WASTEWATER TREATMENT PLANT

Bradley L. Moore
Superintendent
wwtp@bangormaine.gov

November 14, 2014

U.S. Environmental Protection Agency, Region 1
5 Post Office Square – Suite 100
Water Technical Unit
Mail Code OES04-1
Boston, MA 02109-3912
Attn: Mr. Alex Rosenberg
617-918-1709

VIA E-Mail

RE: U.S. vs. City of Bangor
Civil Action No. 88-0048-B

Dear Alex,

Pursuant to Paragraph 16(B) of the 1991 Consent Decree between the City of Bangor and EPA, the City of Bangor is submitting the October 2014 Combined Sewer Overflow (CSO) Progress Report (for the November 1, 2013 through October 31, 2014 period).

Pursuant to its Draft Phase 2 CSO Long Term Control Plan submitted on September 30. 2012 ("Draft Short-term Phase 2 LTCP"), the City has completed the following Inflow and Infiltration (I/I) Reduction and Sewer Separation projects during the reporting period. The City has also continued flow monitoring and investigating areas of the collection system, as detailed below. Actions taken on Bangor's Preliminary Draft Short-term Phase 2 LTCP projects are as follows:

Monitoring and SSES Efforts

- CSO Outfall Monitoring and Assessment: The City continues to monitor its CSO outfalls using SCADA on control structures or flow meters installed on outfalls, with the exception of Cemetery (016). There are 14 total meters deployed to date, 7 of which are associated with CSOs. The City is also monitoring locations in the Carr Brook, Airport, and Dow Subsections to identify sources of I/I.

- CCTV: The City has conducted CCTV work within the Carr Brook, Davis Brook, and Meadowbrook Subsections to assist in Illicit Discharge Detection and Elimination (IDDE) work and as part of Sewer System Evaluation Survey (SSES) work. CCTV work has been conducted in other subsections as needed or prior to surface restoration work. Engineering and the sewer maintenance staff have reviewed the CCTV work to identify locations that need repair and to identify sources of I/I.

Maximizing Use of the Collection System

- Modification of Regulators/Control Structures at Barkersville (002): The control structure at the Barkersville CSO was raised an additional 9.5 inches in May 2014.

I/I Reduction Projects

- Dow Trunk Facilities Plan Implementation: The City continued I/I reduction work in the Dow Subsection. The first project, the 2013 Mildred Nason Stormwater Improvements project, was completed in November 2013. This project included construction of a new storm drain in the Mildred and Nason Street area to allow for sump pump disconnections from properties in the Mildred Street neighborhood, as well as installation of 350 feet of underdrain on Nason Street which potentially reduces the amount of groundwater that can flow into the sanitary sewer system. A second project, the Silver Road Sewer Rehabilitation project, was completed in December 2013. This project included replacing 700 feet of deteriorated sewer and rerouting a catch basin into a new storm drain line. Post construction flow monitoring was installed, and after one year of data has been collected, will be analyzed to determine the City's next steps in the Dow Subsection.

- Airport I/I Reduction: Preliminary construction work on the New Capehart Sewer Replacement project is underway. To date, the pre-blast survey has been completed and precast structures have been fabricated. This project includes approximately 6,000 linear feet of vitrified clay line that will be replaced with new PVC pipe. This project is expected to help mitigate extraneous flows and trouble spots that frequently need maintenance from the Sewer Maintenance Division (SMD). Earthwork for this project began in November 2014.

- Harlow Street Sewer Rehabilitation: In August 2014, the City replaced approximately 400 feet of deteriorated sewer on Harlow Street and added manholes to improve accessibility in the Central Subsection.

Sewer Separation Projects

- Court Street Sewer Separation: In conjunction with demolition of the City's former police station building and road reconstruction, the City separated approximately 500 feet of combined sewer and storm drain on Court Street. This is anticipated to reduce CSOs at the Hammond Street CSO outfall. The utility portion of this project was completed in August 2014.

- Main Street Sewer Separation: In advance of a transportation safety improvements project on Main Street, the City separated approximately 800 feet of combined sewer and storm drain on Main Street between Cedar Street and Davis Street. The City also installed catch basins on side streets to lay the groundwork on the downstream end for future separation projects. This is anticipated to

reduce CSOs in the Davis Brook Subsection. The utility portion of this project was completed in October 2014.

- Kenduskeag West Sewer Improvements: In conjunction with a downtown revitalization project, the City separated a portion of a combined sewer line and storm drain by constructing 180 feet of separate sewer line underneath West Market Square. The utility portion of the project was completed in July 2014. This short-term project is an initial step in separating the combined system in the Kenduskeag West Subsection.

Upcoming Projects

The following I/I and sewer separation projects are projected to be initiated by the City during the November 1, 2014-October 31, 2015 time frame:

- An additional I/I reduction project in the Airport Subsection: Rerouting of sanitary sewer (installation of 460 feet of new sanitary sewer and elimination of approximately 1000 feet of deteriorated clay sanitary sewer that is prone to infiltration).
- Elimination of a bottleneck downstream of the Cemetery CSO.
- Kenduskeag West Subsection: Replacement of approximately 150 feet of pipe using pipe bursting technology (anticipated to reduce I/I) and continuation of the above-described Court Street sewer separation by extending separate sewer and storm drain another 600 feet in the upstream direction along Court Street.

Additional Measures

The City of Bangor has also continued work on its Capacity, Management, Operation, and Maintenance (CMOM) program including strengthening its Fats, Oils, and Grease (FOG) program, improving accessibility to the collection system infrastructure by clearing easements, raising buried manholes, performing spot repairs, and cleaning siphons and gravity lines. Enclosed is an article from the Bangor Daily News that appeared in July 2014 regarding FOG awareness. The City of Bangor also raised its sewer user fee to $6.10 per 100 cubic feet from $5.90 per 100 cubic feet on July 1, 2014.

From 1987 through June 30, 2014, the City has spent $48.8 million cumulatively on CSO control projects and long-term planning and analysis efforts. Please see Table 1, enclosed, for a complete summary of all associated costs. Table 2 provides a more detailed version of this summary, which lists costs by project for each year. Please note that the costs identified in Tables 1 and 2 are not inflation adjusted.

Please feel free to contact me if you have any questions.

Sincerely,

Bradley Moore

Bradley Moore, Superintendent

CC: EPA: Tonia Bandrowicz, Esq.

DOJ: Chief, Environmental Enforcement Section (VIA U.S. Mail)

DEP: Mick Kuhns, P.E.

AECOM: Bob Scherpf, P.E.

City: John Theriault, P.E., Cathy Conlow, Sean Currier, Wynne Guglielmo, Norm Heitmann, Esq., Paul Nicklas, Esq., Amanda Soucier, P.E., Peralie Burbank, P.E.

PretiFlaherty: Sharon Newman, Esq.

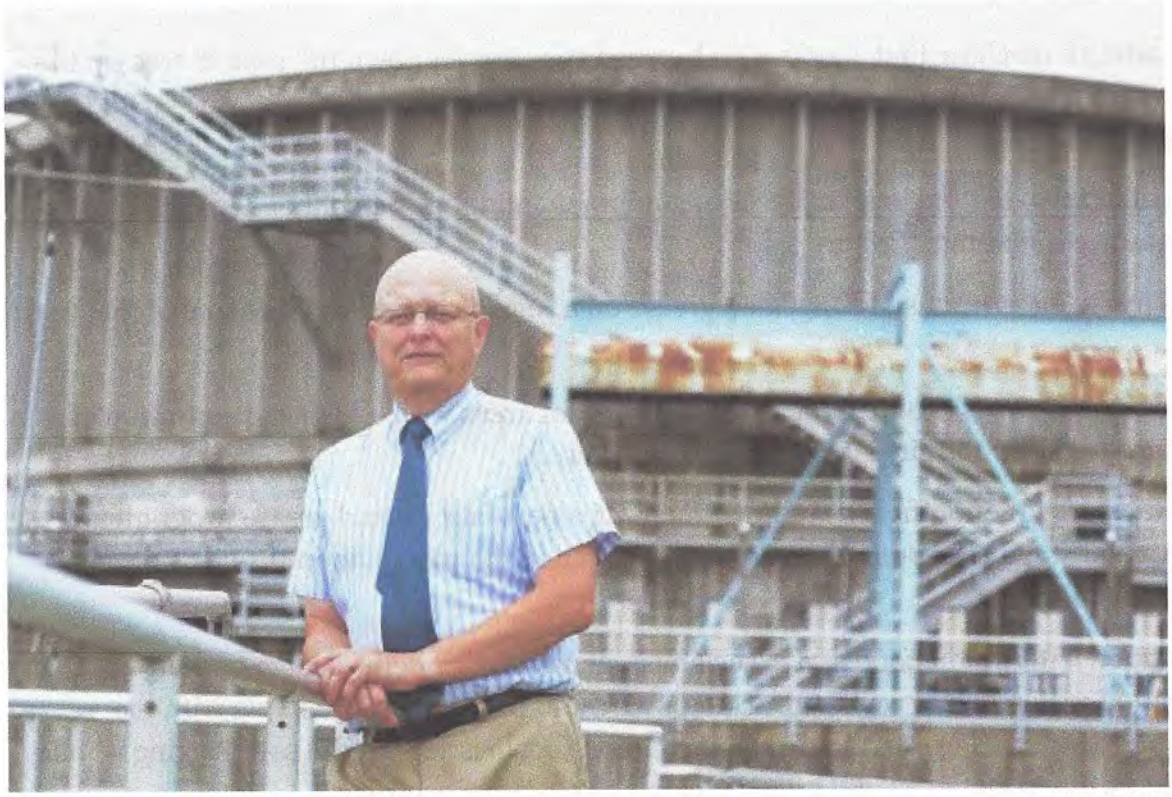
Enc: FOG Awareness Bangor Daily News Article – July 2014

Table 1: Financial Summary of CSO Control and Improvement Project Expenditures

Table 2: Financial Detail Summary, CSO Costs 1987 – FY2014

BANGOR DAILY NEWS

Bangor sewage treatment plant tells restaurants to get the grease out



Linda Coan O'Kresik | BDN

Bradley Moore, superintendent of the Wastewater Treatment Plant, said 58 tons of grease per year is removed from the treatment plant. *Buy Photo*

By Nick McCrea, BDN Staff
Posted July 29, 2014, at 5:46 a.m.

BANGOR, Maine — The last time you ate at a Bangor restaurant you probably didn't spend much time thinking about what was going down the drain in the kitchen. City officials have been thinking about it a lot and are beefing up efforts to ensure restaurants are doing all they can to prevent grease, fat and oil from wreaking havoc in the city's sewer system.

Every year, the Bangor Wastewater Treatment Plant collects about 58 tons of grease, coagulated fat and oil that has made its way through city sewers to the plant. That grease is shipped off to a landfill. This year, that work is expected to cost the city about $15,000, according to Brad Moore, plant superintendent.

If the plant didn't remove that waste, the grease would end up in the Penobscot River.

Some grease comes to the plant after it is dumped down the sinks of residents who have cooked their pound of bacon in the morning or browned a skillet of ground beef for tacos. The vast majority, however, comes from restaurants that aren't in compliance with city codes that require them to use systems to prevent as much grease as possible from getting into the sewer system, Moore said.

"When [the grease] cools off as it starts to get down into the sewer system, it starts coating the sides of the pipes and it actually can coat it to the point where it can block up the pipe," Moore said.

That means sending a machine that shoots a high-pressure water jet down the pipe to free up the clog and placing a vacuum truck at the other end to suck out the grease, all of which is an added expense to the city.

"We're talking about two big, expensive pieces of equipment and four personnel dedicated to cleaning that one section of line," Moore said.

Crews are sent out to clear drains of congealed grease on a regular basis, he said, some of them repeatedly.

Most often, the clogged pipes can be found "downstream" of areas with a high concentration of restaurants, Moore said, so the city is putting its focus there.

Bangor wastewater treatment officials are implementing a new fats, oil and grease program aimed at dramatically reducing the amount of grease that ends up in the plant and in the city's roughly 160 miles of sewer lines.

"We have sent out a letter to the food service establishments that we believe have nothing [in terms of grease collection systems] and we'll be working with them to get them to comply with the ordinance," Moore said. He declined to name any of those businesses, but did say clogging is most often a problem on any street or in any area with a high volume of eateries.

Grease collection systems come in several forms, from a "passive device" similar to a septic tank that goes underground to a smaller mechanized piece of equipment that can be installed above ground, Moore said. The prices can range from $5,000 to $15,000 depending on what's needed in the system, he added.

That's a hefty expense, especially for some mom-and-pop eateries, so the city is starting a grant program, which will cover up to $5,000 worth of each system installation. That program will be funded through wastewater connection fees.

In the meantime, restaurants without grease traps can take early steps to reduce the amount of grease they're sending into the sewers, Moore said. For example, they can scrape grease and food scraps into the trash before tossing dishes into the sink or dishwasher.

Moore said it's important to note that many food establishments in the city already have the necessary grease traps in place. This program's goal is to get those that aren't yet in compliance on board.

In the past, the city has sent out fliers and leaflets along with sewer bills in order to inform home

cooks that they should be pouring their grease into empty cans or the trash for disposal and restaurants that they should invest in a grease trap system.

The program is still in early stages, and will be submitted soon to Maine DEP for approval.

The city also has drafted an enforcement plan to levy against any business that refuses to work toward resolving grease, fat and oil problems.

It targets businesses that might try to withhold or report false information, those that don't comply and intentionally ignore or defy the city's attempts to get them to comply. The "response guide" lays out punishments that range from setting a schedule to install a grease control device to potential fines or litigation.

Businesses that cooperate and work with the city on a plan to get grease traps shouldn't face penalties, Moore said.

"We just don't want to go there if we don't have to," Moore said.

Follow Nick McCrea on Twitter at @nmccrea213.

http://bangordailynews.com/slideshow/bangor-sewage-treatment-plant-tells-restaurants-to-get-the-grease-out/ printed on July 29, 2014

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

Table 1: Financial Summary of CSO Control and Improvement Project Expenditures, 1987 – FY2014

PROJECT	FY	DISBURSED
SUMMARY		
PRE-1993 SEWER PROJECTS		$6,295,181.96
CSO FACILITIES PLAN		$1,764,687.85
PAF EXPANSION TO 43 MGD & KPS EXPANSION TO 28 MGD		$1,727,055.50
MEADOWBROOK SEWER PROJECTS		$7,392,328.19
ONGOING INFLOW / INFILTRATION		$573,405.96
KENDUSKEAG WEST INTERCEPTOR		$67,818.69
ARCTIC BROOK SEPARATION		$2,115,548.57
FOURTEENTH STREET PROJECTS		$3,511,083.52
HAMMOND ST CONNECTING PIPE		$204,268.26
BARKERSVILLE CONNECTING PIPE		$19,221.28
CEMETERY SEPARATION		$1,509,955.39
DESIGN WORK		$1,176,108.59
DAVIS BROOK SEWER PROJECTS		$2,101,980.76
KENDUSKEAG EAST PROJECTS		$2,330,261.74
FY 2002 - 2004 PROJECTS		$5,787,735.07
FY 2005 - 2010 PROJECTS		$7,796,218.52
FY 2011 PROJECTS		$445,647.10
FY 2012 PROJECTS		$812,549.38
FY 2013 PROJECTS		$1,319,444.06
FY 2014 PROJECTS		$1,838,038.72
TOTAL		$48,788,539.11

Table 2: Financial Detail Summary, CSO Costs 1987 – Present

SEWER PROJECTS 1987 - 1993

PENJAJAWOC	87	$232,113.79
WOODLAWN	87	$98,715.44
MILL STREET	88	$397,549.62
HANCOCK STREET 1	88	$72,885.34
CARR BROOK	88	$1,943,338.94
BARKERSVILLE	88	$247,682.46
OLD CAPEHART 1	88	$232,360.71
OLIVE STREET	88	$807,077.90
DOW TRUNK 1	88	$274,202.13

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

CATELL STREET	88	$299,675.28
BLANCHARD STREET 1A	88	$11,440.56
GENERATORS	90	$53,063.00
AIRPORT 1A	91	$5,039.09
EVERETT STREET	91	$189,244.59
OLD CAPEHART 2	91	$177,965.55
DOW TRUNK 2	91	$316,742.82
HANCOCK ST 2	91	$12,759.76
BLANCHARD ST 1B	91	$562,645.52
ODLIN ROAD	92	$360,589.16
AIRPORT 1B	92	$90.30
SUBTOTAL		$6,295,181.96
CSO FACILITIES PLAN		
CSO PROGRAM	91	$103,889.52
CSO FACILITIES PLAN	91	$1,587,505.65
SEWER RATE STUDY	93	$69,317.09
FLOW MONITORING EQUIPMENT	99	$3,975.59
SUBTOTAL		$1,764,687.85
PAF EXPANSION TO 43 MGD		
KPS EXPANSION TO 28 MGD		
WWTP CSO EXPANSION	93	$15,516.29
WWTP CSO EXPANSION	94	$2,857.90
WWTP CSO EXPANSION	97	$21,864.35
KPS/ WWTP CSO UPGRADE	97	$1,686,816.96
SUBTOTAL		$1,727,055.50
MEADOWBROOK SEWER PROJECTS		
MB 1 & 2 MAINLINE, BROADWAY	87	$3,180,294.82
MB 3 GROVE, FOREST	91	$437,811.12
MB 4 ELM, FOREST	92	$581,294.56
MB 5 STILLWATER AVENUE	93	$263,244.27
MB 6 ESSEX STREET	94	$407,822.09
MB 7 FOUNTAIN STREET	98	$814,707.82
MB 8 GARLAND STREET	98	$344,940.61
MB 9 CENTER STREET	00	$1,362,212.90
SUBTOTAL		$7,392,328.19
NEW CAPEHART	88	$21,641.32
BIRCH STREET	92	$83,164.24
E SUMMER STREET	93	$116,560.87
PARKVIEW AVENUE	93	$72,280.90
WILLOW STREET	94	$54.44
MISC SMALL PROJ FY 96	96	$31,273.86

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

MISC SMALL PROJ FY 97	97	$921.79
MISC SMALL PROJ FY 98	98	$4,234.08
MISC SMALL PROJ FY 99	99	$3,140.89
MISC SMALL PROJ FY 00	00	$0.70
MISC SMALL PROJ FY 01	01	$44,262.30
BMHI	01	$192,136.42
MISC SMALL PROJ FY 02	02	$3,734.15
SUBTOTAL		$573,405.96
KENDUSKEAG WEST INTERCEPTOR		
K D INTERCEPTOR PROJECT	94	$67,818.69
SUBTOTAL		$67,818.69
ARCTIC BROOK SEPARATION		
ARCTIC BROOK 1 BANGOR GARDENS	88	$590,534.96
ARCTIC BROOK 2A BANGOR GARDENS	90	$15,358.65
ARCTIC BROOK 2B BANGOR GARDENS	92	$313,685.14
ARCTIC BROOK 3 FOWLER AVENUE	93	$83,297.78
ARCTIC BROOK 4 EARLE AVENUE	94	$211,648.85
ARCTIC BROOK 5 POPLAR STREET	96	$214,878.24
ARCTIC BROOK 6 LINDEN STREET	97	$390,771.00
ARCTIC BROOK 7 CLYDE ROAD	97	$295,373.95
SUBTOTAL		$2,115,548.57
FOURTEENTH STREET PROJECTS		
14TH STREET	92	$25,658.69
14TH STREET	93	$536,924.58
15TH STREET	94	$617,365.22
UNION STREET	96	$1,308,768.63
FREMONT/ TYLER STREETS	96	$218,715.01
14TH STREET	97	$803,651.39
SUBTOTAL		$3,511,083.52
HAMMOND ST CONNECTING PIPE		
HAMMOND ST CONNECTING PIPE	96	$204,268.26
SUBTOTAL		$204,268.26
BARKERSVILLE CONNECTING PIPE		
BARKERSVILLE CONNECTING PIPE	96	$19,221.28
SUBTOTAL		$19,221.28

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

CEMETERY SEPARATION		
15TH STREET	98	$615,077.38
CEMETERY	00	$894,878.01
SUBTOTAL		$1,509,955.39
DESIGN WORK		
DESIGN WORK FY95	94	$40,038.49
DESIGN WORK FY96	95	$90,735.40
DESIGN WORK FY97	97	$198,298.39
DESIGN WORK FY98	98	$196,683.78
DESIGN WORK FY99	99	$222,330.67
DESIGN WORK FY00	00	$149,987.85
DESIGN WORK FY01	01	$278,034.01
SUBTOTAL		$1,176,108.59
DAVIS BROOK SEWER PROJECTS		
RAILROAD ST CONNECTING PIPE	94	$193,179.88
CSO STORAGE FACILITY	99	$1,281,053.03
PATTEN STREET UPGRADE	99	$373,275.41
SHORT ST / UNION ST SEPARATION	99	$254,410.83
HAYFORD PARK	99	$61.61
SUBTOTAL		$2,101,980.76
KENDUSKEAG EAST		
KENDUSKEAG EAST CSO STORAGE	01	$2,330,261.74
SUBTOTAL		$2,330,261.74
FY 2002 - 2004 PROJECTS		
BARKERSVILLE CSO STORAGE	02	$2,050,204.28
HANCOCK STREET SEWER PHASE I	02	$3,302,899.32
FRANKLIN ST SEWER SEP PHASE 1	02	$328,849.02
OTIS, PARKVIEW & WASHINGTON	03	$105,782.45
SUBTOTAL		$5,787,735.07
FY 2005 - 2010 PROJECTS		
HANCOCK STREET SEWER PHASE 2 2005	05	$3,194,701.58
FRANKLIN ST SEWER SEP PHASE 2 2006	06	$2,828,032.07
MUNROE STREET SEWER UPGRADE 2007	07	$141,446.88
BANGOR MALL BORDERS SEWER 2007	07	$73,739.48
KENDUSKEAG EAST TANK UPGRADE 2007	07	$37,840.00
PERRY ROAD PUMP STATION UPGRADE 2009		$230,847.51

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

SMALL PROJECTS 2008 - 2010		$61,806.70
Ops Building Heating System Upgrade 2010		$956,765.07
CSO Flow Monitors 2010		$87,231.88
Preliminary Design 2010		$88,421.84
FRENCH STREET SEWER 2010		$9,567.45
STATE STREET MANHOLES 2010		$83,713.24
OPS BUILDING ROOF 2010		$1,300.00
STATE STREET RELINING 2010		$804.82
SUBTOTAL		$7,796,218.52
FY 2011 PROJECTS		
Preliminary Design	11	$28,154.36
State Street Manholes	11	$84,875.76
Perry Road Pump Upgrade	11	$2,035.12
French/ Penobscot/ Pine Separation	11	$5,281.32
Relining State Street	11	$804.82
CSO Flow Monitoring Contract	11	$94,469.23
Subtotal Project Expense		$215,620.61
CH2M Hill Expense 2011		$230,026.49
SUBTOTAL FY 2011		$445,647.10
FY 2012 PROJECTS		
Barkersville Sewer Project	12	$4,266.89
State Street Manholes	12	$1,534.71
Sewer Flow Monitoring Contract	12	$94,595.00
CSO Flow Monitoring Contract	12	$15,082.50
Odlin Road Pump Station	12	$8,401.47
Dow Trunk Mildred/ Nason Sewer Rehabilitation	12	$1,658.69
Subtotal Project Expense		$125,539.26
CH2M Hill Expense		$687,010.12
SUBTOTAL FY 2012		$812,549.38
FY 2013 PROJECTS		
Barkersville Sewer Project	13	$268,153.16
Hammond Street Sewer	13	$17,360.00
Sewer and CSO Flow Monitoring Contract	13	$89,004.50
Dow Trunk Mildred/ Nason Sewer Rehabilitation	13	$338,632.27
Collection System Spot Repairs	13	$123,330.00

CITY OF BANGOR ENGINEERING DEPARTMENT
STATUS OF CSO / SEWER PROJECTS

Subtotal Project Expense		$836,479.93
Professional Consulting Services	13	$482,964.13
SUBTOTAL FY 2013		$1,319,444.06

FY 2014 PROJECTS		
Dow Trunk Mildred/ Nason Sewer Rehabilitation	14	$15,570.60
Silver Road Sewer Rehabilitation	14	$274,757.88
2013 Mildred Nason Stormwater	14	$206,533.03
New Capehart Sewer Rehabilitation	14	$17,274.04
Harlow Street Sewer Rehabilitation	14	$157,086.50
Kenduskeag West Sewer Portion of West Market	14	$390,056.40
Court Street Portion of Police Station Demo	14	$109,758.00
Main Street Sewer Separation	14	$9,971.36
Sewer and CSO Flow Monitoring Contract	14	$89,484.00
Small CSO Projects/ Emergency Repairs	14	$329,509.48
Subtotal Project Expense		$1,600,001.29
Professional Consulting Services	14	$238,037.43
SUBTOTAL FY 2014		$1,838,038.72