ENVIRONMENTAL CONSULTING & MANAGEMENT
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November 27, 2002

Mr. Anthony Karwiel
Environmental Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, New York 12233-7013

Re: Detached Mail Unit (DMU) Subsurface Investigation
Results and Recommendations
Former Manufactured Gas Plant (MGP)
124-136 Second Avenue, Brooklyn, New York
Agreement Index Number: A2-0430-0009

Dear Mr. Karwiel:

On behalf of FC Gowanus Associates, L.L.C. (FC Gowanus), Roux Associates, Inc. (Roux Associates) respectfully submits for your review the results and recommendations of the investigation conducted on October 23, 2002 to delineate coal tar impacted soil encountered during the demolition and subsequent removal of the pile caps associated with the former Detached Mail Unit (DMU) at the Site.

Investigation Objective
The objective of the investigation was to conduct additional test pits to identify the horizontal and vertical limits of the impacted soil encountered during the pile cap removal activities. The investigatory activities were conducted in accordance with all guidelines/procedures established within the approved Revised Remedial Work Plan (RRWP), in order to expedite further remedial efforts and minimize any delays with respect to the future development commitment of the Site.

Investigation Findings
Approximately twenty-six test excavations, 20 feet in length, 4 feet in width, and 10-12 feet in depth, were conducted in the north-central DMU area to define the horizontal and vertical limits of subsurface non-aqueous phase liquid (NAPL) and impacted soil (Plate 1). Excavation results found a layer of impacted soil at approximately 7-9 feet below ground surface (bgs), just above the static groundwater level, over an approximate 28,000 square foot area. A sample of the NAPL entrained within the impacted soil was collected and analyzed to determine the product type. Laboratory results (attached) identified the NAPL as coal tar product. The impacted layer appeared to be confined by

an underlying ash-type layer and overlying compacted fill. Water intrusion into each of the excavations occurred from both the existence of perched water due to the poorly draining overlying soils, as well as the water Table encountered at approximately 9 feet bgs. Traces of coal tar product accumulated on top of the water in the open excavations, due to the product being carried into the excavation by the water draining through the impacted layer. Oleophilic sorbent pads were placed into the open excavations that had accumulated coal tar residual, in order to recover this material. The excavations remained open overnight to observe further accumulation. Upon visual inspection the following morning, very little, if any, additional coal tar product had migrated into the open excavations, although the water level in each excavation had risen to approximately 2 feet bgs due to the surrounding hydrostatic pressure. The excavations were field located with stakes, and backfilled to grade with the previously excavated material.

Remedial Recommendations

Based on the investigatory findings, it appears that an isolated layer of coal tar impacted soil exists at an approximate depth of 7-9 feet bgs, over the north-central area within the former DMU footprint. Based on the limited observations, it appears that the contamination is both isolated and confined due to the nature of the surrounding soils. Additionally, the depth of the impacted soil will minimize any potential for exposure during redevelopment activities, and the required underslab venting system will act as an additional engineering control to mitigate long-term exposure potential.

To address the coal tar layer in the DMU area, a recovery trench system will be constructed. The remedial approach will be to create a pathway through the impacted area in order to observe the migration potential of the encountered coal tar layer of contamination. Taking into account the depth of the impacted soil, and its proximity just above the water table, the remedial plan is to install two recovery trenches running east to west within the area of defined contamination as indicated on Plate 1 (attached). The northernmost trench will be 300 feet in length, while the southern trench will be an approximate 150 feet in length. Both trenches will be 2 feet wide and approximately 12 feet in overall depth. The trenches will be constructed with an approximate 5 foot layer (from 7 to 12 feet bgs) of ¾ inch drainage stone to facilitate ease of any potential product migration to the recovery trench and associated monitoring/recovery sumps. The top 7 feet will be backfilled with disturbed, non-impacted native soils resulting from the trench excavating. All excavated impacted soils will be stockpiled and managed for proper disposal as coal tar waste.

Monitor/recovery sumps will be installed along each of the recovery trenches at 50-foot intervals, providing for a total of 9 sumps. Each sump will be set to an overall depth of 13 feet, consisting of 6-inch sch. 40 PVC screen from 7 to 13 feet bgs surrounded by ¾ inch drainage gravel, and 6-inch sch. 40 PVC riser from 0 to 7 feet bgs., topped with a locking cap and protective steel sleeve. A vacuum tank truck or equivalent pump with storage vessel will be available to manage any water/coal tar from within the trench excavations as needed during the installation.

The sumps will be maintained and monitored once per week for the first eight weeks to measure and, as appropriate, recover any of the coal tar that has accumulated. The sumps will be managed utilizing a mobile vacuum tank truck (or equivalent) to maximize the recovery potential. The sumps will be pumped until they are dry, or until no further recovery is evident. Recovered product, if measurable, will be recorded for each monitoring/recovery event. Collected data will be provided to NYSDEC informally, following each visit, and in report form as needed. After the initial eight visits, the collective recovery data will be reviewed, and an evaluation made as to the effectiveness of the recovery effort. A recommendation will be made regarding the need for continued recovery/monitoring operations in the DMU area. All removed water/coal tar will be transported to a permitted facility for proper disposal.

Pursuant to the terms of the Voluntary Cleanup Agreement, upon completion of the recovery trench/monitoring sump installation, all associated monitoring and recovery efforts will be conducted as part of an approved Operating, Maintenance and Monitoring Plan (OM&M).

The recovery trench installation will be initiated upon receipt of your review/comments.

Please contact me if you have any questions or require additional information.

Sincerely,

ROUX ASSOCIATES, INC.

William A. Fisher, CHMM
Senior Construction Manager

Attachments

cc: Gregory Lowe, Forest City Ratner Companies
Rockie Gajwani, Forest City Ratner Companies
Charles McGuckin, P.E., Roux Associates, Inc.
Joseph Duminuco, Roux Associates, Inc.

Site: Brooklyn Commons

Lab Job No: C160

Date Sampled: 10/24/02
Date Received: 10/28/02
Matrix: Organic

Date Extracted: 10/29/02
Date Analyzed: 10/29/02

GC/FID FINGERPRINT

STL Edison Sample #	Client ID	Product I.D.
386605	Product-DMU	Most closely resembles coal tar.

DETACHED MAIL UNIT (DMU) AREA
RECOVERY TRENCHES