TECHNICAL MEMORANDUM

TO: Mr. Paul E. Blue, P.E. - Parsons

FROM: Mr. Kyle W. Buelow, CPESC/SPSWQ – O'Brien & Gere

RE: Slurry and Effluent Pipeline Route Wetland and Resource Area Delineation August 2010

FILE: 1163/45613

DATE: September 28, 2011

cc: Mr. Alfred J. Labuz – Honeywell
Mr. John P. McAuliffe, P.E. – Honeywell
Mr. Larry M. Somer - Honeywell
Mr. Thomas C. Drachenberg, P.E. – Parsons
Mr. Steve J. Miller, P.E. - Parsons
Mr. Christopher C. Calkins – O'Brien & Gere
Mr. Paul D. Schultz, P.E. – O'Brien & Gere
Mr. Brian E. White, P.E. – O'Brien & Gere

This technical memorandum (TM) documents the wetland and resource area (RA) identification and delineation activities performed in August 2010 by O'Brien & Gere on behalf of Honeywell along the proposed slurry pipeline route in the Towns of Geddes and Camillus, New York. Identification and delineation efforts were performed along those portions of the slurry pipeline route that have been revised since the performance of the October 2009 delineation efforts, which were documented in the December 16, 2009 TM (O'Brien & Gere 2009). Additionally, field assessments were performed along the proposed effluent line route that extends from the proposed Water Treatment Plan (WTP) on Wastebed (WB) 13 to the proposed tie-in east of the Camillus Pump Station for Metro discharge (see **Figure 1**). For a significant portion of the route, the slurry and effluent lines run adjacent to each other. **Figure 1** presents the proposed pipeline routes. This TM has been prepared as a supplement to the December 2009 TM.

The August 2010 effort was performed in association with the Onondaga Lake Bottom Subsite Project and in accordance with the *Slurry Pipeline Route Wetland Delineation Work Plan* dated September 24, 2009 (Honeywell 2009) and approved by the New York State Department of Environmental Conservation (NYSDEC) on October 5, 2009 (NYSDEC 2009). Presented below are the methods and findings of the efforts performed in completion of the August 2010 identification and delineation activities.

PROJECT BACKGROUND

As part of the Onondaga Lake Bottom Subsite Project, dredged sediments from Onondaga Lake will be pumped (as a slurry mixture) through a pipeline to a sediment containment area (SCA) at WB 13 for dewatering. The route of the slurry pipeline, shown on **Figure 1**, will generally extend southwesterly to the SCA and parallel the western shore of the lake, a portion of Ninemile Creek (NMC), and the west side of Interstate 695. The effluent line route, also shown on **Figure 1**, will convey post-treatment effluent from the WTP on WB 13 to Metro.

As part of this project, a wetland identification and delineation was performed to evaluate potential crossings of wetlands by the proposed pipeline construction. Additionally, the survey area was evaluated for the presence of individuals and/or the habitat requirements of heritage elements as identified through contact with regulatory agencies. The survey efforts were performed within an 80-foot corridor along the proposed pipeline routes. Wetlands within portions of the slurry pipeline route have been previously delineated by O'Brien & Gere and others, as further discussed herein and within the December 2009 TM. These wetlands are identified on **Figure 1** as "Previously Delineated Wetlands."

RESOURCE AREAS

For the purposes of this project, resource areas were identified based on the presence of rare, threatened, endangered, or special concern species (heritage elements) identified by the New York Natural Heritage Program (NYNHP 2010), U.S. Fish & Wildlife Service (USFWS 2010b) or field biologists. **Attachment 1** contains the correspondence received from the NYNHP and USFWS concerning the potential presence of heritage elements in the vicinity of the survey area.

Excepting the two plant species discussed below, none of the species identified by the NYNHP or USFWS was identified in the survey area. Further, the habitat elements necessary for inhabitation of the two identified species were observed.

The following heritage elements were observed within the survey area: salt-meadow grass (*Leptochloa fusca* subsp. *fascicularis*) and saltmarsh aster (*Symphyotrichum subulatum*). Relatively small populations of these species were identified within five RAs delineated along the berm of WB 12. Due to the unique habitat requirements of these species (described below), these species were not observed elsewhere along the pipeline routes.

Salt-meadow grass and saltmarsh aster are small, salt tolerant, annual plant species. Due to their small size and limited competitive ability, they are restricted to areas with conditions that result in a competitive advantage over other more common species (*i.e.*, moist saline substrates which are typically physically disturbed). These species grow readily from seed and colonize freshly disturbed areas by natural colonization if seed sources are nearby or by broadcast seeding. Hence, potential impacts to these species would be temporary and limited to the period of pipeline construction activities. Re-seeding measures would compensate for these impacts.

Vegetative, soil, and hydrologic conditions from each of the five RAs identified were recorded on Wetland Data Forms that are included within **Attachment 2**. Post-construction surface restoration techniques and special vegetative seed mixtures will be incorporated into a specification to be used where the heritage elements exist (see **Figure 1**). Seed from the heritage element species will be applied as part of the restoration of impacted portions of the RAs.

WETLAND IDENTIFICATION AND DELINEATION

METHODOLOGY

Similar to the efforts detailed in the December 16, 2009 TM (O'Brien & Gere 2009), the wetland identification and boundary delineation for this project was performed in accordance with methods utilized at other Honeywell sites associated with Onondaga Lake and described in the NYSDEC-approved *Onondaga Lake Wetland and Floodplain Assessment Report* (O'Brien & Gere and Parsons 2010). O'Brien & Gere biologists performed the wetland delineation within the survey area in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (USACE 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE 2009, Regional Supplement). Based on the preliminary review of available NYSDEC wetland mapping, NYSDEC jurisdictional wetland SYW-18 appears to be mapped in the northeastern portion of the survey area. Therefore, NYSDEC delineation methods were also factored into the delineation efforts.

The USACE and U.S. Environmental Protection Agency (USEPA) jointly define wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions [33 CFR 328.3(b), 40 CFR 230.3(t)]. Criteria used to identify a wetland, as defined therein, consist of the following:

- the soils present have been classified as hydric or possess reducing soil characteristics
- the prevalent vegetation is hydrophytic
- the area is either permanently or periodically at mean water depths less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season.

To make a positive wetland determination, a minimum of one wetland indicator from each criterion (soil, vegetation and hydrology) must be identified. The Routine Determination Method outlined in USACE (1987) was used in conjunction with procedures outlined in the Regional Supplement to identify and delineate wetlands within the survey area. Routine determinations involve simple, rapidly applied methods that result in sufficient

qualitative data for identifying wetland and non-wetland areas. The Routine Determination Method consists of a combination of off-site data review and on-site inspection.

Off-site activities included an evaluation of available information regarding environmental conditions within the survey area. On-site activities consisted of collecting the field data required to identify and delineate wetland boundaries. Field data were gathered at sample plots chosen in potential wetland areas, as well as in corresponding adjacent upland areas.

OFF-SITE INVESTIGATION

The off-site investigation procedure consisted of the review of the following documents:

- *Soil Survey of Onondaga County, New York* as prepared by the United States Department of Agriculture (USDA) Soil Conservation Service (USDA-SCS 1977) (soil survey) and the NRCS Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx) (USDA-NRCS 2010a).
- New York State Freshwater Wetland (NYSFW) maps, as presented on the NYSDEC Environmental Resource Mapper (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm) (NYSDEC 2010).
- USFWS National Wetland Inventory (NWI) maps as presented on the NWI Wetland Mapper (http://www.fws.gov/wetlands/Data/Mapper.html) (USFWS 2010a).

Soil Mapping

Information presented in the soil survey, the *New York Hydric Soils List* (USDA-NRCS 2010b), *New York Hydric Soils and Soils with Potential Hydric Inclusions* (USDA-NRCS 1995), and the USDA Web Soil Survey (USDA-NRCS 2010) was used to evaluate the existing soil series present and the potential presence of hydric soils within the survey area. The soil series mapped within the survey area include:

- Collamer silt loam 2 to 6 percent (ChB)
- Cut and fill land (CFL)
- Galen very fine sandy loam 2 to 6 percent slopes (GaB)
- Lairdsville silt loam 2 to 6 percent (LaB)
- Lakemont silty clay loam (Lk)
- Lockport and Brockport silty clay loams 0 to 6 percent slopes (LvB)
- Niagara silt loam 0 to 4 percent slopes (NgA)
- Made land, chemical waste (Ma)
- Odessa silty clay loam 0 to 2 percent slopes (OdA)
- Odessa silty clay loam 2 to 6 percent slopes (OdB).

Cut and fill land and Made land, the most common soils of the survey area, are mapped in the central and western portions of the survey area which includes the retention ponds, CSX railroad track area, and WB 12. Odessa and Lakemont soils are mapped in the northeastern portion of the survey area along Interstate 695 and Ninemile Creek (NMC). Niagara, Galen, Collamer, Lairdsville, and Lockport and Brockport soils are mapped in the south and southwestern portions of the survey area which includes portions of the retention ponds and areas south of the retention ponds. Lakemont is the only soil considered hydric within the survey area (USDA-NRCS 2010), and Odessa, Niagara, Lockport and Brockport soils are listed as having potential hydric inclusions (USDA-NRCS 1995).

New York State Freshwater Wetlands

Based on the mapping reviewed, NYSFW SYW-18 is mapped along the western side of Interstate 695 adjacent to the northeastern portion of the survey area. Wetland SYW-18, as mapped by the NYSDEC, consists of 35.8 acres and is hydrologically associated with NMC, a tributary of Onondaga Lake. The NYSDEC classifies SYW-18 as a Class II wetland.

National Wetland Inventory Habitats

The locations of NWI habitats in the vicinity of the survey area were accessed using the USFWS NWI Wetland Mapper (USFWS 2010a). According to the NWI mapping, the western retention pond is identified as a palustrine, unconsolidated bottom, artificially and permanently flooded, diked/impounded (PUBKHh) habitat, while the eastern retention pond is identified as a lacustrine, limnetic, unconsolidated bottom, artificially and permanently flooded, diked/impounded (L1UBKHh) habitat. An additional palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) habitat is mapped in the eastern end of the survey area in the vicinity of SYW-18.

Associated Water Bodies

The revised slurry pipeline route crosses a culverted section of Geddes Brook north of the CSX railroad; therefore, no impacts from pipeline construction are anticipated. Iron Brook is located south of the retention ponds and generally flows north and east to the Outfall 19 drainage ditch west of the Interstate 695 – CSX railroad overpass. Iron Brook is not a NYSDEC classified water body.

Previously Delineated Wetlands

Portions of the pipeline route north and west of the survey area have been previously delineated by Terrestrial Environmental Specialists (TES) in October 2008 as part of the Geddes Brook/Ninemile Creek Feasibility Study. The delineation results are presented in the draft *Wetland/Floodplain Assessment Ninemile Creek and Lower Reach of Geddes Brook* (TES 2009). TES delineated wetlands along NMC from the mouth upstream to the Interbed Area located between WBs 9&10 and 11. This effort included an assessment and delineation of NYSDEC wetland SYW-18 and the lower reach of Geddes Brook. A subsequent effort delineated wetlands associated with the Outfall 19 drainage ditch.

The eastern end of the proposed pipeline route is associated with the western portion of the Wastebed B/Harbor Brook Site. O'Brien & Gere performed a wetland delineation at the Wastebed B/Harbor Brook Site in the summers of 2000 and 2003 as part of the ongoing Wastebed B/Harbor Brook Site Remedial Investigation. Wetland delineation findings are reported in *Jurisdictional Wetland Delineation Report, Harbor Brook Site, Geddes, New York* (O'Brien & Gere 2003).

As presented in the December 16, 2009 TM, O'Brien & Gere and Parsons conducted the initial wetland delineation for Honeywell along the proposed slurry pipeline route on October 13-16, 20 and 21, 2009 and focused on the portion of the pipeline route located between the Interbed Area and the terminus of the pipeline at the SCA on WB 13. During this effort, O'Brien & Gere identified 20 wetland habitats totaling approximately 2.78 acres.

ON-SITE INVESTIGATION

O'Brien & Gere biologists trained in wetland delineation and assessment performed the field activities associated with the survey area delineation on August 12 and 16-18, 2010. On-site activities included the evaluation of vegetative communities, the soil substrate, and hydrologic characteristics to identify and delineate wetland boundaries within an 80-foot corridor along the proposed pipeline route. Field data were gathered at sample plots chosen in potential wetland areas and adjacent upland areas. Wetlands were identified based on the presence of the following three parameters:

- hydric soils
- a vegetative community dominated by hydrophytes

- inundated or saturated soil conditions, and/or indicators of hydrologic patterns.

Vegetative, soil, and hydrologic conditions were recorded on Wetland Data Forms specified for USACE methodology and are included as **Attachment 2**.

Soils

Observed survey area soil characteristics were compared to the mapped soil descriptions of the soil survey, as characteristics can vary from mapped descriptions due to the scale at which the soil mapping was performed. Soil physical characteristics were evaluated up to 20 inches below ground surface, unless shallower refusal occurred. Soil color was evaluated using *Munsell Soil Color Charts* (Munsell 2000). Soil characteristics were compared to hydric soil criteria from the USACE methodology. However, in portions of the survey area with a prevalence of Solvay waste, the soil parameter was discounted from the methodology and wetlands were identified and delineated based on hydrologic and vegetative characteristics only.

Vegetation

The criterion for wetland vegetation is a dominance of hydrophytic (water tolerant) species. A species is considered hydrophytic per USACE methodology if it is classified either as obligate (OBL), facultative wet (FACW), or facultative (FAC) in the *National List of Plant Species That Occur in Wetlands: Northeast (Region 1)* published by the USFWS (1988). A dominance of hydrophytes requires that more than 50% of the vegetative species in an area are classified as hydrophytic. In accordance with USACE methodology, observations of vegetation focus on dominant vegetative species in four categories: trees (3 inch diameter at breast height), saplings/shrubs (less than 3 inch diameter and greater than 3.28 feet tall), herbs, and woody vines. Observed vegetative species and their associated indicator statuses are listed in the Wetland Data Forms (**Attachment 2**).

Hydrology

The survey area was examined for field indicators of wetland hydrology. According to USACE methodology, wetland hydrology consists of permanent or periodic inundation, or soil saturation to the surface during the growing season. If these indicators were present within the sample plots, the hydrology criterion for wetlands was met. Hydrologic indicators observed within the sample plots were recorded on the Wetland Data Forms (**Attachment 2)**.

OBSERVED WETLAND AREAS

When all three wetland criteria (hydric soils, dominance of hydrophytes and wetland hydrology) were met, the area represented by the sample plot was identified as wetland. The delineated wetland boundaries within the survey area were identified in the field with sequentially numbered (WL1-1, WL1-2, WL1-3, *etc*.) "Wetland Boundary" surveyor markers (flagging tape tied to vegetation). Wetland boundaries that continued beyond the survey area (*i.e.,* outside of the 80-ft corridor) were not flagged beyond the limits shown on **Figure 1**.

Wetland sample data plot locations were also identified with flagging and labeled SB-4 through SB-9. The wetland boundary and sample plot flagging locations were surveyed by the field biologists using a hand-held Trimble Global Positioning System (GPS) unit and subsequent post processing of the raw data. Representative photographs of delineated wetland areas are presented in **Attachment 3**.

A total of four wetland areas (WL-1, WL-2, WL-3 and WL-4) totaling approximately 7 acres were identified and delineated within the survey area. These wetlands are listed in **Table 1** below. The location of the surveyed wetland boundaries and wetland sample plots are presented on the Wetland and Resource Area Delineation map included herein as **Figure 1**.

Table 1. Delineated Wetland Habitats

Wetland ID	Acreage	General Location
WL-1	2.795	Associated with Iron Brook; south and east sides of retention ponds
WL-2	0.326	Drainage swale along WB 12 access road and west side of retention ponds
WL-3	0.748	North side of retention ponds
WL-4 (3 polygons)	3.085	Adjacent to western road bank of Interstate 695 and east of NMC and GB
Total Acreage	**6.954**	

Wetland 1 (WL-1)

Wetland 1 is a narrow 2.8-acre wetland located south of the retention ponds that parallels Iron Brook from the western end of Gerelock Road to the Outfall 19 drainage ditch west of the Interstate 695 – CSX railroad overpass. Dominant vegetation within WL-1 is common reed (*Phragmites australis*). Observed hydrologic indicators include the presence of surface water, soil saturation, drainage patterns, and a hydrogen sulfide odor. Observed hydric soil indicators include depleted matrices (F3).

Wetland 2 (WL-2)

Wetland 2 is a narrow 0.3-acre wetland located within a drainage swale west of the retention ponds. Surface water within WL-2 appears to generally flow north from a culvert under the access road south of the retention ponds (east of the intersection with the Tailing Pond Perimeter Road) to a culvert that discharges to the Outfall 19 drainage ditch. Dominant vegetation within WL-2 is common reed. Observed hydrologic indicators include inundation visible on aerial imagery and the presence of surface water, soil saturation, drainage patterns, and a hydrogen sulfide odor. The soil parameter was discounted for WL-2 due to the prevalence of Solvay waste in the substrate.

Wetland 3 (WL-3)

Wetland 3 is a narrow 0.75-acre wetland located between the retention ponds and the access road north of the retention ponds. Dominant vegetation within WL-3 is common reed. Observed hydrologic indicators include the presence of oxidized rhizospheres on living roots. The soil parameter was discounted for WL-3 due to the prevalence of Solvay waste in the substrate.

Wetland 4 (WL-4)

Wetland 4 is a 3.1-acre wetland located in the area of SYW-18 between Interstate 695 and Ninemile Creek (depicted with three polygons on **Figure 1**). A portion of WL-4 receives hydrologic input from a roadside swale that extends from the Interstate 695 bridge north towards NMC. The eastern limits of WL-4 were not identified or delineated beyond the chain-link fence to the east. Dominant vegetation within WL-4 is common reed. Additional hydrophytes observed include softstem bulrush (*Scirpus validis*) and white cattail (*Typha x glauca*). Inland saltmarsh bulrush (*Schoenoplectus maritimus* (L.) Lye [synonymous with *Bolboschoenus maritimus* (L.) Palla ssp. *paludosus*]), a heritage element, was observed within the southern portion of WL-4. Observed hydrologic indicators include the presence of surface water and soil saturation. Observed hydric soil indicators include the presence of depleted matrices (F3).

Delineated Wetland Values and Services

Data gathered during document review and wetland boundary delineation activities were used to qualitatively assess the values and services of the delineated wetlands identified within the survey area. Field observations indicate that the delineated wetlands provide suitable habitat for various species of wildlife. Amphibians, predominantly frogs and turtles, various species of songbirds, and animal sign, such as deer tracks and mammal scat, were observed throughout the survey area. Additionally, the wetland habitats along Iron Brook (WL-1) may provide sediment/shoreline stabilization, and WL-2 likely provides sediment and toxicant retention from surface water and seep drainage directed from WB 12.

SUMMARY

O'Brien & Gere conducted a wetland delineation and resource area identification for Honeywell along the revised slurry pipeline and proposed effluent pipeline routes to evaluate potential impacts to wetlands and heritage elements associated with the construction of the pipelines. Field efforts were performed along an 80 ft corridor centered along the pipeline routes on August 12 and 16-18, 2010. O'Brien & Gere identified four wetland habitats, best characterized as emergent marsh habitat, totaling approximately 7 acres, and five resource areas totaling approximately 1.5 acres.

The information presented herein will be used by the project team to minimize potential impacts to wetlands and heritage elements to the extent practicable during construction of the pipelines and to develop appropriate restoration specifications. Post-construction surface restoration techniques and vegetative seed mixtures that differ from those that will be utilized in other portions of the pipeline routes will be incorporated into a specification to be used where these conditions exist. Seed from the heritage element species will be applied in RAs where they were observed.

REFERENCES

Honeywell International, Inc. 2009. *Slurry Pipeline Route Wetland Delineation, Onondaga Lake, Geddes and Camillus, New York –Work Plan*. Letter from Honeywell to Mr. Timothy Larson of the NYSDEC. September 24, 2009.

Munsell. 2000. *Munsell Soil Color Charts*. Gretag Macbeth. New Windsor, New York.

New York Code of Rules and Regulations (NYCRR). 2008. 6 NYCRR 701. *Part 701 Classifications -Surface Waters and Groundwaters. Subpart 701.8 Class C fresh surface waters*. New York State Department of Environmental Conservation Chapter X – Division of Water. Water Quality Regulations. February 16, 2008. http://www.dec.ny.gov/regs/4592.html.

New York State Department of Environmental Conservation (NYSDEC). 2010. Environmental Resources Mapper. http://www.dec.ny.gov/imsmaps/ERM/viewer.htm. Accessed August 2010.

NYSDEC. 2009. Email from Timothy Larson of the NYSDEC to Tom Drachenberg of Parsons approving Slurry Pipeline Wetland Delineation Work Plan. October 5, 2009.

New York Natural Heritage Program (NYNHP). 2010. Letter from Tara Salerno (NYNHP, Albany, New York) to John P. McAuliffe (Honeywell). May 14, 2010.

O'Brien & Gere. 2009. Memorandum to Mr. Paul Blue of Parsons. Slurry Pipeline Route Wetland Delineation. December 16, 2009

O'Brien & Gere and Parsons. 2010. *Wetland and Floodplain Assessment Final Report, Onondaga Lake, Geddes and Syracuse, NY*. Prepared on behalf of Honeywell Syracuse, New York. March 2010.

Terrestrial Environmental Specialists, Inc. (TES). 2009. *Wetland/Floodplain Assessment Ninemile Creek and Lower Reach of Geddes Brook, Town of Geddes, Onondaga County, New York*. Prepared for Parsons Engineering of New York, Inc. December 2009. (Under NYSDEC review)

TES. 2003. *Wetland Delineation Report Lower Reach of Ninemile Creek and Geddes Brook at the West Flume*. Prepared for Parsons Engineering of New York, Inc. TES, Phoenix, New York. December 2003. (Provided as Appendix A of TES 2009)

U.S. Army Corps of Engineers (USACE). 2009. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. ERDC/EL TR-09-19. U.S. Army Engineer Engineer Research and Development Center, Vicksburg, MS. October 2009.

USACE. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. January 1987.

U.S. Department of Agriculture Natural Resources Conservation Service (USDA-NRCS). 2010a. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed August 2010.

USDA-NRCS. 2010b. *New York Hydric Soils List*. Natural Resources Conservation Service. United States Department of Agriculture. http://soils.usda.gov/use/hydric/lists/state.html. February 2010.

USDA-NRCS. 1995. *New York Hydric Soils and Soils with Potential Hydric Inclusions*. U.S. Department of Agriculture in cooperation with Cornell University Agricultural Experiment Station. December 15, 1995 Revision.

USDA Soil Conservation Service (USDA-SCS). 1977. *Soil Survey of Onondaga County, New York.* U.S. Department of Agriculture in cooperation with Cornell University Agricultural Experiment Station. January 1977.

U.S. Fish and Wildlife Service (USFWS). 2010a. National Wetlands Inventory. Wetlands Mapper. World Wide Web site. http://www.fws.gov/nwi/mapper_tool.htm. Accessed August 2010.

USFWS. 2010b. Federally listed endangered and threatened species and candidate Species in New York (by County). http://www.fws.gov/northeast/nyfo/es/countylists/onondagadec2006.htm. March 16.

USFWS. 1988. *National List of Plant Species That Occur in Wetlands: Northeast (Region 1)*. U.S. Department of the Interior in cooperation with the National and Regional Interagency Review Panels.