

Honeywell
301 Plainfield Road
Suite 330
Syracuse, NY 13212
315-552-9700
315-552-9780 Fax

October 17, 2013

To: Diane Carlton, NYSDEC, Region 7 (1 CD)
Holly Sammon, Onondaga County Public Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Joseph J. Heath, Esq., Onondaga Nation (cover letter)
Cara Burton, Solvay Public Library (1 bound)

Re: Letter of Transmittal – Wastebeds 1-8 Site Repository Addition

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- Wastebeds 1-8 Limited Groundwater Investigation Work Plan dated October 15, 2013

Sincerely,

John P. McAuliffe by CCC

John P. McAuliffe, P.E.
Program Director, Syracuse

Enc.

cc: Tracy A. Smith - Project Manager

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D, 12th Floor
625 Broadway, Albany, New York 12233-7013
Phone: (518) 402-9676 • Fax: (518) 402-9020
Website: www.dec.ny.gov



October 17, 2013

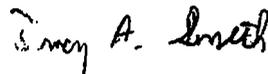
Mr. John P. McAuliffe, P.E.
Honeywell International, Inc.
301 Plainfield Road
Suite 330
Syracuse, NY 13212

Re: Wastebeds 1-8 Limited Groundwater Investigation Work Plan

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation has reviewed the "Wastebeds 1-8 Limited Groundwater Investigation Transmittal and Work Plan" (work plan) submitted in your letter dated October 15, 2013. Based on our review the work plan is approved. Please note that in accordance with Jennifer Reynolds email to me dated October 15, 2013, the temporary wells will be abandoned by either pulling the wells by hand to the extent possible, or cutting the PVC below grade surface and filling the remaining hole with bentonite pellets to surface grade. If you have any questions, please contact me at 518-402-9796.

Sincerely,



Tracy A. Smith
Project Manager

ecc: J. Gregg, NYSDEC
H. Kuhl
T. Joyal, Esq.
C. Waterman
D. Crawford, OBG

R. Nunes, USEPA
J. Shenandoah
A. Lowry
D. Hesler, NYSDEC
R. Quail, NYSDEC

M. Sergott, NYSDOH
J. Heath, Esq.
T. Biel, NYSDEC
F. Kirshner
M. Spera, AECOM

Honeywell
301 Plainfield Road
Suite 330
Syracuse, NY 13212
315-552-9700
315-552-9780 Fax

October 15, 2013

Mr. Tracy Smith
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau D
625 Broadway 12th Floor
Albany, NY 12233-7013

Re: Wastebeds 1 – 8, Town of Geddes, Onondaga County, New York
Index # D-7-0002-02-08

Dear Mr. Smith:

Attached please find a copy of the revised *Limited Groundwater Investigation Work Plan – Wastebeds 1 through 8*. The work plan was prepared by O'Brien & Gere.

Please contact Douglas Crawford of O'Brien & Gere at (315) 956-6442 or me if you have any questions.

Sincerely,


John P. McAuliffe, P.E. *by CCC*
Program Director, Syracuse

Enc. (2 copies, 1 CD)

cc:	Robert Nunes	USEPA (1 copy, 2 CDs)
	Harry Warner	NYSDEC Region 7 (1 copy, 1 CD)
	Mark Sergott	NYSDOH (1 copy, 1 CD)
	Margaret A. Sheen, Esq.	NYSDEC, Region 7 (ltr only)
	Argie Cirillo, Esq.	USEPA (ltr only)
	Brian D. Israel, Esq.	Arnold & Porter (ec or CD)
	David Coburn	O.C. Office of the Environment (1 copy, 1 CD)
	Joseph Heath, Esq.	(ec ltr only)
	Thane Joyal, Esq.	(1 copy, 1 CD)
	Fred Kirschner	AESE, Inc. (ec or CD)
	Jeanne Shenandoah	Onondaga Nation (1 copy and ec ltr only)
	Curtis Waterman	HETF (ec or CD)
	Alma Lowry	(ec ltr only)
	Michael Spera	AECOM (1 copy, 1 CD)

Mr. Tracy Smith
October 15, 2013
Page 2

David Scheuing
William Hague
Steve Miller
Thomas Conklin
Bradley Kubiak
Douglas M. Crawford
Christopher C. Calkins

AECOM (1 copy, 1 CD)
Honeywell (ec or CD)
Honeywell (CD/ltr only)
O'Brien & Gere
O'Brien & Gere (ec)
O'Brien & Gere (ec or ec ltr only)
O'Brien & Gere (ec or ec ltr only)

Revised Work Plan

**Limited Groundwater Investigation
Work Plan
Wastebeds 1 through 8**

Honeywell

Revised October 2013



TABLE OF CONTENTS

Table of Contents	1
List of Tables.....	1
List of Figures.....	1
Introduction	2
Objective and approach	3
Objective.....	3
Approach.....	3
Methodologies	3
Groundwater Sampling and Analysis.....	3
Groundwater Elevation Data Collection	4
Groundwater Discharge Study.....	4
Site Survey.....	5
Data Analysis.....	5
Project Logistics	5
Health and Safety.....	5
Access Agreements.....	5
Decontamination	5
Investigation-Derived Wastes.....	6
Reporting	6
Schedule	6
References	6

LIST OF TABLES

- 1 Sample Summary Matrix

LIST OF FIGURES

- 1 Site Location Plan
- 2 Site Plan
- 3 Sample Location Plan
- 4 Schedule

INTRODUCTION

The Wastebeds 1 through 8 Site is located along the southwestern shore of Onondaga Lake, as depicted in **Figure 1**. A Site Plan of Wastebeds 1 through 8 is included as **Figure 2**. The irregularly shaped wastebeds extend approximately 1.5 miles along the shoreline, with a maximum width of 0.5 mile, and cover approximately 315 acres. The Site, in its entirety, and inclusive of the wastebeds, covers approximately 404 acres. The Site elevation ranges from approximately 363 to 430 ft above mean sea level. Ninemile Creek (NMC) borders the Site along the northwest side to where it flows into Onondaga Lake.

The wastebeds were constructed over the Geddes Marsh and contain primarily Solvay waste, which consists of particles of insoluble residues, hydroxides, calcium carbonate, and gypsum. The Solvay waste was hydraulically placed in the wastebeds in slurry form (90 to 95% water and 5 to 10% solids). These wastes were generated at the former Main Plant during soda ash production using the Solvay process. Soda ash production began in 1884 and continued until 1986. The wastebeds were used on a rotating basis; as a wastebed was filled, additional slurry would be pumped to another wastebed while the first wastebed dewatered by draining and evaporation (BBL 1989).

Wastebeds 1 through 6 were in use prior to 1926 and may have been put to use as early as 1916, although no definitive construction date is available. Ninemile Creek was rerouted to the north to permit the construction of Wastebeds 5 and 6. Wastebeds 7 and 8 were not utilized until after 1939 and remained in use with Wastebeds 1-6 until 1943 (BBL, 1989). A dike along Wastebed 7 failed, and an area along State Fair Boulevard was flooded with Solvay waste on November 25, 1943. The failure led to the closure of Wastebeds 1 through 8. The location of each wastebed is presented on **Figure 2**.

Chlorinated benzene production at the Willis Avenue plant occurred between 1918 and 1977. Additional operations reportedly took place at the Willis Avenue plant from 1918 to 1977 including production of hydrochloric acid, caustic soda, caustic potash, and chlorine gas (O'Brien & Gere 1990). The Benzol plant operated from as early as 1903. This plant produced benzene, toluene, xylenes, and naphthalene by the fractional distillation of coke "light oil". The Solvay Process Company operated a coke plant from 1892 through 1923. (There is an apparent discrepancy regarding the dates of operation of the coke plant in the referenced *Site History Report*; page 54 of the report states that the coke plant was operational from 1892 to 1923, and page 47 of the report states that coke ovens were used through 1924, although the 1924 map on page 14 of the report denotes "coke ovens not present".) A phenol production plant operated from 1942 to 1946 (PTI 1992). Materials associated with these operations may have been disposed of in Wastebeds 1-8 with the Solvay waste slurry or by alternative means although there are no records or reports to indicate this occurred.

Numerous field investigations have been conducted at the Site, between 1986 and the present. The results of these investigations are summarized in the Remedial Investigation (RI) Report (O'Brien & Gere 2008) which is being revised in response to NYSDEC comments (NYSDEC 2008). Generally, inorganics, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) were detected in various media at the Site. A revised Supplemental Remedial Investigation Work Plan was submitted to NYSDEC on March 13, 2009 (Honeywell 2009). These supplemental investigations are currently underway and will also be documented in the Revised RI Report. The Site-wide Feasibility Study (FS) will be conducted following the RI.

As documented in the Focused Feasibility Study (FFS) Report (O'Brien & Gere 2010), the shallow and intermediate site groundwater discharging to Onondaga Lake and NMC is a result of recharge from precipitation infiltrating through the wastebeds. There is no identified off-Site source of shallow and intermediate groundwater. Therefore, the general overall remedial strategy for the Site is to both manage as necessary shallow and intermediate groundwater that is discharging toward Onondaga Lake and NMC and to minimize the recharge of groundwater from infiltration (O'Brien & Gere 2010). This strategy also includes seeps that have the potential to flow into Onondaga Lake or NMC. Following NYSDEC approval of the FFS, an Interim Remedial Measure (IRM) has been selected and is being implemented for the Site.

The Wastebeds 1 through 8 Site-Wide FS Cover System Pilot Study Expansion Program includes preliminary evaluation of various Site components that will support the overall evaluation of alternatives for the Site-wide FS. One of the components of this program includes a limited groundwater investigation. The investigation will address a section of the middle reach of Ditch A, between the discharge point of the culvert behind the Crucible Metals parking lot (the intake of this culvert is behind the State Fair lower parking lot and runs beneath the on ramp/off ramp from I-690) to the discharge point of the culvert that runs under the access hill for the upper State Fair parking lot (**Figure 2**). This section of Ditch A was selected as the focus of this investigation based on previously collected site groundwater data and observations of field conditions within this section of Ditch A.

OBJECTIVE AND APPROACH

Objective

As part of the RI/FS process, and in response to comments by the NYSDEC in association with IRM-related submittals, supplemental groundwater investigation within the study section of Ditch A will be initiated to facilitate the following:

- Collection of additional data to evaluate the presence of Site-related chemical parameters of interest (CPOIs), specifically benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and phenols in groundwater proximal to the middle reach of Ditch A.
- Estimation of the volume of Site groundwater, if any, discharging to the study section of Ditch A.

Approach

This investigation will include completion of the following:

- Collection of up to five groundwater samples; three samples from new one inch wells, and two from existing wells
- Collection of one round of groundwater elevation data from temporary wells and Ditch A surface water
- Direct measurement of surface water flow within Ditch A at selected locations. Direct measurement may include a temporary weir or direct measurement of water velocity.
- Survey of sample locations
- Analysis of collected data.

The groundwater sample results, groundwater elevation data, and discharge study results will be used to characterize the relationship between Site groundwater and the adjacent, study section of Ditch A.

METHODOLOGIES

Groundwater Sampling and Analysis

Three temporary monitoring wells will be installed to facilitate the collection of samples representative of Site groundwater having the potential to discharge to the study area of Ditch A. The proposed temporary groundwater monitoring well locations are as follows:

- One temporary well will be installed adjacent to the discharge point of the culvert under the I-690 on-ramp/off-ramp (behind the Crucible Metals parking lot)
- One temporary well will be installed adjacent to the intake of the culvert that runs beneath I-690
- One temporary well will be installed adjacent to the intake of the culvert that runs beneath the access road for the upper State Fair parking lot.

Figure 3 depicts the proposed groundwater sample locations. To the extent possible, temporary wells will be located on the wastebed side approximately 10 feet from Ditch A. The actual locations will be selected in the field based on accessibility and the presence of underground utilities. BTEX sample analysis will be used to

characterize the groundwater quality and the potential impacts of groundwater discharges to the study section of Ditch A.

Soil borings required for placement of the temporary wells will be completed using direct push drilling methods. The direct push method uses a 4-ft long by 2-in diameter open tube assembled with a cutting shoe, drive head and a disposable sampling sleeve. The sampler will be advanced in 4-ft intervals until the terminal depth of the boring is reached. If a drill rig is unable to access the proposed sampling locations, a suitable alternative method for advancing the sampler will be selected.

The temporary wells will consist of 10 ft of 0.5- or 0.75-in diameter, prepacked 0.010-slotted PVC well screen, flush-threaded to a PVC riser casing. It may be necessary, based on field conditions encountered, to use alternative well construction materials (*e.g.*, PVC well screen and riser with traditional silica sand pack). A 1-ft bentonite seal will be installed within 3 ft of the surface to prevent surface water from infiltrating via the borehole. The wells will be installed to screen the contact between the Solvay waste and native overburden.

Subsequent to completion of the installation activities, the wells will be developed using either a small diameter bailer or a peristaltic pump to remove fine-grained materials that may have entered the well screen during installation. The wells will be allowed to recover for a minimum period of 24 hours from initial development prior to sampling. Discrete groundwater samples will subsequently be collected from each of the newly installed wells using either small diameter bailers and/or a peristaltic pump. A volume of water equal to three times the volume of water within the well will be removed from each well prior to collection of the sample. Should the well be pumped/bailed dry, the well will be allowed to recover prior to collection of the samples.

Water quality measurements including temperature, pH, conductivity, oxygen reduction potential (ORP), dissolved oxygen, density using a hydrometer, and turbidity will be recorded prior to the collection of the groundwater samples. An unfiltered groundwater sample will be collected using the pump and/or bailer and placed into the appropriate containers provided by the laboratory. The samples will be submitted to the laboratory for analysis for TCL volatile organic compounds (VOCs) and naphthalene using EPA methods 8260 and 8270C, respectively.

Groundwater samples from WB18-MW-13S and WB18-MW-10I will also be sampled and analyzed as described above. A sample summary matrix is provided as **Table 1**. QA/QC samples will be collected in accordance with the revised QAPP included as Appendix A of the *Wastebed 1 through 8 RI/FS Work Plan* (O'Brien & Gere 2006)

Groundwater Elevation Data Collection

Groundwater elevation data will be collected from the three temporary wells, WB18-MW-13S, WB18-MW-13I, WB18-MW-10S, and WB18-MW-10I and the surface water at the intake and discharge points of the three culverts in the study area. These measurements will be performed on the day that groundwater samples are collected, prior to collection of the samples. As discussed below, a Site survey will be conducted of the temporary wells and at the intake and discharge points of the three culverts in the study area. The depth to groundwater within the temporary wells, WB18-MW-13S, WB18-MW-13I, WB18-MW-10S, and WB18-MW-10I and the depth of water at the culverts will be measured. The measurements will be converted to elevations using the data collected during the survey. The elevation data will be used to assist in determining the potential hydraulic gradient from the wastebeds to Ditch A.

Groundwater Discharge Study

Direct measurement of surface water between several points will be used to estimate the volume of groundwater discharging into Ditch A. The flow of surface water within Ditch A will be measured at three locations coinciding with the previously referenced surface water sample locations. The difference in the surface water flows at these locations will be used to estimate the volume of groundwater discharging between the sample points. The three proposed monitoring points will be as follows:

- At the discharge of the culvert under the on-ramp/off-ramp to I-690
- At the intake of the culvert under I-690
- At the discharge of the culvert under the road for the State fair parking hill

If additional stormwater outfalls (or other point source discharges) to the study area of Ditch A are observed, these will be characterized and outfall flow(s), if any, will be measured. These flow data would be accounted for in estimating groundwater discharge to the study section of Ditch A.

Site Survey

A Site survey will be performed by a NYS-licensed surveyor following the completion of the temporary monitoring well installations. The New York State Plane coordinates (NAD 83) will be determined for the sampling locations and the intake and discharge points of the three culverts in the groundwater infiltration study area. The temporary monitoring wells will have the ground surface elevation and top of casing elevation (NAVD 1988) surveyed to a vertical of 0.01 ft. Additionally, a measuring point will be established at the intake and discharge points of the culverts allowing for measurement of the surface water. Lastly, a limited number of pertinent site features may be surveyed to allow for accurate placement of sampling locations on existing maps. If required, limited stormwater drainage features may be surveyed to supplement existing Site survey information and/or document the findings of this portion of the stormwater study.

Data Analysis

The concentrations within Site groundwater and groundwater elevation within the temporary wells immediately adjacent to the study section of Ditch A will be compared to data from proximal, upgradient monitoring wells. Surface water elevations within the adjacent study section of Ditch A wells described above will be used to evaluate the hydraulic gradient to the study section of Ditch A. The surface water measurements and the groundwater infiltration data obtained from the groundwater discharge study will be evaluated to identify potential groundwater infiltration into the study section of Ditch A. The combined data from this investigation will be used to assist in the assessment of Site groundwater discharge to Ditch A.

PROJECT LOGISTICS

The scope of work covered in this Work Plan includes the sampling of Site groundwater and the interpretation of collected data. This section documents logistics to support the field tasks outlined in this work plan.

Health and Safety

As with all O'Brien & Gere projects, safety is a top priority. Health and safety excellence is a core value of both Honeywell and O'Brien & Gere. O'Brien & Gere believes that all injuries and occupational illnesses, as well as safety and environmental incidents are preventable. We will adhere to high standards for the safe operation of this project and the protection of the environment, employees and the people in the community.

O'Brien & Gere believes that with effective employee involvement, training, project planning and auditing that all accidents are preventable. Training and planning tools, which will be utilized and implemented by O'Brien & Gere safety staff will include the following:

Project Health and Safety Plan

O'Brien & Gere developed a project specific Health & Safety Plan (HASP) that utilizes the existing Health & Safety Plan for the Syracuse Portfolio (HSP2) and will incorporate specific job safety analyses (JSA), for the scope of work associated with this project. The HASP will be reviewed as part of the site orientation training and all direct hire personnel/subcontractors will be required to follow the requirements of the HASP.

Access Agreements

Access agreements with Crucible and the New York State Department of Transportation (NYSDOT) will be established prior to initiation of proposed site work. The New York State Fair and Crucible will be notified of field work activities prior to initiation or work.

Decontamination

Non-disposable sampling equipment, as well as other equipment (*e.g.*, direct push rigs), will be decontaminated prior to initiating sampling events, between sample locations, subsequent to completion of sampling events, and prior to leaving the Site in accordance with the procedures set forth in the Revised *Quality Assurance Project*

Plan Remedial Investigation/Feasibility Study Wastebeds 1 through 8 (QAPP) included as Appendix A of the *Wastebeds 1 through 8 RI/FS Work Plan* (O'Brien & Gere 2006).

Investigation-Derived Wastes

Direct push drilling technologies typically generate only small quantities of soil. The limited soils that are generated from the three piezometer installations will be collected in a 5-gallon bucket and managed in IRM Staging Area C, per the *Onondaga Lake Wastebeds 1-8 Integrated Interim Remedial Measure (IRM) Construction Work Plan* (O'Brien & Gere 2013). The soils will be characterized and managed in accordance with the IRM Construction Work Plan. IDW fluids from piezometer development and low flow sampling will be treated at the Willis Avenue Ground Water Treatment Plant (GWTP).

REPORTING

Analytical sample data will be uploaded to the Locus Technologies Environmental Information Management (EIM)[™] environmental data management system for the Site. The investigation results will be presented in appendix/appendices to the Revised RI Report and/or the FS Report. Analytical data collected as part of this investigation will be uploaded subsequent to completion of data validation, and the validation report will also be included in the FS Report appendices.

SCHEDULE

A project schedule for the Ditch A study activities described herein is provided as **Figure 4**.

REFERENCES

- Blasland, Bouck & Lee (BBL). 1989. *Hydrogeologic Assessment of the Allied Waste Beds in the Syracuse Area, Solvay, New York*. Blasland, Bouck & Lee, Syracuse, New York.
- Honeywell, Inc. 2009. *Revised Supplemental RI Work Plan*. March 13, 2009.
- NYSDEC. 2008. *Comments on Remedial Investigation Report*. October 27, 2008
- NYSDEC. 1991. *RCRA Quality Assurance Project Plan*.
- NYSDEC. 1991. *RCRA Quality Assurance Project Plan*.
- O'Brien & Gere. 2013. *Onondaga Lake Wastebeds 1-8 Integrated Interim Remedial Measure (IRM) Construction Work Plan*. O'Brien & Gere Engineers, Inc., Syracuse, New York.
- O'Brien & Gere. 2010. *Focused Feasibility Study Report, Wastebeds 1 through 8, Geddes, New York*. Prepared for Honeywell, Morristown, NJ. June, 2010.
- O'Brien & Gere. 2008. *Wastebeds 1-8 Remedial Investigation Report, Geddes, New York*. April 2008.
- O'Brien & Gere. 2006. *Wastebeds 1 through 8 Remedial Investigation/Feasibility Study Work Plan, Geddes, New York*. O'Brien & Gere Engineers, Inc., Syracuse, New York.
- O'Brien & Gere. 1990. *History of the Willis Avenue Plant, Petroleum Storage Facility, and Associated "Hot-Spots"; Geddes, New York*. O'Brien & Gere Engineers, Inc., Syracuse, New York.
- PTI Environmental Services. 1992. *Onondaga Lake RI/FS Site History Report*. PTI Environmental Services, Waltham, Massachusetts.
- USEPA. 2001. *EPA Requirements for Quality Assurance Project Plans*. EPA/240/B-01/003. Office of Environmental Information, Washington, D.C.

Sample Type	Number of Locations	Objective(s)	Analytic Summary
Groundwater	5	Evaluate the distribution of Site CPOIs in groundwater along the southeastern portion of the Site	EPA Method 8260: TCL VOCs EPA Method 8270C: Naphthalene, Phenols

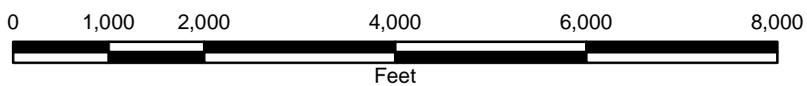


ADAPTED FROM: SYRACUSE WEST, NY USGS QUADRANGLE



HONEYWELL
WASTEBEDS 1 - 8
GEDDES, NEW YORK

SITE LOCATION



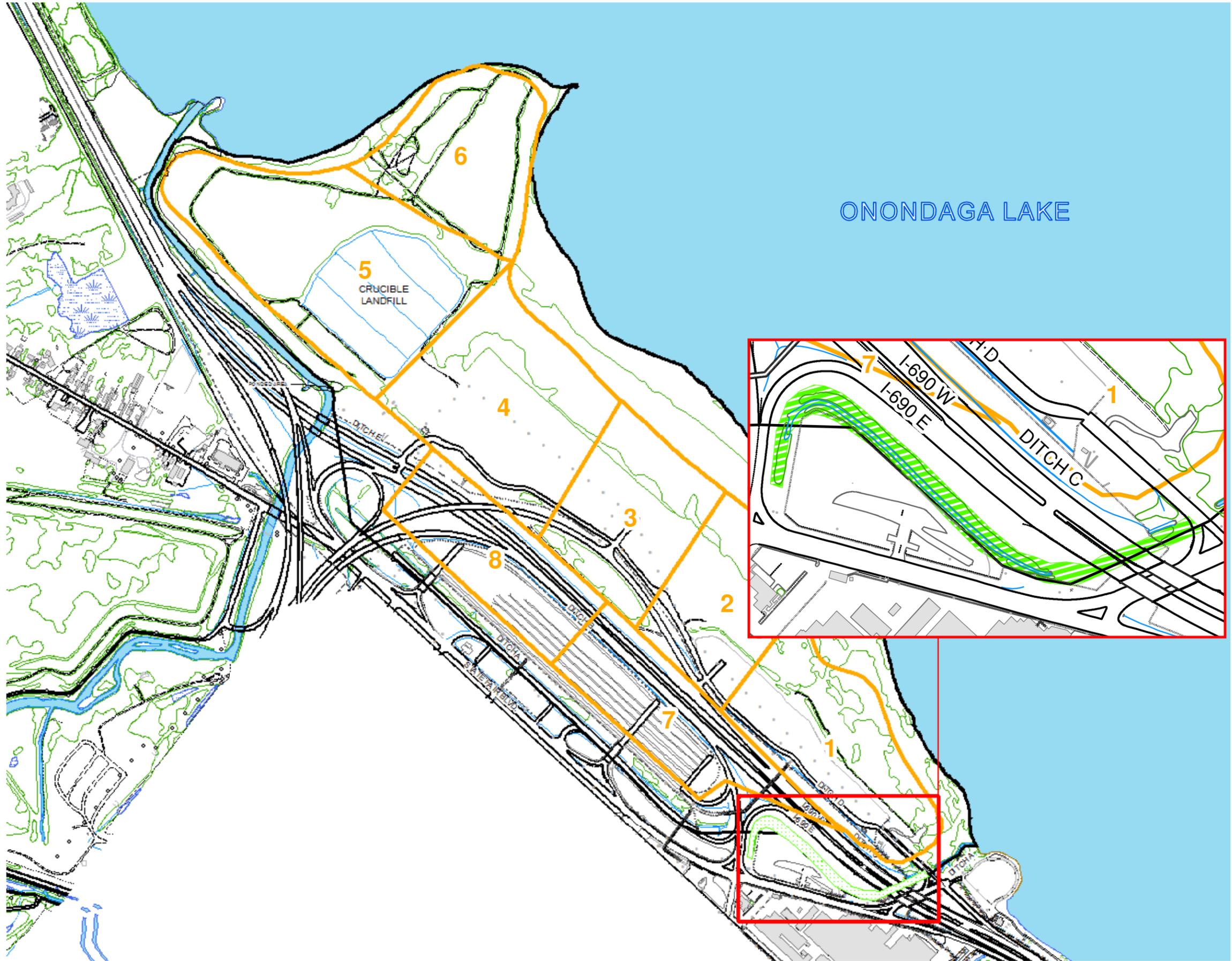


FIGURE 2

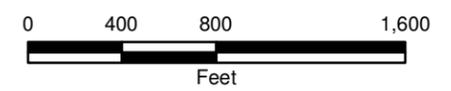


LEGEND

-  APPROXIMATE WASTEBED BOUNDARY
-  WASTEBEDS 1-8 SITE
-  SUPPLEMENTAL GROUNDWATER INVESTIGATION STUDY AREA

HONEYWELL
WASTEBEDS 1 - 8
GEDDES, NEW YORK

SITE PLAN



OCTOBER 2013
1163.45176



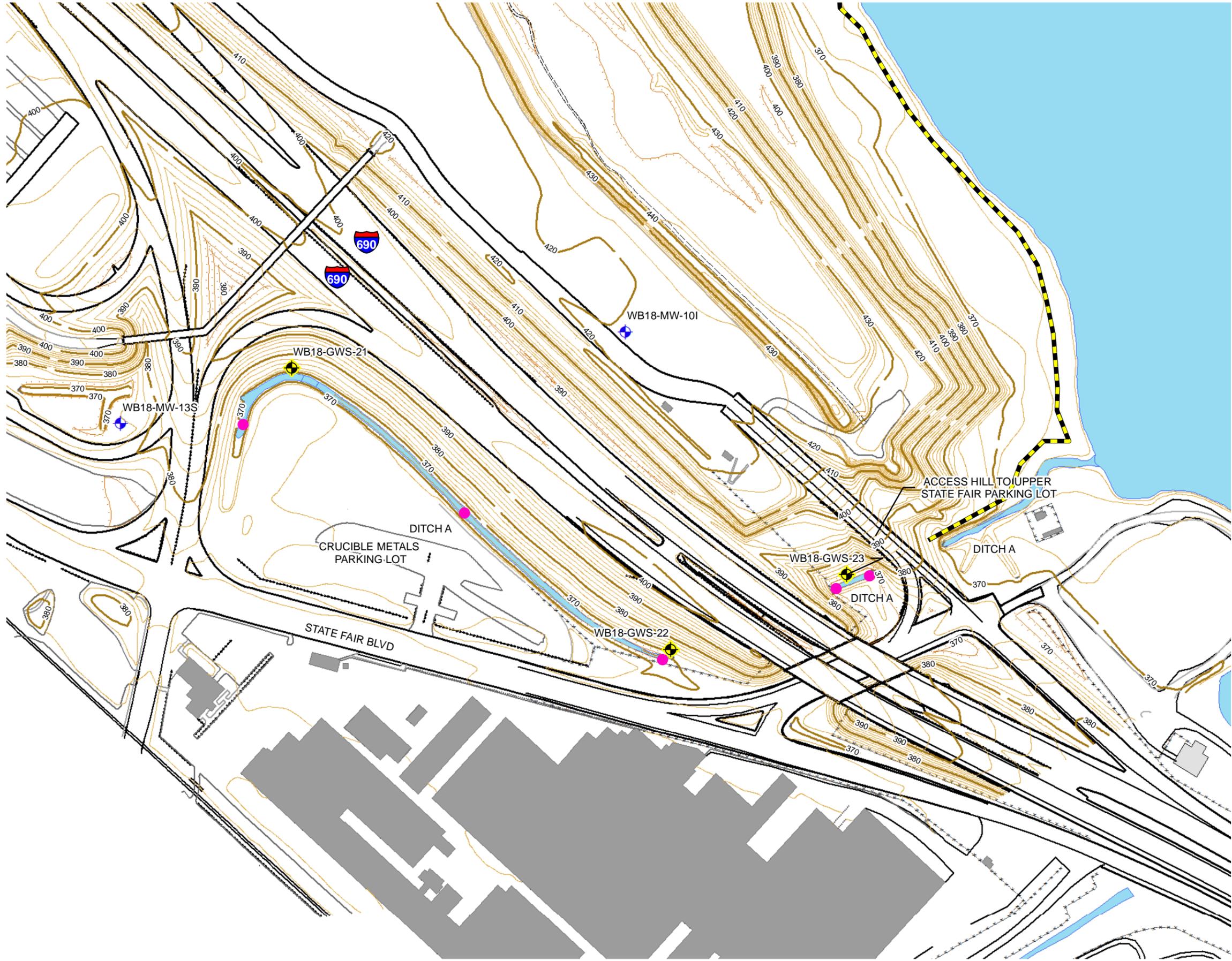


FIGURE 3

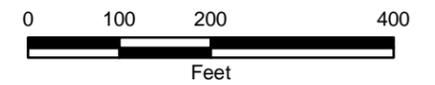


LEGEND

-  PROPOSED TEMPORARY MONITORING WELL LOCATION
-  PROPOSED IRM GROUNDWATER COLLECTION TRENCH
-  PROPOSED SURFACE WATER MEASUREMENT LOCATION
-  EXISTING MONITORING WELL LOCATION

HONEYWELL
WASTEBEDS 1 - 8
GEDDES, NEW YORK

**PROPOSED
GROUNDWATER
SAMPLE
LOCATION PLAN**



OCTOBER 2013
1163.45176



Figure 4
Schedule

