REMEDIAL ACTION WORK PLAN
FORMER SPEEDY'S CLEANERS
2150 MONROE AVENUE
BRIGHTON, NEW YORK
NYSDEC SITE NO. 828128
(Revision No. 0)

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation
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1.0 INTRODUCTION

At the request of the New York State Department of Environmental Conservation (the Department), Empire Geo-Services, Inc. (Empire) has prepared this Remedial Action Work Plan (RAWP) for the Former Speedy's Cleaners, 2150 Monroe Avenue, Brighton, New York (Site No. 828128). The components of the work plan are based on information presented in Callout ID No. 119375 Amendment No. 1, issued by the Department to Empire on November 29, 2010.

Site background information, including a summary and purpose of the remedial action, site description and history, land use, enforcement status, site contamination, summary of the remediation objectives, summary of the evaluation of remedial alternatives, summary of the selected remedy, and highlights of the community participation are presented in the Department's Record of Decision (ROD), dated March 2010.

2.0 SCOPE OF WORK

Empire has prepared this RAWP based on the elements of the remedy outlined in the March 2010 ROD. Per the Callout ID No. 119375 Amendment No. 1, Empire was requested to prepare this RAWP describing how the following components of the selected remedy will be completed:

- Monitoring well decommissioning
- Excavation of contaminated soil
- Transportation of contaminated soil
- Excavation dewatering
- Storage of excavation water
- Transportation and disposal of excavation water
- Introduction of biological amendments to the excavations
- Installation of biostimulation injection wells
- Excavation backfilling
- Restoration of subbase and pavement
- Injection of amendment and primer
- Monitoring well installation
- Daily reporting
- Preparation and submittal of a final engineering report

The plan for conducting each of these components is presented in the following sections. Attachment A is a figure showing relevant site features discussed in this RAWP.

3.0 MONITORING WELL DECOMMISSIONING

Decommission of existing site monitoring wells MW-211 and MW-212, located within the planned excavation areas, will be performed prior to proceeding with excavation activities. The decommissioning will be performed through grouting in-place.

The following standard grout mixture will be used:

- One 94-pound bag Type I Portland cement;
- 3.9 pounds powdered bentonite
- 7.8 gallons potable water

Prior to beginning the grout-mixing procedure, the volume of grout required to fill the wells will be calculated. An appropriate volume of grout will be mixed at the cement/bentonite/water ratio noted above. The grout will be mixed until a smooth, homogenous mixture is achieved. The grout will then be pumped into each well using a one-inch diameter tremie pipe placed to the bottom of the well. Grout will be pumped through the tremie pipe until it appears at the land surface, and the tremie pipe will be withdrawn. Any groundwater displaced during grout placement will be contained for proper disposal. Both monitoring wells will ultimately be removed in their entirety during the soil excavation activities described below.

4.0 EXCAVATION OF CONTAMINATED SOIL

Two areas will be excavated as part of the site remedy. One excavation area is located on the south side of the building; the other is located at the rear of the building. These areas are shown on the attached figure.

The excavation area to the rear of the building is free of obstructions. However, three obstructions are present at the excavation area on the south side of the building that would prevent excavation of soil adjacent to the building footing. These obstructions are:

- A concrete step leading from a doorway;
- An air conditioning unit; and,
- A natural gas line and meter

Prior to excavation Empire will take the following actions to facilitate excavation of contaminated soil adjacent to the site building:

- Remove the concrete step;
- Test the operation of the air conditioning unit, then remove the unit and the underlying concrete pad; and,
- Have the natural gas service to the building temporarily deactivated

Removal of the concrete step and the air conditioning unit will allow for excavation against the building footing in those areas. Excavation to the footing will be impeded by the presence of the gas line, gas meter, and protective bollards. If necessary, the protective bollards will be removed prior to excavation and replaced at the conclusion of the excavation work.

The footprint of each excavation area is 10 by 10 feet. Immediately prior to excavating, the site asphalt will be saw cut and removed. The upper three feet of material within the excavation footprints will be segregated for use as backfill material. The segregated backfill material will be stored on a 6-mil-thick polysheeting, and covered at the end of each work day to prevent erosion of the pile by wind or rainfall.

After removal and segregation of the upper three feet of soil, the remaining soil within each footprint will be excavated to the top of the bedrock surface, estimated to be approximately 10 feet below ground surface (bgs).

Once the excavation limits are reached, one confirmation sample from each sidewall (four samples per excavation, eight samples overall) will be collected for laboratory analysis of volatile organic compounds (VOC) by EPA Method SW846-8260. The samples will be submitted to a NYSDEC contract laboratory for 24-hour turnaround. If the samples indicate NYSDEC cleanup objectives are met, excavation will cease. If the cleanup objectives are not met, the process of excavation and sampling will continue until the sample results indicate the cleanup objectives have been met.

On January 4, 2011, Empire evaluated the building construction in the vicinity of the excavation areas. This evaluation included observing the building subsurface structure from inside the

basement. The majority of the excavation will occur adjacent to the portion of the building with a full basement. The bottom of the footing in these areas is approximately 8 feet bgs. Empire believes the excavation can be safely conducted in these areas without the need for pilings or shoring to stabilize the building. A small portion of the excavation on the south side of the building may be done against a portion of the building without a basement. Empire observed through hand digging that the bottom of the footing in this area is approximately 3 feet bgs. Due to only a small portion of the excavation occurring in this area, Empire does not believe that any building reinforcement will be required.

As part of the overall process, the concrete step and air conditioning unit removed prior to excavation will be replaced. These activities will need to be coordinated with the planned pavement replacement and the requirements of the property owner in these regards.

5.0 TRANSPORTATION OF CONTAMINATED SOIL

Transportation of the contaminated soil will be by a transporter with a valid New York State Part 364 Waste Transporter Permit. The soil will be transported under appropriate manifest to a New York State Part 370 licensed hazardous waste landfill for disposal.

6.0 EXCAVATION DEWATERING

During the excavation activities being conducted to approximately 10 feet bgs, groundwater infiltration will occur. Therefore, during the excavation activities groundwater pumping will be performed as appropriate to maintain a dry excavation. The groundwater will be extracted using a trash pump with 2-inch-diameter suction hose. The pump discharge will be through a 5/8-inch-diameter garden hose.

7.0 STORAGE OF EXCAVATION WATER

Due to the relatively low volume of water expected to be generated by the dewatering activities, 55-gallons drums will be used for the water storage. If the dewatering activities are conducted when sub-freezing air temperatures are still common, the drums will only be filled to 75-percent capacity to allow for expansion of the water.

After the dewatering activities are completed, Empire will collect appropriate samples for characterization and subsequent disposal of the water.

8.0 TRANSPORTATION AND DISPOSAL OF EXCAVATION WATER

Following characterization, the excavation water will be loaded and transported by a permitted hazardous waste hauler to a licensed hazardous waste disposal facility.

9.0 INTRODUCTION OF BIOLOGICAL AMEDMENTS TO THE EXCAVATIONS

Prior to backfilling each excavation, groundwater pumping will be discontinued allowing the excavation to fill with groundwater. Once the groundwater reaches an approximately static level, the biological amendments will be added.

The biological amendments will consist of hydrogen release compound (HRC®) and hydrogen release compound primer (HRC Primer®) manufactured by Regenesis. A total of approximately 210 pounds of HRC® and 90 pounds of HRC Primer® will be added to each excavation. These materials will be introduced in accordance with Regenesis' recommendations for direct application in an excavation.

10.0 INSTALLATION OF BIOSTIMULATION INJECTION WELLS

Prior to backfilling, one 6-inch diameter polyvinyl chloride (PVC) injection well will be installed in each excavation. The injection wells will be constructed with approximately 10 feet of vertical riser with an elbow connecting the riser to a horizontal, slotted pipe running the length of the excavation bottom. Care will be taken during backfilling of the excavation to maintain the wells in an upright position and to prevent damage to them. An eight-inch-diameter, flush mount bolt-down, manhole will be placed over each well. Each well will be secured with a locking monitoring well j-plug. Concrete surface pads will be constructed following pavement restoration.

11.0 EXCAVATION BACKFILLING

Prior to backfilling each excavation, a demarcation material such as plastic sheeting, snow fencing, or a geotextile will be placed in the bottom of the dewatered excavation. The excavation will then be backfilled to above the static groundwater using No. 2 crushed stone from an offsite source. Efforts will be made to backfill to above the base of the building footing as quickly as reasonably possible while still fulfilling the other relevant elements of the work plan (introduction of biological amendments and installation of biostimulation injection wells).

Once backfilling to above the static water level has been completed, backfilling will proceed using overburden soils that were segregated and stockpiled. Care will be taken during the backfilling activities to avoid damaging the biostimulation injection wells and to maintain them in an upright position. During the backfilling activities, the backfill will be compacted in lifts of no greater than six inches using a vibratory plate compactor. Once backfilling is complete, the natural gas utility will be turned back on.

Depending on when the excavation activities are completed, the excavation will be either backfilled to ground surface (if asphalt plants have not resumed operation), or will be backfilled to within three inches of ground surface (if asphalt plants are open and the site can be repaved in a timely manner).

12.0 RESTORATION OF SUBBASE AND PAVEMENT

The No. 2 crusher run stone utilized for the excavation backfill will serve as the subbase for the replacement asphalt. If necessary, the upper most 3 inches of stone will be removed from the excavation and transported offsite as clean fill material. Three inches of Type F binder will be placed within the excavation footprint and compacted to the level of the surrounding asphalt with a suitably-sized vibrating power roller.

13.0 INJECTION OF AMENDMENT AND PRIMER

In-situ enhanced biodegradation upgradient of the existing site building will be performed utilizing temporary injection points. The approximate locations of the injection points are shown

on the attached figure. A total of 10 injection points spaced approximately 10 feet apart will be utilized.

At each injection point, direct-push methods will be utilized to advance injection rods with a disposable point to the top of the bedrock surface. The rods will then be pulled back approximately 6 inches resulting in the removal of the disposable point. Injection will be performed at this depth, as well as at shallower depths spaced at 6- to 12-inch intervals depending on the amount of standing water. For example, if bedrock is encountered at 10.5 feet bgs, the injection rods will be pulled back to 10 feet bgs and injection will be performed. The rods will then be pulled back 6 to 12 inches and injection performed again. Injection will be performed in this manner throughout the saturated interval. After injection is complete, the injection point hole will be plugged with portland cement and bentonite. Between each injection point, all downhole equipment will be decontaminated with a scrub brush and detergent wash, and thoroughly rinsed. A second round of injection following this protocol will be performed approximately six months after the first injection using injection points located according to a staggered pattern and equidistant from the initial injection points.

An estimated quantity of 4,620 pounds of 3DMe® and 105 pounds of HRC®, manufactured by Regenesis, will be injected for each of the two injection events (for a total of 9,240 pounds and 210 pounds total, respectively). Empire understands that the 3DMe® will be shipped as 840 pounds of concentrate to be diluted 10:1 with potable water.

The materials will be mixed in accordance with Regenesis' recommendations for direct injection. Based on the intention to inject at five different intervals at 10 locations a total of two times, the injection masses can be summarized as follows:

- For each event, a mass of approximately 4,620 pounds of 3DMe® and 105 pounds of HRC® will be injected.
- At each injection location (a total of 20), a mass of approximately 231 pounds of 3DMe® and 5.25 pounds of HRC® will be injected.
- At each injection depth interval (a total of 100), a mass of approximately 46 pounds of 3DMe® and 1.05 pounds of HRC® will be injected at each injection location

In the event that the subsurface is not capable of accepting the indicated volumes or saturated subsurface conditions change, Empire will notify the Department and make recommendations for adjusting the volumes, locations, or number of injection intervals per location.

14.0 MONITORING WELL INSTALLATION

A total of three monitoring wells will be installed at the site following completion of the soil excavation activities. One monitoring well will be located downgradient of each excavation area as a replacement well for the decommissioned wells MW-211 and MW-212. The third monitoring well will be located downgradient of the site for use in future groundwater quality monitoring.

All three wells will be installed and constructed in the same manner. The overburden will be drilled to bedrock (expected to be approximately 18.0 feet bgs) using 4.25-inch inside diameter (ID) hollow stem augers. As the site has been extensively characterized, no soil sampling for lithology or laboratory analysis will be collected. Soil cuttings will be drummed for characterization and offsite disposal.

The monitoring wells will be constructed with two-inch ID threaded schedule 40 PVC flush-joint casing with a ten-foot-long machine slotted 0.010-inch well screen. The annulus around the well screen will be backfilled with No. 1 Morie sand. The sand pack will extend one to two feet above the well screen. A bentonite seal will be placed above the sand pack to form a minimum two foot seal. Cement/bentonite grout will be placed to within three feet of the ground surface. Each well will have a vented, locking cap. An eight-inch-diameter, flush mount bolt-down, manhole will be placed over each well. A cement pad will be installed surrounding the manhole to channel surface water away from the well.

Prior to drilling and between each monitoring well location, all downhole equipment will be cleaned by pressure washing. If split spoon samplers are utilized at any time, the spoons will be decontaminated with a scrub brush and detergent wash, and thoroughly rinsed between each sample.

15.0 DAILY REPORTING

During the remedial activities, Empire will prepare and submit to NYSDEC daily reports documenting the activities conducted that day. The daily reports will include site photographs as appropriate.

16.0 FINAL ENGINEERING REPORT

Once the remedial actions have been completed, Empire will prepare a Final Engineering Report in accordance with NYSDEC's Technical Guidance for Site Investigation and Remediation document (DER-10). The Final Engineering Report will be certified and signed by a professional engineer licensed to practice in New York.

17.0 PROPOSED SCHEDULE

The proposed schedule for completing the remedial tasks outlined above in Sections 3.0 through 16.0 is as follows:

Monitoring well decommissioning (Section 3.0) will be completed by March 4, 2011.

Excavation and related activities (Sections 4.0, 5.0, 6.0, 7.0, 9.0, 10.0, and 11.0) will be completed by March 18, 2011.

Transportation and disposal of excavation water (Section 8.0), the first injection of amendment and primer (Section 13.0), and monitoring well installation (Section 14.0) will be completed by April 1, 2011.

Restoration of subbase and pavement (Section 12.0) will be completed by April 15, 2011. Based on this proposed schedule, asphalt plants will likely not yet be open at the time soil excavation is completed. Therefore, the excavations will be backfilled to ground surface pending restoration of the asphalt once the plants resume operation.

The second injection of amendment and primer (Section 13.0) will be completed by September 30, 2011.

Daily reporting (Section 15.0) will be conducted currently with the tasks outlined in Sections 3.0 through 14.0.

The Final Engineering Report (Section 16.0) will be completed and submitted in October 2011 following the second injection of amendment and primer. Progress on the report will be made throughout implementation of the RAWP.

ATTACHMENT

Figure

(modified from Figure 4 of the March 2010 Final Remedial Investigation/Feasibility Study – Former Speedy's Cleaners – Site No. 828128, prepared by MACTEC Engineering and Consulting, P.C.)

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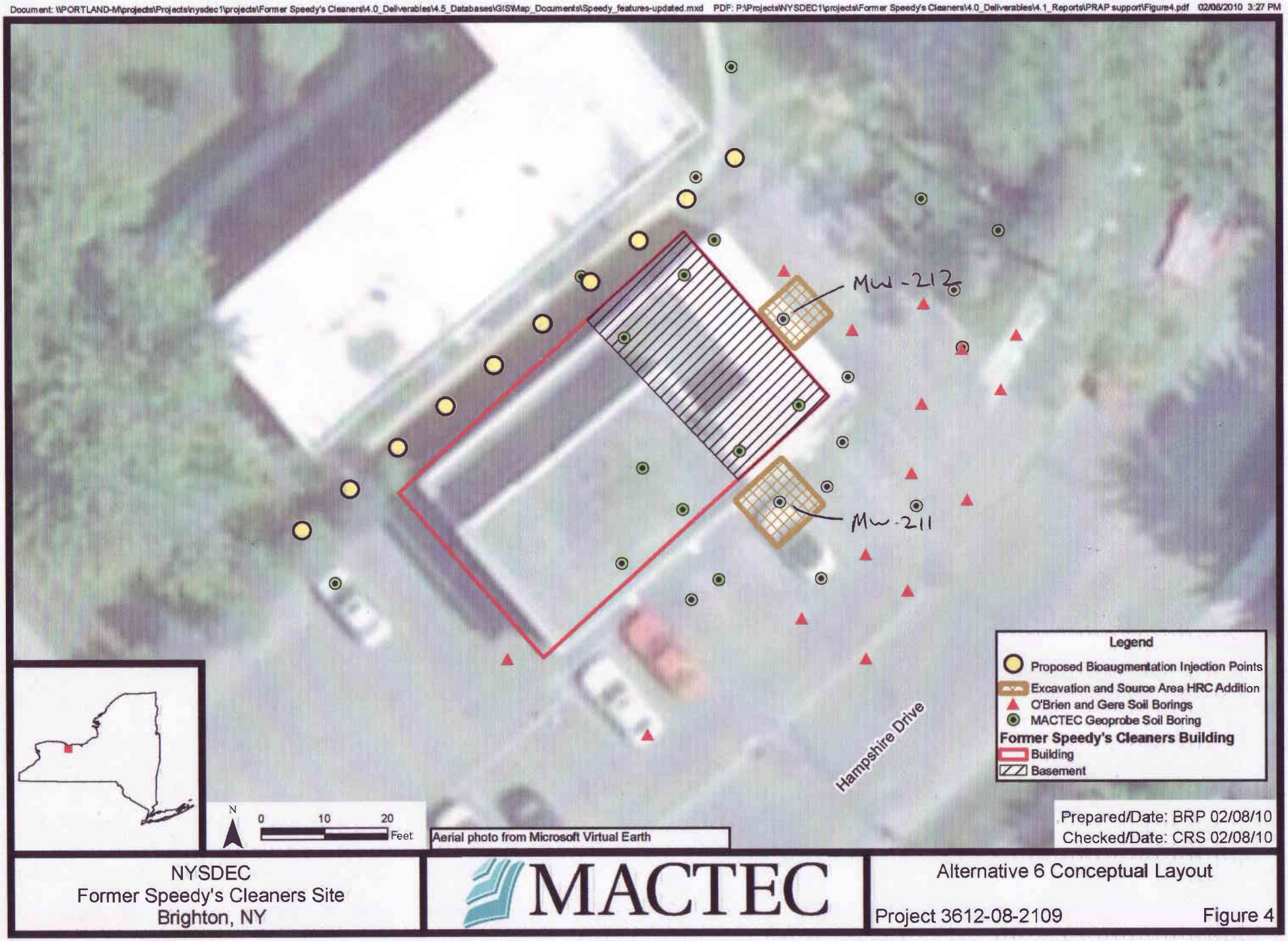

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Former Speedy's Cleaners Site
Brighton, NY

MACTEC

Alternative 6 Conceptual Layout

Project 3612-08-2109 Figure 4