outfalls
 - West Chester (740 Acres) and Plympton Brook (122 Acres) ~ 19 Outfalls
- Beaver Brook Culvert ~ 5 Outfalls

JUNCTION MANHOLE SAMPLING

Round 1: 50 JM's based on drainage area prioritization: Outfalls 28, 10/11, IMC13, BB20, BB23, and BB12 - **COMPLETE**

Round 2: of 25 JM's based on drainage area prioritization. – **FUTURE WORK**

PHASE 2 ON-CALL CONSTRUCTION REPAIRS

Round 1 Construction Repairs – **IN DESIGN**

Round 2 Construction Repairs: – **FUTURE WORK**

PHASE 3:

INVENTORY AND SAMPLE (DRY & WET) – FUTURE WORK

Beaver Brook Tributaries:

- Clematis Brook (539 Acres) ~ 20 Outfalls (*Past Sampling shows no E-Coli*)

Charles River Tributaries:

- Masters Brook (509 Acres) - 1 Outfall to DPS 33 (Sampled *clean during Year 1*)
 - Sibley Brook (114 Acres) - 1 Outfall to DPS 33 (*Past sampling shows contamination*)

JUNCTION MANHOLE SAMPLING– FUTURE WORK

Next 50 JM's based on Drainage Area Prioritization. This may change with additional outfall sampling data from Clematis Brook and Masters Brook.

PHASE 3 ON-CALL CONSTRUCTION REPAIRS

Round 1 Construction Repairs: – **FUTURE WORK**

Round 2 Construction Repairs: – **FUTURE WORK**