

**Municipality/Organization:** City of Malden  
**EPA NPDES Permit Number:** MA041046  
**MADEP Transmittal Number:** 041088  
**Annual Report Number & Reporting Period:** No. 1: April 1, 2008-March 31, 2009

## NPDES PII Small MS4 General Permit Annual Report

### Part I. General Information

**Contact Person:** Jack Russell **Title:** City Engineer  
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### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Signature:** 

**Printed Name:** Jack Russell

**Title:** City Engineer

**Date:**

## **Part II. Self-Assessment**

As reflected from a review of activities completed during the 2008 – 2009 permit year, the greatest advances in program implementation were achieved by the City of Malden during this reporting period. Building upon the incremental goals that have been realized in the past, the City's Storm Water Compliance team has developed a formal structure for the isolation of illicit discharges, identified priority areas for BMP installation, quantified dry weather flows at outfalls and interior sub-basins within the City drainage system, drafted ordinances for the regulation and enforcement of stormwater management practices as well as initiated a comprehensive GIS mapping and catch basin inventory program.

Building upon the results of the Rapid Assessment Program implemented in response to USEPA requirements, the City of Malden is currently in the process of completing comprehensive mass balance analyses of sub-basin components to identify both illicit and significant dry weather bacteria loadings that are contributing to the results that have been obtained from its outfall sampling program. Recognizing that the mitigation of stormwater quality issues require the co-operation of private parties connected to its system, the City has drafted ordinances for the control of illicit discharges, mitigation of construction impacts, and regulation of redevelopment activities. A public hearing before the City Council has been scheduled for April 2009, it is anticipated that these ordinances will be in place by the summer of this year.

The City has, with the assistance of outside services, initiated a comprehensive electronic mapping and information storage program to assist in meeting the goals of this stormwater management plan. To date, over 250 catch basins and their corresponding attributes have been field located. This information is being used to refine and update historic drainage plans and assist in the evaluation of infrastructure needs. Through concurrent mapping of City and MWRA sewer systems, and the City drainage systems completed potential conflicts between these separate drainage and sewer systems are also being investigated. As a part of a parallel, yet separate USEPA regulated program, the City is aggressively implementing measures to achieve the goals and objectives identified in this plan.

**Part III. Summary of Best Management Practices (BMPs) and Compliance Team Goals**

**1. Public Education, Outreach and Community Involvement**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
<b>1-1</b>	<b>Place Educational Information on City’s Web Site and Malden Access Television (MATV)</b>	Engineering Dept., Mayor’s Office, MATV	Continued maintenance of the City informational web site and participation with MATV.	The City, through the office of the Mayor, provides continual updates on the progress of the stormwater management program and corresponding educational literature on its website and MATB. ( <i>See Attachment A</i> )	Educational and technical updates as information are obtained.
<b>1-2</b>	<b>Conduct Recycling Opportunities &amp; Paint Waste Collection Days</b>	DPW Mayor’s Office	Continuation and possible expansion of recycling collection days, distribution of related educational information.	The DPW hosts a paint waste collection event four times per year.	Ongoing
<b>1-3</b>	<b>Enforce Pet Waste Management Programs</b>	Animal Control Dept., City Clerk	Posting of signage, installation of waste collection containers, Park maintenance, ordinance enforcement, Community involvement.	Enforcement of existing ordinances, continued cooperative efforts with recreational/redevelopment officials to convert grassy playing surfaces to synthetic cover.	Ongoing
<b>1-4</b>	<b>Establish a partnership with local schools to educate Malden’s students about stormwater</b>	Stormwater Compliance Team	Workshops, demonstration projects, student involvement	City of Malden, DPW, performed on site demonstration projects that promote the awareness of stormwater quality needs.	The City hopes for greater involvement in this area
<b>1-5</b>	<b>Hold formal school classroom programs supported by the Compliance Team</b>	Stormwater Compliance Team	Classroom involvement	No formal classroom programs were held this year.	During the next permit year attempts will be made to partner with representatives of the educational community.
<b>1-6</b>	<b>Development of student involvement/internship for High School Seniors</b>	Eng. Dept. Dept Public Works	Number of participants	The engineering department employed three summer interns whose daily tasks focused upon mapping and inventory of the drainage infrastructure.	The City hopes to expand this program in the years ahead.

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1-7	<b>Expand Cooperative Education programs for college level interns</b>	Eng. Dept. Dept. of Public Works	Number of participants	No college level interns were available to the City during this permit year	Representatives of the City are pursuing possible opportunities with nearby colleges
1-8	<b>Host or participate in Stormwater Management brainstorming sessions with citizen advisory groups and Mystic River Watershed representatives</b>	Eng. Dept. Mayor's Office	Annual Participation. Dissemination of information to the general public	Representatives of the stormwater compliance team attended and participated in regional workshops promoted by MyRWA, DEP, and USEPA	Involvement to continue

## 2. Local Planning Processes and Community Involvement

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
2-1	<b>Development of incentives for redevelopment initiatives that address existing stormwater management concerns</b>	Local Planning Agencies and Compliance Team	Mitigation of existing stormwater concerns.	The City has drafted an ordinance pertaining to the regulation of stormwater management requirements for redevelopment activities that includes incentives to aid the City in addressing priority areas of concern	The City will continue to incorporate technological advances in BMP's and related opportunities to address existing stormwater concerns in redevelopment review and permitting processes.
2-2	<b>Development of a "Clean Malden" Program</b>	Stormwater Compliance Team	Promote neighborhood stewardship programs designed to remove trash from sensitive watershed areas, catch basin inlets and report conditions of concern.	The City is conducting an extensive inventory of its infrastructure and area characteristics to target community involvement efforts. In addition to educational outreach, signage and electronic media are being utilized to support this initiative.	Having achieved a greater understanding of City needs, outreach to encourage a stewardship role within the community is a priority for year seven.
2-3	<b>Inter-departmental review and communication to address stormwater quality concerns</b>	Local Planning and Inspectional Agencies	Coordination of Planning and Inspectional services to further identify and address stormwater management issues.	City ordinances to promote early awareness of stormwater management requirements have been developed. This framework will provide regulatory structure during plan review, construction activities and post construction land use practices.	The adoption of achieved and ongoing ordinances for the regulation for storm water management practices will result in greater interdepartmental review and cooperation in meeting the goals set forth therein

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
2-4	<b>Development of an electronic database file management system</b>	Compliance Team	Compilation of all stormwater infrastructure information, integration of all ongoing inspection, inventory and repair activities.	The City of Malden has retained outside services to create a comprehensive GIS mapping system that will include electronic file management of as-built plans and catch basin inventory/ inspection information for use by City personnel. In the spring of 2009 approximately 250 catch-basins and corresponding attributes were field located. The continuation of this effort will result in a field verification and mapping of the entire City drainage system. The combined MWRA and City sewer system has also been electronically compiled together with information pertaining the City's ongoing I/I removal programs.	The achieved and ongoing electronic mapping and filing system is a long term program and during this permit year all major elements of the City's infrastructure will be available in electronic format. The next phase of this program will focus upon the daily interactive use of this management tool by engineering and DPW personnel.
2-5	<b>Development and implementation of local ordinances</b>	Local Planning Agencies and Compliance Team	Adopt and enforce state and federal regulatory guidance. Perform community infrastructure needs analysis and conveyance of information to local permitting processes. Assign BMP guidance and requirements to private land use activities that are connected to the urban stormwater network.	As stated in Part II, the City has drafted comprehensive ordinances pertaining to the stormwater management that are anticipated to become effective by the summer of 2009	Public review and comment April 2009
2-6	<b>Completion of an infrastructure needs analysis</b>	Eng. Dept, DPW, Compliance Team	Development of a long term plan for infrastructure upgrade.	Through the development of an electronic mapping system and the daily implementation of the catch basin inspection/inventory program, the City is constantly re-evaluating infrastructure needs.	Ongoing
2-7	<b>Identification of capital improvement projects necessary to improve stormwater quality</b>	Compliance Team	Conveyance of CIP requirements to Planning Board and local permitting processes.	See item 2-6. The City annually updates its CIP and the mitigation of adverse stormwater impacts is a recognized priority. As described in the City's IDDE plan a comprehensive evaluation of bacterial mass loadings within the City drainage system is being performed. The City will prioritize stormwater mitigation measures to achieve the greatest improvement in stormwater quality, on an expedited basis.	Ongoing

### 3. Stormwater Outfall Monitoring and Inspection Program

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goals Yr. 6	Goal Status
3-1	<b>Conduct a minimum of one annual inspection of all known outfalls during dry weather sampling events.</b>	Compliance Team	Documentation of inspection results.	This task is being performed on a regular basis by City personnel and contracted services. Dry weather sampling has been performed at several “interior” sub areas of the drainage system as a part of the ongoing mass balance evaluation of bacterial loadings documented at outfall/discharge locations.	Achieved and ongoing
3-2	<b>Perform targeted sampling and analyses during dry weather and wet weather sampling events to document seasonal and annual trends.</b>	Compliance Team	Collection of water quality data	SEE 3-1. During this permit year dry weather sampling has been performed to support the isolation of illicit discharges and identification of priority target areas based upon dry/wet weather loadings. Seasonal trends are also being documented for wet weather data to further define infrastructure deficiencies. <i>(See Attachment B)</i>	Achieved and ongoing
3-3	<b>Perform mass balance modeling within primary watersheds to isolate sub basin bacteria loading sources.</b>	Compliance Team	Identification of source area contributions	As described in previous documentation supplied to the Agency under this permit and corresponding water quality programs the City is evaluating sub-area contributions to the bacteria levels that have been identified during the rapid assessment program using a mass balance and flow isolation approach. Dry weather sampling events have identified 3 target areas that are currently under investigation. <i>(See Attachment B)</i>	Achieved and ongoing
3-4	<b>Target the evaluation of stormwater discharges from “green space” parklands, cemeteries and open space to assist in the segregation of human, animal and waterfowl bacteria contributions.</b>	Compliance Team	Separation of non-human bacterial loading and implementation of mitigation measures.	Currently there is not a cost effective or readily available testing procedure that can be used to separate non-human bacterial contributions to the levels that have been detected at outfall sampling locations. Lines of evidence testing and visual inspection of the primary methods to utilize at this time together with animal control practices and nutrient removal targeted efforts have been implemented at Oak Grove and Fellsmere Pond. Although being undertaken for a variety of reasons, the City is in the process of replacing grassy playing surfaces with synthetic fields. This improvement will result in a reduction in nutrients, the need for fertilizers, pet waste and sediment loadings to the City drainage system	While difficult to quantify, mitigation measures appear to have been successful to the reduction in bacterial levels.

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
3-5	<b>Development of mitigation strategy based upon sampling and inspection progress for consideration in annual capital planning.</b>	Compliance Team	Preparation of annual report.	The direct inspection and dry weather sampling of the drainage infrastructure has also revealed several deficiencies that are contributing to localized flooding. This condition results in the entrainment of residuals that would not normally enter the drainage system. In large part these issues are attributable to conflicts between the aged DCR infrastructure and the local drainage system. Members of the stormwater compliance team meet on a regular basis to discuss and prioritize infrastructure needs for capital planning consideration.	Ongoing

#### 4. Pre- and Post-Construction Stormwater Runoff Control Measures

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
4-1	<b>Development of inspection protocol/checklist local permitting agencies to monitor ongoing construction activities.</b>	Compliance Team	Development of checklist	Through the drafting of an ordinance for the management of construction related to stormwater quality management the City now has a mechanism to convey permitting requirements and monitor construction activities	Achieved and to be implemented in 2009.
4-2	<b>Integration of Applicant Certification requirement for the monitoring and inspection of development activities into local planning processes.</b>	Compliance Team	Applicant Certification and submission of inspection and monitoring reports.	Similar to the above, an ordinance has been drafted to monitor stormwater discharges during redevelopment practices and identify those BMP's that must be included in any proposed redevelopment plan. Beyond certifications by the Applicant, the City will maintain an inspection program to ensure compliance.	Achieved and to be implemented
4-3	<b>Promote the use of new and innovative products/designs in new development initiatives. Condition of approval, monitoring</b>	Compliance Team	Conditions of Approval, monitoring of construction activities.	The use of low impact development practices is constrained by the urban density of Malden. As such, on-site recharge of stormwater and the reduction impervious areas are priority goals to be addressed during redevelopment. In addition off-site mitigation of existing City needs will be considered during the review and approval of redevelopment projects	Ongoing

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
4-4	<b>Enforcement of existing state and federal guidance.</b>	Planning Board and Inspectional Services, Eng. Dept.	Documentation of violations, implementation of corrective actions.	City ordinances are designed to enforce State and Federal mandates pertaining to stormwater management. As the local enforcement agency, the City recognizes the role it must play in implementing a successful mitigation program. A proposed ordinance includes fines for improper discharges and failure to implement corrective actions. As part of the City mapping program, private tie-ins are being identified for future notification concerning the requirements for discharge that must be met. Presently the focus of this effort is being placed upon areas where discharges to the City system occur in close proximity to surface waters	Ongoing
4-5	<b>Develop partnerships in planning with local Conservation Commission</b>	Planning Board and Inspectional Services, Eng. Dept.	Stormwater quality management practices as conditions of approval	A key member of the stormwater compliance team is also on the Malden Conservation Commission. This individual is involved with the GIS mapping and electronic file management activities that are under way and will receive software training available to the commission. The Commission is continuously provided with educational updates and technology alternatives for consideration in their review and approval process	Achieved and ongoing
4-6	<b>Site design measures to improve stormwater quality</b>	Planning Board	Improved design features for new development	Educational and technology updates are made available to planning and review agencies	Ongoing

### 5.0 Pollution Prevention and Stormwater Management Strategies.

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
5-1	<b>Develop a Formal Training Program for DPW Staff</b>	DPW, Human Resources Dept.	Staff Training	The DPW maintains a formal training program for meeting the goals and objectives of this stormwater plan. Three employees have been trained on use of GIS filed mapping equipment. A dedicated crew has been assigned to catch basin inventory and cleaning program.	Annually updated

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
5-2	<b>Maintain Lawn Care Policy</b>	DPW, School Dept., Cemetery Dept.	Proper utilization of pesticides, herbicides, fertilizers and appropriate disposal of lawn trimmings, yard wastes	The City does not currently have an Applicator's license. The DPW accepts yard waste at its facility, and removes such materials that are identified within the City.	Ongoing
5-3	<b>Development of a maintenance and monitoring plan for open channel component of Town Line Brook</b>	Eng. Dept., DCR Compliance Team	Removal of excess sediment deposits, restoration of flow capacity, structural repairs	Town line Brook is a DCR concrete lined open channel whose conveyance capacity has been significantly reduced due to heavy overgrowth and sediment accumulation. Discussions have been held with elected officials regarding the availability of funds to implement long needed maintenance. However, no sources of funding have been identified. The City, through its DPW and with the assistance of volunteers, participated in a solid waste collection program for the Town Line Brook channel during this permit year.	Assistance needed
5-4	<b>Implementation of recommended maintenance and monitoring plan developed for Spot Pond Brook at Oak Grove.</b>	Eng. dept. DPW and DCR	Implementation of those recommendations contained within engineering study completed by Meridian Associates, Inc.	A corrective action plan has been developed and submitted to DCR. To date no activities on this City authorized initiative have occurred.	Pending Authorization
5-5	<b>Expansion of programs such as the Fellsmere Pond restoration initiative</b>	Mayor's Office Compliance Team DPW	Water quality improvements	The Fellsmere Pond restoration program is continuing, with concurrent benefits readily apparent. Key tasks have included waterfowl population control, pet waste management and the removal of excess/dead vegetation. During this plan year the City, through its DPW, installed and maintains a trash collection boom at the headwaters of the Malden River. ( <i>See Attachment C</i> ). In addition to these programs, the focus of surface water quality efforts is being directed towards the isolation of degraded dry weather flows into culverted surface waters passing beneath developed portions of the City.	Ongoing

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
<b>5-6</b>	<b>Comprehensive catch basin inspection, inventory, maintenance program</b>	Eng. Dept., DPW Compliance Team	Electronic logging of CB locations, documentation of CB construction and functional characteristics, recommendations for improved performance standard compliance at individual locations or tributary segments of the drainage system.	The City has implemented a comprehensive CB inventory and inspection program that is being performed on a daily basis by DPW personnel. Equipped with GIS mapping and electronic file storage capability, compliance team members record attributes such as flow, location of inverts, structure composition, and laterals, date of servicing, workability, and any anomalies that may be present. This information is compiled immediately following CB cleanout to maximize data collection capabilities. Lodgen Court; redesign private flow Davidson Way @ Emerald: Backup and redesign of structures and drainage vessels. Adams Street: Flow restrictions towards Russell Street Culvert. Elm Street at Cedar; re-design of catch basin drainage vessel. Maple @ Cedar; re-design the backflow restriction in manhole. Pearl @ Chester: replace a lateral which was repaired and is to small causing flow restriction.	Achieved and ongoing
<b>5-7</b>	<b>Continue sewer re-lining and connection upgrade program</b>	Eng. Dept., DPW	Reduction in I/I, identification of potential illicit connections, assist in infrastructure needs analysis	During this permit year approximately 21,615 linear feet of sewer mains were relined as a part of the City annual I/I Removal program. The City has also employed the use of its DPW personnel and vactor truck to clean existing sewers.	Annual program

## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
<b>6-1</b>	<b>Regular meetings of Compliance Team to review plan implementation results</b>	Compliance Team	Data evaluation and review, implementation of corrective actions, and prioritization of mitigation measures.	Compliance team members are often in daily contact. Meetings are held typically on a bi-monthly basis. In-situ data collection is performed by trained DPW staff and conveyed to both in-house and contracted engineering services for review and evaluation.	Achieved and ongoing

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goals Yr. 6</b>	<b>Goal Status</b>
6-2	<b>Liaisons to Departments and Boards</b>	Compliance Team Mayor's Office	Communication of plan goals and objectives.	Through the development of ordinances, the City's stormwater management program goals and objectives have been linked to the permitting and approval process. Stormwater issues are now an agenda item addressed during departmental meetings.	Achieved and ongoing
6-3	<b>Annual Compliance review</b>	Compliance Team Mayor's Office	Identification of capital plan improvements, modification of plan and objectives, documentation of plan activity for Annual Report.	Acting upon recommendations from prior project years, the City has purchased GIS mapping and electronic file information equipment, contracted with outside engineering services and assigned staff whose primary charge is to meet the requirement of this plan. One key change in the way capital projects are being prioritized involves the consideration of stormwater quality, as well as conveyance capabilities in the evaluation process. This has been driven in large part by the results of outfall sampling and recognition that surface water quality improvements are a mandate, not an alternative. Key expenditures include: catch basin and man hole replacement by private contractors \$15,000; GIS mapping equipment and training \$25,000; Vactor cleaning truck repairs \$1,200; dewatering pumps \$1,500; Install and maintain trash boom for Malden River; Contracted Engineering/Technical support services for plan review and implementation.	Annual and ongoing.

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goals Yr. 6	Goal Status

**7a. WLA Assessment**

#### **Part IV. Summary of Information Collected and Analyzed**

The City has initiated an aggressive and comprehensive electronic mapping and data storage program, during this permit year, which involves extensive documentation on a scale that exceeded the constraints of this summary format. The following serves as an outline of the types of information that is being evaluated at this time.

- a) Dry and wet weather sampling water quality data
- b) All City and MWRA sewer plans
- c) City master drainage plan and subcomponent field verified infrastructure elements
- d) Federal State and workshop guidance pertaining to local ordinances for the regulation and monitoring of stormwater management practices.
- e) Public outreach documentation and technical updates
- f) City of Malden's Assessors maps and record information
- g) Massachusetts GIS database
- h) Aerial photo and historic land use information
- i) Preparation of a comprehensive IDDE plan for review and comment by USEPA
- j) DCR record information, to the extent such documentation is available. The City has requested file information from DCR
- k) Surface water quality information obtained by citizen advisory groups and private contractors

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

**Programmatic**

Stormwater management position created/staffed		Compliance Team Established
Annual program budget/expenditures	(\$)	\$212,500

**Education, Involvement, and Training**

Estimated number of residents reached by education program(s)	(# or %)	60%
Stormwater management committee established	(y/n)	Yes
Stream teams established or supported	(# or y/n)	Yes
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	No
Household Paint Waste Collection Days		
▪ days sponsored	(#)	4 day
▪ community participation	(%)	33%
▪ material collected	(\$)	\$10,250.00
School curricula implemented	(y/n)	Yes

**Legal/Regulatory**

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination			X	
▪ Erosion & Sediment Control			X	
▪ Post-Development Stormwater Management			X	
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination			X	
▪ Erosion & Sediment Control			X	
▪ Post-Development Stormwater Management			X	

### Mapping and Illicit Discharges

Outfall mapping complete	(%) 100	All known-100%
Estimated or actual number of outfalls	(#) *	39
System-Wide mapping complete	(%) 100	100%
Mapping method(s)		
▪ Paper/Mylar	(%)	100%
▪ CADD	(%)	100%
▪ GIS	(%)	60%
Outfalls inspected/screened	(# or %)	80%
Illicit discharges identified	(#)	2 (a) grey water est. 100 gal/day (b) Sanitary est. 30-40 gal/day
Illicit connections removed	(#) (est. gpd)	2
% of population on sewer	(%)	100%
% of population on septic systems	(%)	N/A

### Construction

Number of construction starts (>1-acre)	(#)	1
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	100%
Site inspections completed	(# or %)	100%
Tickets/Stop work orders issued	(# or %)	N/A
Fines collected	(# and \$)	N/A
Complaints/concerns received from public	(#)	N/A

### Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	100%
Site inspections completed	(# or %)	90%
Estimated volume of stormwater recharged	(gpy)	Estimated 75%

### Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	5 days a week
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	5 days a week
Total number of structures cleaned	(#) approx.	750
Storm drain cleaned	(LF or mi.)	1,100 LF
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	660 tons
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)	To go to	Haverhill LF
Cost of screenings disposal	(\$)	18 / ton \$12,000

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	6 days a week
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	6 days a week
Qty. of sand/debris collected by sweeping	(lbs. or tons)	450-500 ton
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	To go to	Endcap
Cost of sweepings disposal	(\$)	\$18
Vacuum street sweepers purchased/leased	(#)	None
Vacuum street sweepers specified in contracts	(y/n)	None

Reduction in application on public land of: (“N/A” = never used; “100%” = elimination)		
▪ Fertilizers (State regulations require applicators license which City does not currently have)	(lbs. or %)	100%
▪ Herbicides	(lbs. or %)	None
▪ Pesticides	(lbs. or %)	None

Anti-/De-Icing products and ratios Salt 100 % - Sand 2 % - CaCl <sub>2</sub> 100 gals/ 30 tons	% NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % CMA % Kac % KCl % Sand	(100%-5000 gallon tank)      25%
Pre-wetting techniques utilized	(y/n)	Yes
Manual control spreaders used	(y/n)	No
Automatic or Zero-velocity spreaders used	(y/n)	Yes
Estimated net reduction in typical year salt application	(lbs. or %)	15%

Salt pile(s) covered in storage shed(s) Note: Salt Pile covered; not in shed	(y/n)	Yes-See Note
Storage shed(s) in design or under construction	(y/n)	No

ATTACHMENT A

# QUESTIONS & ANSWERS ABOUT SEWER OVERFLOWS & BLOCKAGES IN YOUR NEIGHBORHOOD



An informational pamphlet prepared by the Malden Water & Sewer Department

## Overflows

### What is a sewer overflow?

During very wet weather, the main sewer pipes in certain neighborhoods served by the Malden Sewer System may be subject to overflow. This means that the sewer becomes overloaded from the infiltration of clean water from storm sewers, groundwater, roof downspouts, and sump pumps connected to lines that were designed exclusively for sanitary sewage.

### What can I do to help alleviate an overflow?

The key to overflow protection is disconnection! If you have a sump pump or foundation drain connected to the sanitary sewer system, you are contributing to the sewer overflow problem. If the groundwater in your basement is being pumped or drained into the sanitary sewer system via a sink/set tub you're contributing to the problem. If it is going outside of your house via a discharge hose through a basement window or hole in your foundation, then you're doing your part to help alleviate the sewer overflow. If you are not sure you should call the Malden Water and Sewer Department at 781-397-7164 to schedule an inspection.

### **THIS IS AN IMPORTANT NOTICE. PLEASE HAVE IT TRANSLATED.**

Este aviso é importante. Por favor mande traduzir. Este es un aviso importante. Por favor haga lo traducir. Ceci est important. Veuillez faire traduire.

本通知很重要。請將翻譯成中文。 Đây là một bản thông cáo quan trọng. Xin vui lòng cho dịch lại thông cáo ấy.

## Blockages

Blocked sewers can occur anywhere in the City's service area regardless of weather conditions.

While a backup from a blockage is as unpleasant to deal with as a sewer overflow, quick and proper action can minimize damage and inconvenience.

### What do I do if sewage backs up in my home?

If sewage backs up in a basement fixture or toilet, and you believe it's the result of a problem outside your house, call the Malden Water & Sewer Department at 781-397-7164, Monday through Friday, 7 a.m. to 8 p.m. After normal business hours and on weekends and holidays, call the Malden Fire Department at 781-397-7388. **DO NOT CALL 911**

### Why should I call the Malden Water & Sewer Department first?

The Department will send someone to your home to check the main sewer (large pipe in the middle of the street) for a blockage. If the main is blocked, the Department will clear it at no cost to you. If you call a plumber first, the plumber's fee will be your responsibility even if the blockage is in the main sewer.

### What if the cause of the back-up is not in the main sewer?

If the cause of the backup is somewhere in the line that runs from your house to the main sewer, it is the property owner's responsibility to hire a sewer/drain cleaner or a licensed plumber to clear the blockage at the owner's expense.

### Are there devices that can help prevent sewer backups into my basement during a backup or overflow situation?

Yes. A back-flow preventer is a device consisting of a flapper that allows sewage or drainage water to flow only in one direction--away from your house. The valve, which should be installed by a licensed plumber, is especially important when plumbing fixtures are below grade and for anyone living near low, wet areas that are subject to overflows.

**In keeping with city ordinances, residents are asked to report sewer overflows & blockages to the city.  
Download the form from the City's web site.**

**For More Information, Call the Malden Water & Sewer Department at 781-397-7164 or visit [www.cityofmalden.org](http://www.cityofmalden.org)**

356 Commercial Street  
Malden, Massachusetts 02148

# City of Malden Massachusetts



FAX 781-397-7372

DEPARTMENT OF PUBLIC WORKS

TELEPHONE 781-397-7160

## PAINT RECYCLING DAY FOR MALDEN RESIDENTS

In an effort to reduce environmental contamination and potential health problems for our community the residents of Malden are encouraged to participate in a Paint Recycling Day on **Saturday, June 27, 2009**.

For more information please call the Malden Department of Public Works at 781-397-7160.

### What Can I Bring??

Latex & Oil Paint  
Acrylic Paint  
Stains & Varnishes

### Saturday, June 27, 2009

9:00AM – 1:00PM  
DPW/City Yards  
356 Commercial Street  
Malden, MA 02148

### COST

\$10.00 1-5 gallons  
\$15.00 6-10 gallons  
\$20.00 11-15 gallons  
\$25.00 16-20 gallons

\$3.00 per gallon after 20 gallons

356 Commercial Street  
Malden, Massachusetts 02148

# City of Malden Massachusetts



FAX 781-397-7372

DEPARTMENT OF PUBLIC WORKS

TELEPHONE 781-397-7180

On Saturday, June 27, 2009 the Department of Public Works will be having a recycling day for tires, cathode ray tubes (CRTs - televisions, computer monitors, car batteries, motor oil and filters. Residents of Malden will be able to bring the recycled items to the Department of Public Works, 356 Commercial Street, Malden, MA between the hours of 9:00AM to 2:00PM. We will also accept used electronic equipment (VCR's, tape decks, radio's). The following is the price schedule for recycling:

\$2.00 Car Tire	\$20.00 Truck Tire	\$5.00 CRTs/Televisions
\$1.00 Batteries	\$1.00 per gallon of Motor Oil (No antifreeze or transmission fluid)	
\$2.50 Used Oil Filter		

**Mercury items: (Free of charge)**

Fluorescent Light Bulbs	Thermometers (exchanged for a new one)
Mercury Switches	Thermostats
Button Batteries (Used in hearing aides, watches)	Elemental Mercury

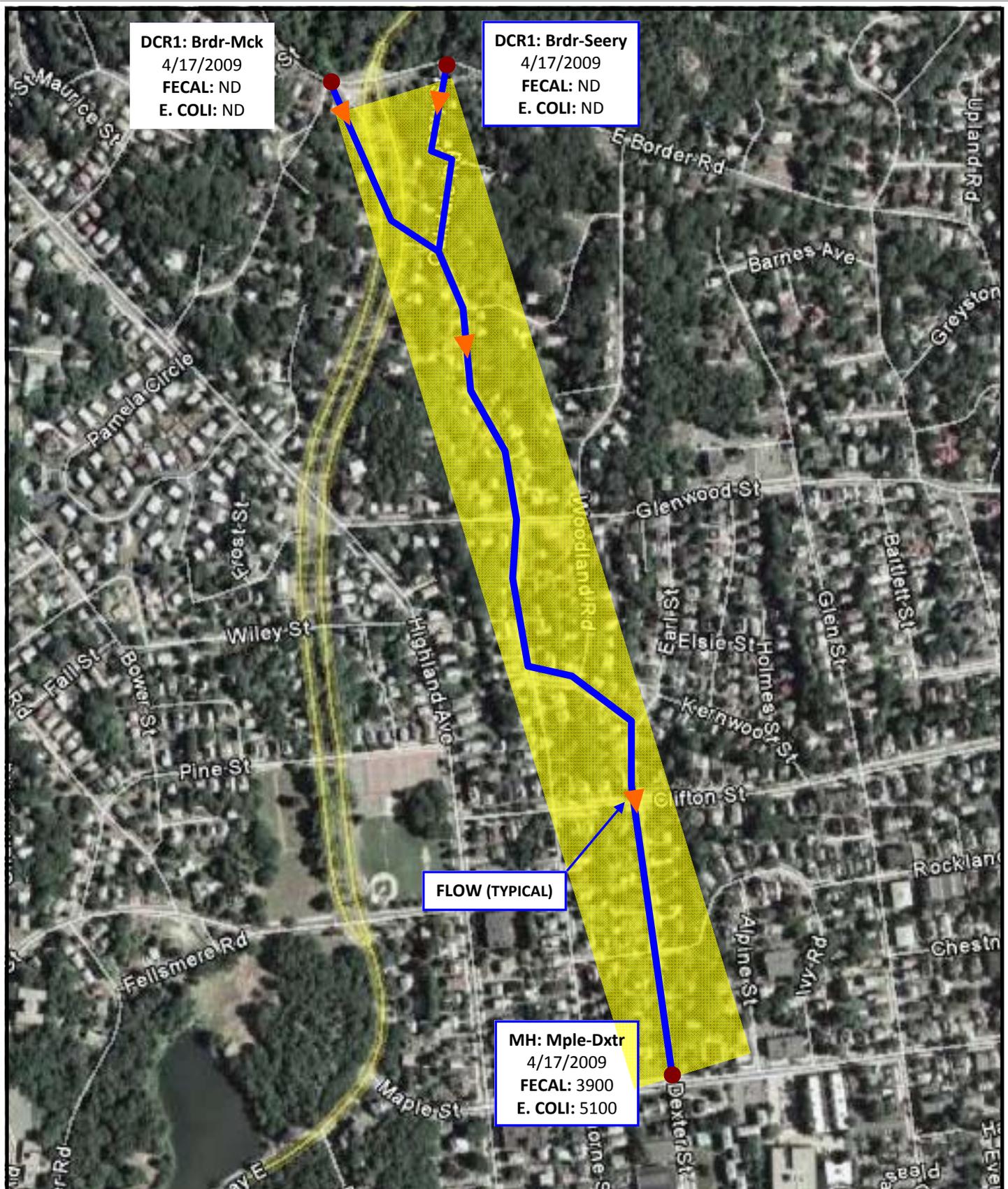
The City of Malden **WILL NOT ACCEPT** the following:

Antifreeze, Household Hazardous Material, Cleaning Chemicals or other Hazardous Materials.

**ATTACHMENT B**

ATTACHMENT B

CITY OF MALDEN  
ISOLATION AND STORMWATER ANALYSIS PROGRAM



**DCR1: Brdr-Mck**  
 4/17/2009  
 FECAL: ND  
 E. COLI: ND

**DCR1: Brdr-Seery**  
 4/17/2009  
 FECAL: ND  
 E. COLI: ND

**FLOW (TYPICAL)**

**MH: Mple-Dxtr**  
 4/17/2009  
 FECAL: 3900  
 E. COLI: 5100

**CITY OF MALDEN: NORTHWESTERN SUB-BASIN  
 MALDEN/MELROSE TOWN LINE TO MALDEN RIVER  
 FLOW ISOLATION PROGRAM**

REFERENCE: Live Search Maps  
 -2009

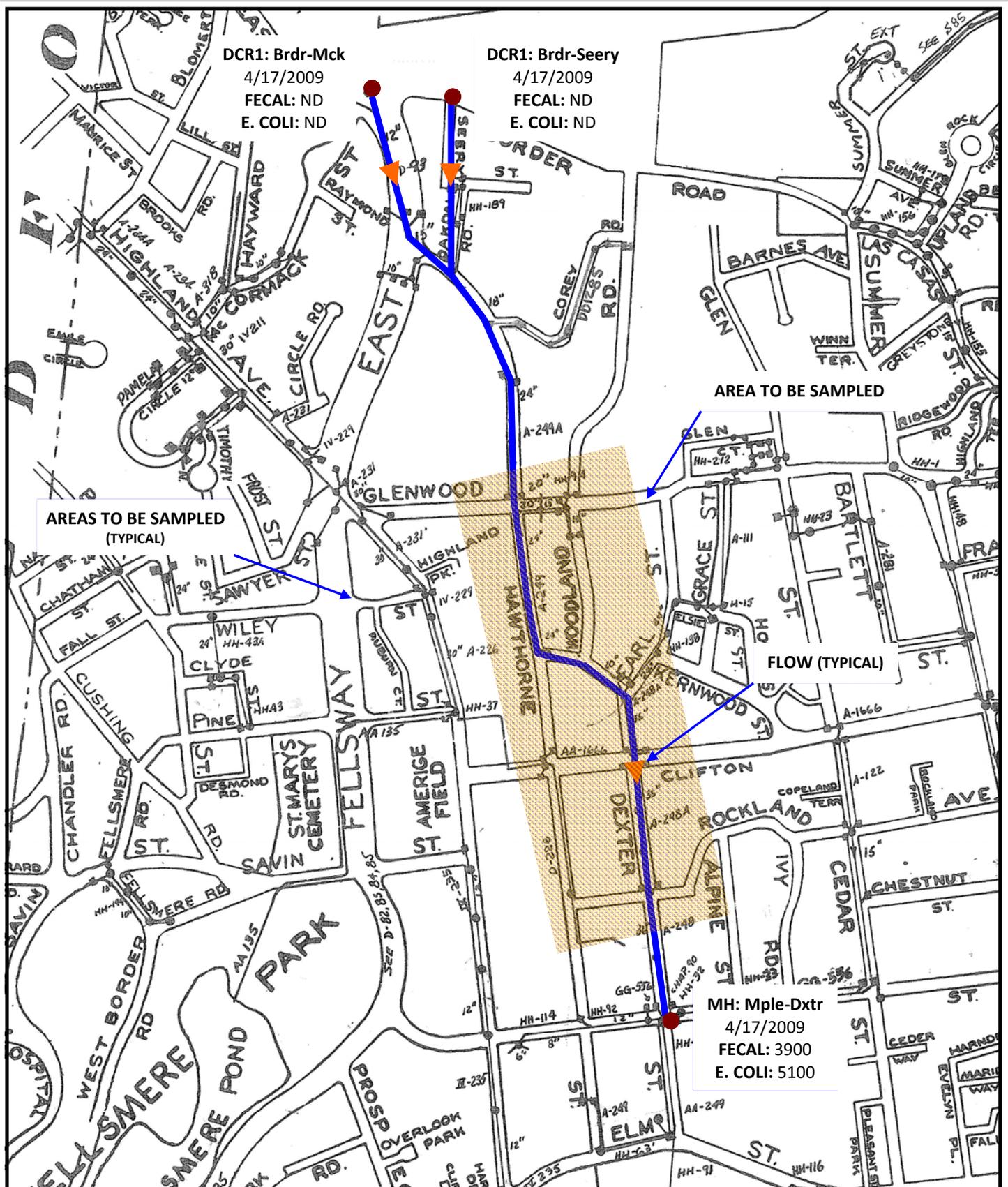
Date: Apr 2009



Figure

Job No: 465.01

**1**



AREAS TO BE SAMPLED  
(TYPICAL)

AREA TO BE SAMPLED

FLOW (TYPICAL)

MH: Mple-Dxtr  
4/17/2009  
FECAL: 3900  
E. COLI: 5100

CITY OF MALDEN: NORTHWESTERN SUB-BASIN  
MALDEN/MELROSE TOWN LINE TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

REFERENCE: City of Malden  
Drain Plan-1979

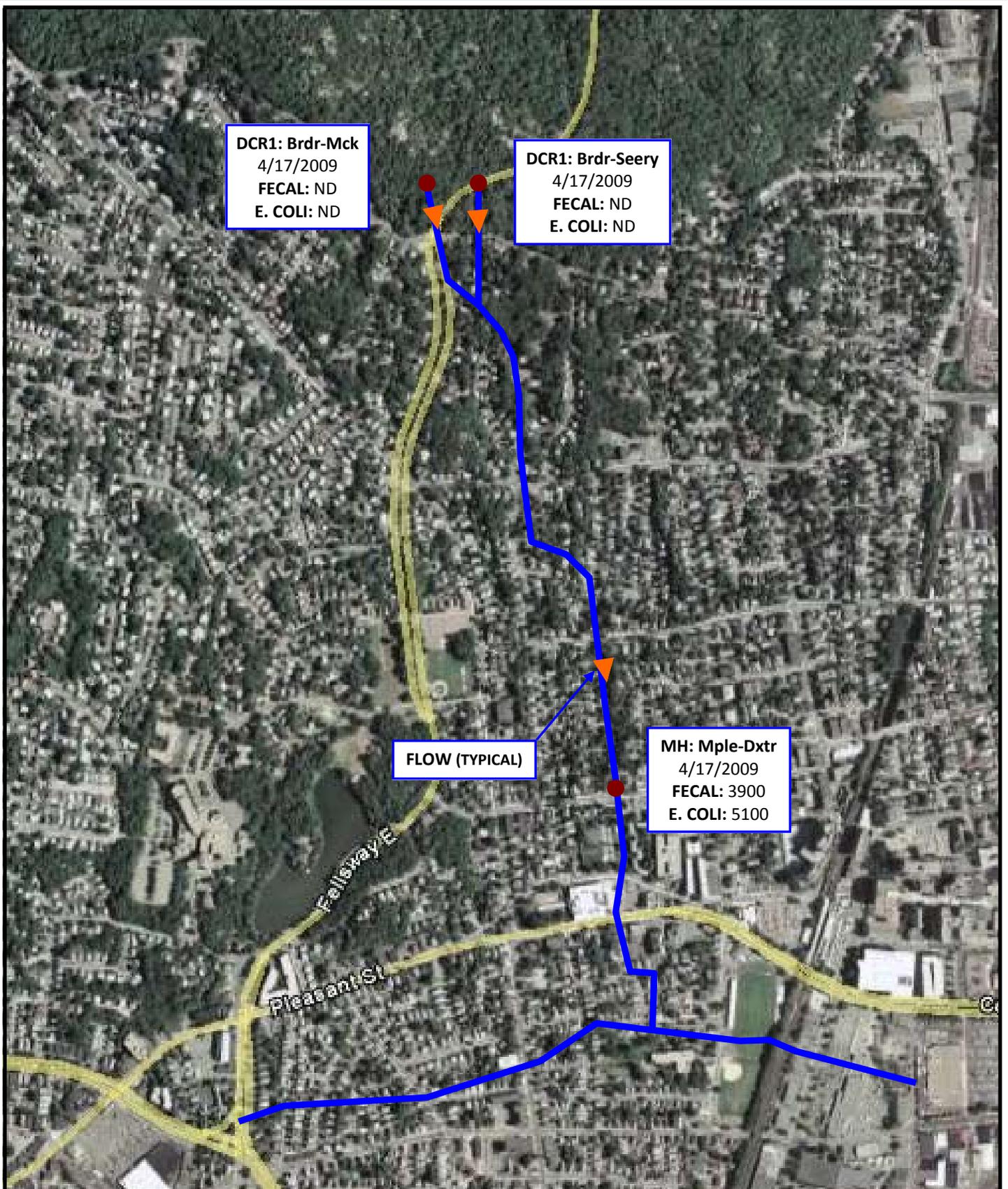
Date: Apr 2009

Figure

Job No: 465.01



2



CITY OF MALDEN: NORTHWESTERN SUB-BASIN  
MALDEN/MELROSE TOWN LINE TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

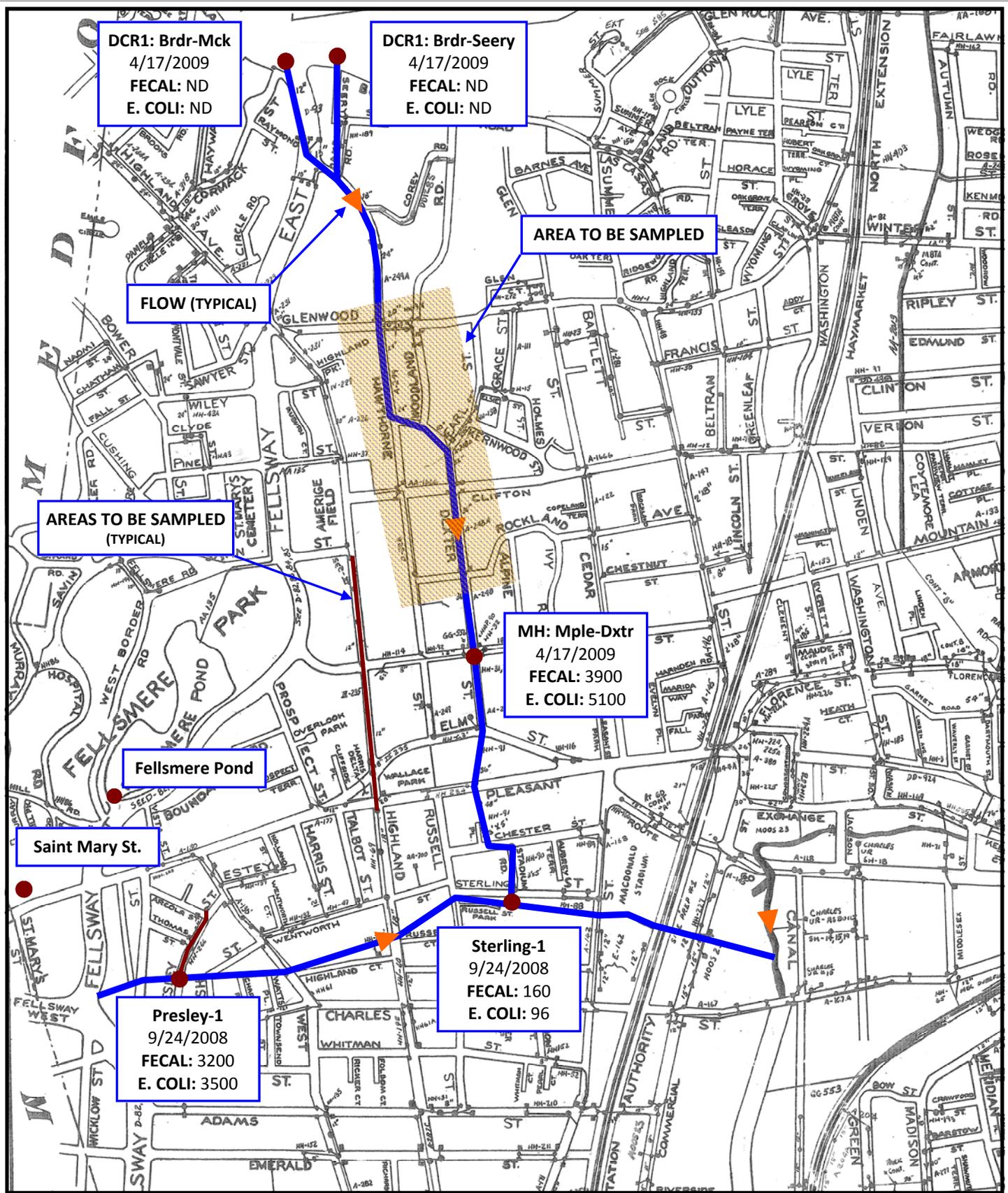
REFERENCE: Live Search Maps  
-2009

Date: Apr 2009

Figure



3



CITY OF MALDEN: NORTHWESTERN SUB-BASIN  
MALDEN/MELROSE TOWN LINE TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

REFERENCE: City of Malden  
Drain Plan-1979

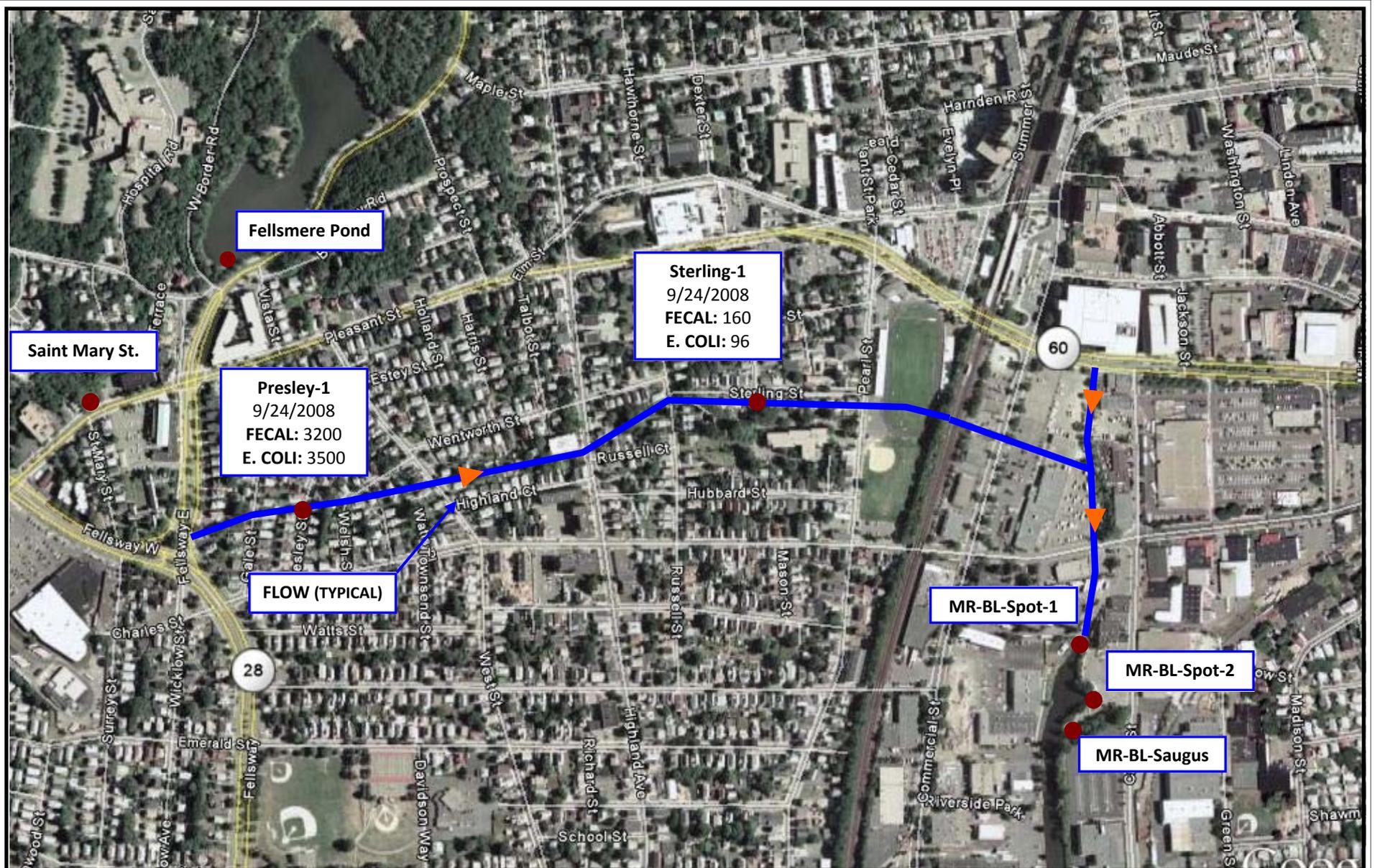
Date: Apr 2009

Figure

Job No: 465.01



4



CITY OF MALDEN: WEST END CULVERT SUB-BASIN  
TO MALDEN RIVER

REFERENCE: Google Earth

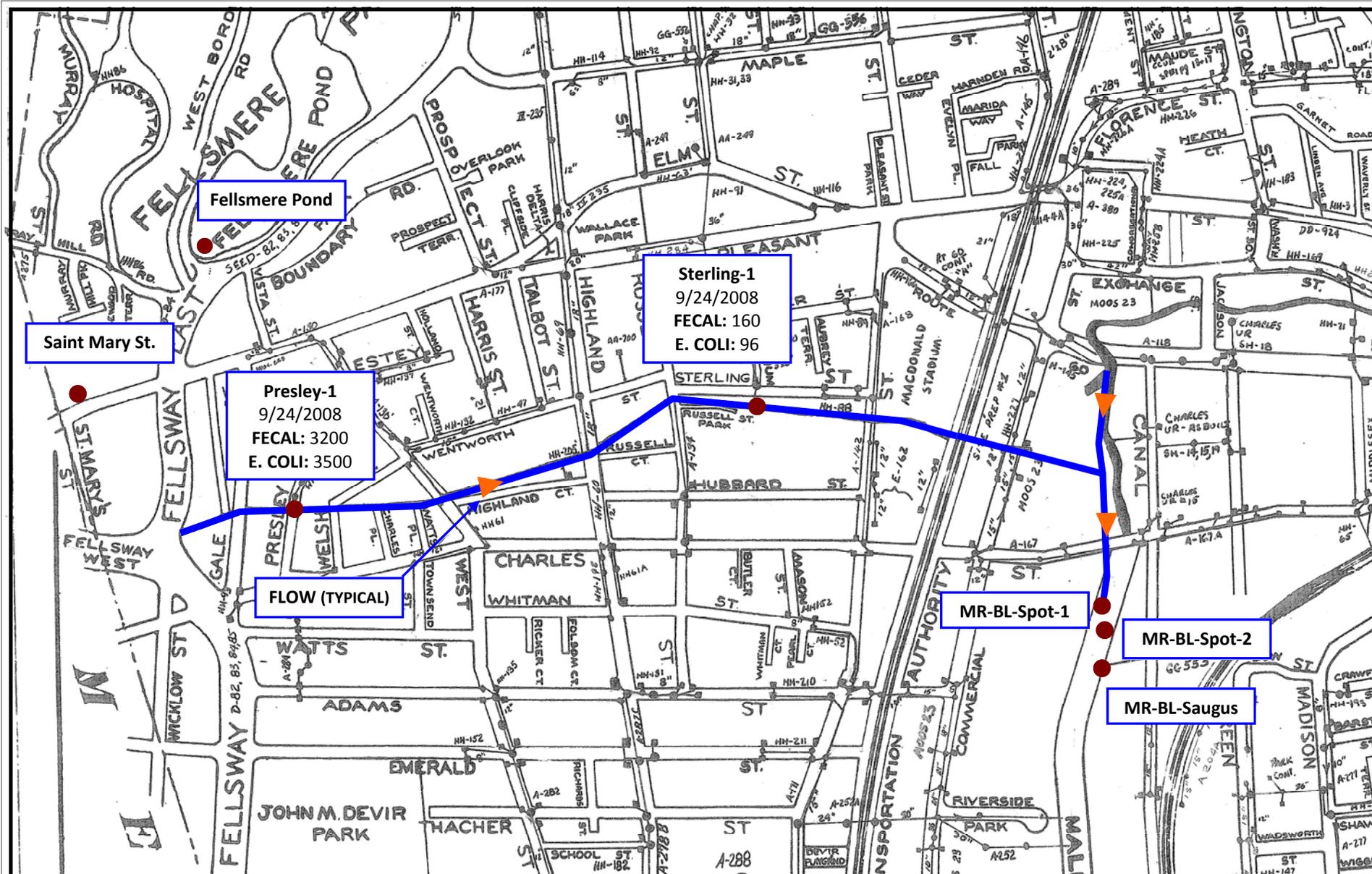
Date: APRIL 2009



Figure

Job No: 465.01

5



CITY OF MALDEN: WEST END CULVERT SUB-BASIN  
TO MALDEN RIVER

REFERENCE: City of Malden  
Drain Plan-1979

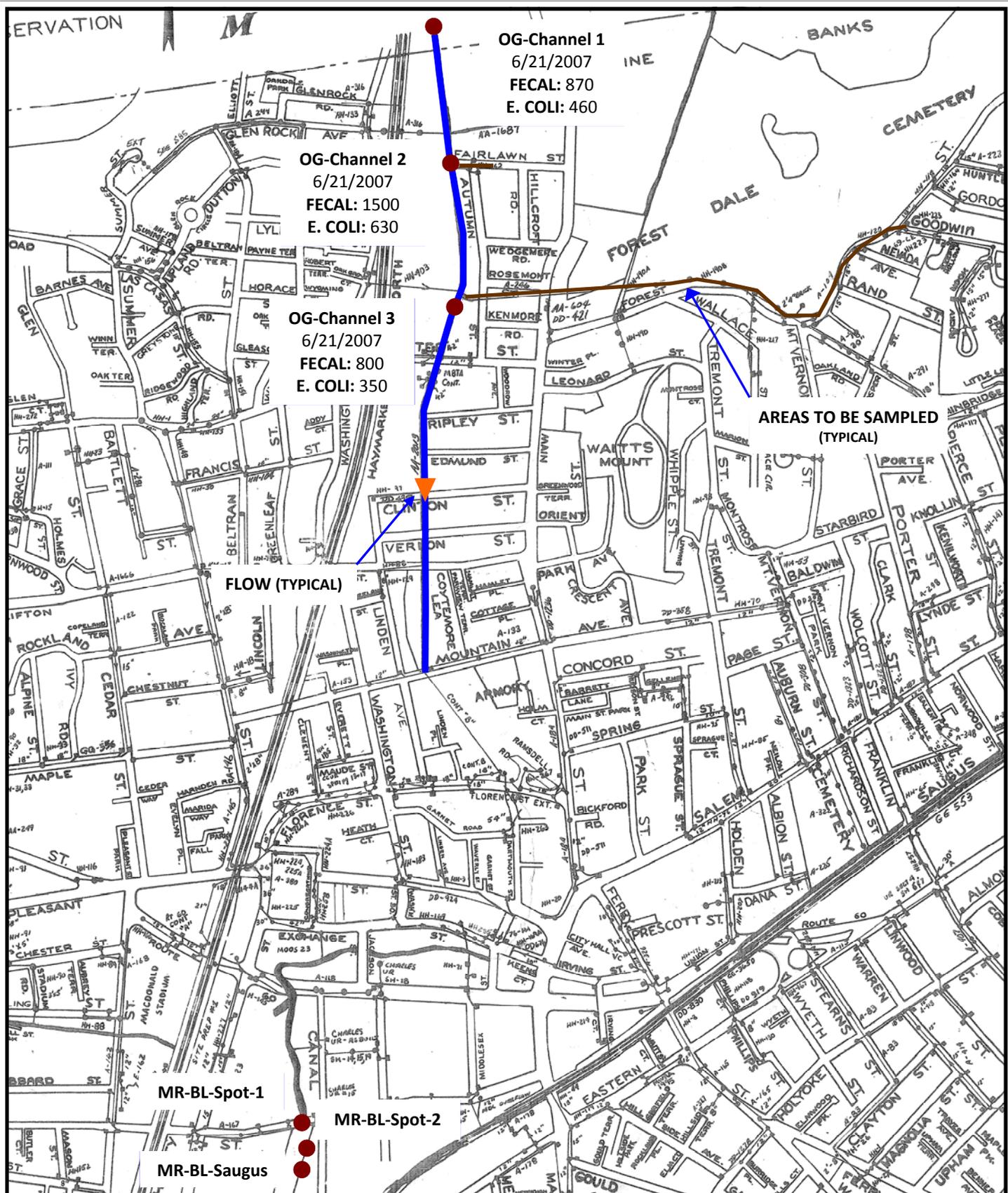
Date: APRIL 2009



Figure

Job No: 465.01

6



CITY OF MALDEN: SPOT POND BROOK AT OAK GROVE  
TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

REFERENCE: City of Malden  
Drain Plan-1979

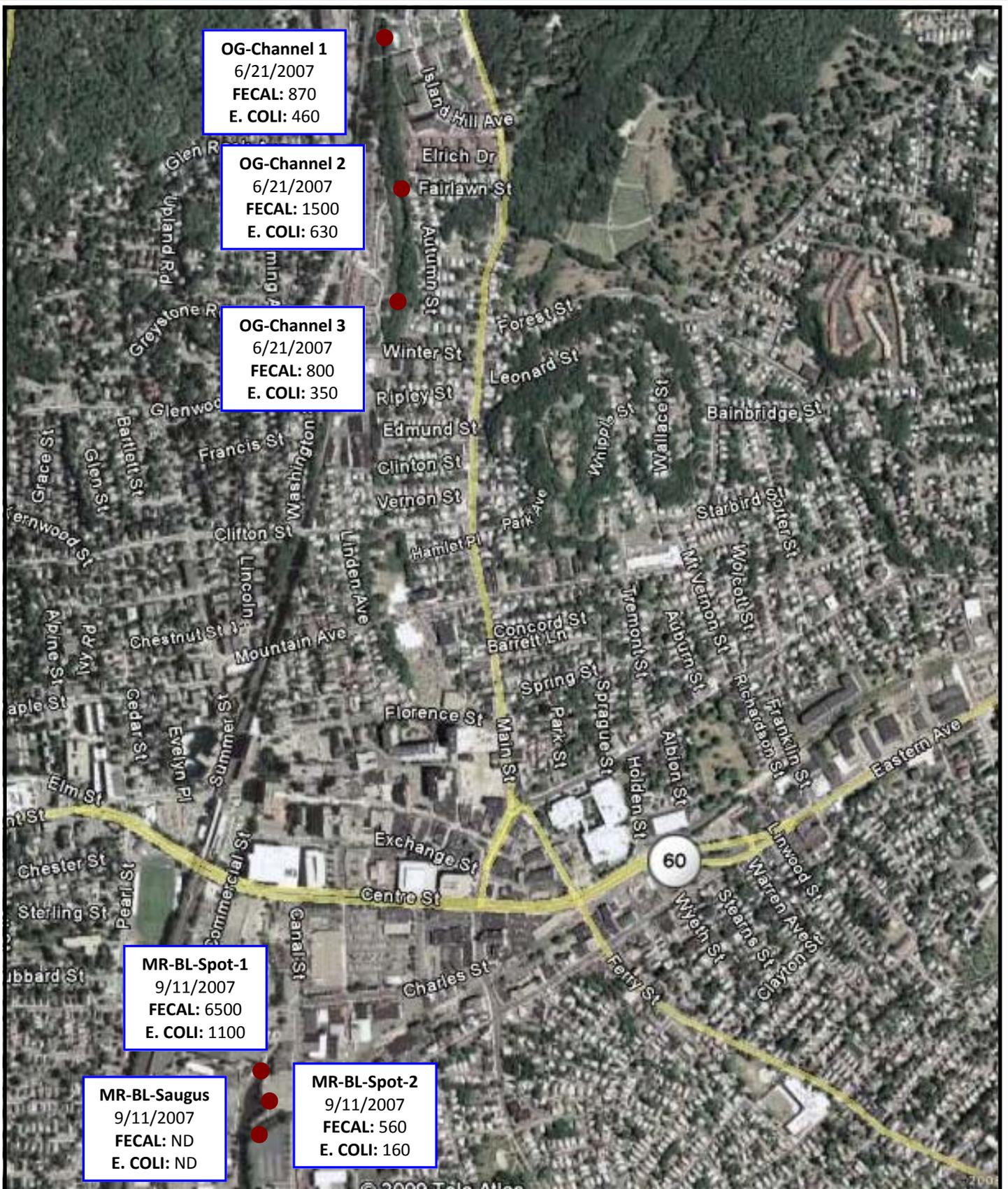
Date: Apr 2009



Figure

Job No: 465.01

7



**OG-Channel 1**  
 6/21/2007  
 FECAL: 870  
 E. COLI: 460

**OG-Channel 2**  
 6/21/2007  
 FECAL: 1500  
 E. COLI: 630

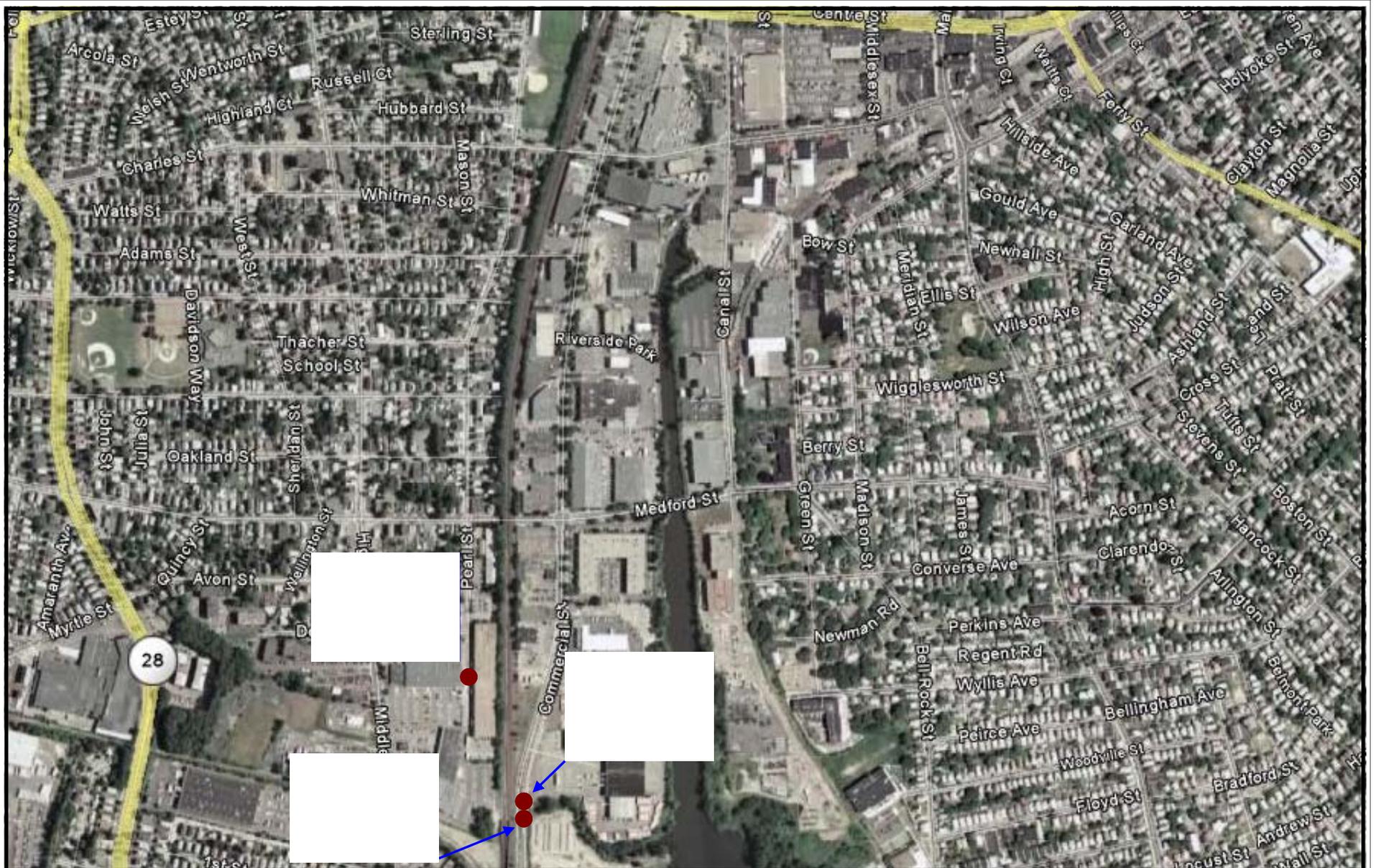
**OG-Channel 3**  
 6/21/2007  
 FECAL: 800  
 E. COLI: 350

**MR-BL-Spot-1**  
 9/11/2007  
 FECAL: 6500  
 E. COLI: 1100

**MR-BL-Saugus**  
 9/11/2007  
 FECAL: ND  
 E. COLI: ND

**MR-BL-Spot-2**  
 9/11/2007  
 FECAL: 560  
 E. COLI: 160

<b>CITY OF MALDEN: SPOT POND BROOK AT OAK GROVE          TO MALDEN RIVER          FLOW ISOLATION PROGRAM</b>		REFERENCE: Google Earth	
<b>NCA</b> Nangle Consulting Associates, Inc. 960 Turnpike Street Canton, Massachusetts		Date: Apr 2009	Figure <b>8</b>
		Job No: 465.01	



CITY OF MALDEN: LITTLE CREEK TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

Goggle Earth-2009

Date: APRIL 2009



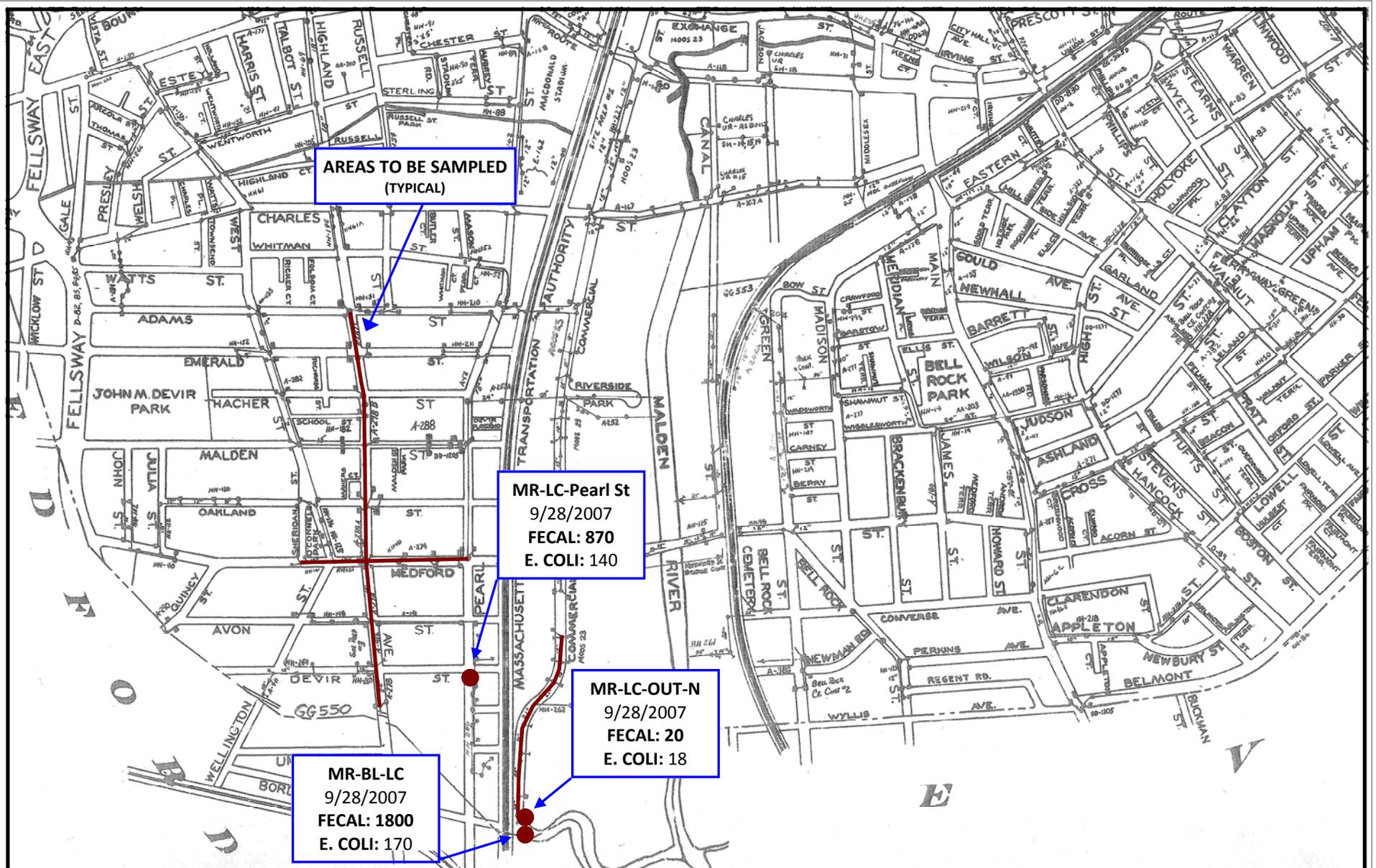
Figure

Job No: 465.01

9

NCA

Nangle Consulting Associates, Inc. 960 Turnpike Street Canton, Massachusetts



CITY OF MALDEN: LITTLE CREEK TO MALDEN RIVER  
FLOW ISOLATION PROGRAM

REFERENCE: City of Malden  
Drain Plan-1979

Date: APRIL 2009



Figure

Job No: 465.01

10



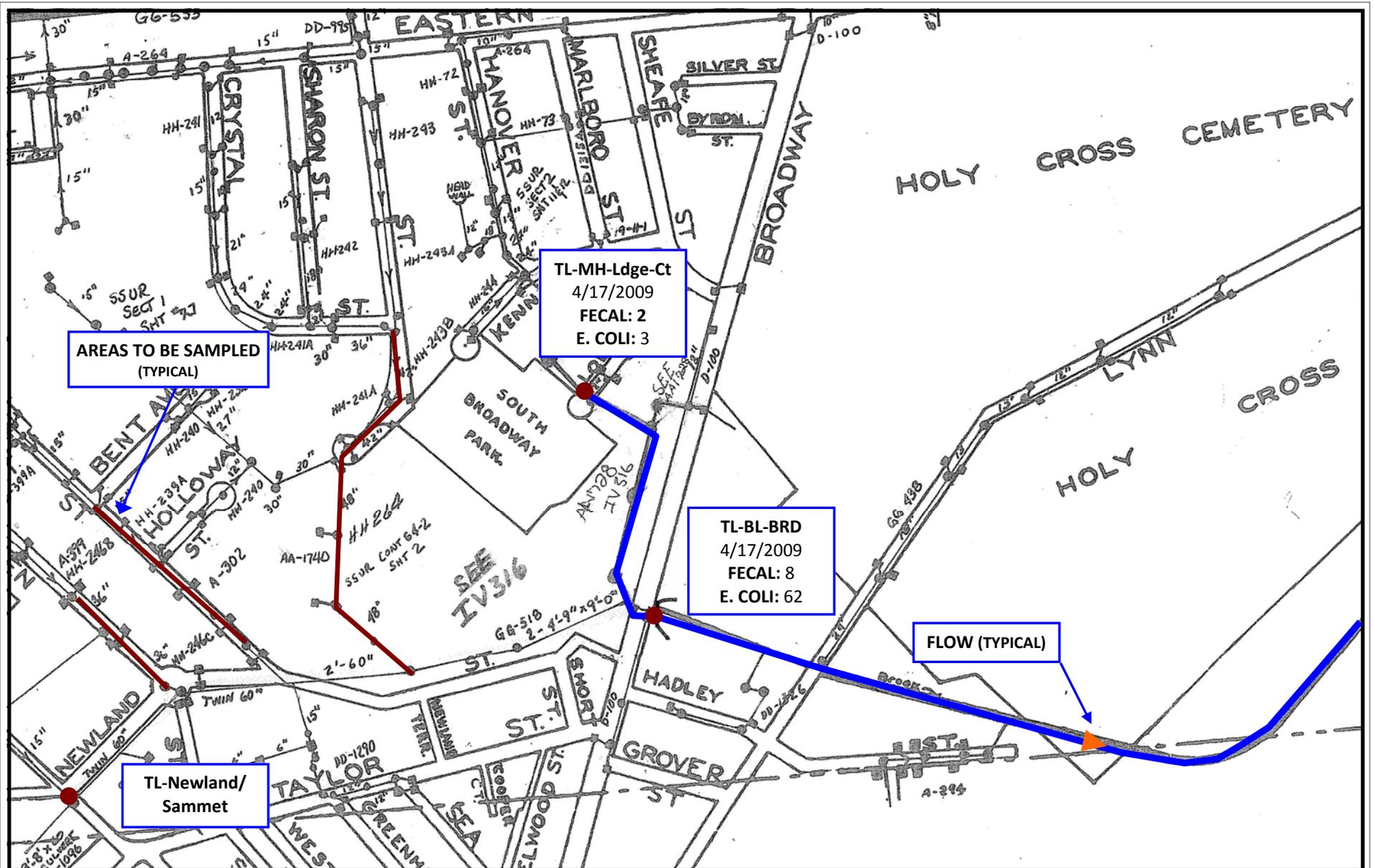
TL-MH-Ldge-Ct  
 4/17/2009  
 FECAL: 2  
 E. COLI: 3

TL-BL-BRD  
 4/17/2009  
 FECAL: 8  
 E. COLI: 62

FLOW (TYPICAL)

**CITY OF MALDEN: TOWN LINE BROOK SUB-BASIN  
 FLOW ISOLATION PROGRAM**

REFERENCE: City of Malden Drain Plan-1979



CITY OF MALDEN: TOWN LINE BROOK SUB-BASIN  
FLOW ISOLATION PROGRAM

REFERENCE: Google Earth

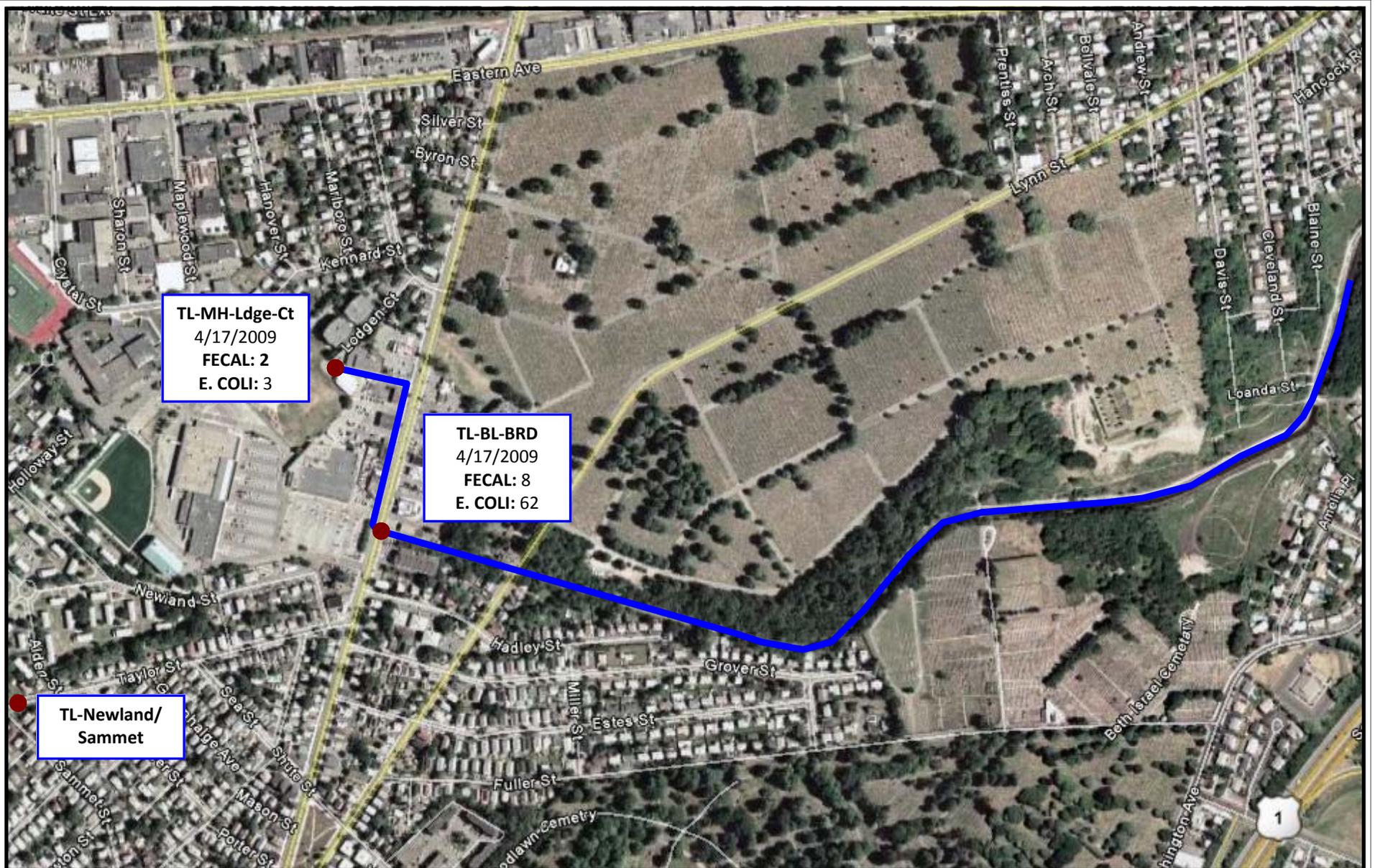
Date: APRIL 2009



Figure

Job No: 465.01

12



CITY OF MALDEN: TOWN LINE BROOK SUB-BASIN  
FLOW ISOLATION PROGRAM

REFERENCE: Google Earth

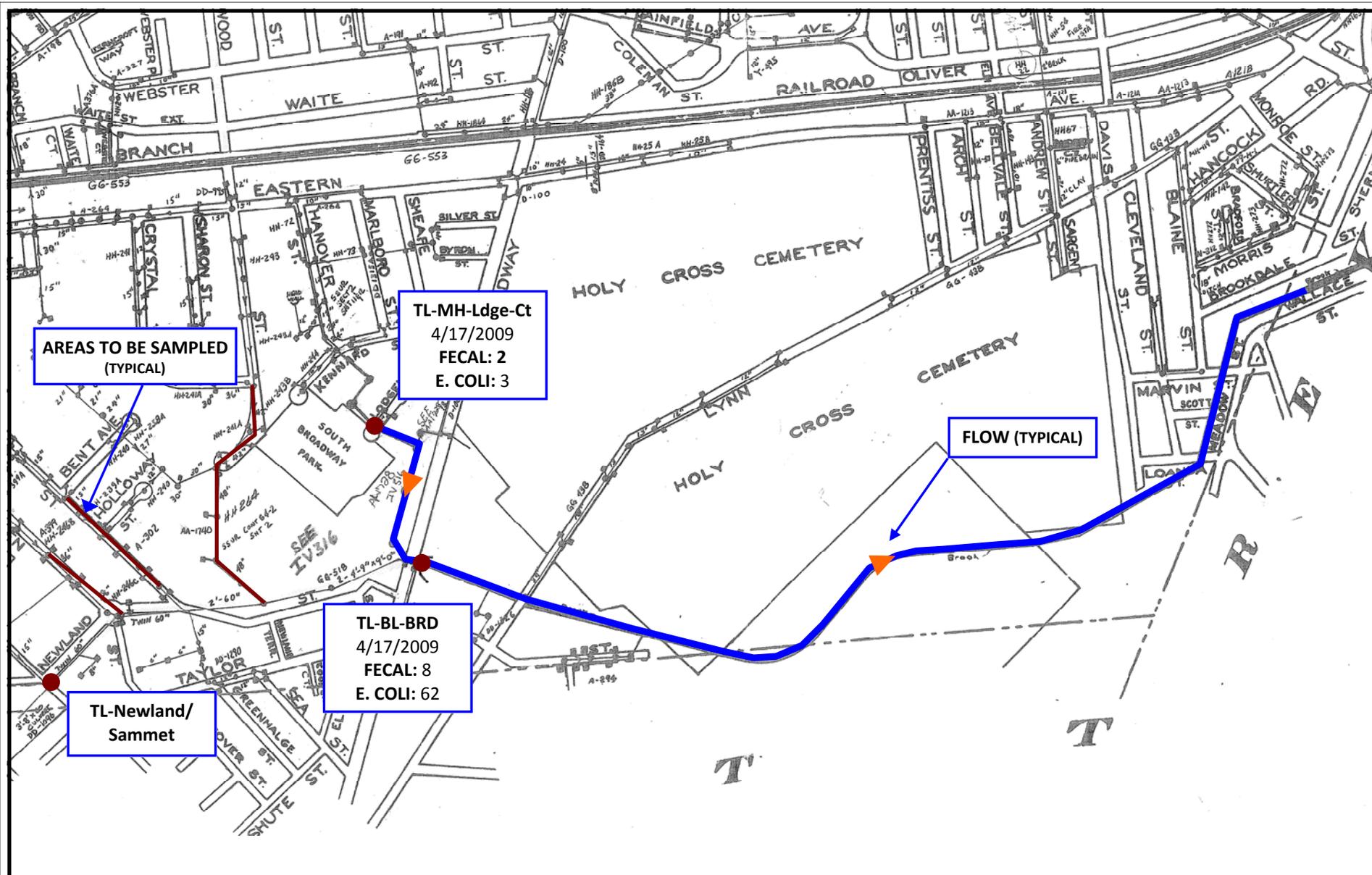
Date: APRIL 2009



Figure

Job No: 465.01

13



CITY OF MALDEN: TOWN LINE BROOK SUB-BASIN  
FLOW ISOLATION PROGRAM

REFERENCE: Google Earth

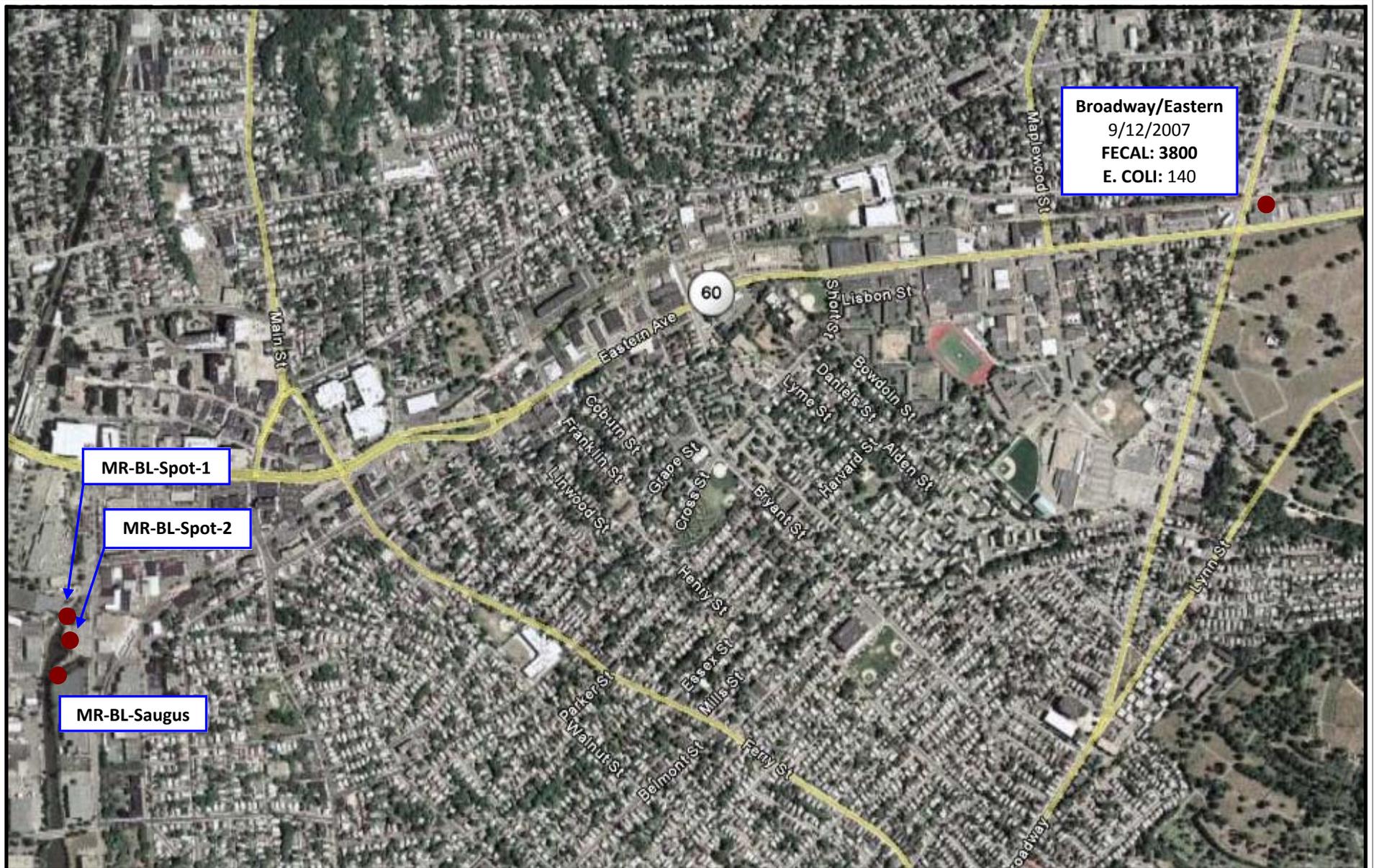
Date: APRIL 2009



Figure

Job No: 465.01

14



**Broadway/Eastern**  
 9/12/2007  
**FECAL: 3800**  
**E. COLI: 140**

**MR-BL-Spot-1**

**MR-BL-Spot-2**

**MR-BL-Saugus**

**CITY OF MALDEN: SAUGUS BRANCH SUB-BASIN  
 FLOW ISOLATION PROGRAM**

REFERENCE: Google Earth

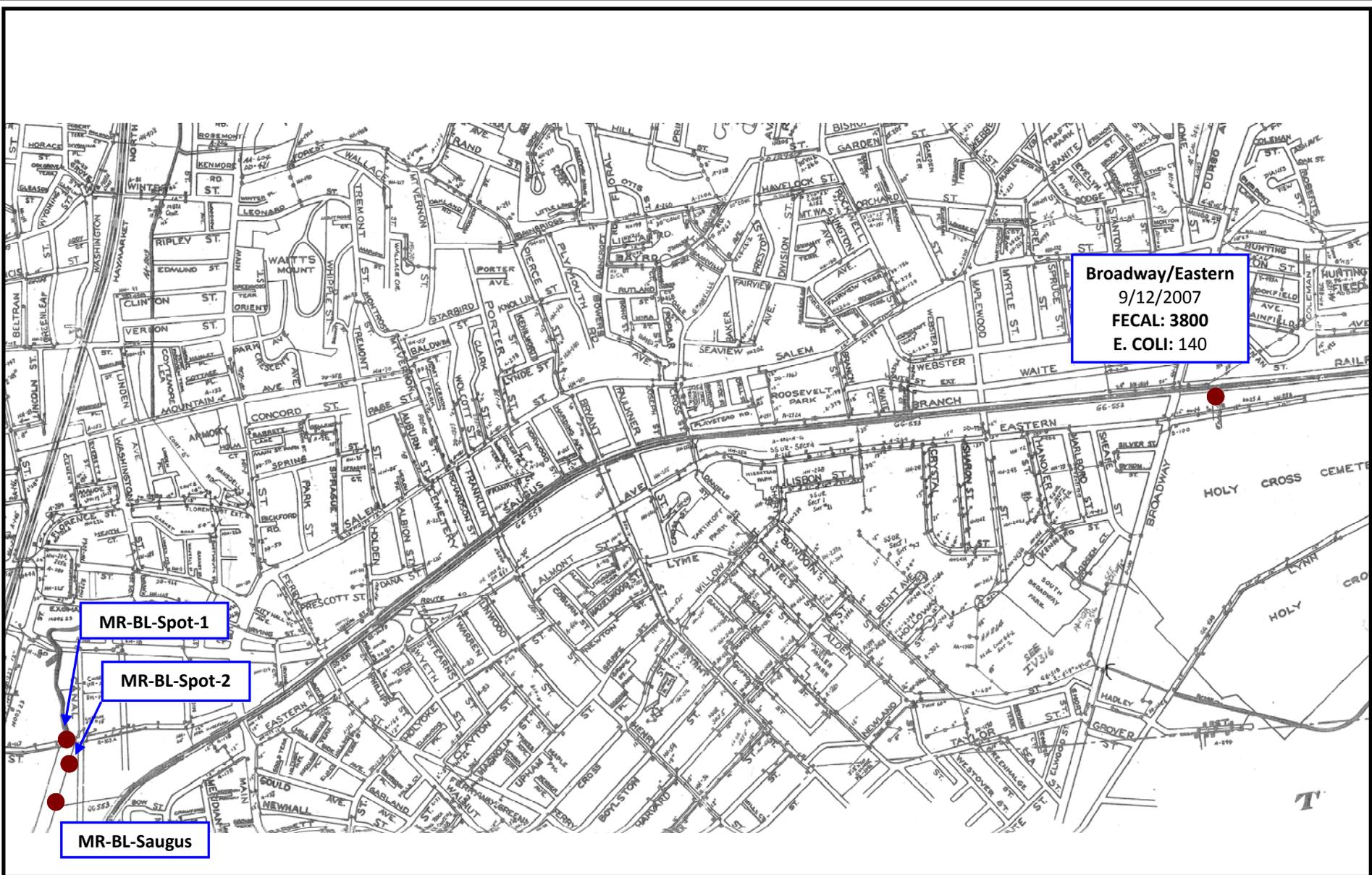
Date: APRIL 2009

Job No: 465.01



Figure

15



CITY OF MALDEN: SAUGUS BRANCH SUB-BASIN  
FLOW ISOLATION PROGRAM

REFERENCE: City of Malden Drain  
Plan-1979

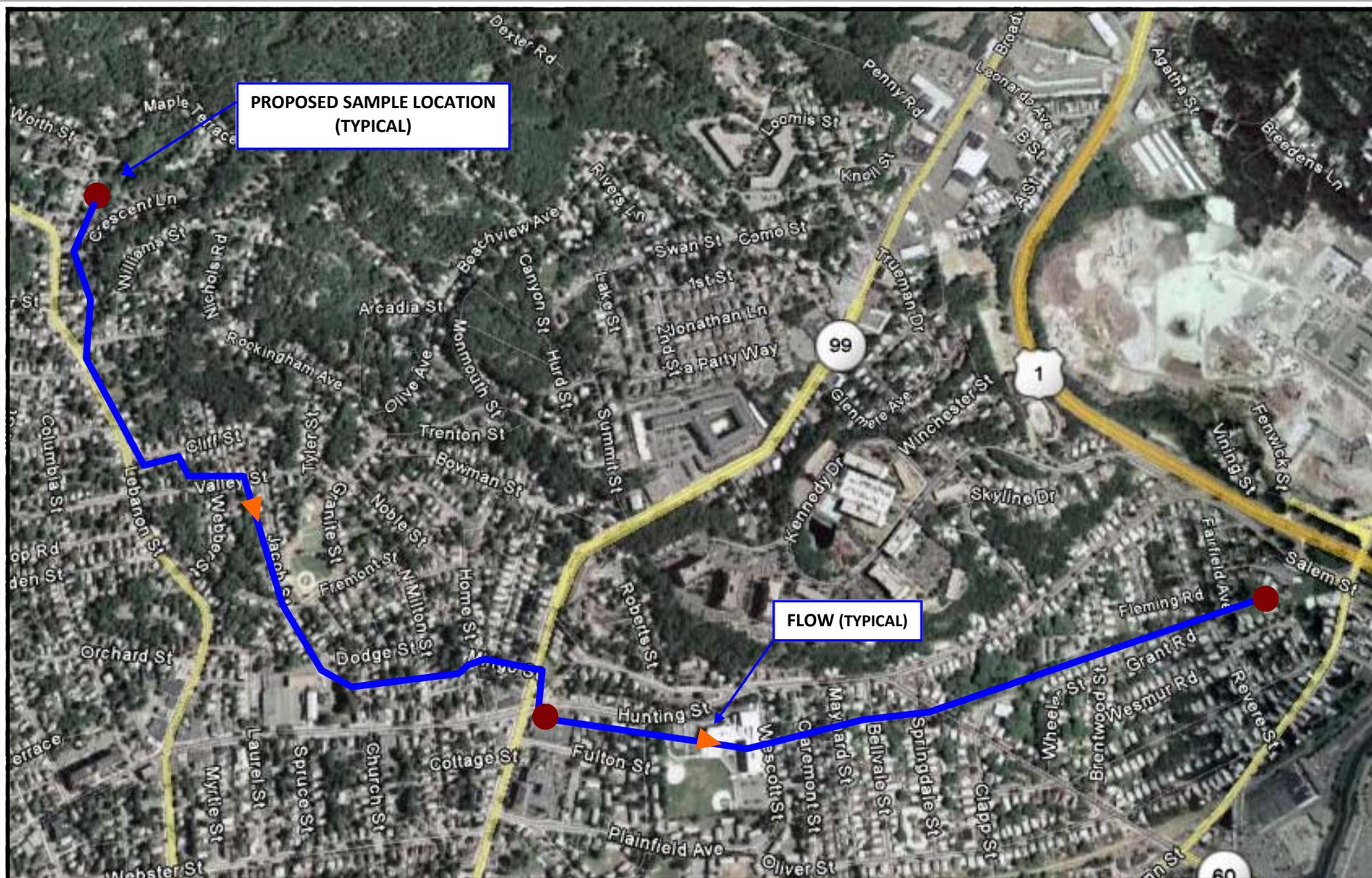
Date: APRIL 2009



Figure

Job No: 465.01

16



CITY OF MALDEN: LINDEN BROOK DRAINAGE  
 PROPOSED SAMPLE LOCATIONS  
 FLOW ISOLATION PROGRAM

REFERENCE: Google Earth

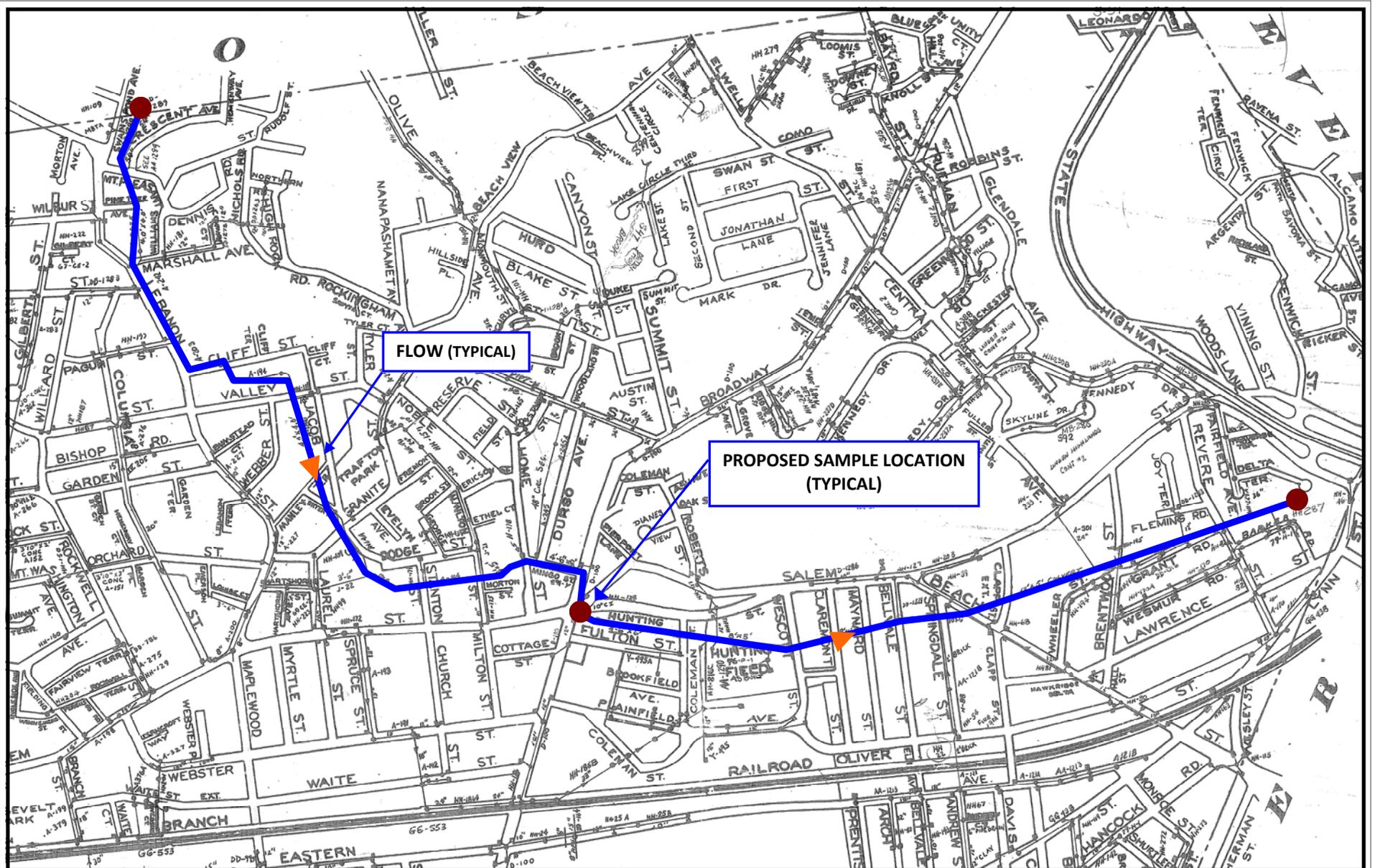
Date: APRIL 2009



Figure

Job No: 465.01

17



FLOW (TYPICAL)

PROPOSED SAMPLE LOCATION (TYPICAL)

CITY OF MALDEN: LINDEN BROOK DRAINAGE  
 PROPOSED SAMPLE LOCATIONS  
 FLOW ISOLATION PROGRAM

REFERENCE: Google Earth

Date: APRIL 2009



Figure

Job No: 465.01

18

ATTACHMENT C

**City of Malden  
Highway Department DPW  
Storm Water Management**

**To: Mr. Jeffrey Manship**

**From: Mr. John DeSantis**

**Date: 04/2/2009**

**Re: Storm Water, Trash boom**

---

**Recently the trash boom on the Malden River was removed and cleaned of debris and replaced back into waterway. The debris consisted off trash and some organics.**



**This department will continue monitoring and cleaning this boom every few months.**

**Respectfully**

**John C DeSantis**