McPHAIL ASSOCIATES, INC

Geotechnical Engineers

November 14, 2008

U.S Environmental Protection Agency
RGP-NOC Processing Municipal Assistance Unit (CMU)
1 Congress Street, Suite 1100
Boston, MA 02114-2023

Attention: RGP-NOC Processing

Massachusetts Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608

Attention: Mr. Robert D. Kubit

Reference: J. Michael Ruane Judiciary Center; Salem, Massachusetts
Notice of Intent for Construction Dewatering Discharge Under RGP MAG9100000

Ladies and Gentlemen:

The purpose of this letter report is to provide a summary of the groundwater quality information and geotechnical engineering input in support of an application for permission from the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) for the temporary discharge of groundwater into the North River via a storm drain system during construction at the above referenced site. Refer to **Figure 1** Project Location Plan for the general site locus.

These services were performed and this permit application was prepared in accordance with our proposal dated September 30, 2008 and the subsequent authorization of Mr. Robert McCusker of Mattuchio Construction Co., Inc. These services are subject to the limitations contained in **Appendix A**.

The required: 1) NOI Form; 2) the Massachusetts DEP Transmittal Form for Permit Application and Payment; 3) DEP Form BRP WM 10 - Request for General Permit Coverage Construction Site Dewatering are included in Appendix B.

Applicant

The applicant for the Notice of Intent-Remediation General Permit is:

Mattuchio Construction Co., Inc.
323 Commercial Street
Malden, MA 02148

Attention: Mr. Robert McCusker

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Fax: 781-322-1944

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Owner

Department of Capital Assets and Management
Commonwealth of Massachusetts
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Boston, MA 02108

Tel: 617-727-4030
Fax: 617-727-4043

Existing Site Conditions

Fronting onto Federal Street to the south, the project site is bounded by North Street to the west, Bridge Street to the north and the former Commonwealth of Massachusetts Registry of Deeds building to the east. Existing site conditions are shown on the attached **Figure 2**, Subsurface Exploration Plan.

Currently, the project area is occupied by the existing First Baptist Church building which is located on the eastern portion of the subject site. The Church is partially demolished in preparation of the future site redevelopment. The remainder of the subject site is covered by former asphalt paved road ramps that connected North street and Bridge street, and overgrown vegetation and lawn areas. Ongoing construction activities associated with redevelopment of the site include the removal of site vegetation and debris. Existing ground surface across the site generally slopes downward from south to north from about Elevation +28 to about Elevation +10, across a horizontal distance of approximately 320 feet.

Existing site conditions are shown on **Figures 2** which is based on a 20-scale plan entitled "J. Michael Ruane Judicial Center, Site Utility Plan", dated June 19, 2008 and prepared by Goody, Clancy & Associates. Elevations referenced herein refer to the National Geodetic Vertical Datum (NGVD)

The area surrounding the site is generally occupied by commercial and residential property. The site and surrounding area are serviced by public utilities including water and electricity. Wastewater is discharged into the City of Salem sanitary sewer system. Catch basins are utilized to control surface drainage on the subject site and along Federal Street, North Street, and Bridge Street which discharge into the storm drain system.

Site History

Available historic information indicates that the project site has been occupied by the First Baptist Church building since its construction in 1805. In addition, prior to site redevelopment activities, the site was occupied by three (3) two-story wood-framed residential buildings built in the early to mid-1800's.

As mentioned above, the northwest portion of the site is covered by two former roadway ramps which once connected North Street to Bridge Street. It is estimated that these ramps were constructed between 1950 and 1960.

Proposed Scope of Site Development

The ongoing redevelopment of the site includes the relocation of the First Baptist Church building, construction J. Michael Judicial Center building (a new courthouse) and installation of site utilities. The proposed Judicial Center building will encompass the majority of the site and will consist of a five to six-story structure with an approximate 190,000 square-foot irregularly shaped footprint. In addition, the First Baptist Church will be relocated to the western portion of the site to be incorporated into the Judicial Center as a law library.

Site Environmental Setting and Regulatory Status

As indicated above, the subject site and surrounding area are serviced by public utilities including water, electricity, surface drainage and sewer. The site is not located within a Zone II of a public water supply, an Interim Wellhead Protection Area, or a Zone A of a Class A surface water supply reservoir. The site is located within a Non-Potential Drinking Water Source Area of medium yield. There are no surface water bodies located within the site boundaries. The nearest surface water body is the North River, located approximately 500 feet to the north of the subject site.

There are no known private or public drinking water supply wells located within the site boundaries, nor within a half mile of the site. The site is located within 500 feet of residentially zoned areas and the First Baptist Church is a Historical Registered Building.

The subject site is not included in the Massachusetts Department of Environmental Protection (DEP) list of disposal sites. However, a reported release of oil is located on Bridge Street adjacent to the north of the subject site. On April 26, 2000 a Class A-1 Response Action Outcome was filed with the DEP indicating that a permanent solution had been achieved and that no further action was required.

Subsurface Conditions

As part of a geotechnical assessment of the subject site, Nobis Engineering Inc. of Lawrence, Massachusetts performed a subsurface investigation that consisted of borings, groundwater monitoring wells, and test pits. A detailed description of the subsurface conditions encountered at each of the completed explorations is presented in the logs of the soil borings and test pits prepared by Nobis Engineering Inc. contained in **Appendix C**. Based on the subsurface information collected at the site by Nobis Engineering Inc., the following generalized conditions were reportedly encountered from ground surface downward. It should be noted that not all strata, as described below, were encountered at all exploration locations.

Underlying the topsoil, bituminous pavement or concrete that typically cover the project site, the explorations encountered a miscellaneous fill deposit which ranged from 0.5 to 10.5 feet in thickness. The fill deposit generally consists of a light brown, silty fine to medium sand with some organics and roots near the ground surface. Varying amounts of brick, concrete, asphalt, slag and ash was also reported to be present in some of the soil samples.

Beneath the fill, the explorations typically encountered natural, inorganic soil deposits of silty sand or marine silt/clay. The silty sand deposit, which was only encountered in some of the explorations, is

reported to generally consist of poorly-graded fine to medium sand with some silt. With one exception, a deposit of marine silt/clay was encountered in all the borings. According to Nobis Engineering Inc., the marine silt/clay consists of stiff to hard silts to a very stiff light gray clay.

An alluvial sand deposit was observed beneath the marine clay in all but one boring. Based on the borings, the alluvial sand deposit consisted of a poorly graded fine to medium sand with trace amounts of silt.

According to Nobis Engineering Inc., a glacial till deposit was encountered at depths ranging from 42 feet to 97 feet below ground surface in the borings that penetrated the fill, alluvial and marine deposits. The glacial till deposit was reported to consist of varying proportions of sand and gravel with trace amounts of silt and boulders. Refusal, believed by Nobis Engineering Inc. to be bedrock was encountered at depths that ranged from 105 feet to 110 feet below ground surface.

Reportedly, Nobis Engineering observed groundwater levels within the observation wells to range from Elevation +3.0 at the southeastern end of the site to Elevation +12.6 at the southwestern end of the site which correspond to approximately 28.0 feet to 9.0 feet below ground surface, respectively. Based upon the observed groundwater elevations, there is an apparent gradient downwards toward the south and east. Groundwater at the western portion of the site is anticipated to be perched on the surface of the relatively impervious marine clay deposit. It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, periods of heavy precipitation, and alterations of existing drainage patterns.

Summary of Soil Chemical Testing

As part of their geotechnical study, Nobis Engineering, Inc. performed limited chemical analysis of soil samples obtained from the geotechnical subsurface investigations. Selected samples of soil obtained from the borings were submitted for chemical analyses. The samples were chemically analyzed for the presence of extractable petroleum hydrocarbons (EPHs) with target polynuclear aromatic hydrocarbons (PAHs) and PP-13 metals which include antimony, arsenic, barium, beryllium, cadmium, trivalent chromium, hexavalent chromium, lead mercury, nickel, selenium, silver, thallium, vanadium, and zinc. Chemical test results for granular fill samples are summarized in **Appendix C.**

Analysis for PP-13 metals detected maximum concentrations of arsenic, barium, beryllium, total chromium, lead, mercury, nickel, thallium, vanadium and zinc at 20.4 milligrams per kilogram (mg/kg), 535 mg/kg, 1.1 mg/kg, 40.6 mg/kg, 2,700 mg/kg, 1.13 mg/kg, 31.8 mg/kg, 18.5 mg/kg, 44.1 mg/kg and 156 mg/kg, respectively. Two (2) samples were submitted for testing for the presence of hexavalent chromium of which the results indicate concentrations below the applicable laboratory detection limit and 18.0 mg/kg. The tested samples did not exhibit concentrations of antimony, cadmium, selenium, and silver above the laboratory method detection limits.

Chemical test results detected EPH fractions in two of six samples tested. Specifically, chemical testing indicated the presence of EPH fractions C19-C36 aliphatics and C11-C22 aromatics at maximum concentrations of 16 mg/kg and 84 mg/kg, respectively. The results of PAH analysis indicated that the two (2) samples exhibited levels of all individual PAH compounds tested except for 2-methylnaphthalene.

Summary of Previous Groundwater Chemical Testing

The geotechnical study of the project site that was completed by Nobis Engineering, Inc. also included the chemical analysis of groundwater samples obtained from wells installed during their subsurface investigation. Groundwater samples were tested for the presence of EPHs with target PAHs, Volatile Organic Compounds (VOCs), PP-13 metals, sulfate and hardness. Chemical test results for groundwater are enclosed in **Appendix C**.

Chemical testing indicated the presence of Tertiary Amyl Methyl Ether and MBTE in a sample obatined from B-2/MW at concentrations of 7.4 micrograms per liter (ug/L) and 190 ug/L, respectively. MBTE was also detected in monitoring well B-14MW at a level of 6.3 ug/L. The groundwater sample obtained from monitoring well B-6MW exhibited a concentration of benzene of 2.1ug/L. The remaining samples tested did not exhibit VOCs at levels above the laboratory method detection limit.

Chemical test results detected aresnic to present in four of the six samples at levels which ranged from 5.0 ug/L to 32 ug/L. A sample obtained from B-6/MW also exhibited a concentration of barium at 662 ug/L.

Groundwater Chemical Analyses Results

On October 3, 2008, a representative of McPhail Associates, Inc. obtained samples of groundwater from groundwater monitoring wells B-6 MW and B-26 MW, the locations of which are shown on **Figure 2**. The sample obtained from B-6 MW did exhibit a slight petroleum odor. The samples were sent to a certified laboratory and chemically analyzed for the presence of compounds required under the EPA's Remediation General Permit (RGP) application, including pH, total suspended solids (TSS), total residual chlorine, total petroleum hydrocarbons (TPH), cyanide, volatile organic compounds (VOCs) including total benzene, toluene, ethylbenzene and xylenes (BTEX), poly-aromatic hydrocarbons (PAHs) and semi-volatile organic compounds (SVOCs) including total phenols and total phthalates, Pesticides and PCBs, and total recoverable metals.

Chemical test results are summarized in **Table 2**, and laboratory data is included in **Appendix E**. The results of chemical testing indicate the following:

1. **pH:** The tested samples exhibited a level of 7.1 and 7.6 Standard Units (S.U.). The recommended range for pH discharge into saltwater is 6.5 to 8.5 S.U.

2. **TSS:** Total suspended solids (TSS) were detected in the tested samples at a concentration of 66 milligrams per liter (mg/l) and a non detectable limit. The limit established by the US EPA for discharge into surface water is 30 mg/l. The detected level of TSS is considered to be attributable to the disturbance of suspended solids in the monitoring well during development of the well and subsequent sampling. However, it should be noted that groundwater will be pre-treated by passing the water through two (2) 5,000 gallon sediment tanks prior to discharge in order to reduce the concentration of TSS in the effluent.

3. **VOCs:** The groundwater samples indicated no detected level of any of the target VOCs, including BTEX.

4. **TPH:** Chemical analysis of the groundwater samples indicated no detectable levels of TPH.

5. **PAHs and SVOCs:** The laboratory reported no detectable levels of Group 1 or Group II PAH, pentachlorophenol, total phenols, no bis(2-ethylhexyl)phthalate and total phthalates.

6. **PCBs:** The laboratory results indicated no detectable levels of PCBs.

7. **Cyanide:** Cyanide was detected in the tested groundwater samples at concentrations of 96.0 micrograms per liter (ug/l) and a non detectable limit. The detected level of 96.0 ug/l in the sample obtained from B-26 MW is in excess of the allowable RGP limit of 1.0 ug/l for discharge into a saltwater body.

   The detected concentration of cyanide in conjunction with the elevated level of Total Suspended Solids in the B-26 MW tested sample, suggest that the level of cyanide is attributable to the presence of soil particles in the tested sample. Additional testing of groundwater samples obtained recently from B-26 MW by Weston Sampson Inc. for the Department of Capital Assessments and Management of the Commonwealth of Massachusetts indicates concentrations of cyanide below the laboratory method detection limits. The laboratory data of the recent chemical test results obtained by Weston and Sampson is included in **Appendix E**.

   As noted above, TSS reduction measures to the groundwater will be implemented prior to discharge to reduce the concentration TSS and thus the cyanide concentration in the effluent. However, as a precaution, a pilot testing program will be implemented to ensure that cyanide levels of the effluent do not exceed the RGP limit. If detected levels of cyanide exceed the RGP limit, specialized treatment for cyanide will be implemented.

8. **Total Metals:** The laboratory reported no detectable levels of antimony, cadmium, chromium III, chromium VI, mercury, and silver. Levels of arsenic, copper, lead, nickel, selenium and zinc were reported at maximum levels of 8.1ug/l, 1.3 ug/l, 2.7 ug/l, 1.5 ug/l, 3.0 ug/l, and 7.0 ug/l, respectively. All of these results are below the RGP permit limits for discharge to salt water.

   Chemical testing of the two (2) groundwater samples detected concentrations of iron at 21,000 ug/l and below the laboratory detection limit. The RGP limit for iron is 1,000 ug/l and therefore the detected concentration of iron is in excess of the RGP limit.

   Calculations of the mass of these compounds are included in **Table 2**.

   The results of chemical analysis for total iron in conjunction with the elevated level of Total Suspended Solids in the B-26 MW tested sample, suggest that the detected level of total iron is attributable to the presence of soil particles in the tested sample. As noted above, TSS reduction measures to the groundwater will be implemented prior to discharge to reduce the concentration TSS and thus the iron concentration in the effluent.

Construction Dewatering

Based upon the recommendations provided in the Final Geotechnical Report prepared for the project by Nobis Engineering Inc., the foundation support for the proposed new building and relocated First Bapist Church will be provided by a pile foundation system.

In general, excavation within the southern portions of the proposed building footprint are not anticipated to extend to a depth below the observed groundwater level. However, it is anticipated that groundwater will be encountered during excavation for northern portions of the building foundation and site utilities such as sewer and drains. Hence, construction dewatering may be required to allow the construction of pile caps and the site utilities.

Based upon the groundwater levels observed within the explorations, it is anticipated that dewatering will be required for construction of portions of the proposed building and site utilities. In addition, rainwater is anticipated to accumulate within localized trenches after periods of heavy precipitation. It is anticipated that dewatering by means of strategically located sumps and trenches should suffice during foundation construction operations.

It is estimated that the typical continuous groundwater discharge required during the foundation construction and utility installation will be on the order of 35 to 50 gallons per minute (GPM). This estimate of discharge does not include surface runoff which will be removed from the excavation during the limited duration of a rain storm and shortly thereafter.

Construction dewatering will require the discharge of collected groundwater into the storm drain system under the requested Remediation General Permit. A review of available plans provided by the City of Salem Engineering Department indicates that a 18-inch storm drain line is located along North Street and Bridge Street which border the subject site. The drain line along North Street flows north and then beneath Bridge Street and increases to a 30-inch drain line eventually discharging into the North River, a Class SB water body at a location below the North Street Bridge. The drain line along Bridge Street flows west to a 30-inch diameter drain line, mentioned above, which flows north and discharges into the North River. The location of the relevant catch basins with relation to the subject site are indicated on **Figure 3**.

Based on the results of groundwater chemical analyses discussed above, it is our opinion that no special treatment of the groundwater prior to discharge is required. However, two (2) sedimentation tanks with a minimum of 5,000 gallons capacity each will be required to settle particulate matter out of the effluent in order to meet allowable discharge limits established by the EPA and Massachusetts DEP. Should the level of particulate matter in the effluent exceed the limit established by the EPA, additional filtration of the effluent will be implemented prior to discharge.

Concluding Remarks - Groundwater Chemical Analyses

The tested sample from monitoring wells B-26 MW did not exhibit a petroleum odor, however, the sample obtained from B-6 MW did exhibit evidence of contamination. In summary, the results of the intial groundwater chemical analyses performed by McPhail Associates, Inc. indicate that cyanide was detected in B-26 MW at concentrations in excess of the applicable MCP reportable concentration of 30 ug/l for groundwater category RCGW-2. It is understood that the Department of Capital Assets and Managment (DCAM) for the Commonwealth of Massachusetts has been made aware of the elevated concentration of

cyanide and has since engaged their environmental consultant to perform additional testing of groundwater samples, previously discussed.

Based on the chemical analysis results which indicated the presence of total iron and cyanide in conjunction with the elevated level of Total Suspended Solids in the B-26 MW tested sample, it is our opinion that the detected levels of total iron and cyanide are mainly attributable to the presence of soil particles in the tested sample. It is also our opinion that as a result of the implementation of TSS reduction measures during the dewatering operation, as detailed below, the discharged water will meet the applicable RGP standards for the above detected cyanide and total iron.

Groundwater Treatment

Based on the results of groundwater chemical analyses, it is our opinion that sedimentation tanks will be required to settle particulate matter out of the water to meet allowable total suspended solids (TSS) discharge limits established by the US EPA and Massachusetts DEP prior to discharge. Two sedimentation tanks each 5,000-gallons in capacity each will be incorporated into the discharge system in series in order to meet allowable discharge limits for TSS established by the RGP, and also to control levels of total iron and cyanide in the discharge. As indicated above, it is our opinion that the removal of sediment will also result in a reduction in total iron and cyanide to levels below the RGP permit limits for discharge into a saltwater body.

To document the effectiveness of the sedimentation system, samples of the discharge water will be obtained and tested for the presence of TSS, cyanide, and iron prior to the start of discharge into the storm drain system. Should the pre-start up testing indicate that the levels of TSS and/or total iron in the effluent from the settling tanks exceed the limits established under the RGP, additional filtration of the effluent will be implemented prior to discharge. If detected levels of cyanide exceed the RGP limit, specialized treatment for cyanide will be implemented.

Should the results of testing for TSS, cyanide and/or total iron continue to indicate an exceedance of the RGP limit concentrations appropriate treatment will be implemented to address the compounds. In addition, should other contaminants be detected within the discharge water during the construction dewatering phase of the project at levels that exceed the effluent limitations, mitigative measures will be implemented to meet the allowable discharge limits.

Summary and Conclusions

The purpose of this report is to assess groundwater data and geotechnical engineering input to support an application for a Remediation General Permit for off-site discharge of groundwater which may be encountered during construction of the J. Michael Ruane Judiciary Center. It is understood that groundwater testing results reported in ths application have been provided to the site owner.

Based on the results of groundwater chemical analyses discussed above, it is our opinion that ground-water quality meets the DEP and the EPA requirements for discharge into a Class SB Surface Water Body without any special treatment. In order to ensure that the levels of TSS in the effluent meet the terms of the discharge permit, a dual sedimentation tank system will be utilized to settle particulate matter out of the water prior to discharge. A sample of the effluent will be obtained prior to discharge to document that

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Geotechnical Engineers

the sediment removal system has addressed levels of TSS, cyanide and total iron. However, should the effluent motoring results indicate a level of TSS in excess of the limits established in the Remediation General Permit, additional filtration, such as a bag filter, will be installed. In addition, if levels of cyanide exceeds the RGP permit limits specialized treatment for cyanide will be implemented.

In conclusion, it is our opinion that groundwater at the project site, based upon the above quality testing results, is acceptable for discharge into the storm drain system and ultimately into the North River under a Remediation General Permit. As discussed above, sedimentation tanks will be utilized to control levels of TSS prior discharge into the storm drain system during construction dewatering. If necessary, based upon a pilot testing program, specialized treatment will be employed to lower levels of cyanide if present in the proposed discharge water at concentrations in excess of the RGP standards. Further, sampling and analyses of the effluent will be carried out in accordance with the terms of the Remediation General Permit.

We trust that the above satisfies your present requirements. Should you have any questions or comments concerning the above, please do not hesitate to contact us.

Very truly yours,

McPHAIL ASSOCIATES, INC.

Amy E Deacon FOR
William J. Burns

Thomas J. Fennick, L.S.P., P.E.

Enclosures

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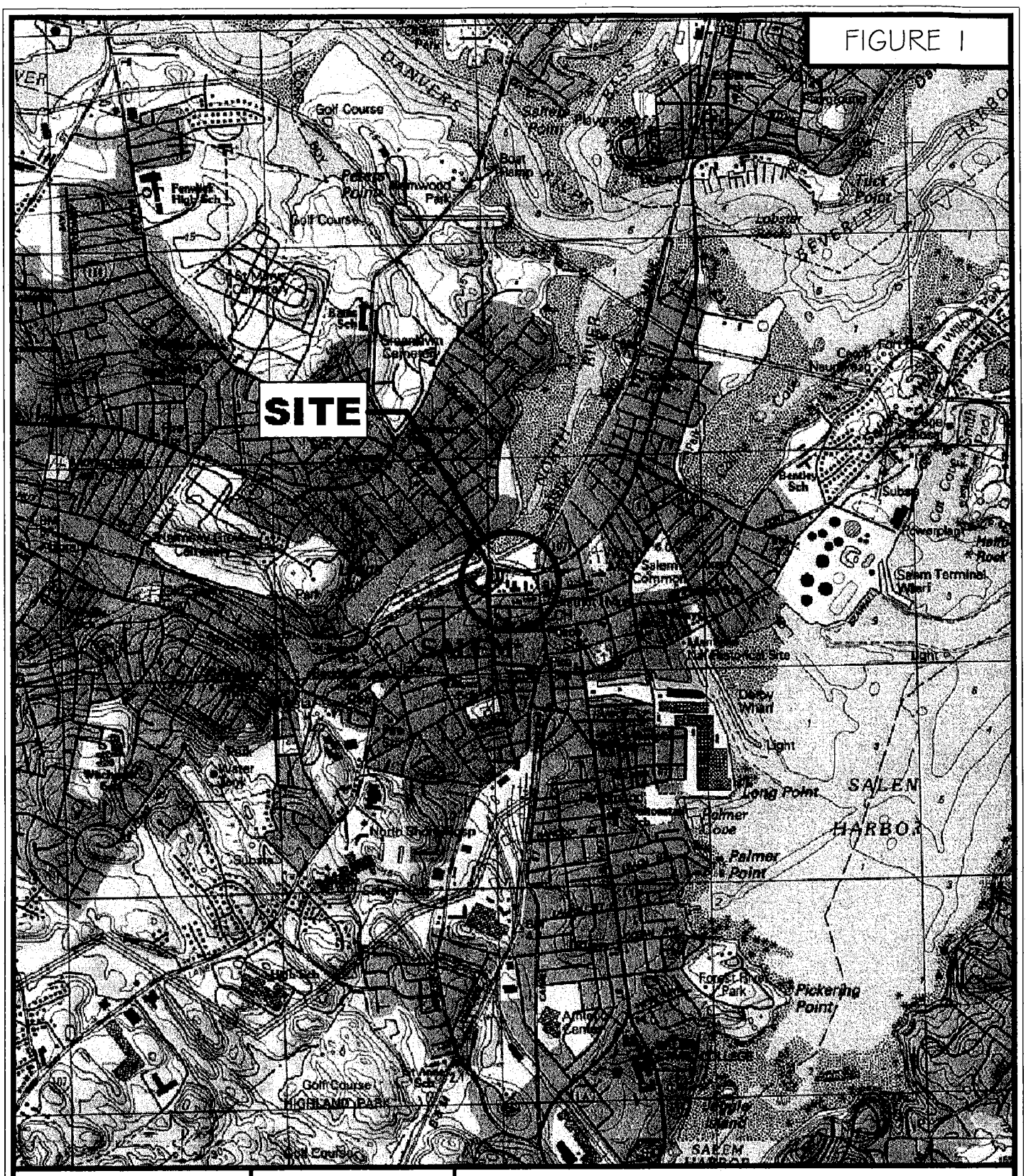
FIGURE 1



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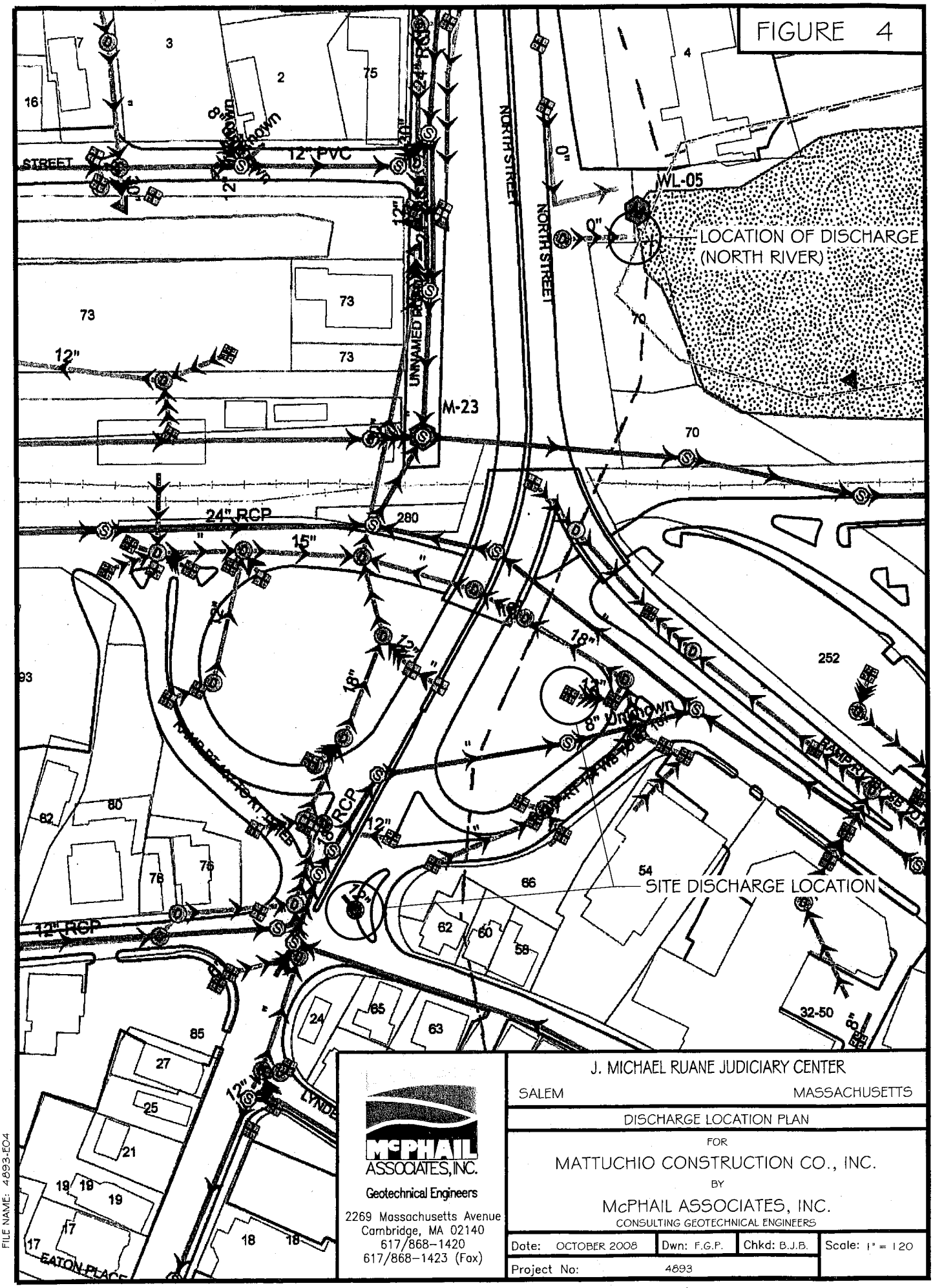
SCALE 1:25,000

PROJECT LOCATION PLAN

J. MICHAEL RUANE JUDICIARY CENTER

SALEM MASSACHUSETTS



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J. MICHAEL RUANE JUDICIARY CENTER

SALEM MASSACHUSETTS

DISCHARGE LOCATION PLAN

FOR

MATTUCHIO CONSTRUCTION CO., INC.

BY

McPHAIL ASSOCIATES, INC.
CONSULTING GEOTECHNICAL ENGINEERS

Date: OCTOBER 2008	Dwn: F.G.P.	Chkd: B.J.B.	Scale: 1" = 120
Project No: 4893			

FILE NAME: 4893-E04

TABLE 1
RGP Permit Application Groudwater Chemical Analysis
J. Michael Ruane Judiciary Center
October 14, 2008

Sample ID		RGP Limits	RCGW-2	Units	Methods per EPA	Methods per Alpha (for DLs)	Sample Type	B-26 MW	B-6 MW
Date Sampled								3-Oct-08	3-Oct-08
Lab ID								L0814690-01	L0814690-02
1	TSS	30.0		mg/L	160.2	160.2	grab	66	ND
	pH (Class SA & SB Waters)	6.5-8.5		S.U.	150.1	150.1	grab	7.1	7.6
2	Total Residual Chlorine	7.5		ug/L	330.5	330.1	grab	ND [20]	ND [20]
3	TPH	5.0	5	mg/L	1664	1664	grab	ND [4]	ND [4.0]
4	Cyanide	1.0	30	ug/L	335.4	335.2	grab	96	ND [5.0]
5	Benzene	5.0	2000	ug/L	8260	624	grab	ND [1]	ND [1]
6	Toluene	Total BTEX	40000	ug/L	624/8260C	624	grab	ND [1]	ND [1]
7	Ethylbenzene	Total BTEX	5000	ug/L	624/8260C	624	grab	ND [1]	ND [1]
8	Total Xylenes	Total BTEX	5000	ug/L	624/8260C	624	grab	ND [2]	ND [2]
9	**Total BTEX**	100.0		ug/L			grab	ND	ND
10	Ethylene Dibromide (1,2-Dibromoethane)	0.05		ug/L	504.1/8260C	504.1	grab	ND [0.019]	ND [0.019]
11	MTBE	70.0	5000	ug/L	524.2/8260C	624	grab	ND [20]	ND [20]
12	tert-Butyl Alcohol	Monitor only		ug/L	8260C	624	grab	ND [100]	ND [100]
13	tert-Amyl Methyl Ether	Monitor only		ug/L	602/8260C	624	grab	ND [20]	ND [20]
14	Naphthalene	20	1000	ug/L	625/8270D	624	grab	ND [0.2]	ND [0.2]
15	Carbon Tetrachloride	4.4	2	ug/L	8260	624	grab	ND [1]	ND [1]
16	1,4 Dichlorobenzene	5.0	200	ug/L	8260	624	grab	ND [5]	ND [5]
17	1,2 Dichlorobenzene	600	2000	ug/L	8260	624	grab	ND [5]	ND [5]
18	1,3 Dichlorobenzene	320	2000	ug/L	8260	624	grab	ND [5]	ND [5]
19	1,1 Dichloroethane	70	80	ug/L	8260	624	grab	ND [1.5]	ND [1.5]
20	1,2 Dichloroethane	5.0	5	ug/L	8260	624	grab	ND [1.5]	ND [1.5]
21	1,1 Dichloroethylene	3.2	80	ug/L	8260	624	grab	ND [1]	ND [1]
22	cis-1,2 Dichloroethyelene	70	100	ug/L	8260	624	grab	ND [1]	ND [1]
23	Dichloromethane (Methylene Chloride)	4.6	20	ug/L	8260	624	grab	ND [5]	ND [5]
24	Tetrachloroethylene	5.0	50	ug/L	8260	624	grab	ND [1.5]	ND [1.5]
25	1,1,1 Trichloroethane	300	4000	ug/L	8260	624	grab	ND [2]	ND [2]
26	1,1,2 Trichloroethane	5.0	900	ug/L	8260	624	grab	ND [1.5]	ND [1.5]
27	Trichloroethylene	5.0	30	ug/L	8260	624	grab	ND [1]	ND [1]
28	Vinyl Chloride	2.0	2	ug/L	8260	624	grab	ND [2]	ND [2]
29	Acetone	Monitor only	50000	ug/L	8260	624	grab	ND [10]	ND [10]
30	1,4 Dioxane	Monitor only	6000	ug/L	8260	624	grab	ND [2,000]	ND [2,000]
31	total Phenols	300		ug/L	625/8270D	420.1	grab	ND [30]	ND [30]
32	Pentachlorophenol	1.0		ug/L	625/8270D	8270	grab	ND [0.78]	ND [0.78]
33	Total Phthalates (phthalate esthers)	3.0		ug/L	625/8270D	8270	grab	ND	ND
34	Bis (2-Ethylhexyl) Phthalate	6.0		ug/L	625/8270D	8270	grab	ND [9.8]	ND [9.8]
35	**Total Group 1 PAH**	10		ug/L			grab	ND	ND
a	Benzo(a)anthracene	0.0038	1000	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
b	Benzo(a)pyrene	0.0038	500	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
c	Benzo(b)fluoranthene	0.0038	400	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
d	Benzo(k)fluoranthene	0.0038	100	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
e	Chrysene	0.0038	70	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
f	Dibenzo(a,h)anthracene	0.0038	40	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
g	Indeno (1,2,3-cd)pyrene	0.0038	100	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
36	**Total Group II PAH**	100		ug/L			grab	ND	ND
h	Acenaphthene	Total Group II PAH	6000	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
i	Acenaphthylene	Total Group II PAH	40	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
j	Anthracene	Total Group II PAH	30	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
k	Benzo(ghi)perylene	Total Group II PAH	20	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
l	Fluoranthene	Total Group II PAH	200	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
m	Fluorene	Total Group II PAH	40	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
n	naphthalene	Total Group II PAH	1000	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
o	Phenanthrene	Total Group II PAH	10000	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
p	Pyrene	Total Group II PAH	20	ug/L	625/8270D	8270-SIM	grab	ND [0.2]	ND [0.2]
37	**Total PCBs**	0.000064		ug/L		608	grab	ND [0.255]	ND [0.263]
	Total Recoverable Metal Limits	H= 50 mg/l CaCO3							
38	Antimony	5.6	8000	ug/L			grab	ND [0.5]	ND [0.5]
39	Arsenic (salt water)	36	900	ug/L		200.7	grab	7.9	8.1
40	Cadmium (salt water)	8.9	4	ug/L		GFAA	grab	ND [0.2]	ND [1.0]
41	Chromium III (salt water)	100	300	ug/L		200.7	grab	ND [10]	ND [10]
42	Chromium VI (salt water)	50.3	300	ug/L		200.7	grab	ND [10]	ND [10]
43	Copper (salt water)	3.7	100000	ug/L		200.7	grab	1.3	1.1
44	Lead (salt water)	8.5	10	ug/L		GFAA	grab	2.7	ND [0.5]
46	Mercury (salt water)	1.1	20	ug/L		245.2	grab	ND [0.2]	ND [0.2]
47	Nickel (salt water)	8.2	200	ug/L		200.7	grab	1.5	1.1
48	Selenium (salt water)	71.0	100	ug/L		200.7	grab	3	1
49	Silver (salt water)	2.2	7	ug/L		GFAA	grab	ND [0.4]	ND [0.4]
50	Zinc (salt water)	85.6	900	ug/L		200.7	grab	ND [5.0]	7
51	Iron	1000		ug/L		200.7	grab	21000	ND [50]

ND = denotes none detected above laboratory method detection limits
Shaded areas indicated exceedance of RGP Limit

Table 2
Calculations of Mass of Compounds
J. Michael Ruane Judicary Center
Salem, Massachusetts
McPhail Job No. 4893

Avg flow (GPM) = 35 Avg Flow (MGD) = 0.0504			
Compound #	Max Concentration (ug/l)	Max Concentration (mg/l)	**MASS (kg)**
TSS	66	0.066	**0.014**
Arsenic	8.1	0.0081	**0.00177**
Copper	1.3	0.0013	**0.00028**
Lead	2.7	0.0027	**0.00059**
Nickel	1.5	0.0015	**0.00033**
Selenium	3	0.003	**0.00066**
Zinc	7	0.007	**0.00153**
Iron	21000	21	**4.58548**
cyanide	96	0.096	**0.02096**

GPM = Gallons Per Minute
MGD = Million Gallons Per Day
ug/l = Micrograms per liter
mg/l = Milligrams per liter
kg = Kilograms

B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit

1. General site information. Please provide the following information about the site:

a) Name of **facility/site**: J. Michael Ruane Judicial Center		**Facility/site** address:		
Location of **facility/site**: longitude: 70.53 latitude: 42.31	Facility SIC code(s):	Street: 56 Federal Street		
b) Name of **facility/site owner:** The Commonwealth of Massachusetts		Town: Salem		
Email address of owner: james.tanin@state.ma.us		State: MA	Zip: 01970	C E
Telephone no.of facility/site **owner**: (617) 727-4030				
Fax no. of facility/site **owner**: (617) 727-4043		**Owner** is (check one): 1. Federal____ 2. State/Tribal__ 3. Private_____ 4. other, if so, describe:		
Address of **owner** (if different from site):				
Street: One Ashburn Place, 15th Floor				
Town: Boston	State: MA	Zip: 02108	County: Suffolk	
c) Legal name of **operator**: Mattuchio Construction Co., Inc.		**Operator** telephone no: (781) 322-1944		
		Operator fax no.: (781) 322-1955	**Operator** email: bob@mattuchioconstruc	
Operator contact name and title: Robert McCusker-Project Manager				

Address of **operator** (if different from owner):	Street: 323 Commercial Street		
Town: Malden	State: MA	Zip: 02148	County: Middlesex

d) Check "yes" or "no" for the following:
1. Has a prior NPDES permit exclusion been granted for the discharge? Yes___ No✓, if "yes," number:
2. Has a prior NPDES application (Form 1 & 2C) ever been filed for the discharge? Yes___ No✓, if "yes," date and tracking #:
3. Is the discharge a "new discharge"as defined by 40 CFR 122.2? Yes ✓ No___
4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes__ No✓

e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes___ No✓ If "yes," please list: 1. site identification # assigned by the state of NH or MA: 2. permit or license # assigned: 3. state agency contact information: name, location, and telephone number:	f) Is the site/facility covered by any other EPA permit, including: 1. multi-sector storm water general permit? Y___ N✓, if Y, number: 2. phase I or II construction storm water general permit? Y___ N✓, if Y, number: 3. individual NPDES permit? Y___ N✓, if Y, number: 4. any other water quality related permit? Y___ N✓, if Y, number:

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:

Construction dewatering to be performed concurrently with site excavation for construction of a building associated utility conduits. Excavation and conctruction will be performed within a open excavaton. See attached report for further detail.

b) Provide the following information about each discharge:	1) Number of discharge points: 2	2) What is the **maximum** and **average flow rate** of discharge (in cubic feet per second, ft^3/s)? Max. flow .112 Average flow .078 Is maximum flow a **design value**? Y___ N ✓ For average flow, include the units and appropriate notation if this value is a design value or estimate if not available. Average Flow = .078 cfs (35 gpm) (estimated value based on maximum excavation)

3) Latitude and longitude of each discharge within 100 feet: pt.1:long. 70.53 lat. 42.31 ; pt.2: long. 70.53 lat. 42.31 ; pt.3: long._____ lat._____; pt.4:long._____ lat._____; pt.5: long._____ lat._____; pt.6:long._____ lat._____; pt.7: long._____ lat._____; pt.8:long._____ lat._____; etc.

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent ✓ or seasonal ____? Is discharge ongoing Yes ____ No ✓ ?
c) Expected dates of discharge (mm/dd/yy): start 11/01/08 end 11/01/10	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for **all** of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals ✓	Urban Fill Sites ✓	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is **believed present** or **believed absent** in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓	2		160.2		66	14.412	33	.007
2. Total Residual Chlorine	✓				330.1	50	ND			
3. Total Petroleum Hydrocarbons	✓				1664	4	ND			
4. Cyanide		✓			335.4	5	96	.02096	45	.00983
5. Benzene	✓				624	1	ND			
6. Toluene	✓				624	1	ND			
7. Ethylbenzene	✓				624	1	ND			
8. (m,p,o) Xylenes	✓				624	2	ND			
9. Total BTEX[4]	✓				624		ND			

[4] BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)	✓				504.1	.019	ND			
11. Methyl-tert-Butyl Ether (MtBE)	✓				624	20	ND			
12. tert-Butyl Alcohol (TBA)	✓				624	100	ND			
13. tert-Amyl Methyl Ether (TAME)	✓				624	20	ND			
14. Naphthalene	✓				624	4.9	ND			
15. Carbon Tetra-chloride	✓				624	1	ND			
16. 1,4 Dichlorobenzene	✓				624	5	ND			
17. 1,2 Dichlorobenzene	✓				624	5	ND			
18. 1,3 Dichlorobenzene	✓				624	5	ND			
19. 1,1 Dichloroethane	✓				624	1.5	ND			
20. 1,2 Dichloroethane	✓				624	1.5	ND			
21. 1,1 Dichloroethylene	✓				624	1	ND			
22. cis-1,2 Dichloro-ethylene	✓				624	1	ND			
23. Dichloromethane (Methylene Chloride)	✓				624	5	ND			
24. Tetrachloroethylene	✓				624	1.5	ND			

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓				624	2	ND			
26. 1,1,2 Trichloroethane	✓				624	1.5	ND			
27. Trichloroethylene	✓				624	1	ND			
28. Vinyl Chloride	✓				624	2	ND			
29. Acetone	✓				624	10	ND			
30. 1,4 Dioxane	✓				624	2,000	ND			
31. Total Phenols	✓				420.1		ND			
32. Pentachlorophenol	✓				8270	.78	ND			
33. Total Phthalates [5] (Phthalate esthers)	✓				8270		ND			
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓				8270	9.8	ND			
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	✓				8270		ND			
a. Benzo(a) Anthracene	✓				8270	.2	ND			
b. Benzo(a) Pyrene	✓				8270	.2	ND			
c. Benzo(b)Fluoranthene	✓				8270	.2	ND			
d. Benzo(k) Fluoranthene	✓				8270	.2	ND			
e. Chrysene	✓				8270	.2	ND			

[5] The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h) anthracene	✓				8270	.2	ND			
g. Indeno(1,2,3-cd) Pyrene	✓				8270	.2	ND			
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	✓						ND			
h. Acenaphthene	✓				8270	.2	ND			
i. Acenaphthylene	✓				8270	.2	ND			
j. Anthracene	✓				8270	.2	ND			
k. Benzo(ghi) Perylene	✓				8270	.2	ND			
l. Fluoranthene	✓				8270	.2	ND			
m. Fluorene	✓				8270	.2	ND			
n. Naphthalene-	✓				8270	.2	ND			
o. Phenanthrene	✓				8270	.2	ND			
p. Pyrene	✓				8270	.2	ND			
37. Total Polychlorinated Biphenyls (PCBs)	✓				608	.258	ND			
38. Antimony	✓					.5	ND			
39. Arsenic		✓			200.7		8.1	.00046	8.0	.00175
40. Cadmium	✓				GFAA	.2	ND			
41. Chromium III	✓				200.7	10	ND			
42. Chromium VI	✓				200.7	10	ND			

PARAMETER	Believe Absent	Believe Present	# of Samples (1 min-imum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		✓			200.7		2.7	.00059	1.35	.00029
44. Lead		✓			GFAA		1.3	.00028	1.2	.00026
45. Mercury	✓				245.2	.2	ND			
46. Nickel		✓			200.7		1.5	.00033	1.3	.00028
47. Selenium		✓			200.7		3	.00066	2	.00024
48. Silver	✓				GFAA	.4	ND			
49. Zinc		✓			200.7		7	.00153	3.5	.00076
50. Iron		✓			200.7		21000	4.58548	10500	2.29274
Other (describe):										

c) For discharges where **metals** are believed present, please fill out the following:

Step 1: Do any of the metals in the influent have a **reasonable potential** to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y ✓ N____	If yes, which metals? Cyanide and Iron
Step 2: For any metals which have **reasonable potential** to exceed the **Appendix III** limits, calculate the **dilution factor (DF)** using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: Dilution Factor does not apply, discharging directly into salt water body. DF: _____	Look up the limit calculated at the corresponding dilution factor in **Appendix IV.** Do any of the metals in the **influent** have the potential to exceed the corresponding **effluent** limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y____ N____ If "Yes," list which metals:

4. Treatment system information. Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:

Two (2) sedimentation tanks with 10,000-gallons capacity in series. A test of the effluent will be completed prior to discharge into the storm drain system, and additional filtration and/or metal treatment will be added to meet permit limits. See attached figure.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper	Oil/water separator	Equalization tanks ✓	Bag filter	GAC filter
	Chlorination	Dechlorination	Other (please describe):			

c) Proposed **average** and **maximum flow rates** (gallons per minute) for the discharge and the **design flow rate**(s) (gallons per minute) of the treatment system:
Average flow rate of discharge 35 Maximum flow rate of treatment system 50 Design flow rate of treatment system NA

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):

None

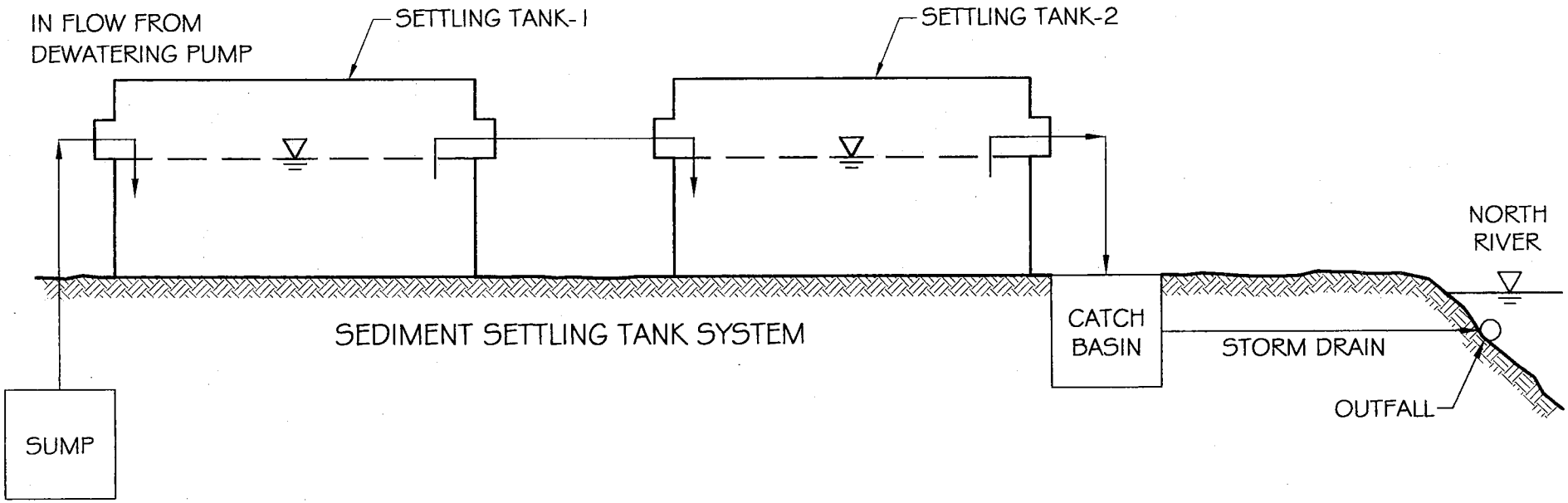
5. Receiving surface water(s). Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:	Direct	Within facility	Storm drain ✓	River/brook	Wetlands	Other (describe):

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:

See Figures 3 & 4 in attached report. The construction dewatering discharge will be pumped to the North River from storm drains along Bridge Street or North Street.

FILE NAME: 4893-Schematic_Discharge



McPHAIL ASSOCIATES, INC.
Geotechnical Engineers
2269 Massachusetts Avenue
Cambridge, MA 02140
617/868-1420
617/868-1423 (Fax)

J. MICHAEL RUANE JUDICIARY CENTER

SALEM MASSACHUSETTS

SCHEMATIC OF WATER FLOW

FOR

MATTUCHIO CONSTRUCTION INC.

BY

McPHAIL ASSOCIATES, INC.

CONSULTING GEOTECHNICAL ENGINEERS

Date: OCTOBER 2008	Dwn: I.J.M.	Chkd: W.J.B.	Scale: N.T.S.
Project No: 4893			

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:
1. For multiple discharges, number the discharges sequentially.
2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water
The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water SB,

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water_____cfs
Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes____ No ✓ If yes, for which pollutant(s)?

Is there a TMDL? Yes ✓ No____ If yes, for which pollutant(s)?
Unionized Ammonia, Organic Enrichment/Low DO, Pathogens

6. Results of Consultation with Federal Services: Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes____No ✓
Has any consultation with the federal services been completed ? No ✓ or is consultation underway? Yes No ✓
What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service (~~check~~ one):
a "no jeopardy" opinion? _____or written concurrence____ on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?
Yes ✓ No_____ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes_____ No ✓

7. Supplemental information. :

Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

8. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following 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, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility/Site Name: J. Michael Ruane Judicial Center

Operator signature:

Title: Senior Project Manager

Date: 11 - 12 - 2008

ALPHA ANALYTICAL

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates
Address: 2269 Massachusetts Avenue
Cambridge, MA 02140
Attn: Mr. Ambrose Donovan
Project Number: 4893.9

Laboratory Job Number: L0814690
Date Received: 03-OCT-2008
Date Reported: 10-OCT-2008
Delivery Method: Alpha
Site: SALEM JUDICIARY

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0814690-01	B-26 MW	SALEM, MA
L0814690-02	B-6 MW	SALEM, MA
L0814690-03	TRIP BLANK	SALEM, MA

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

ALPHA ANALYTICAL
NARRATIVE REPORT

Laboratory Job Number: L0814690

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Sample Receipt

The Trip Blank was received in the laboratory but not listed on the Chain of Custody. At the client's request, the Trip Blank was not analyzed.

Total Residual Chlorine

At the client's request, samples L0814690-01 and -02 were analyzed with the method required holding time exceeded.

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0814690-01
B-26 MW
Sample Matrix: WATER

Date Collected: 03-OCT-2008 08:00
Date Received : 03-OCT-2008
Date Reported : 10-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 7-Amber,4-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	66	mg/l	5.0	30	2540D		1009 13:10	DW
Cyanide, Total	0.096	mg/l	0.005	30	4500CN-CE	1004 12:00	1006 18:11	DD
Chlorine, Total Residual	ND	mg/l	0.02	30	4500CL-D		1006 21:00	JO
pH (H)	7.1	SU	-	30	4500H+-B		1004 00:15	JO
TPH	ND	mg/l	4.00	74	1664A	1007 20:00	1009 17:45	JO
Phenolics, Total	ND	mg/l	0.03	4	420.1		1007 15:51	AT
Chromium, Hexavalent	ND	mg/l	0.010	30	3500CR-D	1003 20:15	1003 20:15	JT
Trivalent Chromium				30	3500-Cr		1007 16:00	ED
Trivalent Chromium	ND	mg/l	0.01	30	3500-Cr			ED
Total Metals								
Antimony, Total	ND	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Arsenic, Total	0.0079	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Cadmium, Total	ND	mg/l	0.0002	1	6020	1004 13:45	1006 23:13	BM
Chromium, Total	0.0008	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Copper, Total	0.0013	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Iron, Total	21	mg/l	0.05	19	200.7	1004 13:45	1007 13:06	MG
Lead, Total	0.0027	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Mercury, Total	ND	mg/l	0.0002	3	245.1	1007 22:00	1008 13:07	HG
Nickel, Total	0.0015	mg/l	0.0005	1	6020	1004 13:45	1006 23:13	BM
Selenium, Total	0.003	mg/l	0.001	1	6020	1004 13:45	1006 23:13	BM
Silver, Total	ND	mg/l	0.0004	1	6020	1004 13:45	1006 23:13	BM
Zinc, Total	ND	mg/l	0.0050	1	6020	1004 13:45	1006 23:13	BM
Pesticides by GC 504				14	504.1	1010 09:00	1010 10:53	SH
1,2-Dibromoethane	ND	ug/l	0.019					
Volatile Organics by GC/MS 624				5	624		1007 08:58	MM
Methylene chloride	ND	ug/l	5.0					
1,1-Dichloroethane	ND	ug/l	1.5					
Chloroform	ND	ug/l	1.5					

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L0814690-01
B-26 MW

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624		1007 08:58	MM
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Methyl tert butyl ether	ND	ug/l	20.				
1,4-Dioxane	ND	ug/l	2000				
Tert-Butyl Alcohol	ND	ug/l	100				
Tertiary-Amyl Methyl Ether	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	92.0	%	80-120				
Fluorobenzene	95.0	%	80-120				

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L0814690-01
B-26 MW

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5	624		1007 08:58	MM
4-Bromofluorobenzene	97.0	%	80-120					
PAH by GC/MS SIM 8270M				1	8270C	1007 15:45	1010 04:18	RY
Acenaphthene	ND	ug/l	0.19					
2-Chloronaphthalene	ND	ug/l	0.19					
Fluoranthene	ND	ug/l	0.19					
Naphthalene	ND	ug/l	0.19					
Benzo(a)anthracene	ND	ug/l	0.19					
Benzo(a)pyrene	ND	ug/l	0.19					
Benzo(b)fluoranthene	ND	ug/l	0.19					
Benzo(k)fluoranthene	ND	ug/l	0.19					
Chrysene	ND	ug/l	0.19					
Acenaphthylene	ND	ug/l	0.19					
Anthracene	ND	ug/l	0.19					
Benzo(ghi)perylene	ND	ug/l	0.19					
Fluorene	ND	ug/l	0.19					
Phenanthrene	ND	ug/l	0.19					
Dibenzo(a,h)anthracene	ND	ug/l	0.19					
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.19					
Pyrene	ND	ug/l	0.19					
1-Methylnaphthalene	ND	ug/l	0.19					
2-Methylnaphthalene	ND	ug/l	0.19					
Surrogate(s)	Recovery		QC Criteria					
Nitrobenzene-d5	70.0	%	23-120					
2-Fluorobiphenyl	66.0	%	43-120					
4-Terphenyl-d14	93.0	%	33-120					
Polychlorinated Biphenyls				5	608	1007 13:30	1010 14:27	SS
Aroclor 1016	ND	ug/l	0.255					
Aroclor 1221	ND	ug/l	0.255					
Aroclor 1232	ND	ug/l	0.255					
Aroclor 1242	ND	ug/l	0.255					
Aroclor 1248	ND	ug/l	0.255					
Aroclor 1254	ND	ug/l	0.255					
Aroclor 1260	ND	ug/l	0.255					
Surrogate(s)	Recovery		QC Criteria					
2,4,5,6-Tetrachloro-m-xylene	72.0	%	30-150					
Decachlorobiphenyl	43.0	%	30-150					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0814690-02
B-6 MW
Sample Matrix: WATER

Date Collected: 03-OCT-2008 09:00
Date Received : 03-OCT-2008
Date Reported : 10-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 7-Amber,4-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	ND	mg/l	5.0	30	2540D		1009 13:10	DW
Cyanide, Total	ND	mg/l	0.005	30	4500CN-CE	1004 12:00	1006 18:12	DD
Chlorine, Total Residual	ND	mg/l	0.02	30	4500CL-D		1006 21:00	JO
pH (H)	8.0	SU	-	30	4500H+-B		1004 00:15	JO
TPH	ND	mg/l	4.00	74	1664A	1007 20:00	1009 17:45	JO
Phenolics, Total	ND	mg/l	0.03	4	420.1		1007 15:52	AT
Chromium, Hexavalent	ND	mg/l	0.010	30	3500CR-D	1003 20:15	1003 20:15	JT
Trivalent Chromium				30	3500-Cr		1007 16:00	ED
Trivalent Chromium	ND	mg/l	0.01	30	3500-Cr			ED
Total Metals								
Antimony, Total	ND	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Arsenic, Total	0.0081	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Cadmium, Total	ND	mg/l	0.0002	1	6020	1004 13:45	1006 23:30	BM
Chromium, Total	ND	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Copper, Total	0.0011	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Iron, Total	ND	mg/l	0.05	19	200.7	1004 13:45	1007 13:13	MG
Lead, Total	ND	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Mercury, Total	ND	mg/l	0.0002	3	245.1	1007 22:00	1008 13:09	HG
Nickel, Total	0.0011	mg/l	0.0005	1	6020	1004 13:45	1006 23:30	BM
Selenium, Total	0.001	mg/l	0.001	1	6020	1004 13:45	1006 23:30	BM
Silver, Total	ND	mg/l	0.0004	1	6020	1004 13:45	1006 23:30	BM
Zinc, Total	0.0070	mg/l	0.0050	1	6020	1004 13:45	1006 23:30	BM
Pesticides by GC 504				14	504.1	1010 09:00	1010 11:05	SH
1,2-Dibromoethane	ND	ug/l	0.019					
Volatile Organics by GC/MS 624				5	624		1007 09:31	MM
Methylene chloride	ND	ug/l	5.0					
1,1-Dichloroethane	ND	ug/l	1.5					
Chloroform	ND	ug/l	1.5					

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L0814690-02
B-6 MW

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5 624		1007 09:31	MM
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Methyl tert butyl ether	ND	ug/l	20.				
1,4-Dioxane	ND	ug/l	2000				
Tert-Butyl Alcohol	ND	ug/l	100				
Tertiary-Amyl Methyl Ether	ND	ug/l	20.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	98.0	%	80-120				
Fluorobenzene	103	%	80-120				

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L0814690-02
B-6 MW

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Volatile Organics by GC/MS 624 cont'd				5	624		1007 09:31	MM
4-Bromofluorobenzene	101	%	80-120					
PAH by GC/MS SIM 8270M				1	8270C	1007 15:45	1010 04:48	RY
Acenaphthene	ND	ug/l	0.20					
2-Chloronaphthalene	ND	ug/l	0.20					
Fluoranthene	ND	ug/l	0.20					
Naphthalene	ND	ug/l	0.20					
Benzo(a)anthracene	ND	ug/l	0.20					
Benzo(a)pyrene	ND	ug/l	0.20					
Benzo(b)fluoranthene	ND	ug/l	0.20					
Benzo(k)fluoranthene	ND	ug/l	0.20					
Chrysene	ND	ug/l	0.20					
Acenaphthylene	ND	ug/l	0.20					
Anthracene	ND	ug/l	0.20					
Benzo(ghi)perylene	ND	ug/l	0.20					
Fluorene	ND	ug/l	0.20					
Phenanthrene	ND	ug/l	0.20					
Dibenzo(a,h)anthracene	ND	ug/l	0.20					
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20					
Pyrene	ND	ug/l	0.20					
1-Methylnaphthalene	ND	ug/l	0.20					
2-Methylnaphthalene	ND	ug/l	0.20					
Surrogate(s)	Recovery		QC Criteria					
Nitrobenzene-d5	76.0	%	23-120					
2-Fluorobiphenyl	69.0	%	43-120					
4-Terphenyl-d14	93.0	%	33-120					
Polychlorinated Biphenyls				5	608	1007 13:30	1010 14:39	SS
Aroclor 1016	ND	ug/l	0.263					
Aroclor 1221	ND	ug/l	0.263					
Aroclor 1232	ND	ug/l	0.263					
Aroclor 1242	ND	ug/l	0.263					
Aroclor 1248	ND	ug/l	0.263					
Aroclor 1254	ND	ug/l	0.263					
Aroclor 1260	ND	ug/l	0.263					
Surrogate(s)	Recovery		QC Criteria					
2,4,5,6-Tetrachloro-m-xylene	68.0	%	30-150					
Decachlorobiphenyl	105	%	30-150					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LA000065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0814690-03
TRIP BLANK
Sample Matrix: WATER

Date Collected: 01-OCT-2008 11:00
Date Received : 03-OCT-2008
Date Reported : 10-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID

******* THIS SAMPLE IS ON HOLD *******

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0814690

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01-02 (L0814798-01, WG339297-2)					
Solids, Total Suspended	36	38	mg/l	5	32
Cyanide, Total for sample(s) 01-02 (L0814669-02, WG338749-3)					
Cyanide, Total	0.006	0.007	mg/l	12	30
Chlorine, Total Residual for sample(s) 01-02 (L0814690-01, WG338918-3)					
Chlorine, Total Residual	ND	ND	mg/l	NC	
TPH for sample(s) 01-02 (L0814690-01, WG339061-4)					
TPH	ND	ND	mg/l	NC	34
Phenolics, Total for sample(s) 01-02 (L0814533-01, WG339019-4)					
Phenolics, Total	ND	ND	mg/l	NC	12
Chromium, Hexavalent for sample(s) 01-02 (L0814690-02, WG338694-3)					
Chromium, Hexavalent	ND	ND	mg/l	NC	20
Total Metals for sample(s) 01-02 (L0814690-01, WG338769-1)					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.0079	0.0072	mg/l	9	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.0008	0.0008	mg/l	4	20
Copper, Total	0.0013	0.0014	mg/l	4	20
Lead, Total	0.0027	0.0027	mg/l	1	20
Nickel, Total	0.0015	0.0017	mg/l	12	20
Selenium, Total	0.003	0.003	mg/l	13	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	ND	ND	mg/l	NC	20
Total Metals for sample(s) 01-02 (L0814690-01, WG338770-1)					
Iron, Total	21	21	mg/l	0	20
Total Metals for sample(s) 01-02 (L0814784-01, WG339077-3)					
Mercury, Total	ND	ND	mg/l	NC	
Volatile Organics by GC/MS 624 for sample(s) 01-02 (L0814488-02, WG338812-2)					
Methylene chloride	ND	ND	ug/l	NC	30
1,1-Dichloroethane	ND	ND	ug/l	NC	30
Chloroform	ND	ND	ug/l	NC	30
Carbon tetrachloride	ND	ND	ug/l	NC	30
1,2-Dichloropropane	ND	ND	ug/l	NC	30
Dibromochloromethane	ND	ND	ug/l	NC	30
1,1,2-Trichloroethane	ND	ND	ug/l	NC	30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC	30
Tetrachloroethene	ND	ND	ug/l	NC	30
Chlorobenzene	ND	ND	ug/l	NC	30
Trichlorofluoromethane	ND	ND	ug/l	NC	30
1,2-Dichloroethane	ND	ND	ug/l	NC	30