Honeywell
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315-552-9700
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August 18, 2015

To: Diane Carlton, NYSDEC Region 7 (1PDF)
Holly Sammon, Onondaga County Public Library (1 bound)
Samuel Sage, Atlantic States Legal Foundation (1 bound)
Melissa Lewandowski, Solvay Public Library (1 bound)
Joseph Heath (1 bound)

Re: Letter of Transmittal – Wastebeds 1-8 Site Document 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:

- Revised Phase 1 – 2015 Remedial Action Work Plan – Wastebeds 1-8 Operable Unit 1 (OU-1) dated August 2015.

Sincerely,

John P. McAuliffe by CCC

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

Enc.

cc: Tracy A. Smith – NYSDEC (ec)
Chris Fitch, Communications (ec)

Honeywell
301 Plainfield Road
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Syracuse, NY 13212
315-552-9700
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August 18, 2015

Mr. Tracy Smith, P.E.
Project Manager
NYSDEC Div. of Environmental Remediation
Remedial Bureau D - 12th Floor
625 Broadway
Albany, NY 12233-7016

RE: Revised Phase 1 – 2015 Remedial Action Work Plan
Wastebeds 1-8 Operable Unit 1 (OU-1)
Town of Geddes, Onondaga County, New York
Index No. R7-0849-15-02

Dear Mr. Smith:

Attached please find one electronic copy of the NYSDEC-approved Revised Phase 1 2015 Remedial Action Work Plan (RAWP) – Wastebeds 1-8, Operable Unit 1. The revised RAWP was prepared by OBG.

Please contact Michael Broschart of OBG (315-956-6585) or myself if you have any questions.

Sincerely,

John P. McAuliffe

John P. McAuliffe, PE
Program Director, Syracuse

by ccc

Enc. (1 CD)

cc:	Robert Nunes	USEPA (1 copy, 2 CDs)
	Harry Warner	NYSDEC Reg 7 (1 copy, 1 CD)
	Mark Sergott	NYSDOH (1 copy, 1 CD)
	Margaret A. Sheen, Esq.	NYSDEC, Reg 7 (ec)
	Argie Cirillo, Esq.	USEPA (ec)
	Brian D. Israel, Esq.	Arnold & Porter (ec or CD)
	Travis Glazier	O.C. Office of the Environment (1 copy, 1 CD)
	Joseph Heath, Esq.	(ec)
	Thane Joyal, Esq.	(1 copy, 1 CD)
	Jeanne Shenandoah	Onondaga Nation (1 copy)
	Curtis Waterman	HETF (ec or CD)
	Alma Lowry	(ec or CD)
	Michael Spera	AECOM (1 copy, 1 CD)
	William Hague	Honeywell (ec or CD)
	Steve Miller	Parsons (CD)
	Thomas Conklin	O'Brien & Gere (1 copy)
	Bradley Kubiak	O'Brien & Gere (ec)
	Douglas M. Crawford	O'Brien & Gere (ec)
	Christopher C. Calkins	O'Brien & Gere (ec)
	Michael B. Broschart	O'Brien & Gere (ec)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau D
625 Broadway, 12th Floor, Albany, NY 12233-7013
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August 14, 2015

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

Re: Wastebeds 1-8 OU1 Phase 1 - 2015 Remedial Action Work Plan

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the "Phase 1 – 2015 Remedial Action Work Plan - Wastebeds 1-8 Operable Unit (OU1)" (RAWP) dated August 2015 and submitted via email by Michael Broschart of O'Brien & Gere on August 7, 2015. Based on our review, the RAWP is approved. Please note that the Storm Water Pollution Prevention Plan (SWPPP) dated July 2015 (included as Appendix C of the RAWP); and the Community Health and Safety Plan (CHASP) submitted via email from Michael Broschart on August 6, 2015, are also incorporated into this approval.

Please send the final version of the RAWP including all appendices to the distribution list and document repositories. If you have any questions, please contact me at 518-402-9796.

Sincerely,

Tracy A. Smith
Project Manager

ecc: J. Gregg, NYSDEC
D. Hesler, NYSDEC
J. Heath, Esq.
C. Waterman
C. Calkins, OBG
B. Kubiak, OBG
R. Nunes, USEPA
H. Warner, NYSDEC
T. Joyal, Esq.
M. Broschart, OBG
S. Miller, Parsons
C. Killorean, OBG
M. Sergott, NYSDOH
J. Shenandoah
A. Lowry
R. Quail, NYSDEC
T. Glazier, O.C.
D. Crawford, OBG

REVISED WORK PLAN

Phase 1 – 2015 Remedial Action Work Plan
Wastebeds 1-8 Operable Unit 1 (OU-1)
Town of Geddes, Onondaga County, New York
Index No. R7-0849-15-02

Honeywell

Revised August 2015

O'BRIEN & GERE

AUGUST 7, 2015 | 1163 | 60388

Revised Remedial Action Work Plan

Phase 1 – 2015 Remedial Action Work Plan
Wastebeds 1-8 Operable Unit 1 (OU-1)
Town of Geddes, Onondaga County, New York
Index No. R7-0849-15-02

Prepared for:

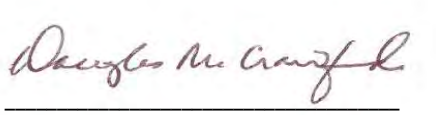
Honeywell

DOUGLAS M. CRAWFORD, P.E., VICE PRESIDENT
O'BRIEN & GERE ENGINEERS, INC

CERTIFICATION

I, **Douglas M. Crawford**, certify that I am currently a NYS-registered Professional Engineer and that this Remedial Action Work Plan was prepared in accordance with applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

This Work Plan was developed pursuant to the Order on Consent (Index R7-0849-15-02) between Honeywell and the New York State Department of Environmental Conservation (NYSDEC).

066649	August 7, 2015	
NYS Professional Engineer #	Date	Signature

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LIST OF ACRONYMS

ACO	Administrative Consent Order
ARAR	Applicable or Relevant and Appropriate Requirement
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Constituent of Concern
DER	Division of Environmental Remediation
E&SC	Erosion and Sediment Control
FS	Feasibility Study
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
NMC	Ninemile Creek
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU	Operable Unit
RD/RA	Remedial Design/Remedial Action
RAWP	Remedial Action Work Plan
RAO	Remedial Action Objective
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
SCO	Soil Cleanup Objectives
TVOC	Total Volatile Organic Compounds
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds

1. INTRODUCTION

This Remedial Action Work Plan (RAWP) presents the framework for implementation of the remedial design and remedial action associated with Operable Unit (OU)-1 (soil/fill materials) at the Wastebeds 1 - 8 Site (Site). This RAWP has been prepared pursuant to the Administrative Consent Order (ACO) (R7-0849-15-02) entered into by Honeywell International, Inc. (Honeywell), and the New York State Department of Environmental Conservation (NYSDEC) dated May 8, 2015. In addition, it has been developed in general accordance with NYSDEC's Division of Environmental Remediation (DER)-10 *Technical Guidance for Site Investigation and Remediation (DER-10)* (NYSDEC 2010).

This Work Plan was developed to address the Wastebeds 1 - 8 OU-1 selected remedy, as outlined in the U.S. Environmental Protection Agency's (USEPA) and NYSDEC's Record of Decision (ROD) dated December 2, 2014 (ROD; NYSDEC and USEPA 2014). The following Remedial Action Objectives (RAOs) have been established for the OU-1 remedy and are presented in the ROD:

- Prevent ingestion/direct contact with soil/fill material/Solvay waste in surface and subsurface soil above levels that would result in unacceptable human exposure.
- Prevent or minimize inhalation of or exposure to contaminants volatilizing from contaminated soil/fill material/Solvay waste that would result in unacceptable human exposure. In the event that buildings are constructed, mitigate impacts to public health resulting from soil vapor intrusion into those buildings, as may be warranted.
- Prevent or minimize adverse ecological impacts to biota from ingestion/direct contact with soil/fill material/Solvay waste causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Prevent or minimize, the further migration of contaminants that would result in groundwater, sediment, or surface water contamination.

Portions of Site groundwater are being addressed by elements of an ongoing Interim Remedial Measure ((IRM); O'Brien & Gere 2013). The long-term remedy for Site groundwater and Ditch A will be addressed as Wastebeds 1 - 8 Operable Unit 2 (OU-2).

This Work Plan is organized in eight sections and five appendices. Background information is presented in **Section 1**. **Section 2** presents the project organization. **Section 3** outlines the Health & Safety program for the project. Storm water management requirements are described in **Section 4.** Cover system design and construction details are presented in **Section 5**. Construction Quality Assurance/Construction Quality Control (CQA/CQC) procedures are provided in **Section 6**. The interim site management plan and maintenance and monitoring requirements are presented in **Section 7**, and schedule considerations are described in **Section 8**.

1.1 BACKGROUND

1.1.1 Site Background

The Site is located on the southwestern shore of Onondaga Lake in Geddes, New York (**Figure 1)**. The Wastebeds consist primarily of inorganic materials resulting from the production of soda ash using the Solvay process. Environmental conditions observed at the Site are related to historical industrial activities, as well as former and current land uses, including:

- Solvay waste - The historic use of the site was primarily as a settling basin for Solvay waste, an inert material consisting largely of calcium carbonate, calcium silicate, and magnesium hydroxide. The settling basins were in active operation from approximately 1916 to 1943. In addition over the operating time frame there was periodic co-disposal of former Allied Chemical Main Plant byproducts including benzene, toluene, ethyl benzene, and xylenes (BTEX). These activities resulted in impacts to lakeshore surface soil/fill, subsurface soil/fill, groundwater, and surface water. The impacts to Onondaga Lake and Ninemile Creek are being addressed by the Integrated Interim Remedial Measure (IRM) that has been implemented at the Site.

- Crucible Landfill - The disposal of waste materials containing chromium, nickel and other metals from Crucible Specialty Metals (Crucible) in an on-site Landfill from 1973 until its regulated closure in 1988. This activity resulted in impacts to surface soil/fill, subsurface soil/fill, and groundwater.
- Municipal Sewage Sludge - The placement of municipal sewage sludge from the City of Syracuse and Onondaga County generally containing metals, PAHs, Pesticides, and polychlorinated biphenyls (PCBs) in the Biosolids Area from 1925 to 1978. This activity resulted in impacts to surface soil/fill, subsurface soil/fill, and groundwater.
- Other - Portions of the Site are used as parking lots for the New York State (NYS) Fairgrounds and the Site is transected by Interstate 690 (I-690) and New York State Route 695 (NY-695) interchange. Storm water run-off from the parking areas, I-690 and NY-695, and upstream areas (*i.e.*, Bridge Street and Crucible Parking lots) have resulted in impacts to site surface water and sediment in Ditch A. These impacts include constituents ubiquitous to the environment and general urban run-off such as BTEX, PAHs, pesticides, and metals, which are also constituents of concern at the Site.

Additional details pertaining to the site environmental conditions can be found in the *Revised Remedial Investigation Report* (O'Brien & Gere, 2014A) and the *Revised Final Feasibility Study Report* (O'Brien & Gere, 2014). The irregularly shaped beds total approximately 315 acres in size, and extend roughly 1.5 miles along the shore, with a maximum width of 0.5 miles. The overall Site covers approximately 404 acres; **Figure 2** depicts the approximate Site boundaries.

Transportation features bisect the Site and include Interstate 690 (I-690) (which is situated between the lakeshore and State Fair Boulevard) and interchanges associated with New York State Route 695 (NY-695), NYS Fairgrounds parking lots, access roads for the parking lots, and foot bridges. The existing NYS Fairgrounds parking lots (approximately 77 acres) generally consist of over two feet of gravel and fill material over Site soil/fill material. Other infrastructure and development present at the Site include the approximately 9-acre Onondaga County West Shore Trail Extension (public recreation trail) and a 20-acre permitted landfill operated by Crucible Specialty Metals (Crucible) which contains non-hazardous and hazardous wastes. The landfill was closed in 1988 in accordance with the NYSDEC-approved closure plan (C&S, 1986). An approximately 17-acre area that was a disposal site for County biosolids material (Biosolids Area) is located near the southeastern end of the Site over portions of Wastebeds 1 and 2. Lakeview Point, which generally comprises Wastebed 6, forms one of the Site's more prominent features: a peninsula that extends into Onondaga Lake near the northern end of the Site. Onondaga County is currently constructing an outdoor events center on this portion of the Site. The facility will occupy approximately 44 acres of the Site and will be comprised of an outdoor event complex, including an amphitheater, lawn seating, vendor area, recreational trails and amenities.

The portion of the property that is developed as parking lots and roadways is, in general, owned by New York State. The remaining portion of the Site is currently owned by Onondaga County. The County-owned portion of the Site includes the public recreational trail and the Amphitheater, which is currently under construction. Other areas of the Site are, characterized by vegetation cover ranging from sparsely vegetated areas to stands of mature trees. Both property deeds restrict property use to park purposes.

In general, the Site consists of variable terrain with numerous topographic highs and lows that range from approximately 362 feet (ft) above mean sea level (MSL) at the shore of Onondaga Lake, to 430 ft above MSL, at the highest point. Steeply-sloped berms define the outer-most boundaries of the Wastebed cells, as well as interior boundaries (*e.g.*, between Wastebeds 5 and 6). The eastern shoreline of the Site consists of a complex of wetland and upland habitats restored under the Integrated Interim Remedial Measure (IRM) (O'Brien & Gere, 2012). Approximately 9.5 acres of mitigation wetlands were constructed along the eastern shoreline, of which 2.3 acres are connected wetlands and 7.2 acres are inland wetlands. A vegetated cover system was installed for areas of the shoreline not occupied by other elements of the Integrated IRM (*e.g.,* wetlands, berms, stormwater features, etc.), minimizing contact and exposure to soil/fill material along the eastern shore.

1.1.2 Project Description

As presented in the Record of Decision (ROD), the remedy for OU-1 includes the placement of several types of vegetated cover systems in discrete areas. The specific cover type for a given area is based on remediation goals in surface soil, and current and reasonably anticipated future land use uses at the given Site area. The cover systems will be applied over 171 acres of the Site that do not have existing covers or infrastructure located on them and other areas which need additional cover material (*e.g.,* the upland staging areas associated with the IRM and a portion of the parking lot areas). A detailed description of the various cover types for the Site are provided in the ROD and the Remedial Design/Remedial Action (RD/RA) Work Plan (O'Brien & Gere, 2015). As discussed in the RD/RA Work Plan, the Site remedy will be implemented in multiple phases due to cover material availability, material placement productivity rates, planting seasons for the optimal establishment of vegetative enhancements, and site usage by the property owners. The scope of work to be completed in 2015 as Phase 1 of the project consists of the following:

- Approximately 20.5 acres of upland area with limited anticipated recreation use will receive a vegetated enhancement cover. This cover type was selected because of the existing density of vegetation and limited accessibility to recreational users.
- Approximately 1.8 acres with limited anticipated recreational use adjacent to the Crucible Landfill will receive a vegetated enhancement cover. This cover type was selected because of the existing density of vegetation and limited accessibility to recreational users.
- Approximately 1.25 acres with anticipated passive recreational use adjacent to the Crucible Landfill will receive a 1-ft vegetated cover. This cover type was selected because the area is an existing open lawn that is generally accessible to passive recreation by NYS Fair and Amphitheater attendees.
- Approximately 1 acre of buffer zone adjacent to the Onondaga County West Shore Trail Extension (public recreational trail) will receive a 1-ft vegetated cover to provide a buffer between the trail and more densely vegetated areas.

A description of the elements of the Phase 1 scope of work is provided in **Section 5**, below, and on the Design Drawings which are provided in **Appendix E**.

1.1.3 Summary of Remedial Design Investigation Surface Soil Sampling Results

Additional surface soil samples were collected in April 2015 in accordance with the NYSDEC-approved Sampling and Analysis Plan (O'Brien & Gere, 2015) to evaluate potential exposure scenarios to site constituents for both human and ecological receptors for the areas being addressed under Phase 1 of the Site remedy where limited historical data was available. Data from the samples were compared to NYSDEC Part 375.6 Residential Soil Cleanup Objectives (SCOs) and the Protection of Ecological Resources SCOs. Following analysis, the data was reviewed with NYSDEC to confirm the selected remedial approach, as described below in **Section 5**, for the areas where these samples were collected. A summary of sample locations and detections above Residential or Protection of Ecological Resources SCOs are described below and are provided on **Figure 3**.

Volatile Organic Compounds (VOCs), Semivolatile Organic Compounds (SVOCs), pesticides, and PCBs were all below both the Residential and Protection of Ecological Resources SCOs.

Inorganics were also below the Residential Use SCOs. However, silver and mercury were detected at concentrations marginally above the Protection of Ecological Resources SCOs. The mercury exceedance was in one sample, WB18-SS-131 from the 0-2 inches bgs interval. The silver exceedances were in nine samples, including WB18-SS-127 from 0- 2 inches bgs, WB18-SS-128 from 0-12 inches bgs, WB18-SS-129 from 0-2 inches bgs, WB18-SS-130 from 0-12 inches bgs, WB18-SS-131 from 0-12 inches bgs, WB18-SS-132 from 0-12 inches bgs, WB18-SS-133 from 0-12 inches bgs, and WB18-SS-134 from 0-2 inches bgs and 0-12 inches bgs.

2. PROJECT MANAGEMENT

2.1 PROJECT MANAGEMENT STAFFING

NYSDEC Project manager – Tracy Smith

As the lead regulatory agency, the NYSDEC Project Manager's functions shall include the following functions:

- Review and approve designs
- Review project submittals for compliance with regulations
- Issue approval to construct the project once design has been approved
- Review and approve major design modifications or requests for variances from the regulatory conditions during construction.

Honeywell design / construction manager – Steve Miller, P.E.

The Honeywell Design/Construction Manager will provide technical input and attend meetings with project staff and the NYSDEC.

Project Officer – Brian White, P.E.

The Project Officer will oversee project quality, safety, schedule, and overall project performance and will periodically attend construction review meetings, and will be available on an as-needed basis to the project team.

Project Manager (Construction) – Christopher Killoren

The Project Manager will manage the procurement and construction phases of the project on a day-to-day basis, monitor and evaluate project controls throughout the project, and see that the technical and quality objectives are achieved.

Engineering Manager – Brad Kubiak, P.E.

The Engineering Manager will lead engineering activities during the construction phase of this project. The Engineering Manager will attend weekly construction progress update meetings at the request of the Project Manager, and provide shop drawing reviews, respond to requests for information, and provide input to value engineering alternatives identified during the construction phase of the project.

Health and Safety Manager – Steven Thompson, CHST

The Health and Safety Manager developed, and will implement and enforce the Site Specific Health and Safety Plan for the project.

3. HEALTH AND SAFETY, AIR QUALITY MONITORING AND DECONTAMINATION

3.1 HEALTH AND SAFETY

3.1.1 Project Health and Safety Plan

A project-specific Health and Safety Plan (HASP) has been developed for the project and is included as **Appendix A**. The HASP details practices that will be implemented for the safe execution of the project and the safety of workers involved with the project.

Training and planning tools, which will be utilized by the project team will include the following:

- Project Job Safety Analysis:

  Job safety analyses (JSA) will be developed for the scope of work associated with this project. The JSA 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 JSA. A project specific Health and Safety Plan (HASP) has been developed for the OU-1 construction work and is included as **Appendix A**.

- Pre-Work Health and Safety Kickoff Meeting:

  A pre-work Health and Safety kickoff meeting will be scheduled with the project team prior to the start of the project.

- Site Orientation Training:

  Personnel working on this project will be required to attend a site orientation training session prior to engaging in any work activities and/or entering the work zone.

- Daily Pre-Task Planners and Weekly Toolbox Safety Meetings:

  Pre-Task Planners are prepared on a daily basis and will be reviewed with the work crew focusing on any changes in equipment, tools, work methods or site conditions as well as key hazards and safety controls.

  Project personnel must attend a project Weekly Toolbox Safety Meeting. These meetings are an opportunity to conduct field safety training, distribute key safety information, reinforce safety as a priority and/or review recent inspection results directly to all project personnel.

3.1.2 Community Health and Safety Plan (CHASP)

The CHASP has been developed to address health and safety procedures that will be implemented to address the protection of the community during the implementation of the Site remedy. The CHASP includes a Community Air Monitoring Plan (CAMP) that addresses potential project air emissions into the off-site community. Community air monitoring will be performed throughout the project in accordance with the requirements of the CAMP. The CHASP and CAMP are provided as **Appendix B.**

3.2 AIR QUALITY MONITORING

O'Brien & Gere will implement an employee work zone air monitoring program during intrusive activities. This program will be detailed in the site specific JSA.

3.2.1 Work Zone Air Monitoring

If and when intrusive work is being performed, air monitoring devices will be used. Intrusive work is not expected. However, Section 5 in the HASP outlines how and when air monitoring will be conducted.

3.3 DECONTAMINATION

Decontamination of equipment will be conducted, as necessary, if Solvay waste adheres to equipment during the construction of the cover systems. A lined decontamination pad with a low-point collection sump will be constructed onsite for equipment decontamination. Collected decontamination water will be pumped to a

storage vessel for fines settling prior to discharging it to the Eastern Lakeshore Pump Station that will convey the water to the Willis Avenue Groundwater Treatment Plant for treatment.

Clean material will be removed, as required, from trucks and heavy equipment prior to leaving the site to prevent tracking of mud and dirt onto roadways. Removal of clean material will be performed in Staging Area C.

4. EROSION AND SEDIMENT CONTROL

The project will be completed in substantive compliance with NYSDEC SPDES General Permit No. GP-0-15-002 per the Stormwater Pollution Prevention Plan (SWPPP) included as **Appendix C**. The project SWPPP provides details of the erosion and sediment control measures that will be implemented and maintained throughout the project.

5. COVER SYSTEMS DESIGN AND CONSTRUCTION

The cover system design, as described below, incorporates green remediation concepts in accordance with DER-31 (NYSDEC, 2010) and USEPA's Superfund Green Remediation Strategy (September 2010). Specifically, the cover systems have been designed to require minimal maintenance, enhance evapotranspiration, and be integrated with the long-term use of the site. In addition, the following green techniques will be implemented during construction:

- Local sourcing of cover materials;
- Use of local labor resources;
- Use of B-20 biodiesel in heavy equipment; and
- Minimization of equipment idling, consistent with 6 NYCRR Part 217-3 – Idling Prohibition for Heavy Duty Vehicles.

5.1 PRE-DESIGN SURFACE SOIL SAMPLING

Two surface soil samples will be collected, as shown on **Figure 3**, from the area adjacent to the Crucible Landfill in order to evaluate the potential for exceedances of SCOs for the protection of human health and ecological resources and to confirm the proposed cover thickness to be applied. Samples will be collected from the 0-2 inch and 0-12 inch intervals. Samples will be excavated using a stainless steel shovel, trowel, or hand auger. Soils will be transferred to dedicated aluminum pans using dedicated plastic scoops. The samples will be homogenized and transferred to sample containers provided by the laboratories. Prior to homogenization, representative grab samples will be collected for VOCs. The sample containers will be placed in a cooler containing ice and submitted with appropriate chain of custody documentation to a New York State-certified laboratory for USEPA SW-846 methods 6010C, 7471B, and 9012B for TAL metals, mercury, and cyanide respectively. In addition to sampling, hand-excavated test pits will be advanced coincident with the two sample locations. Test pits will be advanced to a depth of 1 foot below grade and visually inspected to evaluate if Solvay waste, or waste that may be associated with the Crucible landfill is present in this area. The test pits results will be presented to NYSDEC for review in conjunction with analytical results for the soil samples.

Non-dedicated sample equipment will be decontaminated between locations in accordance with the Honeywell Syracuse Portfolio Site Investigations QAPP (O'Brien & Gere, 2011) and USEPA Uniform Federal Policy (UFP) QAPP (USEPA, 2005) requirements. An equipment blank will be collected by running distilled water through the decontaminated sample apparatus, and collecting it in appropriate laboratory provided containers. The sample containers will be placed in a cooler containing ice and submitted with appropriate chain of custody documentation to a New York State-certified laboratory for analysis by USEPA SW-846 methods 6010C, 7471B, and 9012B for metals, mercury, and cyanide respectively.

5.2 COVER SYSTEMS DESIGN

The areas proposed to receive vegetated cover systems are located on the upper portion of the Wastebeds 1-8 complex, including steeply-sloped berms. Vegetated cover systems were selected based on the existing land form, contaminant levels present, and the current and reasonably anticipated future land use category (areas of active or passive recreational use) for respective portions of the Site. Two cover systems: vegetation enhancement and 1' vegetated soil cover were identified as a sustainable means of minimizing erosion of soil/fill material, minimizing the potential for contact with impacted soil/fill material, and serving to enhance wildlife habitat for this phase of the project.

Construction of the various vegetated cover systems will include placement of a mulch/compost cover (**Section 5.2.1.1**), placement of a 1' vegetated soil cover (**Section 5.2.1.2**), and associated ecological restoration (**Section 5.5**).

5.2.1 Vegetated Soil Cover

Vegetated soil covers, as described below, will be established in areas indicated on the Design Drawings (**Appendix D**):

- Approximately 20.5 acres of upland area with limited anticipated recreation use will receive a vegetated enhancement cover.
- Approximately 1.8 acres with limited anticipated recreational use adjacent to the Crucible Landfill will receive a vegetated enhancement cover.
- Approximately 1.25 acres with anticipated passive recreational use adjacent to the Crucible Landfill will receive a 1-ft vegetated cover.
- Approximately 1 acre of buffer zone adjacent to the Onondaga County West Shore Trail Extension (public recreational trail) will receive a 1-ft vegetated cover.
- Additional areas, as noted on Figure 3, may be covered in 2015 if schedule permits.

5.2.1.1 Vegetation Enhancement

Vegetation enhancement and erosion control, as shown on the Design Drawings, will be completed in areas with existing vegetation through broadcast spreading of the specified seed mixes over mulch/compost. This method will be applied in areas with steep terrain, dense woody vegetation, and non-public accessible areas. Approximately 300 cubic yards of mulch/compost that is consistent with Type C compost (NYSDOT, 2008) for erosion and sediment control compost blankets will be applied per acre. This application rate of 300 cy/acre was established based on the results of the cover system pilot study which was conducted at the site between 2011 and 2014. Details of the pilot study are presented in Appendix A of the Remedial Design/Remedial Action Work Plan (O'Brien & Gere, 2015a). In the existing vegetated area along the northern limit of the Crucible Landfill adjacent to the Amphitheater seating area, vegetation enhancement will be applied using mulch/compost material amended with #2 gravel and sand to provide an approximately 6 inch thick application while reducing the potential impacts to existing woody vegetation (e.g., mature trees). The equipment and application methods for the amended material are discussed in **Section 6.2.1**. Vegetation enhancements will be conducted with minimal clearing of existing vegetation to minimize disturbance of established vegetation. Clearing efforts will target the removal/control of invasive species prior to placement of vegetative enhancement cover.

Sampling and analysis of mulch/compost will be conducted prior to placement in accordance with the requirements of **Section 6** (Construction Quality Assurance/Construction Quality Control). Prior to placement, mulch/compost will be screened to remove course woody debris and other deleterious material, as necessary. The vegetation enhancement cover will be placed in one of two ways. In areas that are easily accessible, a spreader is expected to be used to place the mulch/compost at the desired rate. In areas with steep slopes, the material is expected to be placed using a blower truck or other technology. In both cases, the material will be hauled to the work areas via a dump truck where it will be loaded directly onto the respective spreading equipment or staged and loaded onto the equipment using a wheel loader.

5.2.1.2 1' Vegetated Soil Cover

A 1' thick vegetated soil cover will be placed over existing material within approximately 2.25 acres of the Site, as shown on the Design Drawings. The cover material will enhance the water retention capacity, rooting volume evapotranspiration (ET), and wildlife habitat within these areas. The 1' vegetated soil cover will consist of approximately 8" of select fill with 4" of clay-loam topsoil.

Sampling and analysis of select fill and topsoil will be conducted prior to placement in accordance with the requirements of **Section 6** (Construction Quality Assurance/Construction Quality Control). Installation means and methods of the 1' vegetated soil cover will be driven by accessibility and site conditions. For the majority of areas the material will be hauled to the work area using a dump truck and spread with either a low ground pressure dozer or an excavator. Alternatively, material will be loaded directly out of a dump truck and placed with an excavator from the public recreation trail. Rubber-tire and rubber-tracked equipment will be used for

work utilizing the public recreation trail for access to work areas. Crane mats and/or road plates will be used as necessary to prevent damaging the pavement on the bike trail.

5.3 CLEARING AND INVASIVE SPECIES MANAGEMENT

Areas to receive the vegetation enhancement and 1' vegetated soil cover system will be cleared of invasive species (*e.g.,* European buckthorn, honeysuckle, etc.) to facilitate cover system installation and promote the establishment of native vegetation. Targeted vegetation will be cut in a manner which allows for subsequent application of herbicide as necessary. Vegetation removed from the area will be staged in a designated location for re-use on site or disposal. Prior to re-use of vegetative material on site, the material will be evaluated by a biologist for seed content to minimize potential for re-establishment of invasive species in covered areas. Vegetation removed by hand clearing methods may be utilized on site as brush piles for habitat enhancement. Chipped vegetation may be re-used on-site as temporary storm water controls.

5.4 MATERIALS MANAGEMENT

Imported fill and mulch/compost will be staged in the clean fill staging area on top of the Orange Lot (**Figure 2**). From there, the material will be loaded onto a dump truck via an excavator or loader and be hauled to the designated cover areas. The material will be placed utilizing various types of equipment depending on the cover system.

In the event that spoils are generated, they will be hauled to Staging Area C where they can be characterized accordingly. If required, Staging Area C will be expanded to the North to allow for the additional spoil material. Some clearing will be needed for the expansion. If spoils are generated, waste characterization samples will be collected at a frequency of one composite sample per 1,000 CY of material. Samples will be analyzed for the following:

- Total and TCLP VOCs by EPA Methods 8260B and 1311/8260B, respectively
- Total and TCLP SVOCs by EPA Methods 8270C and 1311/8270C, respectively
- Total and TCLP Mercury by EPA Methods 7471A and 1311/7470A, respectively
- Total and TCLP Metals by EPA Methods 6010A and 1311/6010A, respectively
- Ignitability by EPA Method 1010
- Reactivity (Cyanide and Sulfide) by EPA Methods 7.3.3.2 and 7.3.4.1
- Corrosivity by EPA Method 9045C, and
- Percent Moisture by EPA Method D2216

In addition, one discrete sample will be collected for VOC analysis per composite sample, at a depth below 6-inches.

If the soils are characterized as non-hazardous, and with NYSDEC approval, they will remain within the staging area and be managed on site. Material remaining on the site after completion of construction will be consolidated, graded, and restored. The final grading plan will be coordinated with Honeywell, NYSDEC, and Onondaga County.

If the soils are characterized as hazardous, they will be shipped off site and disposed of at a licensed disposal facility. Additional details for hazardous material disposal will be provided during construction, if warranted. Hazardous waste shipping manifest and details of the disposal will be documented in the Construction Completion Report.

5.5 ECOLOGICAL RESTORATION

The restoration approach described below was developed in consultation with the State University of New York College of Environmental Science and Forestry (SUNY ESF) and has been selected based on land use and land

form for the purposes of mitigating potentially unacceptable exposure risks and surface erosion. In addition to minimizing erosion and potential exposure of human and ecological receptors to contaminants in soil/fill materials, restoration will serve to enhance vegetation structure and ecological function by restoring native plant species in support of both natural and novel plant communities.

Community types planned for each of the vegetated cover systems are described below. The Topsoil and Seeding technical specification (located in **Appendix F**) identifies plant species proposed for installation in each of the upland community types.

5.5.1 Successional Old-Field Community

The successional old-field community is intended for areas of the Site adjacent to public recreational trails receiving a one-foot soil cover and the sparsely vegetated areas of the Site which have naturally developed towards an early successional community on existing soil/fill material but lack a closed canopy. Several species have already successfully established throughout these sparsely vegetated areas of the Site, including scotch pine, juniper (*Juniperus sp.*) and European birch (*Betula pendula*). To the extent possible, these species will be preserved, as they are considered non-problematic and provide habitat value for wildlife and soil stabilization. Invasive shrubs present on Site such as honeysuckle (*Lonicera* sp) and European buckthorn (*Rhamnus cathartica*) will be targeted for treatment/removal. Following invasive species treatment (detailed in **Section 5.3**) mulch/compost will be applied to these areas. To further facilitate the establishment of scrub shrub/old-field conditions in these areas, a successional old-field seed mix will be broadcast over the installed mulch/compost. The species included in this seed mix, including a variety of grasses and forbs native to Central New York, exhibit a wide ranging tolerance to environmental conditions. In general, these species are capable of establishing quickly, enhancing soil stability, and providing wildlife with a valuable source of forage and cover.

5.6 CONSTRUCTION COMPLETION REPORT

Following completion of Phase 1 of the Site remedy, a Construction Completion Report (CCR) will be prepared to document the implementation of the remedial action. The CCR will be prepared in accordance with the requirements of DER-10 and will be consistent with the requirements of a Remedial Action Report (RAR) as per USEPAs *Closeout Procedures for National Priorities List Sites* (USEPA, 2011). The CCR will be incorporated into the Final Engineering Report (FER) for the Site upon completion of the Site remedy. The CCR will include the following:

- A description of the remedy, as constructed, pursuant to the RAWP;
- A summary of the remedial action completed, including:
  - A description of problems encountered and a description of their resolution;
  - A description of changes to the design documents and the reason for the change(s);
  - Quantities/concentrations of contaminants removed or treated (if any);
  - A listing of waste streams, quantities of materials disposed, and disposal location(s) (if any);
  - Boundaries of the real property subject to the environmental easement, deed restriction, or other institutional controls; and
  - Restoration actions.
- A listing of remedial action objectives applied to the remedial action;
- A description of applicable areas of remedial action compliance; and
- "As-built" drawings for this phase of the Site remedy.

6. CONSTRUCTION QUALITY ASSURANCE/CONSTRUCTION QUALITY CONTROL

6.1 MATERIAL IMPORTATION

Prior to the installation of earthen materials, the supplier will be required to provide the following:

- Name and location of the material source
- Affidavit from the owner of the source for each type of borrow material to be imported to the site
- Laboratory analytic data for each material

The Affidavit from the owner of the source of each type of borrow material shall state that, to the best of his knowledge, the site of the source material was never used as a dump site for chemical, toxic, hazardous or radioactive materials and it is not now, or ever has been, listed as a suspected depository for chemical, toxic, hazardous, or radioactive materials by any federal, state, or other governmental agency, department, or bureau.

Laboratory analytic data (or documentation of such data no older than one year from submittal) will be provided for these soils for the compounds in Table 375-6.8(a) "Unrestricted Use Soil Cleanup Objectives" in NYSDEC Subpart 375. Failure of a single compound test result will mean that the entire material batch will be rejected unless specifically accepted on a test-by-test basis by O'Brien & Gere and approved by NYSDEC.

In addition, the supplier will be required to collect samples of the proposed topsoil and submit, to O'Brien & Gere for review, geotechnical testing results as follows:

Table 6-1 Topsoil Analysis

Parameter	Standard	Criteria
Grain Size	ASTM D422	Monitor consistency of borrow source
pH	ASTM D4972	pH in the range of 5.5 to 7.6
Organic Content	ASTM D2974	Organic concentration of 5% to 15% in wetland areas (deep emergent, shallow emergent and wet meadow zones) Organic concentration of 3% to 15% in other areas
Liquid Limit, Plastic Limit and Plasticity Index	ASTM D4318	Silty Loam, Loam, Sandy Loam

Notes:
1. ASTM D422 – Method for Particle-Size Analysis of Soil
2. ASTM D2974 – Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils
3. ASTM D4972 – Method for pH of Soils
4. ASTM D4318 – Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

O'Brien & Gere

6.2 MATERIAL PLACEMENT

This section provides the basis for CQA/CQC activities associated with the implementation of Phase 1 of the Site remedy (cover application rate, limits of placement, etc.).

6.2.1 Vegetation Enhancement

In areas where a vegetated enhancement cover will be applied, the areal extent of the cover will be defined by the limits of the Onondaga County Amphitheater, the Onondaga County public recreational trail, or portions of the Site remedy which were completed as part of the Integrated IRM. As discussed in **Section 5.2.1.1**, the vegetated enhancement cover will be applied at a rate of 300 cy/acre. Prior to the start of placement, the mulch/compost spreader(s) will be calibrated to establish consistent application across the site. The spreader(s) will be calibrated by adjusting the delivery of mulch/compost to match the specified application rate. This will be based on the capacity of the spreader, speed of application, and width of spreader swath.

As discussed in **Section 5.2.1.1**, vegetated enhancement cover amended with sand and #2 gravel will be applied to the existing vegetated area along the northern limit of the Crucible Landfill (**Figure 3**). The material will be applied to provide an approximately 6 inch thick application to promote vegetation growth while reducing the potential impacts to existing woody vegetation. The mulch/compost material, sand and gravel will be mixed using conventional construction equipment prior to placement and will be applied utilizing mulch/compost spreader(s), consistent with the vegetated enhancement cover placement on other areas of the site.

Throughout the implementation of the vegetated enhancement cover, the construction management team will monitor and document application rates in the project field log book/daily field reports. In addition to calibration and monitoring of application rates by the construction management team, application rates will be verified on a daily basis by dividing the total daily quantity of mulch/compost applied by the total daily acreage covered. Application rates will be documented in the Construction Completion Report (CCR).

A stockpile of mulch that will be used for the vegetated enhancement cover is currently staged in the clean fill staging area. This mulch batch is estimated to total 10,000 CY. As additional mulch is delivered to the site, samples will be collected at a frequency of 1 sample/5,000 cy. Samples will be analyzed for the compounds listed in Appendix 5, Subdivision 5.4(e) in NYSDECs DER. If a compound exceeds the unrestricted use for allowable constituent levels for imported fill or soil as listed in **Appendix 5,** NYSDEC will be contacted to discuss the intended mulch use and if additional sampling is appropriate.

Mulch sampling will be completed by dividing the stockpile via a grid pattern based on estimated volume. VOC samples will be collected as grab samples. All other samples will be a composite sample of the grid area, which will be prepared by collected and mixing up to 5 random discrete samples. If additional sources of mulch are identified, the proposed sampling frequency will be reviewed with NYSDEC.

6.2.2 1' Vegetated Soil Cover

In areas where a 1' vegetated soil cover will be applied adjacent to the Onondaga County recreational trail, the areal extent of the cover will consist of a 10 foot wide buffer strip along the limits of the trail. Cover material will not be applied in areas where sufficient cover material was placed during trail construction, or in areas where steep slopes preclude cover placement. Honeywell and NYSDEC field representatives will review areas that will not receive cover materials prior to the start of material placement.

In the area adjacent to the Crucible Landfill where a 1' vegetated soil cover will be applied, the areal extent of the cover will be defined by the Crucible Landfill access road and the limits of the Onondaga County Amphitheater. Grade stakes will be installed at 50' intervals throughout the area to establish the required fill depth prior to the start of placement. Throughout the implementation of the vegetated soil cover, the construction management team will monitor and document material placement in the project field log book/daily field reports. Along the Onondaga County recreational trail following completion of material placement, soil core samples will be collected at a minimum frequency of 1 per 100 linear feet of trail to confirm the in-place thickness of the soil cover. Results of the core sampling will be documented in the CCR.

6.3 RESTORATION

This section provides the CQA/CQC procedures for site restoration including seeding application rates and performance criteria. In this document performance criteria are presented for the vegetation zones to be restored in 2015. This section of subsequent RAWPs may be amended to include additional or modified success criteria to reflect future design objectives or community types.

The success criteria will be monitored in two stages. In Stage 1, data will be collected to evaluate whether the vegetation zone (Successional Old-Field) has been constructed as designed. The Stage 1 criteria focus on the physical parameters of each zone including cover system material application rates or thicknesses and seeding rates. QA/QC procedures for assessing material rates and thicknesses are discussed in **Section 6.2**. Seed application will be monitored in the field by a biologist to evaluate whether appropriate rates are being applied per the Topsoil, Seeding, and Planting Specification **(Appendix F)**. A 50-foot grid system will be implemented in order to monitor the rate at which seed is being broadcast and to achieve a more even coverage. Plant species composition will also be evaluated by reviewing nursery submittals (*e.g.* seed tags, bills of lading for seed shipments, etc.) throughout the Stage 1 Monitoring effort.

Following construction of the cover systems, additional success criteria will be used to evaluate vegetation establishment and use of the habitats by fauna. The Stage 2 criteria include plant species structure and composition wildlife observations within the areas. Stage 2 Monitoring will be completed during the same year as construction completion except in areas where permanent seeding is not complete by the end of June. In these areas, Stage 2 Monitoring will begin during the first full growing season after seeding. After the first full growing season, an evaluation of percent cover of vegetation will be performed to evaluate the establishment success of desirable species. At least 80% vegetative cover (absolute cover) should be achieved by desirable species following the first growing season. Invasive or undesirable species will be treated mechanically (mowing, cutting) or chemically using an approved herbicide to facilitate the establishment of desirable species. Re-seeding or implementation of herbivory controls may also be implemented as necessary to achieve the prescribed criteria.

7. INTERIM SITE MANAGEMENT PLAN, MAINTENANCE & MONITORING

An Interim Site Management Plan (SMP), which will include the following, will be submitted for NYSDEC review and approval following completion of this year's remedial action.

7.1 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

An Institutional and Engineering Control Plan that identifies use restrictions and engineering controls for the remedy and details the steps necessary to maintain the effectiveness of the following:

- Cover systems described in this RAWP
- Excavation plan detailing the provisions for the management of future excavations in areas of remaining contamination
- Description of institutional controls including any land use restrictions
- Provisions that future on-Site construction should include vapor intrusion sampling and/or installation of mitigation measures, if necessary
- Provisions for the management and inspection of engineering controls
- Provisions for the modification of the vegetative cover in the event of changes in site use (*e.g.*, from passive to active use) in the future
- Maintenance of Site access controls and NYSDEC notification
- Steps necessary for periodic reviews and certification of the institutional and/or engineering controls; and
- Environmental easements and/or environmental notice.

7.2 MAINTENANCE & MONITORING

The interim SMP will include a monitoring plan for restored areas. The plan will describe post-construction monitoring requirements to assess the effectiveness of the remedy and corrective measures taken to maintain the vegetative cover(s). Corrective actions for vegetated covers may include the repair of cover sections in areas of disturbance or re-application of vegetation in areas of non-survivorship.

8. SCHEDULE

The project schedule for Phase 1 of the Site remedy is provided as **Figure 4**.

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Figures

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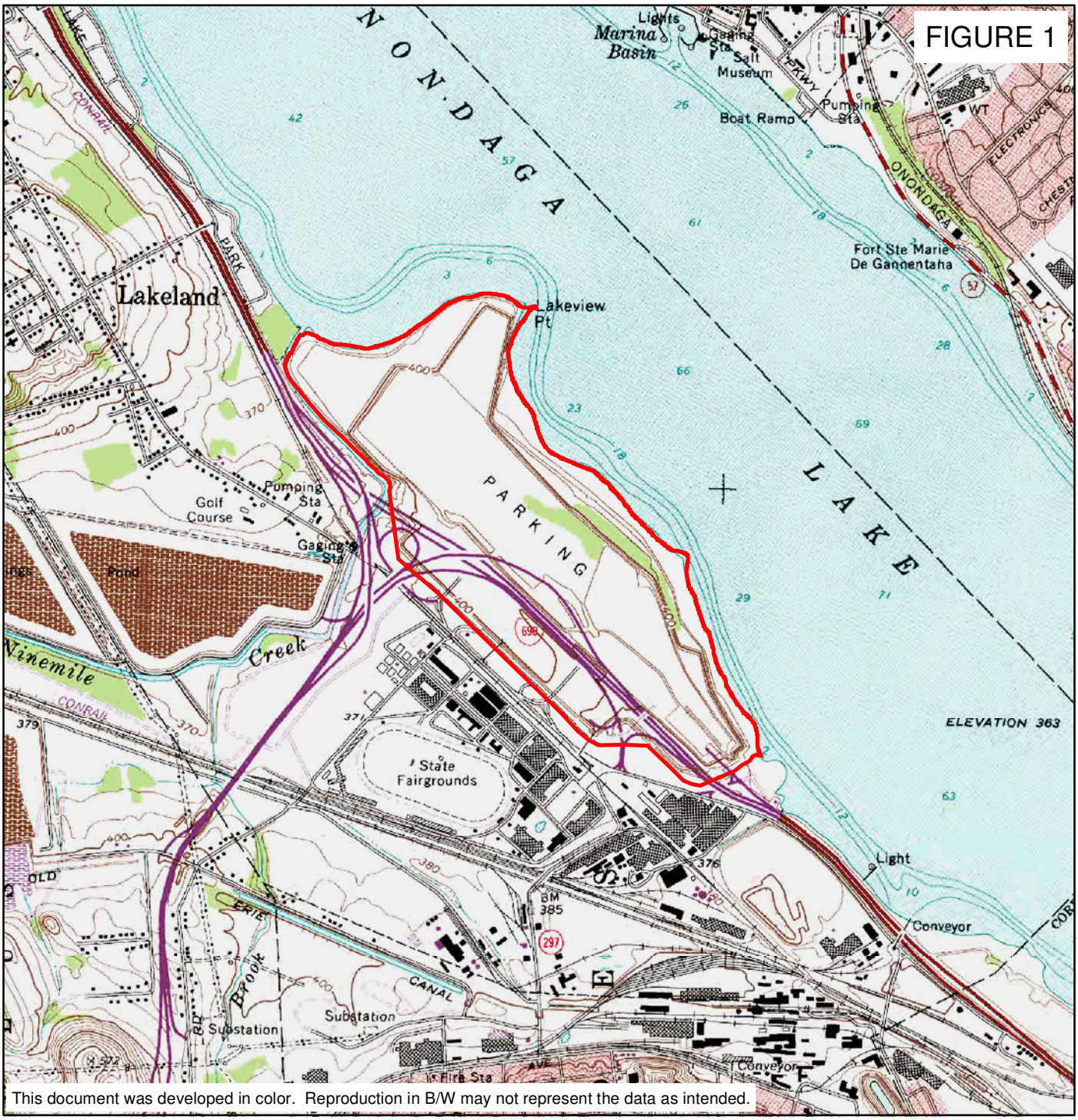
FIGURE 1



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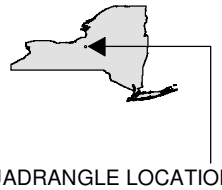
INTERNATIONAL INC.
OU-1 RAWP
WASTEBEDS 1-8
GEDDES, NEW YORK



QUADRANGLE LOCATION

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SITE LOCATION

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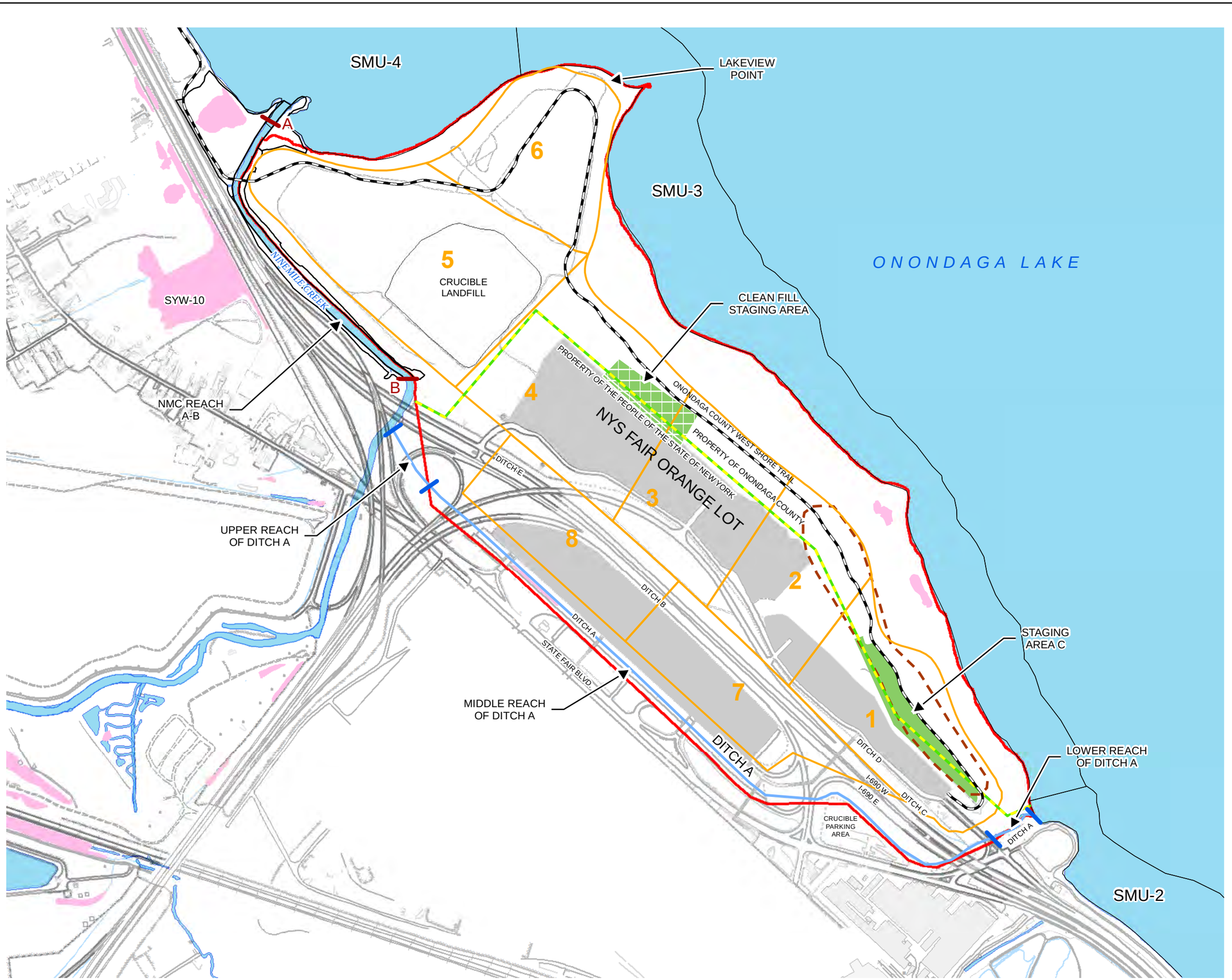

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FIGURE 2

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LEGEND

- ONONDAGA COUNTY WEST SHORE TRAIL
- WASTEBEDS 1-8 PROPERTY BOUNDARY (PEOPLE OF THE STATE OF NY AND ONONDAGA COUNTY)
- SMU-2 ONONDAGA LAKE SEDIMENT MANAGEMENT UNIT BOUNDARY
- DELINEATED WETLANDS
- CLEAN FILL STAGING AREA
- STAGING AREA C
- PARKING LOT
- APPROXIMATE WASTEBED BOUNDARY
- WASTEBEDS 1-8 SITE
- BIOSOLIDS AREA FOOTPRINT

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WASTEBEDS 1- 8
GEDDES, NEW YORK

SITE PLAN

0 400 800 1,600
Feet

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FIGURE 3

NOTE
- SOIL RESULTS IN mg/kg.
- NYSDEC PART 375.6 PROTECTION OF ECOLOGICAL RESOURCES SCO FOR :
  - MERCURY = 0.18 mg/kg
  - SILVER (b) = 2 mg/kg.
- ALL RESULTS SHOWN EXCEED THE SCOs ABOVE.

LOCATION	WB18-SS-131	
SAMPLE DATE	4/2/2015	
DEPTH (INCHES)	0-2	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*	
Mercury	**0.22**	--
Silver	--	**3.2**

LOCATION	WB18-SS-132
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**2.6**

LOCATION	WB18-SS-130
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**2.7**

LOCATION	WB18-SS-129
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-2
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**2.3**

LOCATION	WB18-SS-128
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**3.1**

LOCATION	WB18-SS-134	
SAMPLE DATE	4/2/2015	
DEPTH (INCHES)	0-2	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*	
Silver	**3.0**	**2.6**

LOCATION	WB18-SS-133
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-12
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**3.1**

LOCATION	WB18-SS-127
SAMPLE DATE	4/2/2015
DEPTH (INCHES)	0-2
CHEMICAL NAME	*CONCENTRATION (mg/kg)*
Silver	**3.3**

SS-131, SS-12, SS-132, BT-SS-12, SS-130, SS-129, SS-13, FORMER STAGING AREA - A, SS-52, SS-15, NINEMILE CREEK AND ONONDAGA LAKE SUPPORT AND STAGING AREA (TO BE COMPLETED UPON COMPLETION OF THE ONONDAGA LAKE CAPPING PROJECT), BT-SS-11, SS-14, SS-11, 6, SS-10, SS-128, SS-134, 5, SS-133, SS-16, SS-54, STAGING AREA - B (TO BE COMPLETED UPON COMPLETION OF THE ONONDAGA LAKE CAPPING PROJECT), CRUCIBLE LANDFILL, SB-128, SB-165, BT-SS-13, SS-127, SS-09, SB-178, SS-18, SS-17, SS-6, 4, SS-19A, SS-29, SS-19D, SS-19, SS-19B, SS-19C, BT-SS-14, CLEAN BACKFILL STAGING, SS-20A, SS-20D, SS-20, 3, SS-21, SS-20C, SS-20B

LEGEND
- STAGING AREA (COMPLETED AS NOTED)
- REVETMENT (COMPLETED AS PART OF THE WASTEBED 1-8 INTEGRATED IRM)
- SEEP APRON (COMPLETED AS PART OF THE WASTEBED 1-8 INTEGRATED IRM)
- VEGETATIVE COVER / RESTORED AREA / SHORELINE STABILIZATION / WET SWALE (COMPLETED AS PART OF THE WASTEBED 1-8 INTEGRATED IRM)
- MITIGATION WETLAND (COMPLETED AS PART OF THE WASTEBED 1-8 INTEGRATED IRM)

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LEGEND
- PROPOSED 0"-12" AND 0"-12" SAMPLE
- SURFACE SOIL SAMPLE
- HISTORIC SURFACE SOIL SAMPLE LOCATION
- 1 FOOT VEGETATED COVER - 2015
- VEGETATION ENHANCEMENT COVER - 2015
- 6 INCH VEGETATION ENHANCEMENT COVER - 2015
- AREAS TO BE COVERED IN SUBSEQUENT YEARS
- VEGETATION ENHANCEMENT COVER 2015 - BASED ON THE RESULTS OF ADDITIONAL PRE-DESIGN SAMPLING
- ADDITIONAL VEGETATION ENHANCEMENT AREAS THAT MAY BE COVERED IN 2015 IF SCHEDULE PERMITS
- AMPHITHEATER FOOTPRINT
- PARKING LOT AREA
- APPROXIMATE WASTEBED BOUNDARY
- WASTEBEDS 1-8 SITE LIMITS

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WASTEBEDS 1-8
GEDDES, NEW YORK

2015 SURFACE SOIL SAMPLE RESULTS AND PROPOSED PRE-DESIGN SAMPLE LOCATIONS

0 160 320 640
Feet

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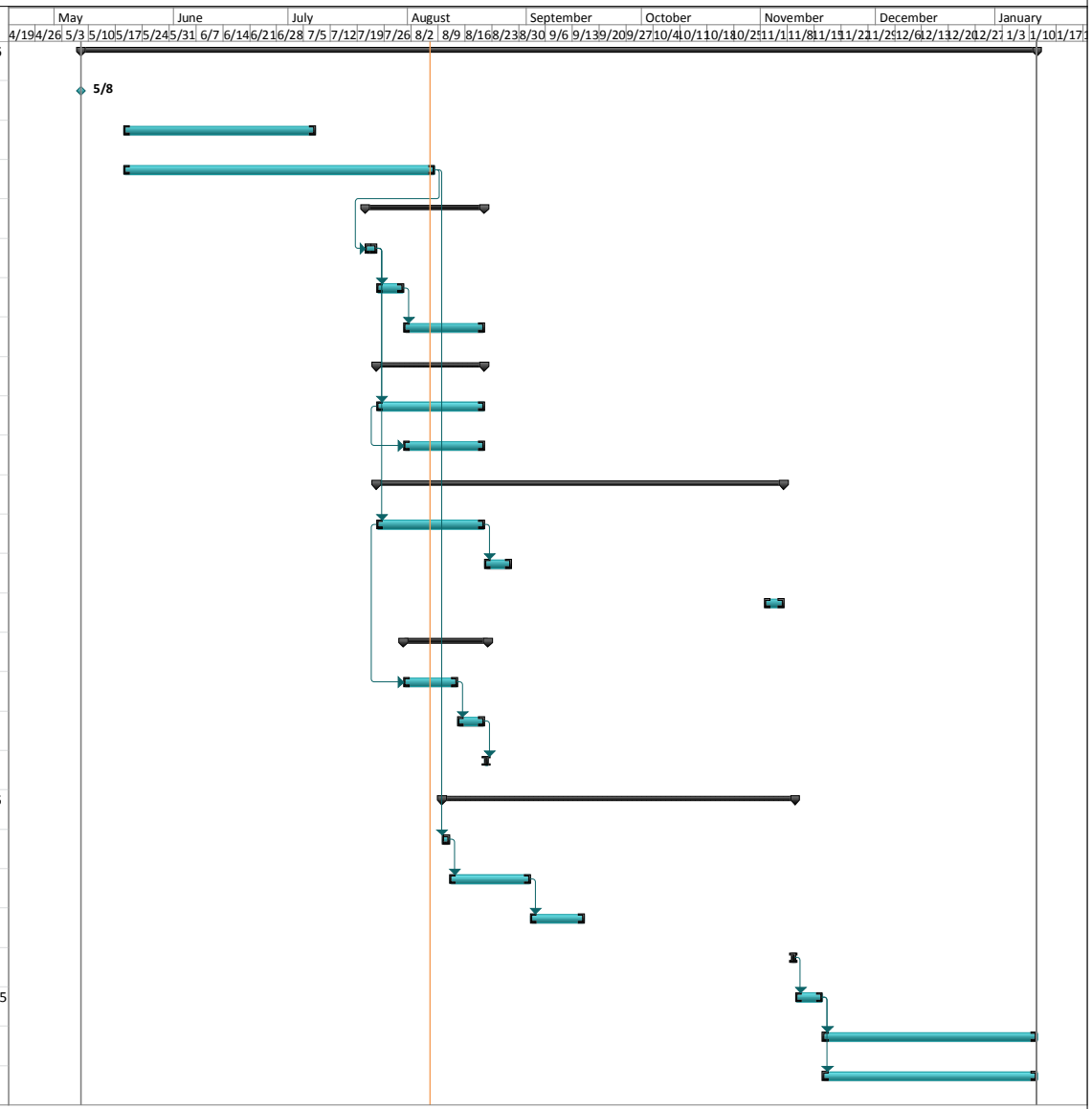
Figure 4 - Project Schedule
WBs 1-8 OU-1

ID	Task Mode	Task Name	Duration	Start	Finish
1		**WBs 1-8 OU-1: Phase 1 Final Cover**	**177 days**	**Fri 5/8/15**	**Mon 1/11/16**
2		WBs 1-8 OU-1 Consent Order Signed	0 days	Fri 5/8/15	Fri 5/8/15
3		NYSDEC Review & Approve RD/RA Work Plan	36 days	Tue 5/19/15	Tue 7/7/15
4		NYSDEC Review & Approve RA Work Plan	59 days	Tue 5/19/15	Fri 8/7/15
5		**Mobilization**	**23 days**	**Tue 7/21/15**	**Thu 8/20/15**
6		Mobilize Labor & Equipment	3 days	Tue 7/21/15	Thu 7/23/15
7		Construct Access Roads	5 days	Fri 7/24/15	Thu 7/30/15
8		Screen Fill Material	15 days	Fri 7/31/15	Thu 8/20/15
9		**Site Clearing/Grading**	**20 days**	**Fri 7/24/15**	**Thu 8/20/15**
10		Clearing	20 days	Fri 7/24/15	Thu 8/20/15
11		Herbicide Application	15 days	Fri 7/31/15	Thu 8/20/15
12		**Vegetative Enhancement - Lakeview Point**	**76 days**	**Fri 7/24/15**	**Fri 11/6/15**
13		Material Placement	20 days	Fri 7/24/15	Thu 8/20/15
14		Seeding - Temporary Cover Crop	5 days	Fri 8/21/15	Thu 8/27/15
15		Seeding - Permanent Cover	5 days	Mon 11/2/15	Fri 11/6/15
16		**1' Vegetative Cover - Bike Trail Apron**	**16 days**	**Fri 7/31/15**	**Fri 8/21/15**
17		Subbase	10 days	Fri 7/31/15	Thu 8/13/15
18		Topsoil	5 days	Fri 8/14/15	Thu 8/20/15
19		Seeding	1 day	Fri 8/21/15	Fri 8/21/15
20		**Vegetative Enhancement - Crucible Landfill Area**	**66 days**	**Mon 8/10/15**	**Mon 11/9/15**
21		Collect Surface Soil Samples	2 days	Mon 8/10/15	Tue 8/11/15
22		Receive Analytical Results	15 days	Wed 8/12/15	Tue 9/1/15
23		Material Placement	10 days	Wed 9/2/15	Tue 9/15/15
24		Seeding - Permanent Cover	1 day	Mon 11/9/15	Mon 11/9/15
25		Demobilization	5 days	Tue 11/10/15	Mon 11/16/15
26		Prepare Interim Site Management Plan	40 days	Tue 11/17/15	Mon 1/11/16
27		Prepare Construction Completion Report	40 days	Tue 11/17/15	Mon 1/11/16



Project: Figure 4
Date: Fri 8/7/15

Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Deadline
Progress

Appendices (on CD)

Appendix A

Health & Safety Plan

HEALTH & SAFETY PLAN

Wastebeds 1-8 OU-1 Enhanced Vegetative Cover System and Placement of Structural Fill

Honeywell

August 2015

O'BRIEN & GERE

PREFACE

This document describes the minimum anticipated protective measures necessary for worker health and safety during the activities associated with this project. O'Brien & Gere employees and subcontractors must read and understand the contents of this document. We do not intend the contents of this document to cover all situations that may arise nor to waive any provisions specified in Federal, State, and local regulations or site owner / contractor health and safety requirements. During this project, if any task occurs that is not covered in this Project Safety Plan, the individual responsible for that task will inform O'Brien & Gere's Corporate Health & Safety Department. Site personnel affected by the new activity and its associated hazards must ensure that they follow necessary safety procedures and use appropriate protective equipment.

Subcontractors are accountable for the health and safety of employees. No requirements or provisions within this plan shall be construed by subcontractors as an assumption by O'Brien & Gere or Honeywell of their legal responsibilities as an employer.

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1 INTRODUCTION

This Health & Safety Plan (HASP) has been developed to outline the requirements to be met by O'Brien & Gere employees, subcontractors (if any), and visitors while performing activities outlined herein on the Wastebeds 1-8 OU-1 site during the first phase of cover placement. The HASP will be revised as required for future remedial efforts at the site, or as conditions change as discussed in Section 1.2. This HASP describes the responsibilities, training requirements, protective equipment, and safety procedures necessary to minimize the risk of injury, fires, explosion, chemical spills, and material damage incidents related to construction activities. This HASP incorporates by reference the Occupational Safety and Health Administration (OSHA) regulations contained in 29CFR1910 and 29CFR1926. Also, incorporated by reference are the **EPA Standard Operating Safety Guides, Publication 9285.1-03, June 1992.**

The requirements and guidelines in this HASP are based on a review of available information and data, and an evaluation of identified on-site hazards. This HASP will be reviewed with site personnel and will be available on-site. O'Brien & Gere employees, subcontractors, and visitors will report to the on-site O'Brien & Gere Site Safety & Health Coordinator (SSHC) in matters of health and safety. While the SSHC is responsible for overseeing compliance with this HASP and stopping work when necessary, the Project Field Supervisor (or equivalent) is responsible for implementation of this HASP into daily site activities. The SSHC may also serve as the Project Field Supervisor or Foreman depending on project size and work activities.

O'Brien & Gere employees and subcontractors (if any) must review this safety plan prior to beginning work and sign the Pre-Work Briefing / Safety Compliance form (*Attachment 1*).

1.1. COVERED PERSONNEL

This HASP is specifically intended for O'Brien & Gere employees, subcontractors, and visitors who will be conducting activities within the defined scope of work in specified areas of the site. O'Brien & Gere will inform site personnel of identified safety and health hazards as outlined in this HASP. O'Brien & Gere employees, subcontractors, and visitors are responsible for complying with government regulations, site owner policies, and this HASP as it relates to their scope of work. This HASP may be provided to interested third parties for informational purposes.

1.2. HASP REVIEW & MODIFICATION

Future actions that may be conducted at this site and unexpected conditions that may be encountered may require the modification of this HASP. The SSHC will recommend modifications to this HASP, and the O'Brien & Gere Corporate Safety Manager will have the responsibility of approving them. Modifications to this HASP shall be outlined on the ***Revision Summary*** page.

This HASP may be modified for new or additional scopes of work by directly revising this HASP and saving a revised copy or by developing supplemental Job Safety Analyses (JSAs) based on a template in ***Appendix A***. JSAs may modify air sampling, personal protective equipment, and other safety precautions in this HASP as necessary to safely perform new work activities.

1.3. SITE DESCRIPTION

The Site is located on the southwestern shore of Onondaga Lake in Geddes, NY. In general, the Site consists of variable terrain with numerous topographic highs and lows that range from approximately 362.9 ft above mean sea level (MSL) at the shore of Onondaga Lake, to 430 ft above MSL, at the highest point. Transportation features bisect the Site and include Interstate 690 (I-690) (which runs between the lakeshore and State Fair Boulevard), New York State Fairgrounds parking lots, access roads for the parking lots, and foot bridges. The irregularly shaped beds extend roughly 2.1 miles along the shore, with a maximum width of 0.5 mile, and cover approximately 315 acres. The Site, in its entirety, and inclusive of the Solvay wastebeds, covers approximately 404 acres.

The primary site entrance is the State Fair Orange Parking Lot Entrance. Strict traffic patterns including speed postings and traffic flow directions must be observed at all times.

1.4. SCOPE OF WORK

O'Brien & Gere is managing the application of an enhanced vegetative cover to a required thickness over specified areas of the Waste Bed 1-8 work areas. This will require the clearing of existing surface overgrowth. This clearing is anticipated to be performed with the use of mechanical means (Brush Hog) and some limited hand clearing. No Intrusive work is anticipated for this as the clearing will not include "grubbing" of stumps. Mechanized spreading equipment will be used to spread the Enhanced vegetative cover over the cleared areas. In areas where the slope may limit the use of standard pull behind spreading equipment, O'Brien & Gere plans to use a "Blower Truck" to place the material onto the slope safely. O'Brien & Gere's scope of work is outlined below and includes activities:

- Mobilization/Demobilization
- Site preparation
- Spreading Enhanced Vegetative Cover to specified thicknesses.

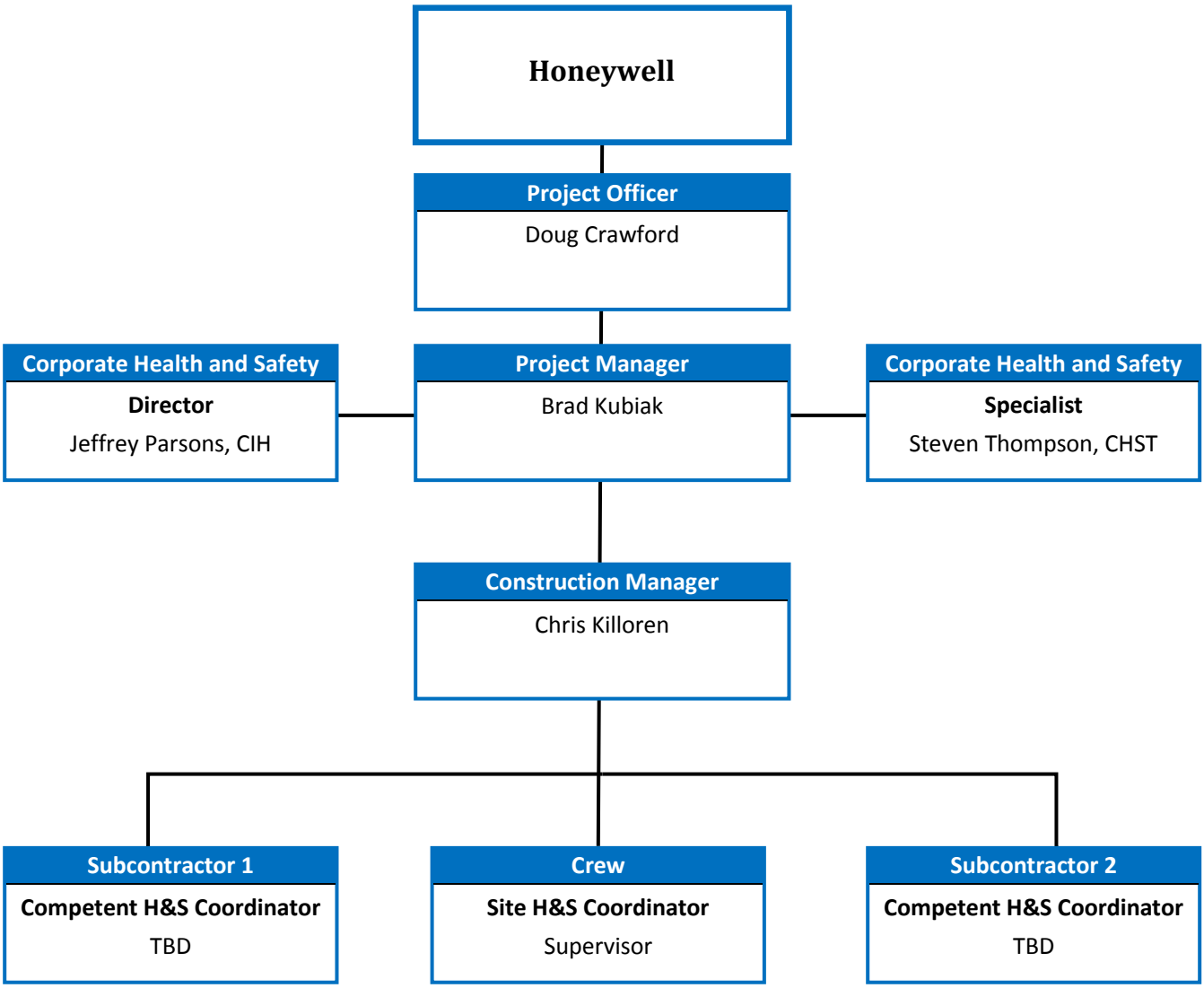
1.5. PROJECT PERSONNEL & ORGANIZATION

The following are key project personnel with respect to O'Brien & Gere's scope of work.

Project Personnel	
NYSDEC	
Tracy Smith	Project Manager
HONEYWELL	
Steve Miller	Project Manager
O'BRIEN & GERE	
Doug Crawford	Project Officer
Brad Kubiak	Project Manager
Chris Killoren	Construction Manager
Steven Thompson	Corporate H&S Specialist
Jeffrey Parsons	Corporate H&S Manager

1.6. PROJECT ORGANIZATION

The following organization chart outlines reporting and accountability relationships with respect to health and safety.


Honeywell
Project Officer
Doug Crawford
Corporate Health and Safety
Director
Jeffrey Parsons, CIH
Project Manager
Brad Kubiak
Corporate Health and Safety
Specialist
Steven Thompson, CHST
Construction Manager
Chris Killoren
Subcontractor 1
Competent H&S Coordinator
TBD
Crew
Site H&S Coordinator
Supervisor
Subcontractor 2
Competent H&S Coordinator
TBD

1.7. RESPONSIBILITIES

As directed in the HASP, compliance and HASP implementation will generally be addressed first by the O'Brien & Gere Site Safety & Health Coordinator (SSHC) with support from Project Officer. Subcontractors must identify qualified Safety Competent Persons who must be on site for field activities. All project personnel have the authority to stop work if a life-threatening condition or behavior is observed.

1.7.1. O'Brien & Gere Project Officers

The Project Officer is responsible for providing upper level management support for health and safety. He or she will provide sufficient authority and resources to the Construction Supervisor and SSHC to fully implement health and safety requirements as outlined in this HASP, contract documents, and regulatory requirements. The Project Officer will provide this support to the entire project while the Construction Project Officer will provide additional attention and support to site remediation activities.

1.7.2. O'Brien & Gere Project Coordinator

The Project Coordinator will have overall responsibility for implementing HASP requirements through the project. The Project Coordinator will be the primary liaison to and from the Client for health and safety.

1.7.3. O'Brien & Gere Construction Supervisor

The Construction Supervisor is qualified to serve as the O'Brien & Gere Site Safety & Health Coordinator (SSHC) when less than 25 tradespersons are on site and/or during a temporary absence of a full-time SSHC when more than 25 tradespersons are on site. Tradespersons do not include construction management staff, construction inspectors, quality inspectors, scientists, engineers and other professionals.

The Construction Supervisor is responsible for coordinating project requirements in the field. The Construction Supervisor oversees daily activities and is, therefore, responsible for implementing health and safety requirements on a daily basis in the field. The Construction Supervisor is also responsible for conducting daily safety inspections and coordinating timely correction of observed deficiencies with any sub-contractor. The Construction Supervisor shall be qualified to also serve as the O'Brien & Gere Site SSHC with respect to O'Brien & Gere's scope of work.

1.7.4. O'Brien & Gere Project Engineer

The O'Brien & Gere Project Engineer is responsible to help resolve project design issues as well as provide general site information that may be requested for health and safety purposes. The Project Engineer is the main point of contact related to sampling and analytical protocol and design support during construction activities. In particular, the Project Engineer oversees and coordinates the development of the design documents including updates to design documents. The Project Engineer also reviews and comments on the site HASP.

1.7.5. O'Brien & Gere Site Safety & Health Coordinator (SSHC)

The SSHC advises project personnel on matters of health and safety on the site. The SSHC has the responsibility and authority to stop work if any operation threatens site workers, the public, or environment.

In general, responsibilities of the SSHC include, but are not limited to, the following:

- Conducting and documenting safety inspections on a weekly basis and conducting daily safety walkthroughs
- Conducting daily safety pre-work safety meetings and documenting meetings on a daily Pre-Task Planner (or equivalent)
- Selection and inspection of PPE

- Conducting periodic surveillance to evaluate effectiveness of the HASP
- Monitoring on-site hazards and conditions and recommending modifications to the HASP when new hazards are observed
- Informing the Construction Supervisor of observed safety deficiencies requiring corrective action
- Having knowledge of emergency procedures, evacuation routes, and telephone numbers for emergency services
- Posting directions to the hospital and telephone numbers for emergency services
- Coordinating emergency medical care as necessary
- Immediately notify the client representative of a safety related incident and submittal of written accident/emergency reports within 48 hours
- Review JSAs for all high-risk construction activities
- Reviewing and maintaining safety documentation and reports

1.7.6. O'Brien & Gere Manager of Corporate Health & Safety

The O'Brien & Gere Manager of Corporate Health & Safety will make safety-related recommendations regarding the work area to the SSHC and engage ongoing support from O'Brien & Gere Corporate Safety Department as necessary. Inspections will periodically be conducted to monitor worker health and safety and will address issues such as subcontractor pre-qualification, site safety orientation programs and documentation, implementation of permit programs (confined space, hot work, etc.) safety planning, accident investigations, meetings with client, adequacy of personal protective equipment (PPE), air monitoring needs, and general construction safety issues. The O'Brien & Gere Manager of Corporate Health & Safety will approve modifications to this HASP and will prepare a Monthly Safety Report.

1.7.7. O'Brien & Gere Corporate Health & Safety Specialist

The O'Brien & Gere Corporate Health & Safety Specialist (HSS) will assist the O'Brien & Gere Manager of Corporate Health & Safety in the implementation of the Corporate Health & Safety program. General support tasks related to the implementation of the O'Brien & Gere Corporate Health & Safety Program include safety audits, air monitoring, training, accident investigations, etc.

1.7.8. Subcontractor Safety Competent Person

All subcontractors under contract to O'Brien & Gere are covered by this HASP and will be required to designate a Safety Competent Person. The Safety Competent Person must be the Superintendent/Foreman unless the project is sufficiently large to require a full-time Safety Competent Person. A Safety Competent Person must be on site at all times when the subcontractor has employees performing work for O'Brien & Gere and will have the same responsibilities as the O'Brien & Gere SSHC within the subcontractor's scope of work. This individual must possess a sound working knowledge of pertinent OSHA regulations, this HASP, and other applicable safety requirements related to scope of work. The competent person will ensure timely correction of safety deficiencies identified by O'Brien & Gere. Subcontractors may request assistance from the O'Brien & Gere Corporate Health & Safety Department. An Alternate Safety Competent Person may also be designated as a backup.

Subcontractor must provide a full-time Safety Competent Person when 15 or more field workers are on-site. Subcontractor's Safety Competent Person must be acceptable to O'Brien & Gere.

2 SITE SAFETY & CONTROL PROCEDURES

This Health & Safety Plan (HASP) incorporates by reference the Occupational Safety and Health Administration (OSHA) requirements in 29 CFR Part 1910, 29 CFR Part 1926, and the O'Brien & Gere Corporate Health & Safety Manual (CHS Manual). A copy of the O'Brien & Gere CHS Manual will be maintained on site for reference. Subcontractors must review the O'Brien & Gere CHS Manual and/or site HASP to ensure they meet or exceed O'Brien & Gere corporate requirements as well as all regulations applicable to their scope of work. Key site safety procedures applicable to O'Brien & Gere employees and subcontractors are described in more detail in this section.

2.1. SITE SECURITY & CONTROL

The elements of site control include restricting access to the site to persons who have the proper safety training and have received a site safety orientation that reviews the information in this HASP at a minimum. O'Brien & Gere will oversee site security and control with specific site-entry requirements as follows:

2.1.1. Subcontractor Prequalification

Subcontractors must be prequalified annually and using the O'Brien & Gere Subcontractor Safety Prequalification Form (or approved alternate). Subcontractors must achieve a Pass (A, B, or C) rating or a "Conditional" rating. Subcontractors with a conditional rating must implement additional safety requirements outlined by the conditions specified by O'Brien & Gere Corporate Health & Safety Department and the Construction Project Officer.

2.1.2. Citizenship

All project personnel must be U.S. citizens or legally be authorized to work in the U.S. with the proper work visas.

2.1.3. Language

All project personnel must understand and speak English at a "conversational" level. Subcontractors are responsible for all costs or delays incurred if non-English speaking employees are banned from the site. O'Brien & Gere will make the final determination if a person is sufficiently fluent in English. Interpreters may be used if authorized by O'Brien & Gere. When authorized, a minimum of one interpreter will be required for every 10 non-English speaking personnel at all times while work is on site.

2.1.4. Drug & Alcohol Testing

The primary document outlining drug and alcohol testing requirements for union labor is described in Appendix C of the "Onondaga Lake and Subsites Environmental Remediation Labor Harmony Agreement," May 2010. O'Brien & Gere non-union employees are specifically subject to O'Brien & Gere policies referenced below. Refusal to take a drug or alcohol test when directed in accordance with the LHA or O'Brien & Gere policies will be treated as a "positive" test and will result in immediate removal from site. All subcontractors must have submitted a signed copy of the Certificate of Compliance (RES-HS-09).

All project personnel are required to work in accordance with O'Brien & Gere's policy for a Drug Free Workplace, as appropriate. Testing allowed under both policies is summarized below:

- **Pre-Access** – Project personnel subject to the LHA must have testing performed per the LHA. Other project personnel must otherwise have pre-access testing performed within six months of site work and kept current with subsequent testing performed at least annually.

- **Reasonable Cause** – Two supervisors must concur that the person is exhibits symptoms and behavior that "more probably than not" be the result of a controlled substance.
- **Post Accident** – Similar to Reasonable Cause, testing may be performed following an accident if the accident may have been avoided by a "reasonably alert" action and substance abuse cannot be discounted as a contributing factor.
- **Random Testing** – O'Brien & Gere may start and stop random testing at any time. Such testing will be non-discriminatory and be conducted at a rate up to 50% of employees on an annualized basis. O'Brien & Gere will coordinate random testing through Industrial Medical Associates (IMA) as a third party administrator.
- **Return to Work** – This is additional "periodic" testing that is required for up to one year following return to work.

2.1.5. Safety Training & Competent Persons

Project personnel must be properly trained for the type of work being performed and consistent with OSHA Standards 29CFR1910 and 29CFR1926. Specialized training is required for (but not limited to) work with asbestos, lead, hazardous waste, confined space entry, fire prevention and control, lockout / tagout, hazard communication, fall protection, NFPA 70E (energized electrical), etc.

All project personnel will be trained per the OSHA Hazwoper Standard 29CFR1926.65 and 1910.120 as outlined below:

- **Visitors**– No OSHA 24/40 Hour for Visitors, including delivery personnel, utility workers, vendor reps, inspectors, surveyors, site preparation personnel and others who will not enter exclusion or contamination reduction zones.
- **Workers/ Foremen/Superintendents** – OSHA 8-hour Supervisor Project safety requires that only qualified persons operate heavy equipment including (but not limited to) the following:
  - **Forklift License** – Required for operation of forklifts and lulls but NOT required for front loaders equipped with forks
  - **Crane Operation** – Crane operator license (state-issued) or Certified Crane Operator (CCO) designation
  - **General Heavy Equipment** – Subcontractors will designate in writing to O'Brien & Gere their employees who are trained and authorized to operate heavy equipment including manlifts, excavators, front loader, dozers, demolition hammers, shears, grapples, dump trucks, pulverizers, skid steer, and drill rigs

Although O'Brien & Gere and subcontractors must designate a general Safety Competent Person, other competent persons must also be designated in subcontractor safety plans or JSAs for the following activities and be on site as necessary to support activities performed under their oversight. In addition to written designation, the subcontractor must submit evidence of competency when requested by O'Brien & Gere. The general Safety Competent Person may also assume responsibility for other competent person roles if qualified and authorized.

- **Excavation Competent Persons** – When excavations are being performed
- **Demolition Competent Persons** – Perform pre-demolition "engineering survey" in support of a demolition plan. During demolition, the competent person must perform regular inspections to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material
- **Scaffolding Competent Persons** – Supervise the erection and dismantling of scaffolds and perform daily inspections while scaffolds are in use
- **Fall Protection Competent Persons** – Oversee implementation of fall protection systems including anchoring personal arrest equipment

- **Welding & Cutting Competent Persons** – Must determine if coated surfaces are flammable. For this project, they must also assess combustibility of underlying surfaces and residual dust (especially grain or similar organic dusts)
- **Crane & Hoist Competent Persons** – Must inspect cranes and hoists prior to use
- **Rigging Equipment Competent Persons – Inspect rigging equipment prior to use**
- **Ladder Competent Persons** – Periodically inspect ladders
- **Powder Actuated Tools** – Training certification to safely use Hilti Guns, Ramset Guns, and similar powder actuated tools

2.1.6. Client-Required Site Orientation

The client's safety requirements will be reviewed by O'Brien & Gere, which will include client site requirements as part of the Project Safety Orientation.

2.1.7. Project Safety Orientation

All project personnel must complete a Project Safety Orientation to ensure understanding of O'Brien & Gere ***and client*** safety requirements. Upon completing a Project Safety Orientation, project personnel will sign a **Pre-Work Briefing form** ***(Attachment 1 or equivalent).*** The Project Safety Orientation will focus on hazards and the required hazard controls as outline in the HASP and/or Pre-Work JSA and will at a minimum include:

- Applicable Sections of the Project Safety Plan (HASP)
- Pre-Work JSAs (if any)
- Associated Exhibits, Permits, and Attachments identified on (and attached to) the Pre-Work JSA

2.1.8. Entry/Exit Log

The SSHC shall require that all employees, subcontractors, and visitors to sign in and out on an **Entry / Exit Log** ***(Attachment 2 or equivalent).***

2.1.9. Authorized Project Personnel

At a minimum, authorized personnel who will be granted unescorted access to the project include employees from O'Brien & Gere and appropriately prequalified subcontractors that have successfully completed the following:

- Submitted Safety Training and Competent Person documentation to the O'Brien & Gere SSHC
- Negative 10-panel drug test
- Negative alcohol test
- Submitted medical surveillance documentation (for persons entering Exclusion and Decontamination Areas)
- Submitted respirator medical clearance (for persons who may use respirators)
- Attend an O'Brien & Gere Project Safety Orientation (applicable sections of this HASP)

2.1.10. Visitors

Visitors must be escorted by an Authorized Project Person

2.1.11. Pre-Work Safety Planning

Subcontractors may develop an alternate safety planning document in lieu of using the Pre-Work JSA Template (APPENDIX A) if approved in advance by the O'Brien & Gere SSHC. Submittal of general safety policies and procedures will not (by themselves) be acceptable.

Subcontractors are required to complete the O'Brien & Gere Pre-Work JSA Template ***(Appendix A)*** prior to mobilization and may complete additional Pre-Work JSAs as required for high-hazard tasks. The Pre-Work JSA should be completed in a collaborative effort between O'Brien & Gere and subcontractors and will help identify appropriate permits and notifications based on the specific means, methods, tools, and equipment used by subcontractors.

O'Brien & Gere may also use the Pre-Work JSA Template to identify hazards and controls associated with changes to O'Brien & Gere's scope of work. JSAs will supplement information in this HASP.

2.1.12. Site Layout & Work Zones

The visible delineation of the Construction Area is required to prevent unauthorized persons from entering. Physical markings of the perimeter of the Construction Areas can be accomplished through the use of fencing, wood barricades, rope, barricade tape, etc. Existing structures or land features may also be utilized where appropriate.

The use of barricade tape for outdoor exclusion zones or work zones that will be setup for greater than 24 hours is not permitted.

Warning signs will be posted on at the perimeter of site to alert site personnel and the public. Signs shall be approximately 10 inches by 14 inches in size and of aluminum or steel construction for outdoor use. The site perimeter must be posted but with a sign that states "DANGER – CONSTRUCTION AREA – UNAUTHORIZED PERSONNEL KEEP OUT" (Emedco # 42525) or acceptable alternate.

2.1.13. Vapor & Odor Control

Vapors released during site activities represent a potential health hazard and odor problem. The following controls will be implemented to mitigate these issues:

- Controlling the amount of amended soils disturbed or placed concurrently.
- Air monitoring will be conducted per the Employee & Community Air Monitoring Program (ECAMP)

2.1.14. Dust Control

Dust released during placement activities represents a nuisance and a potential health hazard.

The following controls will be implemented to mitigate dust issues:

- Water will be used to suppress dust during any activities which disturb existing soils as required by dust monitoring and visual observations
- A water truck will be on site to support dust control activities if dry, dusty conditions are encountered
- The site speed limit of 10 mph (or as otherwise posted) will be enforced. Slower vehicle speeds reduce road dust and minimize the potential for accidents and spills. Dust monitoring will be conducted per the Employee & Community Air Monitoring Program (ECAMP).

2.2. DAILY SAFETY MEETINGS

Safety meetings must be held daily and documented using a **Daily Pre-Task Planner** (***Attachment 3***) or equivalent document approved by the O'Brien & Gere SSHC.

> ***The intent of daily safety meetings is to encourage daily safety planning (top portion of the Daily Pre-Task Planner)by Supervisors and support communication between Supervisors and their respective field crews (bottom portion of the Daily Pre-Task Planner).***

The use of Pre-Task Planners during daily safety meetings provides documentation about what "safety messages" site personnel are receiving on a daily basis. Pre-Task Planners also provide a checklist to monitor changes to site personnel, equipment, work methods, or conditions that may affect hazards and require different safety precautions. Pre-Tasks Planners are intended to supplement, but not replace, Pre-Work JSAs and safety plans. Pre-Task Planners will be retained on site for inspection during periodic safety audits.

The form will be completed as follows:

- Subcontractor Crew Foremen will prepare a Daily Pre-Task Planner for that day's activities or the next day's activities if the Daily Pre-Task Planner is prepared the prior afternoon
- The Supervisor/Superintendent/or Foreman will review the Pre-Task Planner with his respective crew
- Each site worker will then sign the Pre-Task Planner
- All Pre-Task Planners will be returned to O'Brien & Gere after the day's activities are complete
- Any significant changes to the scope of work or work methods during the work shift will require revising the Pre-Task Planner. Recognition of previously unidentified hazards will also require revising their safety plan or Pre-Work JSAs.

2.3. WEEKLY TOOLBOX SAFTEY MEETINGS

> ***A separate Weekly Toolbox Safety meeting (or "All-Hands" Safety meeting) is required on projects where separate Daily Safety meetings are held for different work crews. When all site personnel attend the same Daily Safety meeting, a separate Weekly Toolbox Safety meeting is not necessary. Pre-task safety planning is completed by each foreman for each crew under his direction as outlined in the previous section.***

Toolbox Safety meetings are held at a minimum of once per week. The SSHC on smaller projects with fewer site personnel may choose to assemble all site personnel during Daily Safety meetings and in so doing, may not hold separate Weekly Toolbox Safety Meeting. On projects where separate Daily Safety meetings are held for different field crews, the SSHC will assemble all site personnel at a Weekly Toolbox Safety meeting ("All-Hands" Safety meeting). The intent of the weekly toolbox meeting is to provide additional field safety training and review relevant safety topics for approximately 15 minutes, and ensure that a consistent safety message is delivered to all site personnel on larger projects. Attendance will be documented on the **Safety Toolbox Meeting Forms** ***(Attachment 4 or equivalent).***

2.4. SAFETY AUDITS & INSPECTIONS

Although the O'Brien & Gere representatives and subcontractor Foremen/Superintendents must review work areas and work practices on a daily basis, O'Brien & Gere ***will*** conduct formal weekly safety audits that are documented using a safety audit checklist. Subcontractors may also participate in safety audits. A variety of checklists are available with one being the **Safety Audit Checklist** (***Attachment 5***).

2.5. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Specific PPE requirements are outlined below but a general dress code for any work areas includes long pants that must cover top of ANSI-approved protective toe leather work shoe, hard hat, and safety glasses with rigid side shields. Shirts must have at least 4 inches of sleeve. Long-sleeve shirts may be required at specific locations or for certain tasks. **Gloves are required for all tasks unless glove use is exempted on an approved O'Brien & Gere Job Safety Analysis (JSA) or Daily Pre-Task Planner.** Subcontractors must specify additional PPE as appropriate for specific work methods, tools, and equipment covered by their safety plans. Additional PPE that may be necessary is summarized in the following paragraphs.

2.5.1. High Visibility Clothing

All project personnel are required to wear high visibility clothing including a vest, shirt, or jacket. High visibility clothing must be predominantly safety yellow in color.

2.5.2. Head Protection

All project personnel are required to wear approved hard hats that meet ANSI Z89.1-2003. Hard hats must be in good condition and be worn with brim to the front unless the manufacturer certifies the hard hat to be worn reverse when the harness is oriented properly. Subcontractors will be required to submit manufacturer's certification upon request from O'Brien & Gere.

2.5.3. Eye & Face Protection

Project personnel are required to wear approved ANSI Z87.1-2003 safety glasses with rigid side shields. **Chemical goggles** are required during equipment decontamination work or other activities with a potential for chemical splashes to the face. **Face shields** will be required when performing certain tasks (e.g. chipping, sawing, and handling chemicals or corrosive liquids) **Face shield must be worn over safety glasses or chemical goggles.**

2.5.4. Hearing Protection

Approved hearing protection must be worn as specified in all posted areas and while working with or around high noise level producing tools, machines or equipment.

2.5.5. Fingers, Hand & Wrist

Gloves suitable for the job being performed shall be worn unless the job cannot be done with gloves or wearing gloves increases the hazard. **Exceptions to mandatory glove use must be identified in approved safety plans or JSAs.** Tool holders should be used when driving stakes and wedges or when holding star drills, bull pins or similar tools. **Fixed blade knives (pocket knives, razor knives, and box cutters) are prohibited and safety knives or scissors must be substituted in their place.** Exceptions must be approved by O'Brien & Gere.

2.5.6. Foot Protection

All project personnel are required to wear safety footwear that is in accordance with ANSI Z41-1991. Rubber boots with safety toe protection are required on jobs subject to chemically hazardous conditions. Metatarsal protection should be worn when using jack hammers, tamps and similar equipment which has the potential for foot injury above the toes.

2.5.7. Respiratory Protection

Respirators (including SCBAs and airlines) used by project personnel must meet NIOSH/MSHA standards. Respirators must be inspected regularly and stored in a dust-free container. Employees required to wear a respirator must have a physician's approval and be fit tested within the last year. Employees must be clean shaven in the facial area to obtain an acceptable seal. Subcontractors must keep respirator training, fit testing,

and medical clearance documentation on site for the duration of the project and available for O'Brien & Gere inspection. *The following table summarizes common respiratory hazards that may be encountered during remediation and demolition activities. Those that are present or are potentially present are marked (✓). Additional (usually less common) respiratory hazards that may be present will be added to the table and also marked (✓).*

Respiratory Protection by Contaminant			
Present (✓)	**Contaminant**	**Minimum Respirator Type***	**Source of Exposure**
	PCBs	Respirator with N95 or P95 filters combined with an Organic Vapor Cartridge	During excavation, handling, and sampling of PCB-contaminated soil, water, drums, and debris
	Silica	Respirator with N100 or P100 filter	During cutting or pulverizing concrete
	Lead dust or fume	Respirator with N100 or P100 filter	During hand scraping, chipping, wire brushing, torch cutting, and grinding surfaces with lead paint
	Asbestos	Respirator with N100 or P100 filter	Friable asbestos-containing materials (ACM)
	Carbon monoxide	Supplied Air (SCBA or Airline)	Engine combustion byproduct in enclosed or confined spaces
	Volatile Organic Compounds (VOCs)	Respirator with activated carbon cartridges	Vapors from subsurface soil or groundwater contamination or spilled fuel
	Metal dust	Respirator with N95 or P95 filters	Settled dusts getting airborne, grinding metals or painted surfaces, Welding, or torch cutting
	Metal fumes	Respirator with N100 or P100 filters	Welding or torch cutting

Respiratory Protection by Contaminant

* Respirator types have Assigned Protection Factors (APFs) that limit the maximum airborne concentration in which they may be used. Also, the APF for a full-face air purifying respirator is limited to 10x the exposure limit when qualitative (smoke) fit testing is used. Subcontractors must select respiratory protection requirements in accordance APFs and fit testing methods.

2.5.8. Skin

If the possibility of skin contact with chemicals, lead, asbestos or other hazardous material exists, then protective clothing will be worn.

- **Tyvek®** (or equivalent) – asbestos, lead, or other dust exposures
- **Tychem QC®** (poly-coated Tyvek®) or **Tychem SL®** (Saranex®) or equivalent – for liquid chemical exposures including liquids contaminated with PCBs
- **Tychem SL®** (Saranex®) **with hood and boots** (or equivalent) – for use with SCBAs during emergency response involving chemical releases

2.5.9. PPE Summary

In general, PPE is divided into four broad categories as outlined below.

- **Level D PPE** – Minimum PPE for Level D includes hard Hat, safety glasses with side shield, safety shoes/boots, cut-resistant gloves, and high visibility vest. Additional PPE that may be required includes hearing protection, face shield, fall protection harness and lanyard, and Kevlar Chaps and Jacket (if using a chainsaw).
- **Modified Level D PPE** – Level D PPE plus protective clothing to prevent skin contact or contamination of support zone areas. Additional information on chemical protective clothing, chemical resistant gloves, and face shields is described in previous paragraphs of the PPE section of this HASP.
  - **Full Modified Level D PPE** consists of Level D PPE plus coveralls, nitrile gloves (or equivalent), and boots or shoe covers. Full Modified Level D PPE is necessary when extensive contact with contaminated materials is anticipated, such as the manual-excavation of contaminated soils. Full Modified Level D PPE is also required when handling corrosive chemicals.
  - **Lightweight Modified Level D PPE** consists of nitrile gloves (or equivalent) and boots or boot covers. Lightweight Modified level D is necessary when minimal contact with contaminated materials in anticipated and contamination control must be maintained. Appropriate tasks for Lightweight Modified Level D PPE include equipment operators with minimal direct contact, surveyors, sampling technicians, inspectors, etc. The SSHC shall determine which is appropriate based on site conditions.
- **Level C PPE** – Modified Level D PPE plus air purifying respiratory protection. Additional information on respiratory protection is described in previous paragraphs of the PPE section of this HASP.
- **Level B PPE** – Modified Level D PPE plus supplied air respiratory protection. Level B PPE is not anticipated for this project.

The following table provides more specific initial PPE requirements for different tasks anticipated on this project based on HASP requirements. **When work assignments involved mixed tasks, choose the most conservative PPE or change PPE as required between different tasks.**

PPE by Task									
PPE level	— Level D —						Mod Level D		C
TASK	High Vis[1]	Head	Eye an Face	Foot	Hearing	Hand[2]	Hand	Skin[3]	Resp
All Site Prep Work	X	X	Glasses	X	Operation of heavy equipment	CR			
Clearing with "Brushhog"	X	X	Glasses	X	X	CR			
Clearing by hand	X	X	Glasses	X	X	CR	CR	Tyvek	
Chainsaw Use	X	X	Glasses and Face Shield	X	X	CR		Kevlar Chaps and Jacket	
Haul Truck Drivers (when outside vehicle)	X	X	Glasses	X		CR			
Haul Truck Drivers (when inside vehicle)				X		CR			
Heavy Equipment Operation (with Closed Cab)				X					
Heavy Equipment Operation (with Open Cab)	X	X	Glasses	X	X	CR			
Enhanced Vegetative Cover Placement	X	X	Glasses	X	Operation of heavy equipment	CR			
NOTES	**1.** High visibility vests will not be required where persons are wearing Tyvek or Poly-Coated Tyvek **2.** **CR** = cut resistant gloves, **HR** = heat resistant, **nitrile** = 3-5 mil nitrile gloves, **nDex®** = surgical nitrile **3.** Tyvek and Poly Coat Tyvek include the use of boot covers or a boot wash to prevent the spread of contaminated materials to support zone areas and includes the use of nitrile surgical gloves (usually underneath cut-resistant gloves) **4.** Energized electrical work required all PPE as required by NFPA 70E								

2.6. TEMPORARY CORDS & HOSES

Proper management of temporary cords and hoses is required to minimize the potential for slips and trips.

The following guidelines should be implemented to the extent feasible:

- Cords and hoses must be run out of aisles and sidewalks (e.g., within six inches of a wall or toe board)
- Cords and hoses must be buried or run overhead (7.5 feet) when crossing aisles or sidewalks whenever feasible unless doing so creates a potentially greater hazard
- Cords and small diameter hoses that cannot be run overhead or buried must be marked with cones, protected by hose ramps, or equivalent whenever the cross aisles or sidewalks
- Cords and hoses that cross roads must be protected from damage
- All temporary cords and hoses must be removed to equipment laydown areas when not in use

Cords also pose an electrical hazard if they are not protected from damage and inspected before each use. Cords may not be run through doors or windows without being protected. Cords must not be run across walkways and stairs. Cords may not be run through standing water. Ground Fault Circuit Interrupters (GFCIs) are required on all extension cords and 120v hand tools and equipment.

2.7. EXCAVATIONS

Excavation is not anticipated within this scope of work.

All excavations greater than five feet deep require sloping or shoring whenever persons enter excavations or adjacent structures may be affected by a cave-in. Subcontractors will identify in safety plans or JSAs specific shoring systems or sloping/benching that will be used in specific areas. Excavations greater than four feet in depth are classified as a non-permit confined space unless contamination is encountered. Refer to the "Confined Space" section of this HASP for more guidance on how excavations will be handled with respect to confined space entry requirements.

- Assume soil is Type C unless soil testing indicates otherwise and such testing is documented on an O'Brien & Gere Soil Analysis Checklist ***(Attachment 6)*** or approved alternate. Standard sloping and benching (per OSHA) will follow a 1:1.5 (V:H) cut-back associated with Type C soil.
- Shore excavations greater than five feet depth where personnel must enter and sloping is not feasible. Equipment used to shore excavations MUST follow OSHA shoring tables, or the subcontractor must have **tabulated data from the manufacturer on site.**
- If sections of trench are less than five feet and no cave-in hazard exists, then shoring is not required
- No workers may enter excavations until the designated Excavation Competent Person has inspected the excavations using the Daily Excavation Checklist ***(Attachment 7).*** Excavation inspections must be documented with documentation remaining on site for the full project duration and made available for O'Brien & Gere review.
- Qualified engineers will evaluate excavations that could affect the stability of adjacent structures
- A ladder or egress ramp will be provided within 25 feet of workers who must enter excavations
- Water will not be allowed to accumulate in trenches in a manner that will affect the integrity of excavation walls and shoring systems
- All spoils will be kept a minimum of two feet from the edge of the excavation

- Fall Protection will be provided around excavations left open during off-hours. Fall protection will consist of solid barricades (saw horses or portable chain link) or soft barricades (safety fence) off-set 6' from the edge.
- Pedestrian Barricades
  - Portable chain link fence (48 inches) or equivalent will be used to protect pedestrians. If pedestrian traffic is re-routed to avoid excavations, pedestrian detours must be accessible to bicyclists, handicapped persons, and other pedestrian in the area who may have special needs.
- Traffic Barricades
  - Any excavation activities that affect public or plant roads must be equipped with traffic safety devices as required by the Manual on Uniform Traffic Control Devices. If flaggers are used on public roads, they must receive DOT Flagger Training.

2.8. HOT WORK

Hot work is not anticipated within this scope of work.

Hot work includes any activities that generate an open flame, arc, **or sparks** and includes the use of **temporary heaters (salamanders).** Hot work is anticipated and will typically include welding, cutting, soldering, and grinding.

Specific hot work requirements will be identified on the Hot Work Permit (***Attachment 9)*** but will generally include the following:

- Print the names of all persons performing hot work on the permit. Only persons listed may perform hot work as authorized by the permit.
- Print the name of the fire watch on the permit. Changes in fire watch persons must immediately be noted on the permit if authorized by O'Brien & Gere. Fire watches are responsible for inspecting the site for evidence of fire or fire hazards associated with hot work activities.
- Continue fire watch activities for **30 minutes** after hot work activities have stopped if required on the **O'Brien & Gere Hot Work Permit**
- All combustible material must be removed from the hot work area when possible or protected from sparks and slag when located within **35 feet** of hot work
- At least one **20lb Type ABC fire extinguisher** must be in possession of each individual identified as a fire watch
- All heavy equipment must be equipped with at least a **5 lb fire extinguisher** that is secured to prevent movement while equipment is in operation
- All hot work areas shall be specified on the Hot Work Permit. Hot work shall NOT be conducted in additional areas without first notifying O'Brien & Gere and the Hot Work Permit is modified or a new permit is issued
- Additional fire safety precautions may be specified on the permit and must also be implemented by site personnel

2.9. FIRE PROTECTION & PREVENTION

Hot Work Permits, subcontractor safety plans, and JSAs may supplement basic fire safety requirements outlined below by establishing specific requirements throughout the course of the project as needed to ensure that

personnel and property are adequately protected from potential fires. Emergency response associated with fires is covered in the Emergency Response section of this HASP.

Basic fire protection requirements include:

- Construction heaters or other forms of heat generating equipment may only be used by subcontractors with prior approval from O'Brien & Gere and a Hot Work Permit is obtained
- Fire protection water, pull stations, alarms, and strobes should be the last utilities and services to be shut down when complete isolation from utilities is necessary to support demolition, construction, or remediation activities
- Where applicable, fire protection systems must not be obstructed, shut-off nor left inactive at the end of a working day or shift without notification of and authorization from O'Brien & Gere or the site owner
- Where applicable, sprinkler systems must be kept at **41˚F** or higher
- Fire hydrants and standpipes may only be used for firefighting purposes unless other use is authorized by O'Brien & Gere or the site owner
- Fire hydrants and valves must not be obstructed or blocked. At least a **6-foot** clearance must be maintained on all sides for emergency access
- Subcontractors **must inspect extinguishers monthly** in addition to annual service provided by an extinguisher service company. Inspections and testing must be documented on **weather-resistant tags or labels** attached to each fire extinguisher.

2.10. LOCK OUT/TAG OUT

Lockout/Tagout is not anticipated as a major part of this scope of work. However, all construction equipment for which service is required is expected to be placed in a safe condition as required by the manufacturer which may require lockout/tagout procedures as outlined herein.

All persons exposed to potential injury from the unexpected energization of system components must perform work under a lockout/tagout (LOTO) program with his or her own lock(s) in place. **No individuals may work under another individual's lock.** Lockout/Tagout must be conducted in accordance with the O'Brien & Gere LOTO Procedure in the Corporate Health & Safety Manual. When required, O'Brien & Gere will follow the site owner's LOTO program for equipment and systems under the site owner's control.

General LOTO requirements include the following:

- O'Brien & Gere SSHC (with support from site owner if necessary) will identify lockout boundaries and operate necessary valves, breakers, etc. necessary to install injection tubing
- Ensure pumps, fans, and other equipment are in a safe condition and piping is purged and blanked when necessary
- O'Brien & Gere (or designated subcontractor) shall keep a list of locks and tags placed on each equipment or system that is locked out. An **Equipment-Specific LOTO Form** ***(Attachment 10)*** or equivalent
- O'Brien & Gere LOTO tags must show diagonal red and white stripes unless the site owner requires a different tag
- Keys to all locks will be placed in a lock box

- **Each person working on a system or equipment that is locked out must place his or her lock and tag on the lock box**
- Locks and tags must be removed from lock boxes at the end of each shift

2.11. OVERHEAD POWER LINES

Overhead power lines do not affect tasks performed under the current scope of work.

All overhead power lines must be assumed energized. O'Brien & Gere has a **20-foot** clearance policy to overhead power lines whenever feasible. If work must be conducted at less than 20 feet but NOT less than the OSHA minimum clearance of 10 feet, then additional safety requirements apply and will be identified in the Pre-Work JSA or BMS Safe Work Permit for that work. Additional precautions may include one or more of the following:

- Call the local utility to get the voltage and ask if lines can be de-energized or insulated/sleeved
- Dedicated spotter
- Non-conductive distance markers or devices to delineate the necessary clearances

2.12. HEAVY EQUIPMENT & TEMPORARY FUEL AREAS

Site Personnel working near heavy equipment will be exposed to "struck-by" injuries and "crush" injuries if caught between heavy equipment (or counterweights) and a fixed object.

All equipment must be secured after hours. Keys must be removed from equipment and secured away from the equipment. Mobile equipment that does not require an ignition key shall be disabled. All vehicles and heavy equipment must be turned off when left unattended.

Subcontractors shall submit a letter on company letterhead that designates which of their employees is competent and authorized to operate each type of equipment present on this project. Forklift and lull operators must have a license or certificate that indicates they have passed a written test and "road" test for the type of forklift they will be operating.

Operators will use seatbelts if so equipped. Heavy equipment will be equipped with **overhead and rollover protection** whenever feasible. Operators will **inspect equipment daily** for leaks, damage, and other necessary repairs.

Heavy equipment must be equipped with **backup alarms, horns, and other safety devices** installed by the manufacturer. Vehicles operated at night must have headlights, tail lamps, and reflectors. Safety devices must not be disabled.

Temporary fuel storage tanks will be labeled as to their content and be protected from collision by site vehicles using solid barricades including balusters, chain link fence, or equivalent. **Spill kit** (55 gallon sorbent capacity contained in an overpack) and one **20lb Type ABC fire extinguisher** will be located within **45 feet** of fueling areas. Tanks will be rated for above ground use and provided with secondary containment. Tanks and dispensing hose will be bonded and grounded. **Temporary secondary containment must be provided in the refueling area that includes the storage tank and dispensing hoses.**

2.13. LIFTING & RIGGING

Crane use is not anticipated.

The following equipment is covered by requirements in this section of the HASP and O'Brien & Gere's Cranes and Rigging Safety Procedure in the Corporate Health & Safety Manual: cranes, hoists, lulls, and forklifts. Lulls and forklifts are only covered when they are used to lift materials using rigging equipment (chains, slings, wire rope, etc.) as opposed to lifting materials that are properly placed on the forks.

2.13.1. Critical Lifts

All critical lifts require a **Lifting & Rigging Plan** ***(Appendix B)***.

Critical lifts include the following:

- Any lift that exceeds (or potentially exceed) 80% of the rated capacity of the equipment
- Any lifts near overhead power lines
- Any lifts over production/process equipment that could result in chemical spills, product contamination, or other major loss
- Any lifts over buildings that will be occupied or partially occupied
- Any lifts of custom or long-lead time equipment

O'Brien & Gere may request a Lifting & Rigging Plan for any lift when deemed necessary by the Construction Supervisor.

2.13.2. Rigging Safety

All rigging must meet the following requirements:

- Be inspected prior to each use by a competent, qualified, and designated employee.
- All rigging must have tags that are legible with the allowable load ratings listed.
- Rigging must be of the proper type and size for the load being moved.
- Straps etc. may not be attached directly to forks of a loader/forklift/ or Lull.

2.14. HAZARD COMMUNICATION & MSDS

NOTE –
O'Brien & Gere does not anticipate mobilization of chemicals to the site beyond typical office and cleaning supplies in small, consumer-type containers. Subcontractors may mobilize limited quantities of "Bulk" chemicals that will primarily include oil, hydraulic fluid, lubricants and similar products necessary to maintain equipment. Bulk chemicals also include fuels stored within heavy equipment and (potentially) within a temporary fuel tank. MSDS will be retained in O'Brien & Gere's field office.

Each subcontractor is responsible for having and administering a Hazard Communication Program that requires all employees to be informed about the hazards associated with chemicals used on the job and the location of the material safety data sheets (MSDSs) for all materials brought on site.

MSDSs shall be obtained from all suppliers of paints, coatings, adhesives, grout, caulk, lubricants, welding products, solvents, insulation, and similar products prior to being brought on-site. Subcontractors will submit MSDSs to O'Brien & Gere for review and upon request. O'Brien & Gere will provide the site owner with MSDSs for each chemical and (if required) sign an approval form prior to any chemicals being brought on site.

2.15. GENERAL WORKER SAFETY RULES

Workers follow the established safety practices for their respective tasks. The need to exercise caution in the performance of work is made more acute due to weather conditions and restrictions in mobility, peripheral vision, and communication caused by the personal protective equipment.

To enhance site safety, the following General Worker Safety procedures have been established:

- **Smoking is not permitted in work areas, or office trailers. Smoking is allowed in designated outdoor areas only.**
- **No firearms may be brought on site**
- Employ the buddy system when appropriate. Be alert.
- Hands must be washed before eating or drinking and after using toilets
- Consumption of alcohol or intoxication (under the influence or impaired) during work hours or while on site is prohibited
- Working when your health is compromised in such a way that it impairs your ability to perform your duties safely or may compromise your health or the health of others at the site (ie. Contagious) is prohibited.

3 CHEMICAL PARAMETERS OF CONCERN

The OSHA HAZWOPER standards (29CFR1910.120 and 1926.65) and OSHA Hazard Communication Standard require that site personnel, subcontractors, and visitors must be informed of chemical hazards associated with their work area. Health hazard information for site chemical hazards is summarized below and in ***Table 3.1*** of this HASP. Health and safety information in this HASP is intended to supplement Hazard Com training previously provided to site workers by his or her employers.

3.1. EXPOSURE PATHWAYS

Possible exposure pathways are:

- Inhalation of vapors released from drums
- Contaminated soil and/or water
- Inhalation of contaminated dusts
- Accidental ingestion of contaminants
- Skin contact/absorption with contaminated soils and/or water
- Injection through punctures and lacerations

Based upon anticipated site activities and prudent safety and hygiene practices during site work, ingestion of site contaminants is unlikely. Hazardous skin contact or absorption by the various contaminants is also unlikely because of the low concentrations that are anticipated and/or the use of personal protective equipment (PPE). The primary route of exposure is inhalation of airborne contaminants and contaminated dusts. However, inhalation of airborne contaminants approaching the OSHA PELs is unlikely because of natural ventilation of the work area, safe work practices, PPE, and/or air monitoring.

3.2. CHEMICAL HAZARDS SUMMARY

Although previous site investigations indicate that soil and groundwater may contain solvents and oils which could contribute to airborne Volatile Organic Compounds (VOCs), the current scope of work does not include excavation into existing soils, but rather placement of amended soil cover over the existing potentially contaminated soils.

The following paragraphs summarize the health effects of site contaminants that are frequently of concern and other site chemicals (if any). Site chemicals are usually those chemicals used during water or wastewater treatment, petroleum products (fuel), and potentially lubricants such as hydraulic fluids. This HASP focuses on those which are believed to have the potential to pose a significant health hazard to site personnel based on their potential to become airborne, concentrations in soil and groundwater, and their toxicity and other hazardous characteristics. ***Table 3.1*** – "Summary of Potential Health Effects" also includes information on exposure limits and key physical characteristics such as flammability. *Chemical Constituents of Concern (COCs) are identified below as being applicable* (☒ **APP).** *Chemicals hazards that are not present or do not otherwise represent a serious health risk based on historical site data are identified as not applicable* (☒ **NOT APP).**

- ☐ **APP** | ☒ **NOT APP**
  - **Polychlorinated Biphenyls (PCBs)** – PCBs are considered a potential human carcinogen, especially with respect to the liver. PCBs can be inhaled or absorbed through the skin. Skin effects include lesions, rashes, and severe acne-like conditions for those who may be especially sensitive to contact with PCBs. PCBs are not volatile and potential exposure will consist of contaminated dust and contact with contaminated soil and groundwater.

- ☐ APP | ☒ NOT APP
  - **Lead** – Lead is a hazardous metal that was once common in paint, gasoline, and a variety of other uses. Lead is a solid material and may be inhaled as airborne dust or ingested if personal hygiene is poor. Lead can gradually accumulate in the body with frequent small exposures adding to a growing body burden. Lead is especially hazardous to young children and infants and every effort must be made to prevent site personnel from carrying lead home on contaminated clothing, tools, and equipment.
- ☐ APP | ☒ NOT APP
  - **Asbestos** – Asbestos is a material often used in insulation, transite panels, and roofing materials and the potential exists to encounter this material in buildings on the site. Asbestos is a naturally occurring mineral and is considered a potential occupational carcinogen by OSHA. Asbestos-related diseases such as lung cancer, mesothelioma and digestive system cancer may occur if over exposed to asbestos fibers. Asbestos and cigarette smoking interact with each other and will have an effect much greater than either one individually.
- ☐ APP | ☒ NOT APP
  - **Silica** – Crystalline silica has been classified as a human lung carcinogen. Additionally, breathing crystalline silica dust can cause silicosis, which in severe cases can be disabling, or even fatal. The respirable silica dust enters the lungs and causes the formation of scar tissue, thus reducing the lungs' ability to take in oxygen. There is no cure for silicosis. Since silicosis affects lung function, it makes one more susceptible to lung infections like tuberculosis. In addition, smoking causes lung damage and adds to the damage caused by breathing silica dust. Exposure occurs during many different construction activities. The most severe exposures generally occur during abrasive blasting with sand to remove paint and rust from bridges, tanks, concrete structures, and other surfaces. Other construction activities that may result in severe exposure include: jack hammering, rock/well drilling, concrete mixing, concrete drilling, brick and concrete block cutting and sawing, tuck pointing, and tunneling operations.
- ☐ APP | ☒ NOT APP
  - **Chromium & Hexavalent Chromium** – Chromium metal and chromium salts (Cr II/III) are naturally occurring and generally less hazardous than hexavalent chromium (Cr VI). The risk is further reduced with exposure to chromium dust as opposed to chromium fume. All chromium can affect the liver, kidneys, respiratory system and many forms can cause skin sensitization. CrVI is clearly the more hazardous form of chromium. Workplace exposure to Chromium (Cr(VI)) may cause the following health effects: lung cancer in workers who breathe airborne Cr(VI); irritation or damage to the nose, throat and lungs (respiratory tract) if Cr(VI) is inhaled; and irritation or damage to the eyes and skin if Cr(VI) contacts these organs. Workers can inhale airborne Cr(VI) as a dust, fume or mist while, among other things, producing chromate pigments, dyes and powders (such as chromic acid and chromium catalysts); working near chrome electroplating; performing hot work and welding on stainless steel, high chrome alloys and chrome-coated metal; and applying and removing chromate-containing paints and other surface coatings. Skin exposure can occur while handling solutions, coatings and cements containing Cr(VI).
- ☐ APP | ☒ NOT APP
  - **Mercury** – The nervous system is very sensitive to all forms of mercury. Methyl mercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Mercury is a naturally occurring metal which has several forms. Metallic mercury is a shiny, silver-white, odorless liquid. If heated, it is a colorless, odorless gas and small amounts (several milligrams) may be contained in fluorescent bulbs. Mercury may also be in switches and thermostats.

- ☐ APP | ☒ NOT APP
  - » **Volatile Organic Compounds** (VOCs) – Several organic solvents may be encountered and are collectively referred to as VOCs. Residual quantities may be present in process piping and subsurface soils and groundwater and could be encountered during excavation work. Although the precise mixture is unknown, VOCs may include (but not necessarily be limited to) trichloroethylene, 1,2-dichloroethylene, vinyl chloride, and phenol (semi-volatile) from process operations and petroleum products such as gasoline and heating oil that may be associated with site vehicles or combustion equipment.
- ☐ APP | ☒ NOT APP
  - » **Polycyclic Aromatic Hydrocarbons** (PAHs) –PAHs are semi-volatile organic compounds that do not readily evaporate. As a result of their low volatility, exposure to these compounds will result from airborne dusts contaminated with PAHs. Short-term (acute) effects of exposure to these compounds are the same as those associated with exposure to dusts in general and may include eye and upper respiratory tract irritation at high dust levels. High dust levels are characterized by dust levels where visible dust emissions are observed that typically obscure vision. The primary health effect associated with PAHs is cancer as a result of long-term (chronic) exposure. Several PAHs are suspected as being potential human carcinogens.

Table 3.1 – Summary of Potential Health Effects

Chemical	Location	PEL	IDLH	Characteristics	Routes of Exposure	Symptoms of Exposure & Health Effects
SEMI-VOLATILES – may include a mixture of the following						
☒ NA Polychlorinated Biphenyls (PCBs)	Soil and sediment	1 mg/m^3 1242 0.5 mg/m^3 1254/1260	5 mg/ m^3	Oil liquids or solids that are colorless to light yellow	Inhalation Contact	PCBs are classified as probable human carcinogen by the EPA More common symptoms and health effects include skin lesions and rashes Although PCBs may create vapor, they do not evaporate easily and the most likely inhalation exposure is by dust contaminated with PCBs
☒ NA Phenol	Soil and sediment	5 ppm TWA (skin)	250 ppm	Colorless to light pink liquid with a sharp, medicinal, sweet, tarry odor Ionization potential = 8.5	Inhalation Absorption	Inhalation of vapors, dust, or mist contaminated with phenol may result in vomiting, difficulty in swallowing, diarrhea, loss of appetite High concentrations or chronic exposure may also cause burning in the eyes, nose and throat, dizziness, irregular breathing and abdominal pain Phenol is readily absorbed through the skin causing photodermatitis Skin contact must be avoided
☒ NA Polycyclic Aromatic Hydrocarbons (PAH) Also known as: PNAH Polynuclear aromatic hydrocarbons	Excavations	0.2 mg/m^3 (Coal tar pitch volatiles - benzene soluble fraction) 0.15 mg/m^3 (Coke Oven Emissions - benzene soluble fraction)	Not determined	PAHs do not readily evaporate. Exposure from contaminated soil/dust created during remediation activities Pure material is a brown/black tar-like substance	Inhalation Contact	High exposures (>PEL) may cause irritation of the respiratory system The skin and eyes are especially prone to irritation from contact with PAHs May cause photosensitization of the skin and eyes increasing the potential for sunburn and irritation Long-term exposure may cause skin, lung, and kidney cancer

Table 3.1 – Summary of Potential Health Effects

METALS & MINERALS						
☒ **NA** Lead	Lead in soil or ground water	0.05 mg/m³ TWA 0.035 mg/m³ Action Level	100 mg/m³	Pure material is a heavy, ductile, soft, gray, solid Lead is present on site as a component of soil from paint chips that have flaked off painted structures and will not resemble its pure form Lead is also a component of paint	Inhalation Ingestion	Lassitude (weakness, exhaustion), insomnia Facial pallor Anorexia, weight loss, malnutrition; constipation, abdominal pain, colic Anemia Gingival lead line Tremor Paralysis of the wrist, ankles Encephalopathy Kidney disease Irritation eyes Hypotension
☒ **NA** Asbestos	Existing building: floor tiles, window caulk, roofing mastic	0.1 fibers/cc	NA	Commonly found in insulation, felt, mastic, transite panels, and a variety of other structural applications	Inhalation Ingestion Contact	Asbestosis, Mesothelioma cancer Restricted pulmonary function
☒ **NA** Silica	Cutting or pulverizing concrete	0.05 mg/m³ (NIOSH)	50 mg/m³ (quartz)	Colorless, odorless solid A component of sand, concrete and other masonry materials	Inhalation	Cough, dyspnea (breathing difficulty), wheezing Decreased pulmonary function, progressive resp symptoms (silicosis) Irritation to the eyes Potential occupational carcinogen
☒ **NA** Hexavalent Chromium	Chromium in soil or groundwater	0.005 mg/m³ [skin]	15 mg/m³	Dark-red, odorless flakes or powder (pure form)	Inhalation Contact	Irritation to the respiratory system Nasal septum perforation Liver, kidney damage Leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes), eosinophilia Eye injury, conjunctivitis Skin ulcer, sensitization dermatitis Potential occupational carcinogen
☒ **NA** Mercury	Fluorescent light bulbs and mercury switches and thermostats	0.1 mg/m³ [skin]	10 mg/m³	Metal: Silver-white, heavy, odorless liquid	Inhalation Contact	Irritation to the eyes and skin Cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis Tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion) Stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria
VOLATILE ORGANIC COMPOUNDS (VOCs) – may include a mixture of the following						
☒ **NA** Trichloro-ethylene (TCE)	Soil, groundwater, residual in drums	100 ppm TWA	1000 ppm	Colorless liquid with a chloroform odor UEL=10.5%, LEL=8.0%	Inhalation Absorption Contact	Causes headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating Large amounts of may cause impaired heart function, unconsciousness, and

Table 3.1 – Summary of Potential Health Effects

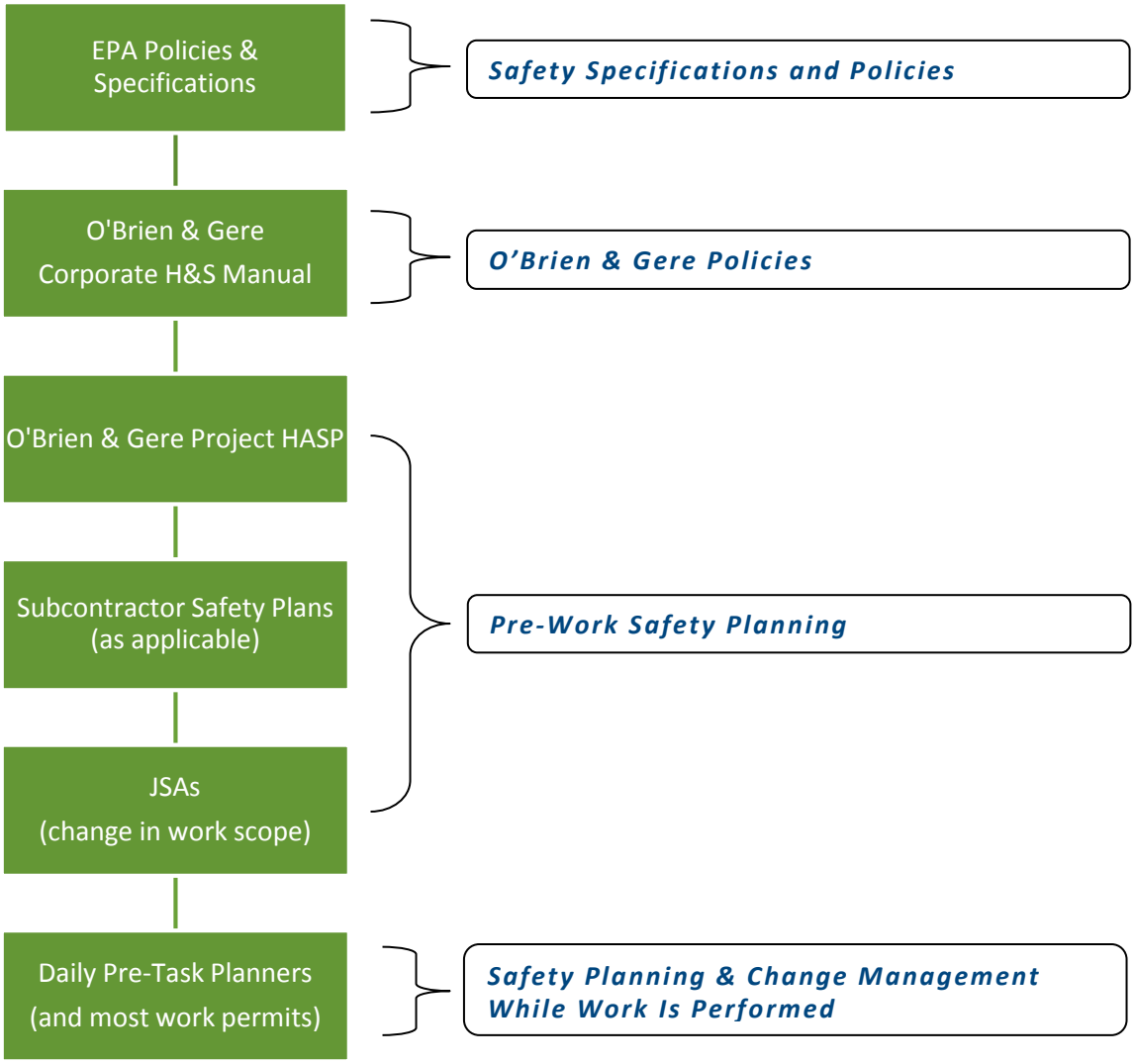
				Combustible Liquid Ionization Potential = 9.45 eV		death Breathing for long periods may cause nerve, kidney, and liver damage
☒ **NA** Tetrachloro-ethylene (Perchloro-ethylene)	Soil, groundwater, residual in drums	100 ppm TWA	150 ppm [potential carcinogen]	Colorless liquid with a mild, chloroform-like odor Noncombustible Liquid Ionization Potential = 9.32 eV	Inhalation Absorption Contact	irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]
☒ **NA** Vinyl Chloride	soil, groundwater, residual in drums	1 ppm carcinogen	NA	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations UEL=33%, LEL=3.6% Flammable Liquid Ionization Potential = 9.99 eV	Inhalation Contact	Lassitude (weakness, exhaustion) Abdominal pain Gastrointestinal bleeding Enlarged liver Pallor or cyanosis of extremities; liquid Frostbite Potential occupational carcinogen
☒ **NA** 1,2,-Dichloro ethylene	Soil, groundwater, residual in drums	200 ppm	1,000 ppm	Colorless liquid (usually a mixture of the cis and trans isomers) with a slightly acrid, chloroform-like odor. UEL=12.8%, LEL=5.6% Flammable Liquid Ionization Potential = 9.65 eV	Inhalation Contact	Irritation to the eyes and respiratory system Central nervous system depression
☒ **NA** Benzene	Soils, groundwater, residual in drums	1 ppm TWA 5 ppm STEL	500 ppm	Colorless vapor released from contaminated soil or water that may have a strong, irritating, or otherwise characteristic odor generally detectable at 4-5 ppm Ionization Potential = 9.24 eV	Inhalation Absorption Contact	Irritation to the eyes, nose, and throat Dizziness Dermatitis Prolonged exposure to hazardous levels may damage blood-forming systems Benzene is also a suspected human carcinogen (ACGIH 1996 Class A2)
☒ **NA** Toluene	Soils, groundwater, residuals in drums	200 ppm 300 ppm Ceiling	500 ppm	Colorless liquid with a sweet benzene-like odor UEL=7.1% and LEL=1.1% Class IB Flammable Liquid Ionization Potential=8.82 eV	Inhalation Contact (dermatitis)	Irritation to eyes and nose May cause skin irritation/dermatitis and headaches Exposures at or above the OSHA PEL may cause fatigue, confusion, dizziness and overall depression of central nervous system Chronic exposure or high exposures approaching IDLH levels may cause liver

Table 3.1 – Summary of Potential Health Effects

						and kidney damage
☒ **NA** Xylene (o,m,p)	Soils, groundwater, residuals in drums	100 ppm	900 ppm	Colorless liquid with an aromatic odor UEL=6.7%-7.0% and LEL=0.9%-1.1% Class IC Flammable Liquid Ionization Potential = 8.56 eV	Inhalation Contact (dermatitis)	Irritation to eyes, nose, and throat May cause skin irritation/dermatitis and headaches Exposures at or above the OSHA PEL may cause fatigue, confusion, dizziness, nausea, vomiting, cornea (eye) damage, and overall depression of central nervous system Chronic exposure or high exposures approaching IDLH levels may cause liver and kidney damage
OTHER						
☐ **NA** Solvay Waste	Soil	None	None	White to gray material that ranges from almost cement-like to toothpaste-like consistency Material may "liquefy" with repeated vibration	Inhalation (residues) Contact	Primary hazard is high pH (alkaline) material that may cause skin irritation with prolonged exposure Solvay waste is not classified as hazardous waste
Footnotes	All values are 8-hour time-weighted averages (TWAs) unless otherwise indicated **PEL**: Permissible Exposure Limit, the concentration an employee may be exposed to for an 8-hour work day for a 40 hour work week for which nearly all employees may be repeatedly exposed without adverse health effects **REL**: NIOSH recommended exposure limit for full-shift exposures **STEL**: Short-Term Exposure Limit as a 15 minute average **CEILING:** maximum concentration **IDLH**: IMMEDIATELY Dangerous to Life and Health, contaminant concentration which present the possibility for severe health consequences if exposed to the IDLH concentration without the appropriate personal protective equipment (PPE) **LEL**: Lower Explosive Limit **Units: mg / m³** = milligrams per cubic meter of air | **f / cc** = fibers per cubic centimeter of air					

4 HAZARD EVALUATION

The OSHA safety regulations (29CFR1910 and 29CFR1926) require that site personnel, subcontractors, and visitors must be informed of the hazards associated with their work activities. Hazard Identification and control begins during safety planning. Safety planning is required for work on this project and occurs at different times during the project. Each "level" of safety planning typically has differing degrees of detail and focus. However, the ultimate objective is that site management and crafts methodically evaluate hazards and implement safety controls to prevent the occurrence of an injury, fire, explosion, spill, or property damage incident and are able to manage changes as they occur. The following flow chart provides an overview of safety planning requirements and tools outlined in previous sections of this HASP.



Safety Plans, JSAs, and Safe Work Permits developed subsequent to this HASP by O'Brien & Gere or subcontractors (if any) will identify hazard controls that are consistent with this Health & Safety Plan. Subcontractors may use an O'Brien & Gere Pre-Work JSA template ***(Appendix A)*** or request approval from O'Brien & Gere to use an alternate JSA template. **Submitting standard company policies or programs is not acceptable.** Preliminary identification of hazards and their respective controls for major work tasks or phases are outlined in ***Table 4.1.***

Table 4.1 – Hazard Identification & Control

Activities & Tasks	Affected Personnel	Safety Hazards	Safety Hazard Controls
GENERAL SAFETY HAZARDS Mandatory PPE: Level D PPE (Refer to PPE section of HASP for specific components of Level D PPE based on the task being performed) As needed PPE: Face shield for all grinding, torch cutting, pressure washing Covered tasks: This section covers safety hazards and their associated controls that are applicable to a variety of crafts/trades. These will only be repeated in subsequent sections when specific tasks or site conditions require changing or modifying safety hazard controls.	Generally applicable to all trades/crafts	**Slip, trips, and falls** **Manual lifting** **Noise- during operation of heavy equipment and power tools or working adjacent to such equipment** **Electrical – shock hazards associated with the use of extension cords and power tools** ■ Contact with damaged cord ■ Overhead power lines ■ Contact with sub-surface utilities **Hand & power tools** ■ Shock ■ Flying dust, cuttings, debris ■ Hand injuries from cutting blades/bits **Ladder hazards** ■ Ladders kicking out or tipping over during use ■ Users fall from a ladder ■ Falling objects strike workers or pedestrians on lower work surfaces **Heavy equipment hazards – Working near heavy equipment requires that general safety precautions be considered. When tasks require the use of certain types of heavy equipment (e.g., manlifts, forklifts, and cranes), they will be covered in more detail with respect to those tasks.** ■ Turnover due to the slope angle and/or stability ■ Struck by injuries (counterweight swing or run-over) ■ Dropped loads ■ Hydraulic fluid leaks ■ Equipment fire	**Safety controls for slips, trips, and falls include:** ■ Daily cleanup ■ Unused materials must be stored in a designated area ■ Unused tools must be picked up daily ■ All trash, scrap metal, and construction debris must be placed in the appropriate dumpsters ■ Icy walkways, stairs, work platforms, and scaffolding must be salted prior to use. Slip-on traction devices (YakTrax®) should also be considered. **Follow proper lifting technique.** **Review primary precautions below:** ■ Keep load in close to the body ■ Keep hips and shoulders aligned (no twisting) ■ Maintain stability (keep a balanced position) ■ Think and plan difficult lifts (use two people when weight is >55-75 lbs) **Wear hearing protection while operating heavy equipment (unless with enclosed cab) or noisy power tools. Wear hearing protection if you have to raise your voice talking to someone five feet away.** **Electrical safety controls when using extension cords and power tools include:** ■ Locate and verify all building utilities with owner representative ■ Inform all site personnel that **overhead power lines are energized** and a **20-foot clearance** must be maintained » A 10-foot clearance may be used for insulated secondary lines that distribute power within the site » If the lines are <300 volts and a safety spotter observes equipment while it's moved, then a 3-foot clearance may be used ■ Use GFCIs on all power tools and extension cords ■ Inspect tools for visible damage on a daily basis ■ Inspect all flexible extension cords and power tool cords daily prior to use ■ Discard all flexible cords without a ground plug or outer insulation this is cut through. Tool cords must be in similarly good condition. ■ Do not repair flexible cords smaller than 12 gauge ■ All extension cords must be ran overhead (>7-foot) when crossing walkways or other areas of high travel or protected when run across the floor (in a manner that does not create an excessive trip hazard) ■ All extension cords must be protected when run across roadways ■ Subsurface utilities must be located and marked prior to driving stakes, fence posts, or earthwork. Temporary utilities for construction may be shallower than expected. **Perform the following to ensure that tools are in good working order**

Table 4.1 – Hazard Identification & Control

- Inspect tools for visible damage prior to each use.
- Inspect all flexible extension cords and power tool cords. Discard all flexible cords without a ground plug or outer insulation that is cut through. Tool cords must be in similarly good condition. Do not repair flexible cords smaller than 12 gauge.
- **Do not operate tools without guards and use only in accordance with manufacturer's operating instructions**
- Use **GFIs** on all extension cords and power tools

Ladders must be used in accordance with OSHA guidelines or fall protection must be implemented above six feet. Ladder safe guidelines include, but are not limited to:

- Ensure all ladders are inspected and properly labeled
- Maintain 3-point contact while working on step ladders and extension ladders (work requiring the use of both hands when on a ladder will require the worker to tie-off)
- Keep your torso between the rails of the ladder
- Do not use a step ladder as a straight ladder
- Do not stand on the top two steps of a step ladder
- Extend extension ladders three feet above the upper level
- Secure the top and base of extension ladders
- Extension ladders should have a 4:1 height to base ratio
- Do not use metal ladders within 20 feet of exposed conductors or overhead power lines
- **Ladders must be inspected prior to each use**

Heavy equipment safety precautions include:

- Ensure **slopes** in designated work areas do not exceed slopes allowed by manufacturer's safe operating guidelines
- Keep **non-essential personnel** out of areas in which heavy equipment will be operating. Portable chain link (or equivalent) will be used to secure the construction area
- Ensure all operators are qualified and familiar with the **manufacturer's safe operating guidelines** for the equipment they are operating. Subcontractors must submit the following for specific types of equipment:
- Forklift – Operators license
- Manlift – Training certificate. Letter of Authorization and Training on company letterhead, or equivalent.
- Crane – State License and/or CCO
- **Inspect heavy equipment daily** prior to use Immediately repair any leaks
- Operators must wear **seatbelts** at all times unless the manufacturer does not provide seat belts
- Equipment operators must ensure workers are kept clear from **crush points** created by counterweight swings and for boom movement
- Never lift or suspend a load over people
- Inspect all rigging materials prior to use
- Ensure that a **fire extinguisher** is mounted to the equipment
- Ensure spill materials for oil/hydraulic fluid are located near the construction area

Table 4.1 – Hazard Identification & Control

SITE PREPARATION & MOBILIZATION Minimum PPE: Level D PPE (Refer to PPE section of HASP for specific components of Level D PPE based on the task being performed.) Additional PPE: Hearing protection during operation of heavy equipment or other loud equipment Kevlar Chaps & Jacket: During operation of chainsaw that may be required to clear small trees and large shrugs Covered Tasks: Mobilization of equipment Site Survey Site security – perimeter safety fence installation Installation of silt fence, drainage swales, and other erosion controls Use of a "brush hog" either pulled behind a piece of heavy equipment, or on an arm that protrudes from the side of equipment.	Laborers Equipment Operators Surveyors Delivery Personnel Utility Installation Crews	**General Hazards previously listed in the "General Safety Hazards" section of this table** **Vegetative Clearing** ■ Biological hazards - Poison Ivy and poisonous snakes and insects ■ Ticks bites ■ Cuts/lacerations from chainsaws (if used) **Brush Hog Operation** ■ Thrown material leading to injury ■ Loss of life or limb from rotating blades ■ Loss of life or limb due to unprotected belts/pullys ■ Tipping over of Equipment due to extreme slope or equipment being off balance.	**General Hazards previously listed in the "General Safety Hazards" section of this table (liner may be installed and used on site and is extremely slippery when wet)** **Safety controls for clearing include:** ■ Know how to recognize poison ivy. Maintain alcohol wipes or rubbing alcohol to wipe down exposed skin following contact with allergy-causing oils from poison ivy. ■ Syracuse is in a high Lyme disease area. Use 25%+ DEET on skin and permethrin on Tyvek when walking into, or working in, overgrown areas. ■ All personnel using chainsaws for clearing activities must wear **Kevlar Chaps and Jacket** and hard hat mounted face shield in addition to other safety gear ■ Use heavy equipment to do as much of the vegetative clearing as possible. ■ Roots and stumps will not be removed. Removing surface vegetation without disrupting contaminated soil is not considered "intrusive." **Safety Controls for "Brush Hog" operation include:** ■ Do not operate "Brush Hog" while elevated from the ground. ■ Do not allow pedestrians to approach the Bush Hog while in operation. ■ Do not intentionally run over excessively large stumps, stones, or debris. ■ Do not operate the Brush Hog while in a vertical position or while above knee level. ■ Leave all manufacturer guards in place and do not allow workers to be exposed to moving parts of the equipment. ■ Read the manufacturers recommendations in regards to safe operating slopes. ■ Use side arm brush hog while drive equipment can be safely operated from a stable, level surface. ■ Keep side arm brush hog lowered as close to the ground as possible and as near to the equipment as possible when operating.

Table 4.1 – Hazard Identification & Control

Placement of soil cover with manure spreader or CAS Slinger Truck **Minimum PPE:** **Level D PPE (refer to PPE section of HASP for specific components of Level D PPE based on the task being performed)** **Additional PPE:** **Hearing protection during operation of heavy equipment or other loud equipment** **Covered Tasks:** **use of manure spreader or CAS Slinger Truck to evenly place amended soils onto predetermined areas at specified application rates.**	Machine operator	**General Hazards previously listed in the "General Safety Hazards" section of this table** ■ Heavy Equipment Operation ■ Haul Truck Operation (inside cab/outside) ■ Contact with unprotected belts and pulleys ■ Being hit by Flying material	**General Hazards previously listed in the "General Safety Hazards" section of this table:** **Contact with unprotected belts and or pulleys** ■ Keep all guards in place when operating equipment. ■ Release all stored energy prior to maintenance being performed. ■ Do not operate with personnel in the spreader equipment. **Being hit by flying material** ■ Do not operate when pedestrians or other worker are within the range of thrown material. ■ Throw material only as far as you have to in order to achieve the desired spread.

5 EMPLOYEE AIR MONITORING

Air monitoring is to be performed in accordance with Program 2.1 of the O'Brien & Gere Corporate Health & Safety Manual, *Airborne Materials Exposure*, and Program 2.22 of the O'Brien & Gere CHS Manual, *Hazardous Waste Operations*. Presented below is the site-specific information. The purpose of air monitoring is to verify the adequacy of PPE being used and to evaluate new hazards or changing site conditions.

The **"site"** refers to the work area(s) designated for this project. The **"fence line"** refers to the site perimeter or 200' downwind, whichever is closer, and includes areas where the general public may be present. **Community action levels** generally apply at the fence line or site perimeter. The **"work area or zone"** is the area immediately surrounding activities that disturb contaminated materials and is the area within which "work area action levels" apply. Exclusion Zones may be setup to coincide with the perimeter of individual work areas or encompass several work areas. Where Exclusion Zones are adjacent to the fence line, the most stringent of work area and community action levels shall apply.

5.1. MONITORING EQUIPMENT

Monitoring Instruments will be calibrated in accordance with manufacturers' recommendations. Air monitoring information from perimeter dust meters will be downloaded at the end day. Air monitoring results will be submitted to DEC.

Monitoring Equipment				
Required?	**Contaminant**	**Location**	**Equipment**	**Comments**
NO	Volatile Organic Compounds (VOCs)	1 PID in each active excavation confined spaces	Photoionization Detector (PID) with 10.6 eV lamp	Available from Pine Environmental 800-301-9663 (approx $200 a week)
NO	Oxygen and flammable vapors	Confined spaces	Gas Meter – Neotronics Minigas or equivalent	Available from Pine Environmental 800-301-9663 (approx $150 a week) For use if confined space entry Not to be used for ambient monitoring
YES	Dust / Particulate (PM-10)	1 upwind 2 downwind 1 "roving" meter for use in work areas and backup for perimeter monitors	Dust Meter - TSI DustTrak Model 8520 (w/ PM-10)	Available from Pine Environmental 800-301-9663 (approx $300 a week) Rent the optional TSI Environmental Enclosure for stationary locations subject to rain and prolonged sun
NO	Hydrogen cyanide		ToxiRAE Plus or Industrial Scientific T82 single gas monitors with HCN sensor	Available from Pine Environmental 800-301-9663 (approx $75 a week)
NO	VOC -benzene (Drager tube)	At the discretion of the SSHC to supplement PID Readings	Drager Tube - Benzene 0.5/c (tube # 81 01841) 20 strokes, approx 20 minutes per test, uses scrubber tube to decrease interference from other VOCs	Benzene colorimetric tubes are subject to cross-sensitivity to a variety of aromatic compounds and will therefore be used only at the discretion of the SSHC or Manager of Corporate Health & Safety
NO	VOC - benzene (exposure sampling badge)	Intrusive Work Activities at the discretion of the SSHC	3M 3520 Organic Vapor Badge for analysis by NIOSH 1500 (benzene)	Supplied by Galson Labs 888-432-5227 ($5.00 when analysis performed by Galson)

5.2. WIND DIRECTION

Wind direction will be monitored daily using visual observations with wind direction and velocity recorded in a field log.

5.3. WORK AREA (EMPLOYEE) MONITORING

The Work Area Monitoring approach will use "roving" (hand-held) equipment to periodically check breathing zone exposures in active work areas. One PID and one dust meter will be used to assess potential contamination hot spots, investigate odors, and monitor effectiveness of dust and vapor controls in the work area. Hand held meters may be used as backups to perimeter CAMP instruments if equipment fails.

Work area monitoring includes one or more of the following depending on site activities:

- **Periodic / Roving Monitoring** – The SSHC or designated alternates will conduct air monitoring using hand-held instruments within each intrusive work area when intrusive work is being conducted.
- **Confined Space Entry** – A combustible gas / oxygen meter will be required for entry into confined spaces, including excavations greater than four feet deep that are classified as a confined space. Action levels are provided in Section 5.3.1, below.
- **Hot Work** – A combustible gas / oxygen meter will be required to monitor areas where flammable vapors may accumulate prior to conducting hot work.

Work Area (Employee) Air Monitoring Action Levels

Contaminant (equipment / method)	Frequency	Action Level	SSHC Action/Response
Volatile Organic Vapors (VOCs) **(PID)**	Continuously in work areas during intrusive activities (excavation work).	1 ppm	Use Ultra-Rae 3000 with Benzene scrubber to determine the presence of Benzene Increase to Level C PPE (half or full-face respirator) Move to the downwind perimeter of the work area conduct Community (fenceline) monitoring per the Vapor Emission Response Plan (VERP).
	When odors are encountered or changing site conditions affect hazards.	*5 ppm	Increase to Level B (supplied air) PPE or implement additional vapor controls outlined in this HASP to keep VOC levels below 50 ppm.
	Prior to and continuous during confined space entry (i.e., excavations >4 feet and tanks).	*50 ppm	Conduct Community air monitoring per the Vapor Emission Response Plan (VERP). Notify the O'Brien & Gere Manager of Corporate Health & Safety and the Project Manager.
	NOTE: a trench or pit with limited access over 4 feet may be considered a confined space if it is sloped steeper than 1.5H:1V and/or does not have access "ramps" or stairs.	*250 ppm	STOP work and use ventilation, covers, vapor suppressants or other controls to reduce VOC levels below 250 ppm. Conduct Community (fenceline) monitoring. Immediately notify the O'Brien & Gere Manager of Corporate Health & Safety, O'Brien & Gere Project Manager and Honeywell Representative.
DUST / PARTICULATE **nuisance dust, PAHs, chromium,**	Periodically in work areas when dusty conditions are observed. NOTE: Visible dust	**1 mg/m^3	Increase to Level C PPE (half or full-face respirator). Implement additional controls outlined in the Employee and Community Protection Plan (ECPP) to keep dust levels below 1 mg/m^3. Move to the downwind perimeter of the work area and

Work Area (Employee) Air Monitoring Action Levels			
concrete dust/silica **(Dust Meter)**	generated by site activities that migrates past the Work Area perimeter must be controlled regardless of dust meter readings in the work area.	**1.5 mg/m^3	conduct Community (fenceline) monitoring per the Particulate Emission Response Plan (PERP). Full-Face Level C PPE or implement additional controls outlined in the Employee and Community Protection Plan (ECPP) to keep dust levels below 1.5 mg/m^3 Move to the downwind perimeter of the work area and conduct Community (fenceline) monitoring per the Particulate Emission Response Plan (PERP). Work may proceed only if perimeter dust/particulate levels are below PERP action levels.
		**5.0 mg/m	Notify the O'Brien & Gere Manager of Corporate Health & Safety and the Project Officer. STOP work and use investigate additional dust controls to reduce dust levels below 5 mg/m^3 (or lower). Conduct Community (fenceline) monitoring per the Particulate Emission Response Plan (PERP). Immediately notify the O'Brien & Gere Manager of Corporate Health & Safety, O'Brien & Gere Project Officer.

* **VOCs - Sustained readings for 5 minutes above background. Background readings are taken at upwind locations relative to Work Areas.**
** **DUST/PARTICULATE - 15 minute time-weighted average above upwind background readings.**

5.3.1. Confined Space Entry Monitoring

Respiratory protection and/or mechanical ventilation must be provided where hazardous atmospheres are identified or may develop during work activities. Action levels for oxygen, combustible vapors, hydrogen sulfide and carbon monoxide are outlined below and on the Confined Space Entry Permit.

- Oxygen – 19.5% to 23.5%
- LEL – 10%
- Carbon Monoxide – 35 ppm
- Hydrogen Sulfide – 10 ppm

6 MEDICAL MONITORING

Medical surveillance requirements are required by OSHA for persons who are exposed to lead (above OSHA action levels), perform asbestos abatement, wear respirators, perform hazardous waste work, and other activities. Subcontractors are required to have medical surveillance that complies with OSHA regulations.

6.1. FITNESS FOR RESPIRATOR USE

Persons who may wear respiratory protection must be provided respirators as regulated by 29 CFR 1926.103 and 29 CFR 1910.134. This Standard requires that an individual's ability to wear respiratory protection be medically certified before he / she performs designated duties. Where medical requirements of 29 CFR 1926.65 overlap those of 29 CFR 1910.134, the more stringent of the two will be enforced.

6.2. EXPOSURE MEDICAL EXAMINATIONS

Medical examinations for persons conducting hazardous waste work, asbestos abatement, and lead work are administered on a pre-employment and annual basis and as warranted by symptoms of exposure or specialized activities. Medical exams must be administered by a board-certified (or one who is eligible for board certification) physician in Occupational Medicine. The examining physician is required to make a report to the employer of any medical condition which would place employees at risk when wearing a respirator, wearing other personnel protective equipment, or working with hazardous materials. Subcontractors must maintain medical records in accordance with OSHA regulations.

6.3. HEAT & COLD STRESS

The timing and location of this project may be such that heat / cold stress could pose a threat to the health and safety of site personnel. Work / rest regimens will be employed as deemed necessary by the Safety Manager (Field Operations). However, subcontractor Safety Competent Persons may initiate heat/cold stress monitoring at any time as necessary to protect their employees. Special clothing and an appropriate diet and fluid intake will be recommended to all on-site personnel to further reduce these temperature-related hazards. Site workers should stop work, and notify the project Safety Manager (Field Operations) when they observe symptoms of heat / cold stress in themselves or co-workers.

6.3.1. Heat Stress Monitoring

Heat stress monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70°F or above. To monitor the worker, one of the following methods should be employed:

- Heart rate should be measured by the radial pulse for a 30 second period as early as possible in the rest period. If the heart rate exceeds 110 beats per minute, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following cycle by one-third.
- Oral temperature should be measured at the end of the work period (before drinking). If oral temperature exceeds 99.6°F, shorten the next work cycle by one-third without changing the rest period. If the oral temperature still exceeds 99.6°F at the beginning of the next rest period, shorten the next work cycle by one-third. Do not permit a worker to wear a semi-permeable or impermeable garment when his / her oral temperature exceeds 100.6°F.
- Heat Stress Index

Heat Index Chart Temperature (°F) vs. Relative Humidity															
	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
115	111	115	120	127	135	143	151								
110	105	108	112	117	123	130	137	143	151						
105	100	102	105	109	113	118	123	129	135	142	149				
100	95	97	99	101	104	107	110	115	120	126	132	136	144		
95	90	91	93	94	96	98	101	104	107	110	114	119	124	130	136
90	85	86	87	88	90	91	93	95	96	98	100	102	106	109	113
85	80	81	82	83	84	85	86	87	88	89	90	91	93	95	97
80	75	76	77	77	78	79	79	80	81	81	82	83	85	86	86
75	70	71	72	72	73	73	74	74	75	75	76	76	77	77	78

Heat Index/Heat Disorders	
Heat Index	**Possible heat disorders for people in higher risk groups**
DANGER 130 or higher	Heatstroke/sunstroke highly likely with continued exposure. • **Moderate and strenous outdoor activity prohibited**
WARNING 105-130	Sunstroke, heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited without the use of personal cooling devices.** • **Workers must drink every 15 minutes or more frequently at their discretion** • **Air conditioned break areas must be available.**
CAUTION 90-105	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity. • **Strenuous outdoor activity while wearing Tyvek is prohibited above a HSI of 99 without the use of personal cooling devices and is recommended for lower HSI.** • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 30 minutes or more frequently at their discretion.** • **Air conditioned break areas must be made available for morning, lunch, and afternoon breaks.**
CONCERN 75-90	Fatigue possible with prolonged exposure and/or physical activity. • **SSHC to monitor employees for symptoms of heat stress.** • **Workers must drink every 60 minutes or more frequently at their discretion.** • **Shaded break areas must be made available for morning, lunch, and afternoon breaks. Air conditioning is recommended.**

Source: National Weather Service [Modified – The initial HSI for the lowest ("CONCERN") heat stress category was reduced from 80 to 75 because of the potential for increased heat stress when wearing Tyvek.]

6.3.2. Cold Stress Monitoring

Work / rest schedules must be altered to minimize the potential for cold stress. Cold stress is defined as a decrease in core body temperature to 96.8°F and / or cold injury to body extremities. Decreases in core body temperature are associated with reduced mental alertness, reduction in rational decision making, or loss of consciousness in severe cases. Symptoms of cold stress include pain in extremities (i.e. hands and feet) and severe shivering. If workers experience these symptoms, then stop work and implement the following controls.

- Workers must don adequate dry insulating clothing; and
- Adjust the work / rest schedule to increase the amount of rest / rewarming time.

- Toolbox safety meetings discussing symptoms of cold stress, clothing requirements, and work breaks must be held when the wind chill temperature (see Appendix A) drops below 0°F and EACH DAY the wind chill temperature is below 25°F.

The wind chill index provided below shows the effective cooling on exposed skin. When the wind blows across the skin, it removes the insulating layer of warm air adjacent to the skin. When all factors are the same, the faster the wind blows, the greater the heat loss, which results in a colder feeling. Wind chill temperatures that are **25°F** below zero or are extremely dangerous. Workers must protect any exposed skin, especially the face, ears, and fingers.

Wind Chill Chart (Temperature vs Wind Speed)							
Wind Speed-mph							
Calm	**5**	**10**	**15**	**20**	**25**	**30**	**35**
Temperature (Degrees F)	**Wind Chill**						
45	43	34	29	26	23	21	20
40	37	28	23	19	16	13	12
35	32	22	16	12	8	6	4
30	27	16	9	4	1	-2	-4
25	22	10	2	-3	-7	-10	-12
20	16	3	-5	-10	-15	-18	-20
15	11	-3	-11	-17	-22	-25	-27
10	6	-9	-18	-24	-29	-33	-35
5	0	-15	-25	-31	-36	-41	-43
0	-5	-22	-31	-39	-44	-49	-52
-5	-10	-27	-38	-46	-51	-59	-64
-10	-15	-34	-45	-51	-59	-64	-67
-15	-21	-40	-51	-60	-66	-71	-74
-20	-26	-46	-58	-67	-74	-79	-82
-25	-31	-52	-65	-74	-81	-86	-89

If you would like to calculate the wind chill index for combinations of temperature and wind other than those given in the table above, you can use the formula:

WC = 91.4 - (0.474677 - 0.020425 * V + 0.303107 * SQRT(V)) * (91.4 - T)

where: WC = wind chill index; V = wind speed (mph); T = temperature (° F)

7 EMERGENCY RESPONSE PLAN

This emergency response section details actions to be taken in the event of site emergencies. The SSHC is responsible for implementation of emergency response procedures and will ensure that a **First Aid/CPR trained person is on site at all times when work activities are in progress.**

7.1. EMERGENCY PHONE NUMBERS

To be posted or provided on site. Emergencies encountered on this site will be responded to by a combination of off-site emergency services and site personnel.

EMERGENCY NUMBER Fire, Explosion, Emergency Medical, and Spills that may reach surface waters	
Site Address	**Phone Number**
Honeywell Work Area 3 **Waste Beds 1-8** **Staging area: Honeywell Orange Parking Lot Gate**	**LEVEL 3 – ONSITE CREW RESPONSE** **LEVEL 2- ERT RESPONSE 315-715-1800** **LEVEL 1- OFF SITE RESPONSE 911**

NOTIFICATIONS Fire, Explosion, Emergency Medical OSHA-Recordable Injuries, Unexpected Structural Collapse, Petroleum Spills		
Honeywell		
Project Manager –	**Steve Miller**	**Phone: 315-741-3723**
O'BRIEN & GERE All emergencies immediately (and first aid injuries within 24 hrs)		
Project Officer	**Brian White/Doug Crawford**	**Phone: 315-956-6862/315-956-6442**
Project Manager	**Brad Kubiak**	**Phone: 315-956-6384**
Project Engineer	**Mike Broschart**	**Office: 315-956-6585**
Manager of Corporate Health & Safety	Jeffrey R. Parsons, CIH	Office: 315-956-6316
Corporate Health & Safety Specialist	Steven Thompson, CHST	Site Office: Cell:
WorkCare Incident Intervention	Call for all minor (non-emergency) injuries	Phone: 888-449-7787
MUNICIPAL OR LOCAL RESOURCES		
HOSPITAL	**Upstate Medical University** **750 East Adams Street** **Syracuse, NY 13210-2375**	(315) 464-5611
OCCUPATIONAL CLINIC	**Industrial Medical Associates** **961 Canal St, Syracuse**	(315) 478-1977

NOTIFICATIONS		
Police	**507 Charles Ave Solvay, New York 13209**	(315) 468-2521
Fire Department	**1925 Milton Ave Solvay NY 13209**	(315) 468-1710
NYS DEC	to be notified by O'Brien & Gere upon major vapor or dust release	845-561-4400 (main number)
NYS DEC	Region 7 - Syracuse	315-426-7200
STATE AND FEDERAL AGENCIES		
OSHA – to be notified by O'Brien & Gere for hospitalization of three workers or any fatality		
OSHA	Syracuse Area Office 3300 Vickery Road North Syracuse, NY	315-451-0808
SPILL NOTIFICATION –Petroleum Spills >5 lbs. O'Brien & Gere will notify		
NYS DEC	Regional 7 Office 615 Erie Blvd West Syracuse, NY	315-426-7200
National Response Center (NRC) for Oil/Chemical Spills		845-256-3121
		1-800-457-7362
		800-424-8802

7.2. EMERGENCY ROUTE

Refer to attached ***Figure 1*** for Hospital Route Map.

7.3. EMERGENCY INVENTORY

In addition to those items specified elsewhere, O'Brien & Gere will maintain the following equipment:

- First aid / Bloodborne pathogens kit – The **minimum size is a 25-person first aid kit** (Radnor RAD64058004 or larger available from Airgas)
- Fire extinguishers – located within 25' of hot work
- Spill Control Kit(s) – Provide all applicable spill control supplies to contain spills of at least 55 gallons including overpacks for 55 gallon drums

7.4. GENERAL EMERGENCY RESPONSE PLAN

7.4.1. Evacuation Signal

In addition to the site specific alarms, verbal/radio communications directing project personnel to evacuate or a building fire alarm will also be used. Do NOT leave site vehicles or equipment on access roads and emergency exits such that emergency response vehicles or personnel may be obstructed.

7.4.2. Muster Point

The muster point in event of an emergency that requires evacuation of the work area is the O'Brien & Gere's field office. The muster point will be reviewed with all personnel. SSHC or designee will account for all personnel.

7.5. CALL FOR EMERGENCY SUPPORT

In the event of a site emergency, the O'Brien & Gere SSHC or designee will call 911. When necessary, the SSHC will coordinate the arrival of on-site emergency personnel with the site owner's security, safety, and/or emergency response employees.

The SSHC or designee will briefly explain the nature of the emergency and site conditions as follows:

- Indicate his/her name
- Location of emergency (site address, support zone or exclusion zone)
- Description of emergency conditions that may require special rescue equipment, such as confined spaces; excavations, and elevated work platforms
- Potential chemical hazards and recommended PPE
- Emergency decontamination procedures
- Incident Command System (ICS)

7.5.1. Incident Command System (ICS)

The O'Brien & Gere SSHC or designated alternate shall function as the initial Incident Commander when the emergency plan is initiated by calling 911. The SSHC will decide whether site personnel will evacuate to the Muster Point or divert site resources (personnel and equipment) to provide initial response actions in accordance with this HASP until emergency responders arrive on site. When emergency responders arrive, the SSHC will identify himself or herself as "in charge" and transfer authority to the arriving Incident Commander.

7.6. FIRE & EXPLOSION RESPONSE PLAN

NOTE –
Site personnel will respond to incipient stage fires using 20 lb Type ABC dry chemical fire extinguishers. Heavy water spray is best for larger fires which will be applied by the fire department responding to our "911" call.

All fires or explosions must be reported to the O'Brien & Gere Site/Project Manager. A fire that CANNOT be readily extinguished with a fire extinguisher will be considered major and will require evacuation of the work area personnel to *Muster Point* areas per this HASP. However, the SSHC or designee may only approach fires/explosions to the extent that fire safety considerations allow. If personal injuries result from any fire or explosion, the procedures outlined in the *Personal Injury Response Plan* will also be followed.

7.7. PERSONAL INJURY RESPONSE PLAN

Treatment for minor injuries will be provided on site using available first aid supplies and personnel trained in first aid. For **minor injuries** that are not life-threatening but require further medical attention, all O'Brien & Gere subcontractors must agree to have their employees treated by occupational physicians at occupational clinics whenever possible. Subcontractors are expected to accommodate this objective whenever feasible.

WorkCare Incident Intervention – WorkCare is a service available to O'Brien & Gere employees for non-emergency injuries as outlined below. Subcontractors are not able to utilize O'Brien & Gere's subscription to this service but are encouraged to setup a WorkCare account for their own employees.

- **All O'Brien & Gere employees will call WorkCare for minor injuries** that include any strains, cuts for which an employee is not confident that a band aid is sufficient, tick/insect bites for which the employee is concerned about infection or Lyme, any other work-related injury for which the employee would like to talk to a WorkCare medical professional regarding proper treatment or follow-up.
- **WorkCare posters must be posted at each job site with a field office or trailer.**
- Minor (not life threatening) injuries that require medical attention will be treated at the "Non-Emergency Med Treatment" clinic identified above **unless an alternate clinic is recommended by WorkCare**. If no clinic is available or identified, then default to the "Emergency Medical Treatment" facility.

The preferred occupational clinic for non-emergency medical treatment during normal business hours is **Industrial Medical Associates (IMA) 961 Canal Street Syracuse.** Emergency rooms may be used to treat minor injuries that require further medical treatment after normal business hours.

Emergency or life-threatening injuries, including puncture wounds to the head, chest, and abdomen, serious head and spinal cord injuries, and loss of consciousness must be treated at the hospital emergency room.

Route maps to the hospital (***Figure 1***) must be posted in the O'Brien & Gere on-site office trailer and all subcontractor office trailers (if any).

7.8. SPILL RESPONSE

Site personnel will be properly trained and equipped to handle small spills. Spill sorbents will be staged onsite in readily visible locations for emergencies. The minimum size spill kit should have the capacity to cleanup and containerize spills of **55 gallons**. Potential spills include leaking gasoline, diesel, antifreeze, hydraulic fluid, or oil from heavy equipment. If a spill of any type should occur, the SSHC or designee should report the spill immediately to a site owner representative and implement procedures in this Spill Response Plan. Site personnel will generally respond to spills as follows:

- **Stop the leak immediately** if it can be done without directly contacting the leaking material. Generally, this will consist of turning heavy equipment off to remove pressure on various fluid systems.
- Remove or stop all **ignition sources** (hot work, generators, etc.) that are within 25' of any part of the spill.
- On-site personnel should immediately secure the area to **prevent unauthorized entry** into the spill area.
- Although not likely given the anticipated types of spills, the SSHC or designee should initiate the *General Emergency Response Plan* in this HASP if a spill may cause an explosion, death, or serious injury.
- Site personnel may only respond to **incipient stage fires** regardless if such fires are associated with a spill.
- **Confined Space Issue** – If the leak occurs in an excavation where natural ventilation is limited, air monitoring will be required prior to entering the spill area. This is primarily an issue for fuel (gasoline, diesel, and kerosene) spills. The SSHC will determine if a fuel spill requires air monitoring.
- **PPE for Spills ≤55 gallons** to open areas generally requires Modified Level D PPE (poly-coat Tyvek, nitrile gloves, and boot covers or boot decontamination). Over-boots or boot covers may also be used if persons cleaning the spill would have to walk on spilled materials. Latex gloves are not acceptable and will degrade with exposure to petroleum products. Spills into confined spaces will require following PPE and other safety procedures specified on Confined Space Entry Permit (***Attachment 8***).

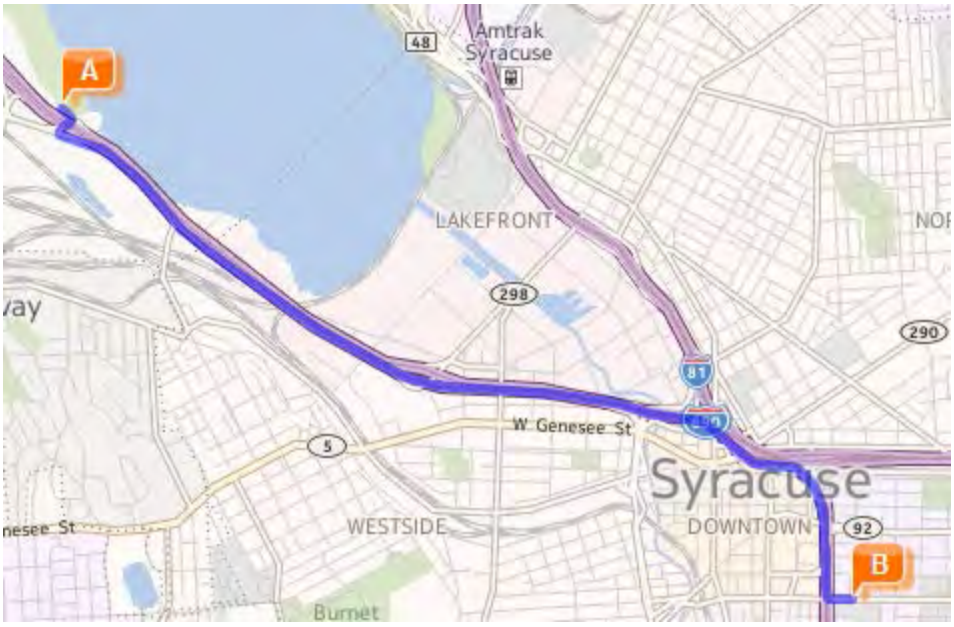
7.9. EMERGENCY REPORTING

Any emergency or accident will be reported to O'Brien & Gere Manager of Corporate H&S and the Site/Project Manager. The O'Brien & Gere Corporate Manager of Corporate H&S will review all emergency or accident reports and may further investigate any such report if necessary. The O'Brien & Gere Manager of Corporate H&S will see that the area officer of OSHA is notified within 8 hours should the emergency cause three (3) or more personnel to be injured and transported to the hospital, or if there is a fatality. If the Corporate Safety Manager cannot be located, then the SSHC will make such notification.

An **Incident Investigation Form** (***Attachment 11***) must be completed for all injuries, illnesses, spills, fire, explosion, or property damage greater than $1,000. The absence of an injury does not preclude the need to complete an Accident Investigation Form as such incidents will be classified as "near miss" or "other." The form must be completed or reviewed by the SSHC or designee. It will include, but is not limited to, the nature of the problem, time, location, and corrective actions taken to prevent recurrence. This **report must be completed and sent to the O'Brien & Gere Corporate Safety Manager and site owner's representative within 24 hours**. If all the "facts" cannot be determined in that period of time, then draft report will be submitted and a final report will be submitted ***immediately*** upon completing the investigation.

Figures

FIGURE 1 – HOSPITAL ROUTE MAP



1) Start at Orange Parking Lot Gate

2) Turn right

3) Bear left

4) Turn Left onto State Fair Blvd (CR-80)

5) Take ramp onto I-690 E.

6) Take the I-81 S/Binghamton exit onto I-81 S.

7) Take exit #18/Harrison St/Adams St.

8) Take left ramp

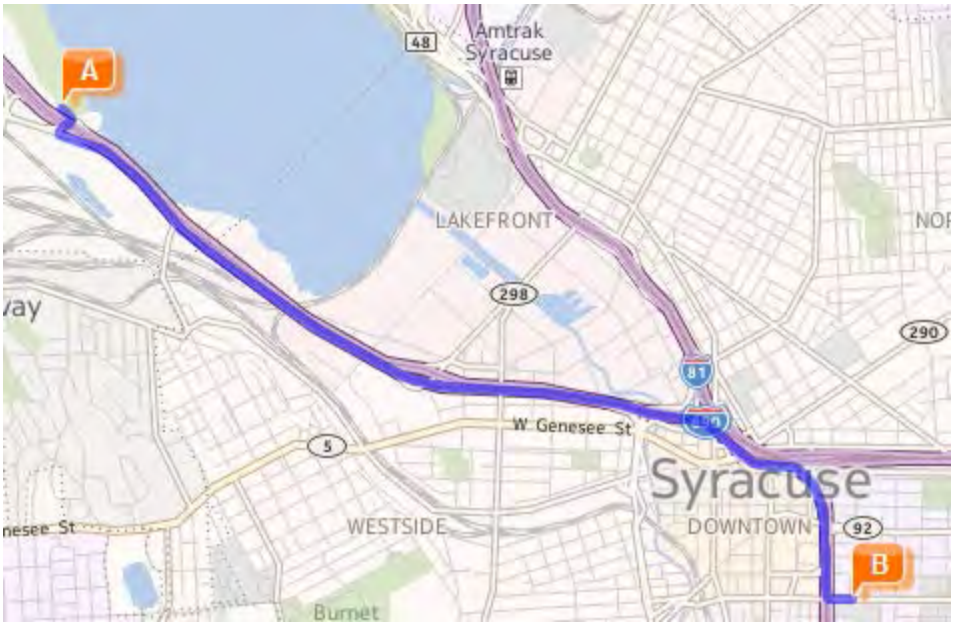
9) Take ramp onto Almond St.

10) Turn Left onto E. Adams St.

Attachments

Figures

FIGURE 1 – HOSPITAL ROUTE MAP



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10) Turn Left onto E. Adams St.

App A to the HASP

JSA Template

Safety to Zero (S_20) – Safety Planning Is Critical To Our Ultimate Goal Of Zero Injuries

Project Name:		**OBG Project Officer:**	
Project Number:		**OBG Project Manager (PM):**	
JSA Title:		**OBG Site Supervisor:**	
JSA Revision Date:		**OBG Foreman or Superintendent:**	
JSA Prepared By:		**OBG Site Safety Coordinator:**	
Client Name:		**Subcontractor Company Name:**	(☐ NA)
Project Location:		**Subcontractor Project Manager:**	
Project Phone No.:		**Subcontractor Superintendent:**	
Project Fax No.:		**Sub Safety Competent Person:**	
Scope of Work covered by this JSA (identify subcontractors covered by this JSA)			
References (existing safety plans, manuals, spec's, etc.)	**[REMINDER – Update PAF to reflect a completed JSA. Place copy in PM/H&S folder.]**		
Key Hazards (focus on highly hazardous tasks)			

Safety Equipment Summary

(additional safety equipment may be required for specific hazards identified in the following sections)

☐ Honeywell-Branded Hard Hat ☐ Safety Glasses ☐ Safety Shoes ☐ Cut-Resistant Gloves

Other (specify):

☐ Honeywell-Branded High Visibility Vests (required at all times when working on site.)
☐ Ear Protection (heavy equipment, loud power tools, etc.)
☐ Fall Protection Harness & Lanyard (falls >6')
☐ Respiratory Protection (☐ N95 dust mask, ☐ half face, ☐ full-face) Specify cartridge in JSA.
☐ Tyvek or other chemical protective coverall: _____
☐ Face Shield and chemical goggles (chemical handling, line breaks, pressure washing)
☐ Nitrile Gloves (☐ Surgical Type and/or ☐ "Dishwashing" Type)
☐

Pre-Work Documentation & Certifications ***(Refer to JSA content for additional certifications and documentation that may be required.)***

Documentation and Certifications	**To Be Submitted or Provided By…….**
☐ Pre-Access Drug & Alcohol Testing	
☐ Subs (>30 days) informed of Random Drug Tests	
☐ Current Honeywell Safety Prequalification	
☐ "Conditions" established for Grade C & D subs	
☐ Project Safety Plan or Job Safety Analysis (JSA)	
☐ Project Safety Orientation (JSA Review)	
☐ Daily Safety Meetings (Daily Pre-Task Planner)	
☐ OSHA 10 hr Construction Safety	
☐ OSHA 30 hr Construction Safety	
☐ OSHA 40 hr Hazwoper w/ current 8 hr Refresher	
☐ OSHA Hazwoper Medical Clearance	
☐ Confined Space Entry Certification (necessary for permit-required entry or non-permit designations)	
☐ Respirator Training, Fit Test, and Resp. Medical	
☐ Excavation Competent Person designation	

	☐ Scaffold Competent Person Training	
	☐ Lifting & Rigging Plan	
	☐ Erosion Control Certification	
	☐ Heavy Equipment "Acceptance Inspections"	
	☐	
Permits & Inspections applicable to scope of work	☐ Confined Space Entry Permit ☐ Hot Work Permit ☐ Energized Electrical Work Permit (from sub) ☐	☐ Daily Excavation Inspection Checklist ☐ Daily Scaffold Inspection Tags ☐ Daily Heavy Equipment Inspection Checklist ☐

Individuals must sign the "Pre-Work Briefing" form on the last page after reviewing this JSA.

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
ELEVATED WORK		
☐ NA	FALLS > **6'** or within **15'** of a ROOF OR MEZZANINE EDGE where the fall is >6'	☐ Existing Guardrails ☐ Hole Covers Marked "HOLE" ☐ Fall Restraint ☐ Temporary Guardrails ☐ Manlifts used for elevated work ☐ _____ ☐ Warning Line 15' from Edge ☐ Fall Arrest w/ harness/lanyard (identify tie-off points) **Fall Protection Comments (describe equipment used):**
☐ NA	LADDERS / STAIRS ☐ Extension Ladders ☐ Step Ladders ☐ Fixed Ladders ☐ Stairs	☐ Employees training in safe ladder use at toolbox safety meeting ☐ Extension ladders are properly footed, secured at top, and setup at proper angle ☐ Stepladders are set on level ground or properly shimmed with spreaders locked. ☐ Stairs have proper rise over run and stairs >4 steps or 4' have guardrails. **LADDERS/STAIRS COMMENTS:**
☐ NA	SCAFFOLD Type: _____	☐ Scaffolds erected and inspected under supervision of competent person: **Competent Person:** _____ **Company:** _____ ☐ Toprail and midrail provided on scaffolds >10' (otherwise specify other fall protection) ☐ Work platforms are at least 18" wide & made of scaffold lumber or cleated aluminum planks. ☐ Scaffolds placed on mud sills, pavement, concrete or other solid surface **SCAFFOLD COMMENTS:**
☐ NA	MANLIFT used to reach work ☐ Scissor Lift ☐ Extensible Boom ☐ Articulated Boom ☐ vertical Lift ("Genie")	☐ Operators are sufficiently trained, experienced and qualified. ☐ Equipment is inspected after mobilization and is in good condition. ☐ Harness & Lanyard worn whenever operating the lift (scissor lifts are not excepted) ☐ Overhead and surface obstructions are reviewed with operators prior to use. **MANLIFT COMMENTS:**
EXCAVATIONS / TRENCHING		
☐ NA	☐ Max Depth ≥ 20' ☐ Max Depth ≥ 5' ☐ Max Depth <5' with potential cave-in hazard ☐ Potential permit-required confined space at depth ≥ 4' ☐ Underground utilities ☐ Structures/foundations	☐ Sloping & shoring for excavations ≥20' are approved by a professional engineer ☐ Sloping & shoring for excavations ≥5' when persons are exposed to cave-in. (specify below) ☐ Sloping & shoring for shallow (<5') excavations with cave-in hazard (specify below) ☐ Excavations ≥ 4' are classified as a non-permit confined space ☐ Excavations ≥ 4' are classified as Alternate Entry or Permit-Required (see confined space) ☐ Underground utilities have been identified and marked. ☐ Local "dig safe" organization has been notified for utility locations in public areas or rights of way. Number: _____ Date: _____

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	☐ Falls into excavations ☐ Other:	☐ Hand digging within 3' of utility locations. ☐ Excavations are protected by perimeter fencing (not barricade tape): (☐ rigid fence - chain link or wood ☐ safety fence 6' from edge.) **EXCAVATION COMMENTS:**
CONFINED SPACES		
☐ NA	☐ No Serious Hazards ☐ Toxic Atmosphere ☐ carbon monoxide ☐ hydrogen sulfide ☐ ☐ Flammable Atmosphere ☐ Low Oxygen ☐ Combustible dust ☐ Other Serious Hazard: **Notes** Ladder use = limited access Alternate entry = must have ventilation and continuous air monitoring	**Specify confined space entry approach(es) to be used: [Multiple may apply based on spaces]** ☐ Confined space is altered so that it is no longer a confined space. (describe below) ☐ Confined space is downgraded to a non-permit confined space. (identify which spaces below) ☐ Alternate Entry is used. (Identify which spaces qualify for confined space entry below) ☐ Full permit-required confined space entry is used due to presence of serious hazards. **Verify Rescue Team Support [MANDATORY for permit-required entry]:** ☐ Portfolio Emergency Response Team (ERT) has been notified and is available (24hr notice) **Verify Other Applicable Requirements:** ☐ All entrants and attendants for Alternate Entry and Permit-Required Entry have confined space entry training. ☐ Mechanical ventilation and continuous air monitoring [MANDATORY for alternate entry] ☐ Refer to "Manual Lifting" section of this JSA for manhole cover removal safety. **CONFINED SPACE COMMENTS:**
LOCKOUT-TAGOUT / ELECTRICAL		
☐ NA	Maintenance, construction, or modification of processes and equipment with POTENTIAL UNEXPECTED RELEASE OF ENERGY. Identify energy types: ☐ Electrical ☐ Pressurized liquid piping ☐ Compressed gas / steam ☐ Moving Parts ☐ Hydraulic systems ☐ Chemical release ☐ Describe Equipment requiring lockout:_____	**Designate Persons Responsible for Overseeing O'Brien & Gere's LOTO activities:** ☐ Qualified LOTO Coordinator (MANDATORY):_____ ☐ Test Supervisor (LOTO Equipment-Under-Test): _____ ☐ Qualified Electrical Worker (Electrical-Arc Flash): _____ **Identify or Develop Written Equipment-Specific LOTO Procedure (☒ at least one):** ☐ Willis Ave GWTP operators (OMI) to lockout equipment using OMI procedures. ☐ SCA WTP operators (OBG) will de-energize equipment following LOTO procedures integrated into SCA WTP operations procedures. (Reference procedure in "Comments.") ☐ OBG to develop and implement lockout procedures for equipment under OBG control using the "Equipment-Specific LOTO Form". (Attach completed LOTO form to JSA.) ☐ LOTO procedures are specified below in "Comments" and are equivalent to LOTO form. **Identify How Locks Will Be Applied (☒ at least one):** ☐ Group lock box will be used with all persons working on equipment attaching their own lock(s) and tag(s). Location of lock box: _____ ☐ Equipment or process components will be individually locked with all persons working on equipment attaching their locks and tags directly on equipment. **Specify Other Lock Requirements (☒ at least one):** ☐ OBG to apply a "***Company Lock***" to prevent premature startup by owners or subcontractors. Company Locks are NOT intended to replace personal locks for anyone. Specify who is responsible for Company Locks: _____ ☐ Workers will not be allowed to work under a supervisor's lock (MANDATORY) **Specify Tags (☒ at least one):** ☐ "Danger" tags with diagonal red & white stripes (required unless client's specify different) ☐ Client-required tags specific to the site. Describe below in "Comments." ☐ "Company Locks" identified with an "Out of Service" tag and **not** a LOTO tag. [REQUIRED] **Other LOTO or Electrical Safety Requirements:** ☐ All project team personnel are informed that they may not **remove electrical panels** or otherwise expose energized electrical equipment (unless they are **NFPA 70E** trained and have implemented the required precautions). [MANDATORY]

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
		LOCKOUT COMMENTS:
☐ NA	OVERHEAD POWER LINES _____ KV _____ ft above ground _____ KV _____ ft above ground	☐ Request to de-energize lines will be submitted for work within 20' of power lines. Request sent to: _____ Date: _____ ☐ No one will be permitted to work <10' to power lines without lines being de-energized. ☐ Project persons are informed of 20' safety zone around energized power lines. ☐ Project persons are informed of additional restrictions required when working ≤20' but >10': ☐ Dedicated spotter for all elevated work or operation of equipment that can contact lines ☐ Barricades setup at 20' from base of power lines to establish a "restricted work area." ☐ "Power Line Safety Permit' required to work within 20' of power lines. ☐ Power lines are shielded and/or marked with high visibility material **POWER LINE COMMENTS:**
☐ NA	ARC FLASH Location: _____ Voltage: _____	☐ Electrical equipment evaluated for arc flash potential by a NFPA 70E qualified person. ☐ Persons with potential arc flash exposure are properly trained and equipped with electrically rated gloves, face shield, coveralls, etc. ☐ Non-essential personnel will be kept clear of all areas affected by arc flash ☐ Client/Owner notifications will be made in advance. (Specify below in "Comments.") **ARC FLASH COMMENTS:**
HEAVY EQUIPMENT (other than cranes)		
☐ NA	Struck By, Run-Over, Caught In Between (pinch points), Roll Over, Fluid Leaks ☐ Bulldozer ☐ Excavator ☐ Front Loader ☐ mini Skid Steer (bobcat) ☐ mini Excavator ☐ Dump Truck ☐ Drill/Boring Rig ☐ Lull / Material Handler ☐ Forklift ☐ ☐ ☐ Manlift - specify type(s):	☐ Qualified persons operate all heavy equipment. Qualifications were determined by: ☐ License or certificate (required for forklift and lull operators). ☐ "Good-Guy Letter" on company letterhead or email with company email address. ☐ Union Operator Local:_____ ☐ **"Acceptance Inspection"** for heavy equipment upon mobilization documented on an inspection checklist by: _____(Mgmt representative). ☐ **Daily Heavy Equipment Inspections** by Operators documented on an inspection checklist ☐ **Preventative Maintenance** performed on all heavy equipment on site >30 days (required ☐ Operators will be reminded of seatbelt use by: _____ ☐ High visibility vests are required for: _____ ☐ Operators will review manufacturer's safety guidelines for all equipment operated on slopes. Max. safe slope for each vehicle: _____ ☐ Counterweight swing radius will be barricaded. ☐ Operators and helpers will maintain a safe distance to moving parts. All those working near moving or rotating parts will secure loose hair, clothing, and equipment. ☐ Fall protection will be worn by all those in manlifts, scissor lifts are NOT excepted. ☐ Drill rigs will only be moved with masts lowered. Masts will be erected with outriggers fully extended when equipped with outriggers. ☐ Rigging directly to the forks of a lull, forklift, or front loader equipped forks is prohibited. Crane hook attachments will be used (specify):_____ ☐ Spill equipment is available for fuel and hydraulic fluid leaks. Location: _____ **HEAVY EQUIPMENT COMMENTS:**
HOT WORK / WELDING / CUTTING		
☐ NA	Fire, explosion, burns, UV flash, fume, gases ☐ Welding - Specify:	☐ O'Brien & Gere will issue hot work permit. Name:_____ ☐ The site owner will issue hot work permits. Name: _____ ☐ Hot work permits are visibly posted. Location(s):_____

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	base metal:_____ electrode:_____ Shield gas:_____ ☐ Oxy/Acetylene Cutting base metal:_____ ☐ Soldering/Brazing ☐ Grinding ☐	☐ Fire watches are identified by name and remain _____ minutes after hot work (min of 30). ☐ A 20 lb ABC fire extinguisher will be placed within 25' of hot work or as directed on permit. ☐ Painted surfaces have been evaluated for lead content by: ☐NA _____ ☐ Insulation has been evaluated for asbestos content by: ☐NA _____ ☐ Pedestrians and adjacent workers will be protected from UV Flash by _____ ☐ Sparks and slag will be prevented from falling through floor and wall openings. ☐ Air monitoring will be conducted in hazardous areas. Haz Material:_____ Areas to be Tested:_____ ☐ Oxygen and acetylene cylinders will be separated by 20' when not used within 24 hours. ☐ All compressed gas cylinders in storage will be secured upright and capped. ☐ Face shields will be used for all grinding, cutting, and welding work. **HOT WORK COMMENTS: (Identify areas or tasks requiring hot work permits.)**
POWER TOOLS, HAND TOOLS, and EXTENSION CORDS		
☐ NA	eye injury, hand/arm cuts, electrical shock, strains, foot injuries, dust ☐ Grinders ☐ Jackhammer/Chip hammer ☐ Needle Gun ☐ Explosive Actuated (Hilti) ☐ Chop saw ☐ Chain saw ☐ concrete/asphalt saw ☐ Sharp hand-tools (knives, cutters, scissors) ☐ **Env Investigation Tools:** ☐ Electrofishing (Fish Shocking) Equipment ☐ Hand Augers - Iwan or Spiral type ☐ Hand Sampler - Split Spoon or Thin Wall ☐ Hand Probe (GeoProbe) with ____ lb weight ☐ Manual Cathead Hoist with _____ lb weight ☐ Motorized Cathead Hoist with ____ lb weight ☐ Light-weight Motorized Auger drills (not truck-mounted) ☐ Manhole Lifting Devices **(specify in Comments)** ☐ Other (specify):	**General Tools & Equipment:** ☐ All tools and electrical cords in-use will be **inspected daily** by: ☐ Users ☐ Site Supervisor/Safety Coordinator ☐ Other: _____ ☐ Only the right tools will be used in a manner for which they were designed. [Required] ☐ **GFCIs** will be used on all extension cords and 120v power tools. ☐ All **extension cords** are in good condition with no cuts through outer insulation, ground plugs are present, and no "vinyl tape" repairs. ☐ **Face shield and chemical goggles** used required for chemical splash hazards ☐ **Kevlar chaps and jacket** required for all chainsaw work ☐ **Face shield and safety glasses** required for all grinders, jackhammers, chain saws, chemical splash hazards ☐ **Kevlar chaps and jacket** are required for all chainsaw work ☐ **Kevlar chaps** are required for chop saws, weed trimmers with blades, and similar tools ☐ **Cut-resistant gloves** are worn whenever cutting tools are used. ☐ **Safety cutters or scissors** are required for all cutting activities (no fixed-blade knives). ☐ **Hearing protection** required for which tools or areas: _____ _____ **Environmental Investigation Tools & Equipment:** ☐ All **hand augers and sampling probes** will be inspected and verified to be in good conditions with ALL parts required by the manufacturer. Inspections will be completed by: ☐ Users ☐ Site Supervisor/Safety Coordinator ☐ Other: _____ ☐ Persons using sampling probes equipped with **manual slide hammers** are physically capable of handling the weight without difficulty and keep hands clear of pinch-points. ☐ Persons using **manual and motorized cathead hoists** have been trained on how to operate them in accordance with manufacturer guidelines. **(Identify qualified persons by name in the "Comments" Section below.)** ☐ Electrofishing equipment will be **inspected** and verified to be in good conditions with ALL parts required by the manufacturer and exterior cords have no cuts through outer insulation and no "vinyl tape" repairs. Inspections will be completed by: ☐ Users ☐ Site Supervisor/Safety Coordinator ☐ Other: _____ ☐ Persons using **Electrofishing Equipment** have been **trained** on how to operate it in accordance with manufacturer guidelines. **(Identify qualified persons by name in the "Comments" Section below.)** ☐ Electrofishing will be discontinued if the **public** approaches within **100'** ☐ Electrofishing boats will be marked with "**Danger Electricity**" signs (or equivalent) that can be read at a distance of **150'**. ☐ All electrofishing team members wear **electrically-rated rubber gloves** that are inspected daily by users and replaced every 6 months. Use leather or other cut-resistant gloves to protect the rubber gloves. (Similar to NFPA 70E requirements.) ☐ All electrofishing team members wear **chest or hip waders** to insulate the wearer from electrical shock.

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
		☐ **Net handles** for nets used during electrofishing will be nonconductive and long enough to keep hands out of the water. ☐ The positive electrode (anode) on portable electroshockers is equipped with a **manual switch** that stops the current when released and is **not "bypassed'** with a hold-down mechanism (i.e., tape) ☐ At least **two (2) persons** on each Electrofishing boat or location are trained in **CPR**. ☐ All persons involved in electrofishing know the location of the **emergency shutoff switch**. ☐ **Backpack electrofishing equipment** is equipped with a **tilt switch** that stops the current if the operator falls. **TOOL & CORD COMMENTS:**
WORKING OVER/NEAR WATER OR ON ICE		
☐ NA	**drowning, hypothermia (winter months), spills to surface waterways, fall through ice** ☐ Barge-mounted drilling/boring rigs ☐ Sampling from a boat ☐ Boat required for site access ☐ Work on an ice covered body of water ☐ Other: **NOTE – See "Walking Surfaces" section of JSA for slipping hazards on icy surfaces.**	☐ 100% Fall Protection while working over water or when otherwise exposed to a drowning hazard. **(Describe how fall protection will be implemented, Tie-off points, and the equipment that will be used.** ☐ in "Comments" below ☐ in the "Fall Protection" section) ☐ A "**safety observer**" will remain on shore with the ability to contact emergency response personnel and communicate with those on boats/barges. ☐ USG-approved **flotation vests** will be used. ☐ **Ring-buoy** with 90' of rope and placed within 100' of site personnel. ☐ **Rescue skiff** will be staged such that one person can immediately launch the skiff. ☐ At least **one person will be available to launch** and operate the rescue skiff. NOTE - "Safety Observer" may launch rescue skiff after making emergency response notification(s). ☐ Ice Safety - **Core samples** will be taken every 100' on lakes or 50' on rivers to evaluate the thickness and quality of ice (i.e., *clear/blue ice* = best quality, *white/opaque ice* = moderate quality/use caution, *gray/slushy ice* = poor quality/unsafe). ☐ Ice Safety - Conservative **load estimates** are established for static and/or moving loads as appropriate for the type of work being conducted. Load estimates are explained: ☐ in "Comments" below ☐ in an attached document ☐ Spill Control - **Floating booms** will be used around barges, shore-based heavy equipment, or other locations where hydraulic fluid may leak from equipment into surface water. ☐ Spill Control - **Silt curtains** will be suspended below floating booms. ☐ Boats and Barges will not be operated above their **weight capacity**. ☐ Boats and barges operated (or potentially operated) in **bad weather** will be operated below their weight capacity by _____% (suggest at least 25%). ☐ Boat and barge emergency calls - **Weather resistant radios** that broadcast on Coast Guard frequencies (Channel 16 VHF/FM or 2182 MHZ) will be available for emergency calls. ☐ Boat or barge-based operations will be discontinued when NOAA issues a **small craft advisory** or when sustained **wind speeds of 20 mph** are observed and create dangerous wave or boat/barge handling conditions. ☐ **NOAA Weather Radio Receiver** will be used to monitor weather conditions that may affect boat or barge-based activities. **WORKING OVER WATER COMMENTS:**
MANUAL MATERIAL HANDLING & STORAGE / HOUSEKEEPING / WALKING SURFACES (includes manhole covers, heavy lifting, slippery surfaces, and steep slopes)		
☐ NA	back or shoulder strain, struck by falling objects, trips and falls, incompatible materials (fire or explosion) ☐ hvy manual lifting (>50 lbs)	☐ Mechanical lifting equipment used to reduce manual material handling: (☐ Forklift/Lull ☐ Heavy Equipment ☐ Chain-fall ☐_____) ☐ Manual lifting more than 50 lbs by a single person will be avoided. ☐ Good manual lifting techniques will be reviewed with the following trades/persons prior to site work: _____ ☐ Incompatible chemicals will be separated by 20' or a concrete block wall.

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	☐ chemical storage ☐ compressed gas storage ☐ Tall storage greater than 2 pallets stacked. ☐ Material & equipment laydown areas ☐ Trash & debris removal ☐ Temporary cords & hoses placed across walkways ☐ Manhole Cover Removal ☐ Tripping Hazard (cords, hoses, uneven surfaces) ☐ Slipping Hazard (icy, muddy, oily, etc.) ☐ Steep sloped surfaces ☐	☐ Secondary containment will be provided for the following chemicals: _____ _____ ☐ Safety equipment will be located near chemical storage. ☐ Spill Kit ☐ Emergency Shower ☐ Eyewash ☐ Drench Hose ☐ Splash PPE ☐ Flammable gases and oxygen will be separated by 20'. ☐ All compressed gas cylinders will be transported vertically and secured upright. ☐ Equipment and materials will be stacked in laydown areas with aisles as necessary for safe access. All un-used equipment & materials will be returned to laydown areas daily. Designated laydown areas:_____ ☐ Materials will not be stacked greater than 2 pallets high without being secured. ☐ Trash and debris will be removed daily and placed in designated containers. Specify debris segregation and location of disposal containers below. ☐ Hoses & Cords will be run out of walkways (e.g., within 6" of walls or 7.5' overhead) whenever possible or will be clearly marked by cones or barricades. ☐ **Manhole covers** will ONLY be removed with tools specifically designed to remove them including J-hooks that are at least **30"** long. No pry bars, shovels, or screw drivers. ☐ **"Stuck" manhole** removal equipment and procedures are described in "comments." ☐ **"Paved-over"** manhole removal equipment and procedures are described in "comments." ☐ **Slippery surface** – work area inspected for icy surfaces which will be salted/sanded. ☐ **Slippery surface** –YakTrax® or similar slip-on traction devices will be used for icy areas. **MATERIAL HANDLING & HOUSEKEEPING COMMENTS:**
TRAFFIC WORK ZONES, SIDEWALK OBSTRUCTION, and ATVs		
☐ NA	☐ Vehicle accidents ☐ Utility Vehicle Use ☐ Pedestrians struck by vehicles or heavy equipment ☐ Pedestrians falls ☐ Pedestrian struck-by falling objects	☐ DOT signal devices will be used to re-route vehicles around excavations or busy site entrances/exits that affect road traffic. ☐ Flaggers will be used and have DOT Flagger Training ☐ Procedures for work vehicles to enter/exit traffic work zones are **required when** work zones are setup in high speed roadways or when potential blind-spots exist. Explain in "Comments." ☐ Pedestrian traffic will be safely routed around or over excavations. ☐ Pedestrian traffic will be safely routed around or under overhead work. ☐ Recreational Style ATVs are prohibited. [MANDATORY] ☐ ATUVs allowed with rollover protection, seat belts, horn, and lights. ☐ Golf Carts allowed if speed ≤20 mph and operated only on site roads (no off-road use). **TRAFFIC & SIDEWALK COMMENTS:**
CRANES & RIGGING		
☐ NA	tip-over, struck-by dropped loads, Crane Make:_____ Crane Model:_____	**Operator is qualified with NY State License: (Check License Type Below)** ☐ Class A Unrestricted ☐ Class B Hydraulic >28T ☐ Class C Boom Truck ≤28T ☐ Other (Class D, E, or F): _____ ☐ Crane signal person is qualified and has documented OSHA signal person training ☐ Rigging personnel are designated as qualified by their employer. ☐ Lifting & Rigging Plan will be prepared by: Company Name:_____ ☐ No Lifting & Rigging Plan is required - crane work is not a critical lift. ☐ Annual crane maintenance certification within last 12 months. Date:_____ ☐ Periodic crane inspection within 30 days. Date:_____ ☐ Site owner notified by: Name:_____ Date: _____ **CRANES & RIGGING COMMENTS:**
STEEL ERECTION		
☐ NA	structural collapse (falls, hot work, cranes, and	☐ Written "notice to proceed" will be sent to the steel erection sub. Date:_____ ☐ Written notice of any bolting or rod modifications made by after drawings were "issued

	HAZARD	HAZARD CONTROLS (check all that apply and comment as required)
	rigging are covered elsewhere in this JSA)	for bid" to the steel erection sub. Date(s):_____ **STEEL ERECTION COMMENTS:**
CONCRETE / MASONRY		
☐ NA	struck by injury, trips & falls, cuts from rebar, skin burns from contact with concrete (concrete saw, jackhammers, fall protection, heavy equipment are covered elsewhere in this JSA)	☐ All rebar ends <6' must be protected by rebar caps ☐ Only authorized persons will be allowed to walk on rebar pads to minimize the number of persons at risk of tripping or falling. ☐ Concrete truck operator will be instructed to take direction only from the concrete worker who is handling the discharge chute/hose when related to moving the discharge chute/hose. ☐ Finishers, masonry workers, & others who must kneel extensively will be provided kneepads. ☐ Temporary steps will be provided for all elevation changes ≥18". **CONCRETE MASONRY COMMENTS:**
BIOLOGICAL HAZARDS (Site Surveys & Inspections, Clearing & Grubbing, Caretaking Services)		
☐ NA	Infection, Lyme Disease, West Nile Virus, Eastern Equine Encephalitis (EEE), Severe Rash, Allergic Reaction, Venom effects ☐ Ticks ☐ Mosquitoes (EEE, WNV, etc) ☐ Venomous Snakes ☐ Venomous Spiders ☐ Poison Ivy, Oak, or Sumac ☐ Bees & Wasps ☐ Fire Ants ☐ Other (identify below):	☐ Use **DEET** (25%-98%) repellent on skin for protection against mosquitoes, ticks, and similar insects. Use higher concentrations for heavily infested areas. ☐ Use **Permethrin** repellent on clothing in areas heavily infested with ticks, chiggers, etc. ☐ Persons working in tick-infested overgrown areas instructed to wear **spun-poly or Tyvek coveralls** [required for all persons in ESR and working in the NE region plus NJ, & PA.] ☐ Persons returning from work in tick-infested areas instructed to perform **periodic field checks** for ticks and a thorough **tick inspection** as soon as they get home. ☐ Employees (only) instructed to **call WorkCare** for embedded ticks from fieldwork. ☐ All site personnel will be instructed on how to **identify poison ivy, sumac, and oak**. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ Poison ivy **barrier creams** (e.g., Ivy Block) will be used on exposed skin prior to the workday. ☐ Poison ivy **neutralizing wipes or rubbing alcohol** will be used on hands and exposed skin following work activities or incidents where contact with poison ivy/oak/sumac is suspected. ☐ **Protective coveralls** (such as Tyvek™) will be used to prevent contact with ticks or poison ivy. ☐ All site personnel will be instructed on how to **identify venomous snakes** indigenous to the area. List venomous snakes of concern in the "Comments" section below. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ All field personnel with a potential to **encounter venomous snakes** will wear: ☐ Snake Chaps AND/OR ☐ High Leather Safety Boots (NOT ankle-high boots/shoes) ☐ All site personnel will be instructed on how to identify **venomous spiders** indigenous to the area. List venomous spiders of concern in the "Comments" section below. (O'Brien & Gere Field Identification Guide or equiv. has been posted? ☐ YES ☐ NO) ☐ Site personnel with known **allergies** to bee/wasp stings, fire ant bites, or other insect bites carry an "EpiPen" or equivalent medication prescribed for treating allergic reaction. **BIOLOGICAL HAZARDS COMMENTS:**
ENVIRONMENTAL HAZARDS / HAZARDOUS WASTE SITE WORK		
☐ NA	Exposure to hazardous vapors or dust, contact with contaminated materials, fire, explosion.	☐ Site workers with a potential for contact with contaminated materials and work in Level C PPE will have OSHA 40-hour training, current 8-hour refresher, and medical exam. ☐ Site workers with minimal contact with contaminated materials and no work in Level C PPE will have OSHA 40-hour or 24-hour training, current 8-hour refresher, and medical

HAZARD	HAZARD CONTROLS (check all that apply and comment as required)

Contaminants of Concern and hazardous chemicals include:

- ☐ volatile organic compounds (describe:_____ _____)
- ☐ semivolatile organic cmpds (describe:_____ _____)
- ☐ metal dusts (describe:_____ _____)
- ☐ PCBs
- ☐ Caustic (NaOH)
- ☐ Acid (H2SO4, HCL)
- ☐
- ☐

(many other hazardous waste site hazards are covered elsewhere in this JSA)

exam.

- ☐ Foremen or Supervisors overseeing field crews will have 8-hour OSHA Supervisor training.
- ☐ No intrusive work activities or areas are anticipated with current scope of work.
- ☐ Intrusive work activities include: _____ _____
- ☐ The perimeter of intrusive work areas are identified by:_____
- ☐ Decontamination of personnel or equipment is not anticipated with the current scope of work.
- ☐ Decontamination of personnel and small tools will be conducted as follows: _____ _____
- ☐ Decontamination of heavy equipment will be conducted as follows: _____ _____
- ☐ Heavy equipment leaving the site will be inspected by: _____
- ☐ **Work area monitoring** is not anticipated with the current scope of work.
- ☐ **Work area air monitoring** will be conducted per attached air monitoring plan.
- ☐ **Work Area Air Monitoring** as follows for: ☐ Dust, ☐VOCs, ☐Other:_____
  Description: _____

Action Levels[1]	Description & Response Actions
<X	1. Level D PPE (General PPE as required in this JSA)
X	1. Half or Full Face Level C PPE - Tyvek, boot covers, nitrile gloves, half or full face w/ respirator with _____ cartridges changed (☐ daily, ☐ _____) OR 2. Implement additional engineering or administrative controls to reduce contaminant concentrations below action level(s).
10X	1. Full Face Level C PPE w/ Quantitative Fit Testing (no half-face) 2. Or Reduce contaminant(s) below Level B action level(s).
50X	1. Level B PPE – PPE same as above with a supplied air respirator 2. Or STOP work until contaminant levels can be reduced. 3. Notify the Project Manager and Client Representative.
????	1. STOP work
1. Sustained 1 minute	

- ☐ **Community Air Monitoring** is not anticipated with the current scope of work.
- ☐ **Community Air Monitoring** is required per the attached air monitoring plan s.
- ☐ **Community Area Air Monitoring** as follows for: ☐ Dust, ☐ VOCs, ☐ Other:_____
  Describe: _____

Action Levels[1]	Description & Response Actions
<0.1 mg/m³	1. Normal Operation
0.1 mg/m³	1. Increase demolition dust controls until dust levels at the site perimeter (fence line) are <0.1 mg/m³
0.15 mg/m³	1. STOP work and evaluate alternate work methods or dust controls 2. Implement revised work methods and dust controls to maintain dust levels at the site perimeter <0.1 mg/m³ 3. Resume work.
1. 15 minutes time-weighted average	

ENVIRONMENTAL & CHEMICAL HAZARD COMMENTS:

HAZARD		HAZARD CONTROLS (check all that apply and comment as required)
OTHER HAZARDS & CONTROLS not addressed in other sections of this JSA		
☐ NA	☐ ☐ ☐	

EMERGENCY RESPONSE

911 Service is Available ☒ Yes ☐ No **Cell Phone Required** ☒ Yes ☐ No

LEVEL 1 EMERGENCY: Off Site Emergency Responders	**911 then 315-715-1800**
LEVEL 2 EMERGENCY: Portfolio Emergency Response Team (ERT)	**315-715-1800**
LEVEL 3 EMERGENCY: Project Response Personnel	**Number:**

WORK AREA DESIGNATION – STAGING AREA – MUSTER POINT

Emergency Responder Staging Area most appropriate for project location: • Identify most applicable based on project location(s) and Portfolio Emergency Response Plan. • The "911" system has been informed of these designations. • Obtain appropriate emergency response map from Appendix A of the Portfolio Emergency Response Plan	**Work Area #1** – Lake Front:	☐ Honeywell Lake Office ☐ Honeywell Spano Gate
	Work Area #2 – Willis Ave:	☐ Honeywell Willis Ave Plant
	Work Area #3 – Wastebeds 1-8:	☐ Orange Lot Access Gate
	Work Area #4 – Matthews Ave/LCP:	☐ Honeywell Bridge Street Plant ☐ Matthews Ave (west of Belle Isle Road)
	Work Area #5 – SCA:	☐ Honeywell Gere Lock Gate
	Work Area #6 – Nine Mile Creek & Geddes Brook	☐ Pope's Soccer Field Parking Lot ☐ State Fair Gate #7
	Work Area #7 – Upper Harbor Brook:	☐ Honeywell Spano Gate ☐ Honeywell Buttler Fence Gate ☐ Honeywell County Gate
	☐ **Other (specify)**:	
Muster Point (for local/project evacuation):		

EMERGENCY CONTACT INFORMATION

Emergency Medical– Hospital Name: Hospital Address:	**University Hospital** 750 East Adams Street, Syracuse, NY	**Number:**	315 464-5611 (Emergency Dept.)
Non-Emergency Med.– Clinic Name: Occupational Clinic Address:	**Industrial Medical Associates** 61 Canal Street, Syracuse, NY	**Number:**	315-478-8513
Minor Injury Support for OBG Employees:	**WorkCare Incident Intervention**	**Number:**	888-449-7787
Police Department Name	☐Syracuse – 511 S. State Street	**Number:**	315-442-5111
(non-emergency numbers)	☐Camillus - 4600 West Genesee St		315-487-0102
(Select based on project location)	☐Geddes - 1000 Woods Road		315-468-3283
	☐Solvay -507 Charles Avenue (in Geddes)		315-468-2521
	☐Lakeland (see Geddes)		315-468-3283
	☐Other (specify):		
Fire Department Name	☐Syracuse Fire Prev. –201 E Washington St	**Number:**	315-448-4777
(non-emergency numbers)	☐Camillus - 5801 Newport Road		315-672-9207
(Select based on project location)	☐Solvay -1925 Milton Ave (in Geddes)		315-468-1710
	☐Other (specify):		
Off Site Local Spill Response:	Sun Environmental Inc.	**Number:**	315-218-6995
Trucking Related Emergency Response:	Big Red Trucking	**Number:**	315-413-0911
NYS DEC	**(Region 7, Syracuse)**	**Number:**	315-426-7200
OSHA	3300 Vickery Rd. North Syracuse NY	**Number:**	315-451-0808
National Response Center (NRC) for Oil/Chemical Spills:	NYS Spill Response	**Office Number:**	845-256-3121 1-800-457-7362 1-800-424-8802
Honeywell Project Contact Name & Title:		**Office Number:** **Cell Number:**	
O'Brien & Gere Project Officer:		**Office Number:** **Cell Number:**	
O'Brien & Gere Project Manager:		**Office Number:**	

EMERGENCY CONTACT INFORMATION			
		Cell Number:	
O'Brien & Gere Construction Manager:		**Office Number:**	
		Cell Number:	
O'Brien & Gere Field Supervisor Name:		**Cell Number:**	
O'Brien&Gere Site Safety & Health Coordinator:		**Cell Number:**	
Subcontractor Field Supervisor:		**Cell Number:**	
Subcontractor Safety Competent Person:		**Cell Number:**	
Portfolio Health and Safety Specialist:	Steven Thompson, CHST	**Cell Number:**	315-560-5018
HSP2 Health and Safety Director:	Jeffrey Parsons, CIH	**Cell Number:**	315-391-0638
Portfolio ERT Leader:	William (Bill) Moon – Parsons H&S	**Cell Number:**	315-323-8175
Honeywell Ops Manager (Work Area 1,5)	Bob Rule	**Number:**	865-548-6719
Honeywell Ops Manager (Work Area 1,5)	Dan Grainer	**Number:**	865-621-9315
Honeywell Ops Manager (Work Area 2,3)	Steve Miller	**Number:**	315-935-5400
Honeywell Ops Manager (Work Area 4,5,6)	Michael Savage	**Number:**	315-436-0765
Off-Site Responder Liaison	Peter Alberti	**Number:**	315-427-7801
Public Concerns or Questions	Craig Milburn (Honeywell)	**Number:**	315-552-9784
	Stephanie Harrington (NYSDEC)	**Number:**	315-426-7403
Media Inquires	Victoria Streitfeld (Honeywell)	**Number:**	973-455-5281

EMERGENCY PROTOCOLS
(based on Honeywell Portfolio Emergency Response Plan)

EMERGENCY RESPONSE COMMENTS:

Portfolio Standard Response Levels From Lowest Severity (3) to Highest (1):

Response Level 3	Response Level 2	Response Level 1
• Activate project response • Consult ERP Response Action Plan • Notify Construction Manager • Notify Honeywell Ops Manager	• Activate ERT (315-715-1800) • Notify Project Manager • Notify Honeywell Ops Manager • Consult ERP Response Action Table (common response actions summarized below)	• Activate Appropriate Off-Site Emergency Responders • Notify ERT • Notify Project Manager • Notify Honeywell Ops Manager • Notify Off-Site Responder Liaison • Send Spotters to Staging Area • Consult ERP Response Action Plan (common response actions summarized below)

Incident Command System (ICS)/Emergency Protocols

- Witness to incident notifies SHSO/Supervisor, who upon arrival becomes the initial Incident Commander (IC).
- Initial IC determines the level of emergency
- If Level 1 response is necessary, initial IC identifies a minimum of 2 (if possible) spotters to go to the Staging Area.
- Spotters meet the off-site responders at pre arranged Staging Areas as identified by the ERP and escort responders to the location of the emergency.
- 1st responding ERT member typically becomes IC once on site.
- 1st responding agency's IC qualified public safety responder typically becomes IC once on site.

Notifications

Upon occurrence of any injury, fire, explosion, major spill (beyond incidental), property damage >$1,000, or significant near-miss that could have resulted in a fatality , or disabling injury, IMMEDIATELY NOTIFY the O'Brien & Gere Project Manager, O'Brien & Gere Portfolio Health and Safety Specialist, and the Honeywell Representative.

Written Report

Complete an *Incident Report*, or Near Miss Form within **24 hours** and submit to the O'Brien & Gere Portfolio Health and Safety

Specialist for review. Report may be submitted as a "draft" or "preliminary" and updated as additional information is identified.

Injury Response

Level 3 - First aid injuries will be handled on site with in crew FA-trained personnel. First aid supplies are located: _____.

- Minor (not life threatening) injuries that require medical attention will be treated at the "Non-Emergency Med Treatment" clinic identified above **unless an alternate clinic is recommended by WorkCare**. If no clinic is available or identified, then default to the "Emergency Medical Treatment" facility.
- **All O'Brien & Gere employees will call WorkCare for minor injuries** that include any strains, cuts for which an employee is not confident that a band aid is sufficient, tick/insect bites for which the employee is concerned about infection or Lyme, any any other work-related injury for which the employee would like to talk to a WorkCare medical professional regarding proper treatment or follow-up.
- **WorkCare posters must be posted at each job site with a field office or trailer.**

Level 2 - First aid injuries will be handled on site with advanced FA/CPR trained ERT personnel. First aid and CPR supplies are located with ERT Staff.
Minor (not life threatening) injuries that require medical attention will be treated at the "Non-Emergency Med Treatment" clinic identified above. If no clinic is available or identified, then default to the "Emergency Medical Treatment" facility.

Level 1 - Life Threatening injuries are an emergency and require implementing emergency response (911).

Fire or Explosion

Level 3- Incipient stage (trash can size) fires may be handled by site personnel using fire extinguishers or hoses.

Level 1- Larger fires will require that affected personnel are evacuation to the identified muster point and implementing emergency response (911)

Spill Response

Level 3- Minor or incident spills will be cleaned up by site personnel using supplies that are located: _____.

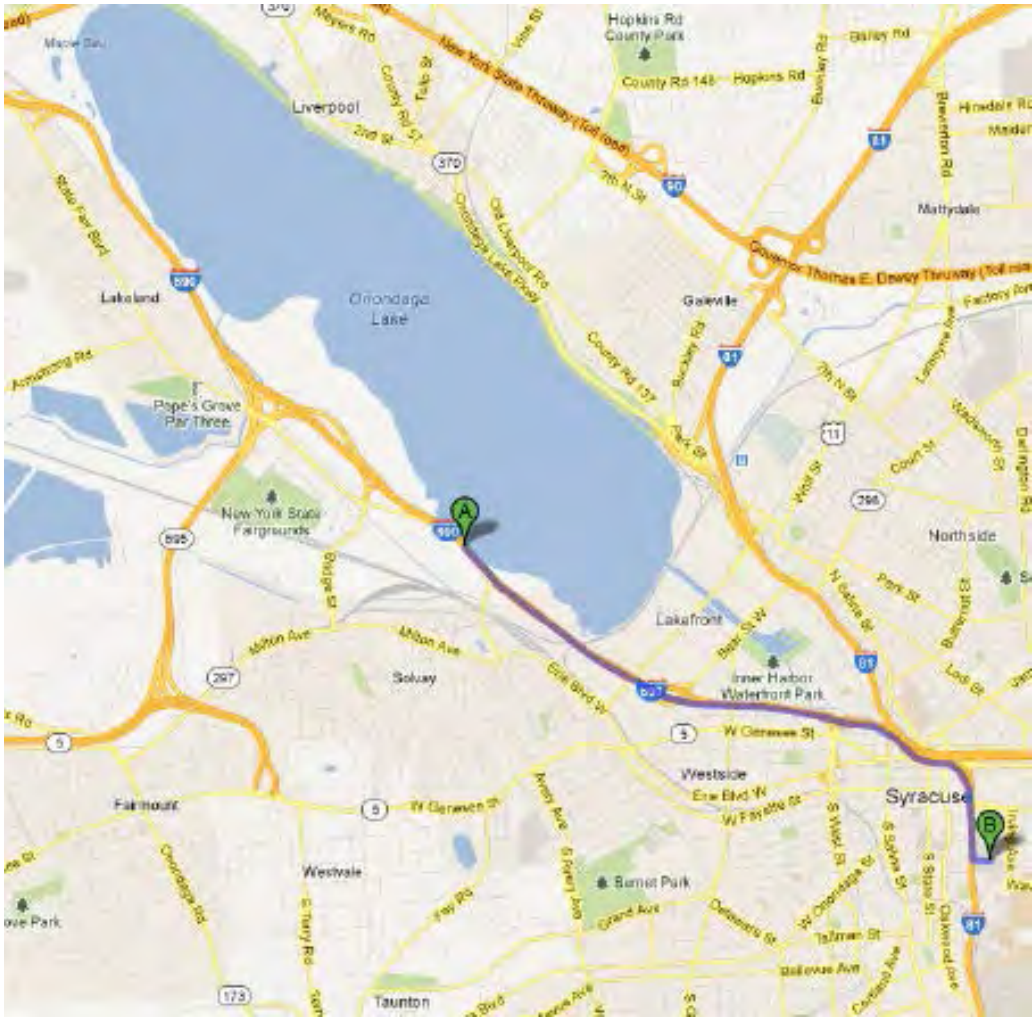
Level 2- Major spills that exceed the available supplies and resources to safely control and cleanup will require contacting the ERT.

Level 1- Major spills that exceed the available supplies and resources to safely control and cleanup may require contacting the off-site spill responder indicated above for "Spill Response" and in accordance with existing site spill response plans
NOTE: Petroleum products spills of greater than 5 gal and/or any Chemical Spill requires NYSDEC notification

Public and Media Protocols

- No one is authorized to speak with the media or public unless specifically approved by Honeywell.
- If approached by the **media**, recommend then refer them to the "***Media Contact***" listed under Emergency Contact Information.
- If a complaint or question is received from the **public**, provide them the "***Public Concerns or Questions***" contacts listed under Emergency Contact Information.

HOSPITAL ROUTE MAP

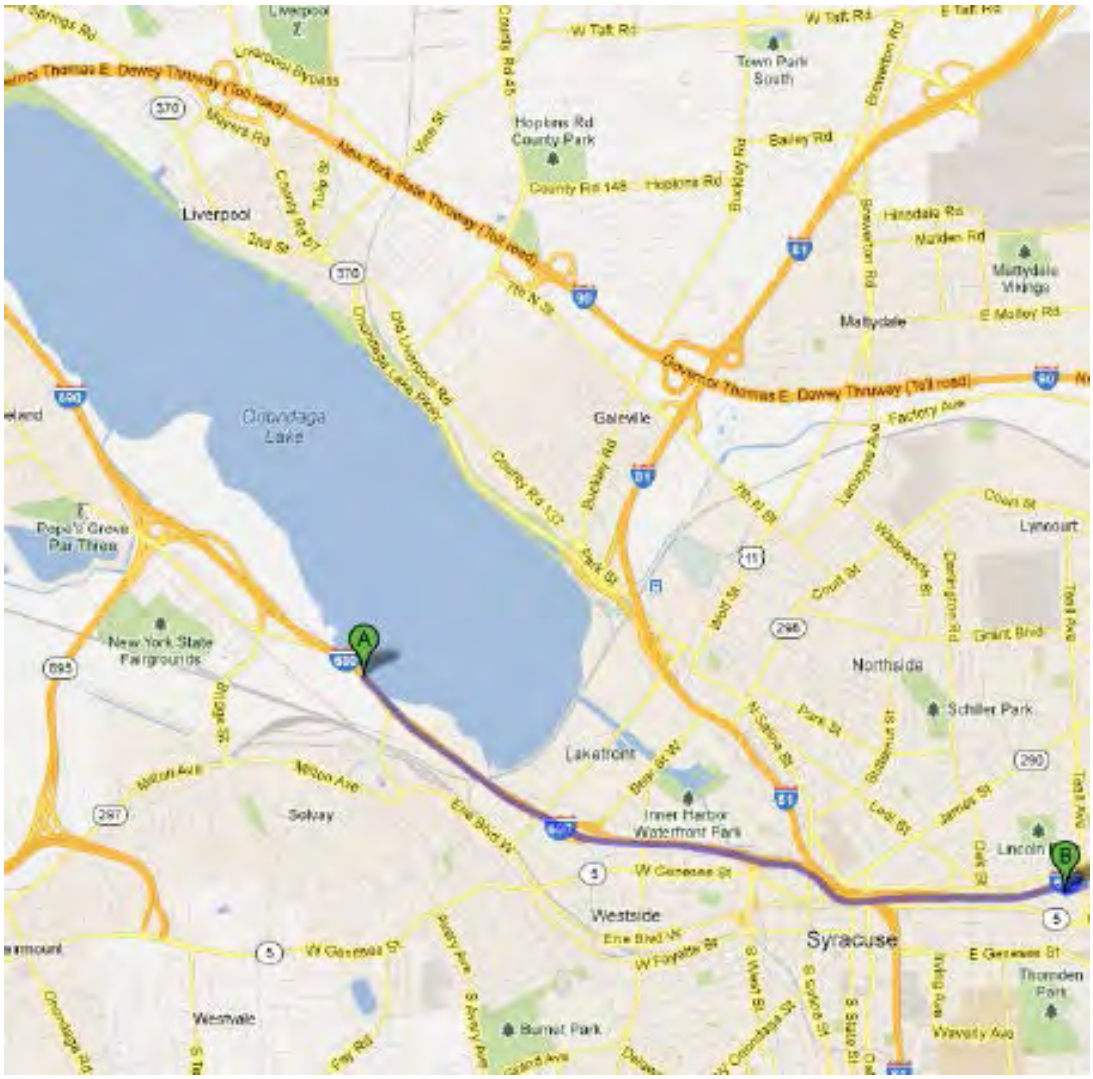


[INSERT ADDITIONAL TRAVE INSTRUCTIONS TO GET TO RT 690 EAST HERE]

1.	Head **southeast** on **I-690 E**	About 3 mins go 3.0 mi	total 3.0 mi
2.	Take the **Interstate 81 S** exit toward **Binghamton**	go 0.2 mi	total 3.3 mi
3.	Merge onto **I-81 SOUTH**	go 0.2 mi	total 3.5 mi
4.	Take exit **18** toward **Harrison St/Adams St**	go 0.1 mi	total 3.6 mi
5.	Keep left at the fork, follow signs for **Adams Street**	go 164 ft	total 3.6 mi
6.	Turn right onto **Almond St**	go 0.2 mi	total 3.9 mi
7.	Take the 1st left onto **E Adams St**	go 0.1 mi	total 4.0 mi

B University Hospital, East Adams Street, Syracuse, NY

OCCUPATIONAL CLINIC (IMA) ROUTE MAP



[INSERT ADDITIONAL TRAVE INSTRUCTIONS TO GET TO RT 690 EAST HERE]
[Subcontractors may substitute an alternate Occupational Clinic]

1. Head **southeast** on **I-690 E**	About 5 mins	go 4.2 mi	total 4.2 mi
2. Take the exit toward **Teall Ave**		go 0.2 mi	total 4.4 mi
3. Turn right onto **Teall Ave**		go 98 ft	total 4.5 mi
4. Take the 1st right onto **Canal**		go 0.1 mi	total 4.6 mi

Industrial Medical Associates PC
961 Canal Street, Syracuse, NY 13210 - (315) 478-1977

Pre-Work Briefing Acknowledgement: Individuals who are performing work covered by this JSA have received a **project-specific safety orientation** that includes a review of the safety requirements outlined in this JSA. The undersigned individuals acknowledge that have read this JSA and/or reviewed this JSA with a designated project representative and agree to comply with safety requirements outlined herein. The undersigned individuals understand that these safety requirements are not "all-inclusive" and that they are expected to follow any additional safe work practices applicable or customary to their specific scope of work or trade.

Print Name	Signature	Company	Date

App B to the HASP

Lifting & Rigging Plan

PROJECT INFORMATION

All Lift Plans must be submitted at least 24 hours prior to hoisting any loads unless otherwise approved by O'Brien & Gere.

Project Name:		**Prepared By:**	
Project Location:		**Date:**	
Lift Supervisor:		**Lift Location:**	
Company:		**Scheduled Lift Date(s):**	

1. CRANE INFORMATION

a) Type of Crane:	
b) Maximum Capacity:	
c) Crane Inspection by Qualified Person in Last 30 Days? (attach copy)	**Date:** **Complete By:**
d) Annual Maintenance Certification in last 12 Months? (attach copy)	**Date:** **Completed By:**

2. CRANE OPERATOR, SIGNAL PERSON, & RIGGER INFORMATION (per 29CFR1926 Subpart CC)

a) Crane Operator is Qualified? (attach copy – less than 5 yrs old)	☐ State License or ☐ Certified Crane Operator (CCO) or ☐ Employer Certification (accredited written exam and practical test procedures)
Experience on current type of crane	**Years:** **Months:**
b) Crane Signal Persons Qualified?	☐ Certification attached
c) Riggers are Qualified	☐ Qualified Riggers are identified below: name:
d) Crane Assembly/Disassembly Director	☐ Crane Operator is designated as the Competent & Qualified Person or ☐ Alternate Competent & Qualified A/D Director designated: name:
e) Crane Assembly/Disassembly Procedures will be on site	☐ Follow Manufacturer's Procedures or ☐ Follow Written Company Procedures

3. LIFT SPECIFICATIONS – (attach copy of load charts)

a) Max. Radius during Lift (ft):	
B)Length of Boom (ft)	
c) Angle of Boom at Pick (deg.)	
d) Angle of Boom at Set (deg.)	
e) Rated Capacity of load line (lbs.)	
f) Rated Capacity For Lift (lbs.)	

4. WORK AREA SKETCH

Include a description of the area where lift will be made. Indicate location of power lines, pipe racks, tanks, vessels and all other potential obstructions. Show the travel of the boom with load. Show the distances between the crane and load at pick and set. Indicate "See Attached" if drawings or sketches are attached.

5. CAPACITY OF RIGGING EQUIPMENT

All slings, chains, spreader bars, shackles, & other rigging equipment must have load rating tags or markings and must be inspected prior to the lift. Show how rigging equipment will be used in the "Sketch of Load & Rigging Arrangement" (7).

a) Vertical (lbs) – adjust for sling angle	
b) Choke (lbs) – adjust for sling angle	
c) Basket (lbs) – adjust for sling angle	
d) Size of Choker	
e) Number of Chokers	
f) Size of Shackle(s) (inches)	
g) Capacity of Shackle(s) (lbs)	

6. WEIGHT OF THE LOAD

Weight (in lbs) of Load including rigging equipment, crane hook, and crane cable. Worst case lift may be used when planning a multiple lifts from the same crane location. Load must be less than the rated load for the lift in 3f.

a) Crane Hook & Cable	
b) Rigging Equipment (slings, spreader bars, shackles, etc.)	
c) Load	
d) TOTAL (a+b+c)	

7. SKETCH OF LOAD AND RIGGING ARRANGEMENT

Be specific. Show ALL rigging equipment between the crane hook and the load. Additional room for notes and sketches is on the last page.

8. POWER LINE SAFETY

Yes	No	(This section is required for crane lifts near overhead power lines. Refer to "Definitions" for Table A.)
		Will any part of the equipment, load line or load approach closer than *20'* to lines *<350 kV* or closer than *50'* to lines that are *350 kV to 1,000 kV*? If "NO", then Section 8 does not apply.
If yes to above then choose one of the three options below:		
		OPTION 1: Confirm from utility that line is de-energized and visually Grounded at worksite.
		OPTION 2: Confirm no part of equipment may encroach upon lines via encroachment precautions
		OPTION 3: Contact utility to confirm line voltage and set a revised safe approach distance based on *Table A*.
Mandatory Encroachment Precautions for Options 2 and 3 above (must initiate all the following)		
		Conduct a planning meeting to review location of lines and preventive measures in place; and
		Tag Lines (if used) must be non-conductive; and
		Erect and maintain elevated warning line in view of operator at 20' or 50' or distance on *Table A*.
In addition to the Precautions listed above you must implement at least one of these:		
		Use a proximity Alarm to give operator sufficient warning to prevent encroachment; or

8. POWER LINE SAFETY

Yes	No	(This section is required for crane lifts near overhead power lines. Refer to "Definitions" for Table A.)
		Use a dedicated spotter who is in constant contact with operator; or
		Use a device that automatically warns operator to stop in case of encroachment; or
		Use a device that automatically limits the range of movement, set to prevent encroachment; or
		Use an insulating link between end of the load line and load.
Crane operations where Table A clearances are used must implement additional precautions as outlined below.		
		Will any part of the crane, load line, or load approach closer than the *Table A* distance? If "*NO*" then the remainder of Section 8 does not apply. If "*YES*", then all of the following requirements must be implemented and the requested information provided.
		The utility agrees that it is infeasible to de-energize & Ground or relocate the power line(s). Utility Name: Date of Consultation:
		Utility or licensed Prof. Engineer has determined that the following alternate minimum clearance is applicable for site work. Information must be received in writing (email) and attached to this plan. Utility or PE Name: Date Min. Clearance
		A meeting was held with utility or PE to review crane safety procedures as outlined in this plan.
		Automatic reclosing features were made inoperative by utility (if so equipped).
		Utility installed line hose or cover up except where unavailable due to voltage.
		This Lifting & Rigging Plan and other referenced documents are retained on site.

9. PRE-LIFT PLANNING CHECKLIST

N/A	Yes	No	Description (Place a ✓ under N/A, Yes, or No for each item)
			a) Has a safety plan, Job Safety Analysis (JSA), or equivalent safety planning document been completed?
			b) Is a pre-lift meeting scheduled to review this Lifting & Rigging Plan?
			c) Has an inventory of equipment been done?
			d) Are Load Charts available and a copy attached to lift plan?
			e) Have weather conditions been considered? (maximum wind speed = mph)
			f) Has electrical safety been reviewed? (especially power lines when applicable)
			g) Has communication been considered?
			h) Have the use of barricades been reviewed?
			i) Copy of the annual crane maintenance certification included with lift plan?
			j) Copy of the periodic crane inspection conducted in last 30 days attached?
			k) Copy of A/D, operator, Signal Person, and Rigger certifications attached?

If "NO," explain:

APPROVALS: (SIGNATURES REQUIRED)

Qualified Crane Operator		Date	
Sub-Contractor Lift Supervisor		Date	

REVIEWED BY: (SIGNATURES REQUIRED)

O'Brien & Gere Supervisor		Date	
O'Brien & Gere Safety (for critical lifts)		Date	

DEFINITIONS:

Assembly/Disassembly Director (A/D) – The A/D is competent and qualified to implement crane assembly and disassembly procedures. The A/D ensures that the crane is only assembled or disassembled by qualified riggers. When setting the crane ,the A/D must consider ground conditions, weather, obstructions, and public safety associated with the counterweight and load path. The A/D may also be the Crane Operator or Lift Supervisor.

Competent – Capable of identifying existing & predictable hazards related to the subject *and* has the authority to take prompt corrective measures.

Critical Lift- At a minimum, Critical Lifts include those that exceed **80%** of the crane's rated capacity for the lift, lifts near power lines, and lifts that require moving loads over occupied structures. O'Brien & Gere may require a Lifting & Rigging Plan for other lifts if the effect of dropping, upset, or collision of equipment could:

- Cause significant work delay
- Cause undetectable damage resulting in future operational or safety problems
- Result in significant release of hazardous materials or other undesirable conditions.
- Present a potentially unacceptable risk of personnel injury or property damage.

Lift Supervisor – The person responsible for the overall execution of the planned lifts. The Lift Supervisor is responsible for selecting qualified riggers, crane operators, and signal persons. The Lift Supervisor is also responsible for ensuring rigging materials are in good condition or replace equipment that does not pass inspection by the Qualified Rigger. The Lift Supervisor will revise the Lifting and Rigging plan if crane locations must be changed, rigging arrangements are modified, loads change, or upon other material changes that deviate from the original rigging plan.

Qualified- A person, who, by possession of a recognized degree or certificate, or by professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated an ability and competence to solve problems relating to the subject matter and work.

Qualified Operator- One whose competence to operate equipment safely and effectively (including the ability to accurately spot and control loads) can be demonstrated to and accepted by management. Responsible to operate the crane in accordance with the manufacturers recommended procedures and to review and follow any Lifting & Rigging Plans that may have been developed. Qualified Operators are required to conduct **daily visual** inspection and **documented monthly/periodic** inspections to ensure that the crane is in a safe condition for use. Employer qualifications are not portable.

Qualified Rigger- One whose competence in this skill has been demonstrated by experience accepted as satisfactory by the rigger's employer. The Qualified Rigger is responsible for reviewing and implementing rigging requirements and following acceptable industry rigging techniques. The Qualified Rigger is also responsible for inspecting all rigging equipment and removing defective equipment from service. Employer qualifications are not portable.

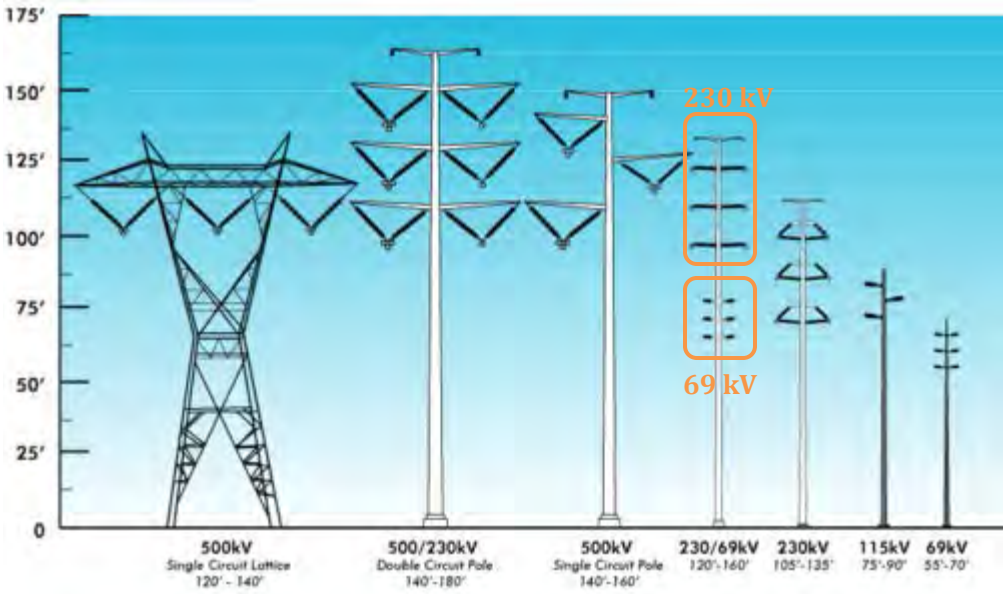
Qualified Signal Persons – One who has demonstrated an understanding of crane signals in a verbal or written test and has demonstrated the ability to use signaling procedures in a practical test. Employer qualifications are not portable.

Table A – Represents the minimum clearances allowed by OSHA regulations (29CFR1926.1408 and .1409) following confirmation of line voltage from the utility owner.

Minimum Clearance Distances

Voltage (kV)	Distance (ft)	Voltage (kV)	Distance (ft)	Voltage (kV)	Distance (ft)
Up to 50	10	>350 to 500	25	>1,000	As established by the utility owner or register P.E.
>50 to 200	15	>500 to 750	35		
>200 to 350	20	>750 to 1,000	45		

Additional Power Line Information – The utility industry uses different pole and tower designs for different types of lines and voltages. Although not a substitute for confirming line voltage with the utility owner, the diagram below can be used for general guidance in the field.



ADDITIONAL NOTES OR SKETCHES

Attachments

Client:		
Project Name:		**Project No.**
Project Location:		
SSHC:		
Main Points of Briefing:	☐ O'Brien & Gere Safety Requirements ☐ Site-Specific Safety Pan or JSA ☐ Site Owner Safety Requirements	**Other:**

The purpose of the Pre-Work Briefing is to provide ***site-specific safety orientation*** to employees and subcontractors. This certifies that undersigned individuals have read, understand, and agree to comply with applicable ***site-specific safety requirements*** that can be obtained from site safety plans, site Job Safety Analyses (JSAs), site owner requirements, and/or other site safety documents furnished to them by O'Brien & Gere. The undersigned individuals acknowledge that these safety requirements are not "all-inclusive" and that they will be expected to follow any additional safe work practices applicable to their specific scope of work.

Print Name	Signature	Company	Date

-- Have EACH employee sign this form before they begin work on site --

ENTRY/EXIT LOG

Project Name		**Date**	
Project Location		**Job & Phase #**	

Name	Company	Time In	Time Out	Reason

DAILY PRE-TASK PLANNER

Project Name:		**Date:**	
Company Name:		**Project No.:**	
Authorized Tasks Scope of Work for the day (be specific):			

YES	NO	Supervisor/Superintendent/Foreman Planning
		Project Safety Orientation has been provided to all workers prior to work. **IF NO**, please explain below:
		Pre-Work Documentation has been submitted for all workers. **IF NO**, identify the missing information: ☐ Drug Testing ☐ Training Certificates ☐ Other:
		The **Health & Safety Plan (HASP)** or **Job Safety Analysis (JSA)** is applicable to the Authorized Tasks and safety requirements in the HASP or JSA have been implemented. **IF NO**, explain below:
		ANY **unusual or changed site conditions** that may affect safety hazards. **IF YES**, explain in "*Key Safety Instructions*" and review appropriate changes to safety equipment or procedures. ☐ Heavy Rain ☐ Possible Lightening ☐ High Winds ☐ Heat ☐ Cold ☐ New Work Area ☐ Other:
		ANY **new tools or equipment or changes to work methods** that may affect safety hazards. **IF YES**, explain in "*Key Safety Instructions*" and review appropriate changes to safety equipment or procedures.
		Permits & Inspections needed for authorized tasks? (check all that apply) ☐ Permit-Required Confined Space Entry ☐ Hot Work ☐ Daily Excavation Checklist ☐ Non-Permit Confined Space Downgrade ☐ Line Break ☐ Daily Scaffolding Inspection ☐ Alternate Entry (Confined Space) ☐ Crane Pick ☐ Other:

YES	NA	Superintendent/Foreman Safety Message and Information to Field Crew(s)
		PPE was reviewed with emphasis on any new PPE or changes to PPE from previous day: (check all that apply) **Eye Protection:** ☐ Safety glasses ☐ Chemical Goggles ☐ Dust Goggles ☐ Face Shield **Head Protection:** ☐ Hard Hats **Foot Protection:** ☐ Safety Shoes ☐ Chemical Resistant Over-boots **Ear Protection:** ☐ Ear Plugs/Muffs **Hand Protection:** ☐ Cut-Resistant Gloves ☐ Chemical Resistant Gloves ☐ Other: _____ **Fall Protection:** ☐ Harness & Lanyard with shock absorber ☐ Harness & Lanyard without shock absorber ☐ Other Fall Protection: **Live Electrical:** ☐ Electrical Face Shield ☐ Electrical Coveralls ☐ Electrical Gloves **Clothing:** ☐ Tyvek ☐ Tychem QC ☐ Tychem SL ☐ Kevlar Chaps/Vest ☐ High Vis Vest **Work Over Water:** ☐ Life Vest ☐ Ring Buoy ☐ Rescue Skiff/Boat **Other (describe):** ☐
		Permits have been reviewed with field crew(s).
Key Safety Instructions Or Message For The Day:		

O'Brien & Gere Representative (review):		
Subcontractor Foreman/Supervisor Signature (authorize):		
Crew Signatures (acknowledge):		

SAFETY /TOOLBOX MEETING ATTENDANCE

Client:		**Project No.:**	
Project Name:		**Today's Date:**	
Project Location:			
Conducted By:			
Meeting Topic:			

Name	Signature	Company Name

Safety Meeting Topics (be specific)

KEEP COPIES OF ALL TOOLBOX MEETING MINUTES WITH PROJECT RECORDS

Project Name & No.:		**Auditor:**	
Project Location:		**Date of Audit:**	
Site Supervisor:		**Time of Audit:**	
cc List:	Project Manager, Manager of Corp H&S		

TRAILER (place an X in one of the three categories for each item - specify deficiencies below)

N/A	Y	N	Description
			First aid supplies available. The site relies on
			Emergency numbers posted.
			OSHA and Department Of Labor **Poster** conspicuously posted.
			Corporate Health and Safety Manual Available.
			A project **safety plan or JSA** was developed and reviewed with site workers.
			Subcontractors have current **Safety Prequalification** form on file.
			Toolbox safety meetings documented.
			Daily excavation inspections documented on a *Daily Excavation Checklist*.
			Hot work/confined space entry permits documented and issued daily.
			Energized Electrical Work Permits issued for ALL work (including inspections) within energized electrical equip.
			Written "Notice to Proceed" sent to the steel erection subcontractor?
			O&M projects have **equipment-specific Lockout/Tagout** (LOTO) procedures

NOTES: (Identify Major Subcontractors. Explain corrective actions for ALL observed deficiencies and indicate when corrective actions are completed and by whom. Use reverse side as necessary.)

FIELD (place an X in one of the three categories for each item - specify deficiencies below)

N/A	Y	N	Description
			Hard hats and safety glasses used in ALL construction areas.
			Ear protection used where noise requires you to raise your voice to be heard <5 feet away.
			Tick Prevention – DEET & Permethrin repellants used for work in ALL overgrown areas on projects in NY, NJ, PA, CT, and MA? (Use as necessary in other states.) Tick prevention is addressed in safety plan or JSA?
			Fall protection used by employees working above 6 feet and in manlifts; (see JSA for exceptions)
			Ladders used properly: stepladder fully open, extension ladder 3' past upper surface & tied off
			Good **housekeeping**, job-site looks neat. (aisles clear, designated lay-down areas, etc.)
			Manual Lifting risks are minimized - ☐ Toolbox Training ☐ Dolly ☐ Forklift ☐ Other:
			All chemicals and **chemical containers** properly labeled.
			Cylinders properly secured (upright and bound from tipping) and not set directly on ground.
			Oxygen & flam. gas cylinders separated by 20 feet and away from heat producing devices.
			Barricades setup around the Exclusion Zone, unattended excavation/holes, edges, scaffolds
			GFIs used on all extension cords and temporary 110/120 volt wiring.
			Excavations >5' are sloped/shored and inspected by competent person prior to entry.
			Rescue services notified of **confined space entry**. Specify Service:
			Retrieval equipment (harness, lifeline, and hoisting apparatus) setup during **confined space** entry
			Scaffolds erected over 10' have guardrails at 21" and 42" and a 4" toeboard around all sides
			Heavy Equipment & Off-Road Vehicles are in good condition, inspected daily, & operated safely.
			Cranes have documented monthly and annual maintenance inspections.
			Crane operators are qualified: ☐ license ☐ ___yrs exp. ☐ training cert ☐ other (specify)
			Lockout/Tagout is used - each employee has own lock – a tag is attached to all locks
			Personnel performing **inspections within energized equipment >50V** have NFPA 70E training, Arc Flash PPE, and other safety precautions outlined on an Energized Electrical Work Permit. (Access panels to energized electrical equipment must not be opened without such precautions in place.)
			Air monitoring being performed and documented as required by the site safety plan or JSA.

NOTES: (Explain corrective actions for ALL observed deficiencies and indicate when corrective actions are completed and by whom. Use reverse side as necessary.)

Client:		**Today's Date:**	
Project Name:		**Job No.:**	
Project Location:		**Weather:**	
Competent Person:			
Where was the sample taken:			
Excavation Length, Depth & Width	**L:**	**D:**	**W:**

NOTE: IF soil is assumed to be Type C, then soil analysis is not necessary. Type C represents the most conservative classification.

VISUAL TEST						
Particle type	☐ Fine grained (cohesive)	☐ Granular (sand/silt or gravel)	☐ Other:			
Water conditions	☐ Wet	☐ Dry	☐ Seeping Water	☐ Surface Water Present	☐ Submerged	
NOTES:						
Yes	**No**	**N/A**	**Description**			
			Layered soils dipping into excavation? If *Yes*, describe:			
			Excavation exposed to vibrations? If *Yes*, from what:			
			Previously disturbed soils?			
			Crack like openings or sprawlings observed?			
			Underground utilities? If *Yes*, what type:			
			Layered soils? ***Note:*** *The least stable layer controls the soil type.*			

MANUAL TEST				
Plasticity	☐ Cohesive	☐ Non-cohesive	**Dry Strength**	☐ Cohesive (broken w/ difficulty)	☐ Granular (crumbles easily)
Wet shake	☐ Water comes to surface (granular material)		☐ Surface remains dry (clay material)	

THUMB TEST *NOTE: Used to estimate unconfined compressive strength of cohesive soil. Performed on undisturbed soils.*	
Test performed ☐ Yes ☐ No ☐ N/Ap, Explain:	
Soil indented by thumb with very great effort	☐ Type A
Soil indented by thumb with some effort	☐ Type B
Soil easily penetrated several inches by thumb with little or no effort. ***NOTE: If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.***	☐ Type C

PENETROMETER or SHEARVANE TEST *NOTE: Used to estimate unconfined compressive strength of cohesive soils:*	
Test performed ☐ Yes ☐ No Device Used/Serial #:	
Soil with unconfined compressive strength of 1.5 tsf or greater	☐ Type A
Soil with unconfined compressive strength greater than 0.5 tsf and less than 1.5 tsf	☐ Type B
Soil with unconfined compressive strength of 0.5 tsf or less. If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting	☐ Type C

NO soil is type A if fissured, subject to vibration, previously disturbed, layered dipping into excavation on a slope of 4h:1v

SOIL CLASSIFICATION			
☐ Stable Rock	☐ Type A	☐ Type B	☐ Type C

SELECTION of PROTECTIVE SYSTEM (Refer to Appendix F of 29CFR1926)			
☐ Sloping (Appendix B) specify angle: _____	☐ Timber shoring (Appendix C)	☐ Trench shield Max depth in this soil: ____	☐ Hydraulic shoring (Appendix D)

-- Keep 1 copy of EACH Soil Analysis Checklist on site for the project duration --

Client:			**Today's Date:**	
Project Name:			**Approx. Temp**	
Project Location:			**Approx. Wind Dir**	
Job No.:			**SSHC:**	
Excavation Depth & Width:	**D:**	**W:**	**Soil Class:**	
Protective System Used:				
Activities in Excavation:				
Competent Person:				

Excavation > 4' deep? ☐ Yes ☐ No If ***Yes***, - Evaluate if the excavation is a permit-required confined space or can be downgraded to a Non-Permit Space

CAUTION*: Any excavation over 5 feet must be sloped or shored. Excavations >20 feet require review by a Professional Engineer. Any items marked* ***NO*** *on this form* ***MUST*** *be corrected prior to any employees entering the excavation. Review Excavation from the Corporate Health & Safety Manual for guidance.*

YES	NO	N/A	INSPECTION ITEMS
			GENERAL
			Employees in, or near, excavations are protected from cave-ins or from being struck by loose rock/soil
			Spoils, materials, and equipment set back at least 2 feet from the edge of the excavation
			Engineering designs for sheeting and/or manufacturers data on trench box capabilities on site
			Adequate signs posted, and barricades provided
			Training (i.e, Toolbox meeting) conducted with employees prior to employees entering excavation
			Proper sloping, shoring, and/or distance controls are in place to prevent damage to footings, foundations, sidewalks, roadways, and similar structures from cave-ins or excavation equipment.
			UTILITIES
			Utility company contacted and given 24 hrs notice and/or utilities already located and marked
			Overhead lines located, noted, and reviewed with operator
			Utility location reviewed with operator, and precautions taken to ensure contact does not occur
			Utilities crossing the excavation supported, and protected from falling materials
			Underground installations protected, supported or removed when excavation is open
			WET CONDITIONS
			Precautions taken to protect employees from water accumulation (i.e., continuous dewatering)
			Surface water or runoff diverted/controlled to prevent accumulation in the excavation
			Inspection made after every rainstorm or other hazard-increasing occurrence
			HAZARDOUS ATMOSPHERE
			Air in the excavation tested for oxygen deficiency, combustibles, or other contaminants
			Ventilation used in atmospheres that are O_2 rich or deficient and/or contains hazardous substances
			Ventilation provided to keep LEL below 10%
			Emergency equipment available where hazardous atmospheres could or do exist
			Safety harness and lifeline used
			Supplied Air necessary (if **Yes**, contact CHS prior to entry)
			ENTRY & EXIT
			Exit (i.e., ladder, sloped wall) no further than 25 feet from ANY employee
			Ladders secured, and extended 3 feet above the edge of the trench
			Wood ramps constructed of materials of uniform thickness, cleated together on the bottom.
			Employees protected from cave-ins when entering or exiting the excavation

Keep 1 copy of EACH Daily Checklist on site for the project duration

NOTE: Separate forms are required for each excavation.

CONFINED SPACE ENTRY PERMIT

GENERAL INFORMATION & HAZARD REVIEW

☐ **Permit-Required Confined Space Entry** ☐ **Alternate Entry Approach** ☐ **Non-Permit Space Designation**

Project Name:		**Project Number:**	
Location of Work:			
Description of Confined Space:			
Description of Work to Be Performed:			
Special Safety Precautions to Be Observed:	☐ NONE or Specify:		

Potential Hazards - mark (☒) all that apply:	☐ **NO SERIOUS HAZARDS IDENTIFIED required for Non-Permit Space Designation**	☐ **PHYSICAL HAZARDS ELIMINATED Identified by an * - required for Alternate Entry**
☐ Decomposing organic matter - Low Oxygen ☐ Rusting metal - Low Oxygen ☐ Leaking nitrogen, carbon dioxide, helium, argon, & other inert gas lines - Low Oxygen ☐ Leaking natural gas, hydrogen, acetylene, propane, and other flammable gas lines - Flammable Atmosphere (high LEL) ☐ Engine exhaust/burning - Carbon Monoxide (CO) ☐ Leaking process lines - Flammable and/or Toxic	☐ Sewer gas - Flammable from methane, toxic from hydrogen sulfide, Flammable & Toxic from illegally discharged chemicals. ☐ Leaking underground fuel tanks infiltration into sewers, vaults, & pits - Flammable & Toxic ☐ Welding/Torch Cutting - Toxic (carbon monoxide), Flammable (acetylene), & high or low Oxygen atmospheres ☐* Equipment energy sources - Physical hazards (shock, entanglement, moving parts)	☐* Dangerous internal configuration ☐* Falls >6' - Near unprotected edge or hole ☐* Loose materials such as sand, grain, & sawdust - Physical Hazard (engulfment) ☐* Sudden changes to water flow or level - Physical Hazard (drowning) ☐* Steam piping & hot surfaces - Physical hazards (thermal burns, obstruct vision) ☐ Other:

SAFETY CHECKLIST

CHECK (✓) EACH QUESTION: YES or Not Applicable	**YES**	**NA**	**CHECK (✓) EACH QUESTION: YES or Not Applicable**	**YES**	**NA**
1. Has all equipment that could cause **electric shock** or injury from **moving parts** been **locked & tagged** by **each entrant**?			**7.** Are **cave-in, engulfment & drowning** hazards controlled?		
2. Is **process piping** isolated and **locked & tagged** by each entrant per facility owner and/or O'Brien & Gere procedures?			**8.** Have precautions been taken to control **vehicle and pedestrian traffic** around the confined space entrance?		
3. Has vessel/piping been **drained, cleaned or purged**?			**9. Rescue team** has been notified?		
4. Has a **hot work permit** been issued and all fire prevention controls are in place?			**10. Emergency contact** number has been identified: ☐ **911** ☐ **Other:**		
5. Can **sparks** ignite material in vicinity, sewers, lower floors?			**11. Communication** procedures between attendant & entrants have been reviewed: ☐ **Verbal** ☐ **Radio** ☐ **Other:**		
6. Has **fall protection** been provided for work above 6'?			**12.**		

SAFETY EQUIPMENT

CHECK (✓) ALL SAFETY EQUIPMENT NECESSARY				**(Minimum PPE - hard hat, safety glasses, and safety shoes)**			
Goggles		Rubber Boots		Grounding Equipment		Retrieval Equipment - tripod/winch	
Face Shield		Half-face Respirator		Non-sparking Tools		Harness with Retrieval/Tether Line	
Un-coated Tyvek Suit		Full-face Respirator		Vapor/Explosion Proof Light		**Ventilation Equip.-blower & duct (required for alternate entry)**	
Tychem QC Suit		Air-line Respirator or SCBA		Fire Extinguisher			
Tychem SL (Saranex) Suit		Safety Belt/Harness		Water hose			
Acid Suit		Ladder/Scaffold		Barricades & Signs			
Plastic Apron		Lockout/tag out equipment		Communication Equipment			
Nitrile or Vinyl Gloves		GFCI		Probing Staff (for water depth)			

AIR MONITORING

Air Monitoring Equipment	**Air Tests**	**Limits**	**Required?**	**Frequency**	**Results**
	Oxygen	19.5%-23%	☐ **Y** ☐ **N**	☐ initial only ☐ continuous	
	LEL	≤10%	☐ **Y** ☐ **N**	☐ initial only ☐ continuous	
	CO	≤35 ppm	☐ **Y** ☐ **N**	☐ initial only ☐ continuous	
	H_2S	≤10 ppm	☐ **Y** ☐ **N**	☐ initial only ☐ continuous	
			☐ **Y** ☐ **N**	☐ initial only ☐ continuous	

ENTRANT & ATTENDANT REVIEW & PRE-ENTRY BRIEFING for PERMIT-REQUIRED CONFINED SPACES

A pre-entry briefing is REQUIRED. Entrants and Attendants have been notified of hazards in the work area and have been instructed in the safety equipment and procedures necessary for safe entry by the Entry Supervisor. The briefing also includes a review of emergency evacuation procedures, communication procedures, this permit, and other safe work practices. Persons have been instructed to report any unsafe or unusual conditions.

Entrant:	print	sign	**Entrant:**	print	sign
Entrant:	print	sign	**Entrant:**	print	sign
Entrant:	print	sign	**Attendant:**	print	sign
Entrant:	print	sign	**Attendant:**	print	sign

ENTRY SUPERVISOR / PERMIT AUTHORIZATION			**PERMIT DURATION (1 shift maximum)**	
O'Brien & Gere:	print	sign	**Entry Date:**	____/____/____
Subcontractor:	print	sign	**Start Time:**	____:____
Subcontractor:	print	sign	**End Time:**	____:____ **(permit expires)**

-- Keep 1 Copy On-Site For The Project Duration --

Upon completion of fieldwork, place expired permits into project files for record keeping and review during safety audits.

HOT WORK PERMIT

Project Name		**Today's Date:**	
Project Location:		**Project No.:**	
Hot Work Location:			
Description of Hot Work Activities:			

INSTRUCTIONS:

1. Each hot work area will have a separate Hot Work Permit. Fire Watch is required unless in a designated "fabrication area."
2. O'Brien & Gere will review the permit with the subcontractor and sign if the permit is complete and precautions are identified.
3. Subcontractor will sign verifying that precautions on this permit are (or will be) in place prior to hot work.
4. Site personnel performing hot work covered by this permit will review the permit and print/sign in spaces designated for "Worker."
5. Fire Watch(s) for hot work covered by this permit will review the permit and print/sign in spaces designated for "Fire Watch."

Yes	N/A	REQUIREMENTS WITHIN 35 FEET OF HOT WORK
☐	☐	Flammable liquids, dust, lint, and oily deposits are removed.
☐	☐	Explosive atmosphere in area is eliminated.
☐	☐	Combustible dust (wood, paper, grain, aluminum, magnesium, etc.) is removed from floors, beams, and other flat surfaces.
☐	☐	Combustible floors are wet down and/or covered with damp or fire-resistant tarps.
☐	☐	Combustibles are removed when possible or protected by fire-resistant tarps or non-combustible spark/slag shields.
☐	☐	All wall and floor openings are covered to prevent access by sparks and slag.
☐	☐	Fire-resistant tarps are suspended, or barriers installed, beneath work to catch falling sparks and slag

Yes	N/A	WORK ON WALLS OR CEILINGS
☐	☐	Wall or ceiling construction is noncombustible and without combustible covering or insulation.
☐	☐	Combustibles on the other side of walls are moved away or protected.

Yes	N/A	WORK ON ENCLOSED EQUIPMENT
☐	☐	Enclosed equipment is cleaned of all combustibles.
☐	☐	Containers have been purged of flammable liquids/vapors.

Yes	N/A	FIRE WATCH / HOT WORK AREA MONITORING
☐	☐	Fire Watch will be provided during hot work and for at least **30 minutes** after hot work, including any breaks.
☐	☐	**2-A:20-BC Type ABC dry chemical** fire extinguisher is provided or acceptable alternate - specify: _____
☐	☐	Fire Watch understands how and when to call for **emergency support** and has a radio or cell phone to make the call.
☐	☐	Fire Watch understands the **P.A.S.S. approach** to using a fire extinguisher. 1. **PULL** Pull the pin. This will also break the tamper seal. 2. **AIM** Aim low, pointing the extinguisher nozzle (or its horn or hose) at the base of the fire. (Note: Do not touch the plastic discharge horn on CO2 extinguishers, it gets very cold and may damage skin.) 3. **SQUEEZE** Squeeze the handle to release the extinguishing agent. 4. **SWEEP** Sweep from side to side at the base of the fire until it appears to be out. Watch the area. If the fire re- ignites, repeat steps 2 - 4.

HOT WORK PERMIT REVIEW					
Worker:	print	sign	**Worker:**	print	sign
Worker:	print	sign	**Worker:**	print	sign
Worker:	print	sign	**Fire Watch:**	print	sign
Worker:	print	sign	**Fire Watch:**	print	sign

HOT WORK PERMIT AUTHORIZATION			PERMIT DURATION (1 shift maximum)
O'Brien & Gere:	print	sign	Start: Date ___/___/___ Time ____:____
Subcontractor:	print	sign	Expires: Date ___/___/___ Time ____:____
Subcontractor:	print	sign	

Project Name:		**Date:**	
Project Location:		**Job & Phase #**	
Area/Process Name:		**Drawing Ref:**	
Device Location:			
Device Description:		**I.D. or Label:**	

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR IMPLEMENTATION OF LOTO (Other PPE may be necessary based on work acitivities being performed)			
☐ Safety Glasses	☐ Dust Goggles	☐ Bib-style Splash Apron	☐Fall protection harness & Lanyard
☐ Safety Shoes	☐ Leather Gloves	☐ Rain Suit (jacket & pants)	☐ Slush Boots
☐ Hard Hat	☐ Surgical Gloves	☐ Tyvek Coverall	☐ Boot Covers
☐ Face Shield	☐ Chemical Gloves:	☐ Polycoated Tyvek Coverall	☐ Arc Flash PPE
☐ Splash Goggles		☐ Saranax Coverall	☐ Electrical Gloves

LOTO INSTRUCTIONS		
Task Description		**LOTO Equipment Needed**
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

RE-START INSTRUCTIONS – Task Descriptions	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Corporate H&S to complete:	☐ Restricted Workday (__ days)	☐ Near Miss
☐ First Aid / Notification	☐ Lost Workday (__ days)	☐ Property Damage >$1,000
☐ Med. Treatment Only	☐ Fatality	☐ Other:

PROJECT INFORMATION

Client:					
Client Contact:					
Project Name:					
Project Address:		**State:**		**Zip:**	
Project Manager:		**Site Supervisor:**			
Project Supervisor:		**Foreman:**			
Project #:		**SSHC:**			
Project Phone #:		**Today's Date:**			

INCIDENT INFORMATION

DATE and TIME (hrs) of Incident:	
Specific Location of Incident On-site:	
Supervisor at Time of Incident:	

☐ **NA** (✓ if no injury)

INJURED PERSON INFORMATION

(get written statement – bottom page 3)

Name:		**Employment Status:**			
Home Address:		☐ Craft, Temporary, Contract	☐ *Other		
		☐ Regular Status Employee	☐ *Subcontractor		
		* Name of Company:			
Home Phone #:		**O'Brien & Gere:** ☐ Eng ☐ OGINA ☐ OPS ☐ Limited			
		Business Unit: ☐ ENV ☐ CFS ☐ TWS ☐ OPS ☐ Corp			
Soc - Sec - Num:	provide confidentially upon request	**Experience w/ OBG:**	☐ years ☐ months		
Gender:	☐ M / ☐ F **DOB:**	**Total Experience:**	☐ years ☐ months		
Nature of Injury, and Part of Body:					
Treatment at Hospital or Clinic?	☐ No ☐ Yes – specify:				
Hospital/Clinic Street Address:					
Employee was Working:	☐ Alone ☐ With Crew or Fellow Worker (get witness names)				
Specific Task at Time of Incident:					
Occupation/Craft at Time of Incident:					

WITNESS INFORMATION

(get written statement – see page 4)

Witness #1 Name:		**Contact Phone #**	
Witness #2 Name:		**Contact Phone #**	
Witness #3 Name:		**Contact Phone #**	

FULLY COMPLETE THIS FORM AND SEND TO THE MANAGER OF CORPORATE H&S (Jeff Parsons x6871) AND THE LEGAL/INSURANCE DEPARTMENT (Meg Hermann x6624) WITHIN 24 HOURS

Phone: (315) 956-6100 / Fax: (315) 463-7554

Attach All Applicable Medical Reports

cc:

DESCRIBE HOW THE INCIDENT OCCURRED

Describe in ***detail***, and in chronological order, the events that lead to the accident, how the incident occurred, and any other facts you feel may be relevant to the investigation. Please avoid opinions or hearsay.

CAUSAL FACTORS

Check all that apply and identify corrective actions for each factor. Beginning with the most apparent or most direct cause of the incident, **ask "WHY" five times** to identify the sequence of events or conditions that contributed to the incident.

PROCEDURES
- ☐ Not available
- ☐ Difficult to use / understand
- ☐ Use of procedure was not required but should be
- ☐ Followed Incorrectly
- ☐ Not followed
- ☐ Inadequate details
- ☐ Situation not covered
- ☐

WORK ENVIRONMENT
- ☐ Housekeeping poor
- ☐ Hot / Cold
- ☐ Poor lighting
- ☐ High Noise
- ☐ High Radiation/Contamination
- ☐ Cramped quarters
- ☐

ENGINEERING/DESIGN
- ☐ Inadequate technical design
- ☐ Inadequate specifications
- ☐ Inadequate change mgmt

COMMUNICATION
- ☐ Misunderstood verbal directions
- ☐ No communication or untimely
- ☐ Standard terminology or signals not used or are misunderstood
- ☐ Interference from noisy environment
- ☐ Notifications late or not provided
- ☐ Job/task safety analysis not reviewed with personnel
- ☐

EQUIPMENT & TOOLS
- ☐ Wrong equipment/tool for the task
- ☐ Defective equipment/tools
- ☐ PM not done or inadequate
- ☐ Inadequate / removed guards
- ☐ Inadequate isolation (LOTO)
- ☐ No inspection of tools / equipment
- ☐

- ☐

MANAGEMENT/ORGANIZATION
- ☐ Inadequate work planning
- ☐ Unclear reporting relationship
- ☐ Unclear assignment of responsibility or authority
- ☐ Improper delegation
- ☐ Inadequate audits/inspections
- ☐ Inadequate incident reporting
- ☐ Inadequate incident investigation
- ☐ Corrective actions not complete
- ☐ Corrective actions inadequate
- ☐ Inadequate purchasing
- ☐ Wrong person assigned to job
- ☐ Lack of supervisor knowledge
- ☐ Inadequate/lack of safety mtgs
- ☐ Inadequate control of change
- ☐ Mgmt resources inadequate
- ☐ Excessive work hours (fatigue)

- ☐ No or Inadequate enforcement
- ☐ No pre-task safety analysis
- ☐
- ☐

HUMAN FACTORS
- ☐ Lack of experience or skill
- ☐ Infrequent performance
- ☐ Operating equipment without authority
- ☐ Operating equipment unsafely
- ☐ Taking unsafe position/posture
- ☐ Poor judgement or Inappropriate risk taking
- ☐ Physical impairment (explain)
- ☐ Drugs/alcohol (explain)
- ☐
- ☐

TRAINING
- ☐ Training not provided
- ☐ Training inadequate
- ☐ Did not attend training

- ☐ Training not appropriate for the job or task
- ☐
- ☐
- ☐

CORRECTIVE ACTIONS

List the corrective actions taken to minimize the possibility of a similar incident from occurring in the future. Assign specific individuals and completion dates for each corrective action. The "Safety Audit Closeout" form can be used to help track completion of corrective actions or use the table below.

#	Description	Responsible Person	Target Completion	Actual Completion

Prepared by: (print)		**Sign:**		**Date:**	
CHS Review: (print)		**Sign:**		**Date:**	

O'BRIEN & GERE EMPLOYEE INFORMATION RELEASE

To be completed by O'Brien & Gere Employees requiring Hospital/Clinic Treatment or ANY Back Injury

Employee Name:	
Date of Injury:	

I hereby authorize O'Brien & Gere or any of its representatives to be furnished any information and facts regarding this injury, including reports and records, results and diagnosis, treatment and prognosis, estimates of disability, and recommendations for further treatment. This information is to be used for the purpose of evaluating and handling my claim for injury as a result of an incident occurring on or about the above-noted date of injury and for no other purpose, now or in the future.

O'Brien & Gere
Employee Signature: _____ **Date:** _____

EMPLOYEE & SUBCONTRACTOR INJURED PERSON STATEMENT

To be completed by O'Brien & Gere Employees and Subcontractors for ALL Accident Reports

Please describe what happened with respect to the incident that occurred on _____ (date) at the following location, _____ .

Injured Person Signature: _____ **Date:** _____

Injured Person Name (print): _____

WITNESS STATEMENT

Please describe what happened with respect to the incident that occurred on _____(date) at the following location, _____.

Company Name: _____ **Phone #:** _____

Witness Signature: _____ **Date:** _____

Witness Name (print): _____

Appendix B

Community Health & Safety Plan

COMMUNITY HEALTH & SAFETY PLAN

Wastebeds 1-8 OU-1 Enhanced Vegetative Cover System Placement

Honeywell

August 6, 2015

O'BRIEN & GERE

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FIGURES / TABLES

EXHIBITS

1 INTRODUCTION

The planning and design effort for the Wastebeds 1-8 (Site) remedy involved extensive planning and coordination with state and local agencies, resulting in a project designed with health and safety as its first and most fundamental goal. This includes not only the health and safety of all project employees, but also the local communities in which the remedial activities will occur. Honeywell, Honeywell's Contractors, and regulatory agencies, including New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), and the United States Environmental Protection Agency (EPA) are committed to protecting human health and the environment during the remediation of the Site.

1.1. PURPOSE OF THE COMMUNITY HEALTH & SAFETY PLAN

The purpose of this Community Health and Safety Plan (CHASP) is to communicate to the public the planned activities required to complete the remedy and the measures and the steps that Honeywell and its contractors will take to ensure protection of the local community and environment.

1.2. SITE DESCRIPTION

The Site is located on the southwestern shore of Onondaga Lake in Geddes, NY. In general, the Site consists of variable terrain with numerous topographic highs and lows that range from approximately 362.9 ft above mean sea level (MSL) at the shore of Onondaga Lake, to 430 ft above MSL, at the highest point. Transportation features bisect the Site and include Interstate 690 (I-690) (which runs between the lakeshore and State Fair Boulevard), New York State Fairgrounds parking lots, access roads for the parking lots, and foot bridges. The irregularly shaped beds extend roughly 2.1 miles along the shore, with a maximum width of 0.5 mile, and cover approximately 315 acres. The Site, in its entirety, and inclusive of the Solvay wastebeds, covers approximately 404 acres. In general, the eastern shore of Onondaga Lake is urban and residential, and the northern shore is dominated by parkland, wooded areas, and wetlands.

1.3. SCOPE OF WORK

The project consists of the application of an enhanced vegetative cover over specified areas of the Wastebeds 1-8 Site. This will require in some areas the clearing of existing surface overgrowth. This clearing is anticipated to be performed with the use of mechanical means (Brush Hog) and some limited hand clearing. No Intrusive work is anticipated for this as the clearing will not include "grubbing" of stumps. Mechanized spreading equipment will be used to spread the enhanced vegetative cover over the cleared areas. In areas where the slope may limit the use of standard pull behind spreading equipment, a "Blower Truck" will be used to place the material onto the slope safely. The scope of work includes the following activities:

- Mobilization/Demobilization
- Site preparation
- Spreading Enhanced Vegetative Cover.

Additional details pertaining to the scope of work being performed at the site are available in the *Wastebeds 1-8 OU-1 Remedial Design/Remedial Action Work Plan* (O'Brien & Gere, 2015) and the *Wastebeds 1-8 OU-1 Remedial Action Work Plan* (O'Brien & Gere, 2015A).

1.4. PROJECT PERSONNEL & ORGANIZATION

The following are key project personnel with respect to O'Brien & Gere's scope of work.

Project Personnel

Project Personnel	
NYSDEC	
Tracy Smith	Project Manager
NYSDOH	
Mark Sergott	Project Manager
HONEYWELL	
Steve Miller	Project Manager
O'BRIEN & GERE	
Doug Crawford	Project Officer
Brad Kubiak	Project Manager
Chris Killoren	Construction Manager

2 COMMUNITY AIR MONITORING PLAN

The objective of this Community Air Monitoring Plan (CAMP) is to describe air monitoring during the project's field construction activities including the on-site processing and placement of mulch and other materials. Mulch will consist of wood fiber mulch and/or compost material consistent with NYSDOT Type C compost for erosion and sediment control compost blankets with potential for dust and odors during placement. Other materials to be placed at the site will consist of crushed stone and clay-loam topsoil which are not anticipated to present odor issues but may produce dust.

Perimeter air monitoring will be conducted to evaluate potential air quality impacts during the site construction activities. The air monitoring program described herein has been designed using the New York State Department of Health (NYSDOH) *Generic Community Air Monitoring Plan* (gCAMP) (**Exhibit 1**) guidance for evaluation of potential airborne contaminant releases as a direct result of investigative and remedial work activities[1].

2.1. COMMUNITY RECEPTORS

The project site is bordered to the north and east by Onondaga Lake, and to the south and west by Interstate 690 (I-690). Based on review of aerial photographs, the nearest non-commercial public and/or recreational areas to the project site consist of:

1) Onondaga Bike Trail located on or adjacent to portions of the project site and continuing off the site to the northwest
2) New York State Fairgrounds approximately 1000 feet south of the site
3) Private residences approximately 2,000 feet west of the northwest portion of the site. Additional residences are located approximately one mile south and southeast, one mile north and two miles east of the site.

In addition, during 2015, construction of the Onondaga County Amphitheatre will occur immediately adjacent to portions of the project work site.

[1] *Generic Community Air Monitoring Plan*, New York State Department of Health, Revision 1, June 2000.

2.2. MONITORING LOCATIONS

Air monitoring will be conducted along or within the perimeter boundary line around the overall project site shown on **Figure 1**. The perimeter boundary follows the Lake shoreline north, west and east of the work site. On the south side of the site, the air monitoring perimeter boundary is located on the south edge of Wastebed 1-8, north of I-690. In general for each work area within the project site, air monitoring stations will be placed within the site perimeter boundary such that the downwind station will be between the work area and the nearest downwind receptor.

Air monitoring locations will be selected at the beginning of each work day based on the predicted predominant wind direction for the day. There will be one upwind and two downwind monitoring stations. In cases where there are two spatially separated work areas, the two downwind stations will be separated so one is downwind of each work area. The upwind dust monitor will be used to evaluate ambient background dust for both downwind locations.

Air monitoring station locations may be moved during the day if the predominant wind direction shifts into a new quadrant or if the work area changes. Site wind conditions will be monitored each day by either a portable on-site weather station or the Honeywell 10-meter weather station located along the east edge of the Semet Ponds. In cases where work areas are too close to the shoreline to allow downwind monitor placement without disruption to construction activities, then stations will be placed at the nearest accessible location.

2.3. QUALITY CONTROL AND QUALITY ASSURANCE

Calibration checks and daily routine maintenance of real-time dust analyzers will be conducted at the beginning of each day following applicable manufacturer's guidelines. Field checks of the olfactometer will consist of daily checks of gaskets, valves, and odor filter cartridge performance. Odor filter cartridges will be replaced as-required based on use. Records of daily field activities, instrument field checks and daily calibrations will be documented in a field site log or on pre-printed field forms.

2.4. DATA MANAGEMENT AND REPORTING

Data will be manually or automatically saved to a PC computer each day. Data will be reviewed to evaluate periods of valid and invalid data, and results summarized in daily reports, which will include the following:

- daily construction activities and air monitoring period,
- air monitoring station locations,
- summary of air monitoring results,
- meteorological summary including shifts in wind direction requiring station re-location, and
- summary of any action level or work perimeter limit exceedances, and corrective response.

NYSDEC and NYSDOH will be notified of exceedances of the action levels pursuant to the requirements in NYSDEC's DER-10 guidance (Section 5.4(a)3).

At the conclusion of the air monitoring program, final results will be presented, as part of the project construction completion report that will include:

- air monitoring methodologies,
- a tabulated summary of the results,
- assessment of air quality levels versus action criteria, and
- qualitative assessment of odor impacts on downwind community receptors.

3 PROJECT SAFETY MANAGEMENT & MONITORING

The Wastebeds 1-8 project will involve work activities adjacent to publically accessible areas, including portions of the Onondaga County West Shore Recreational Trail, the Onondaga County Amphitheater, and the New York State Fairgrounds Orange Lot parking area. Site security at the established work areas and traffic management have been carefully evaluated to make sure that appropriate controls and monitoring programs are in place during the implementation of the project. These controls and monitoring programs are described in this section.

This CHASP incorporates by reference the Occupational Safety and Health Administration (OSHA) requirements in 29 CFR Part 1910, 29 CFR Part 1926, and the O'Brien & Gere Corporate Health & Safety Manual (CHS Manual). A copy of the O'Brien & Gere CHS Manual will be maintained on site for reference.

3.1. SITE SECURITY & CONTROL

The majority of the work activities will take place on Onondaga County property. Public access to these areas will be restricted for the safety of both the public and the site workers. With large equipment in constant operation, these type of construction sites have inherent risks. Work activities are carefully planned, and site workers are required to go through extensive site- and activity-specific training to minimize potential risks associated with the work they will be completing. Properly planned site security is vital for the protection of the public, who may be unaware of site conditions or may not understand the risks associated with project operations.

3.1.1. Site Layout & Work Zones

Work areas are being established to support the project and include equipment and material staging areas and areas where capping will take place. Access to these areas will be restricted. Site workers will also provide security surveillance. Capping related activities are anticipated to take place 8 hours a day, Monday through Friday. General security measures at all work areas will include clearly identifying each area as needed (e.g., with flagging tape, construction fencing, etc.) and restricting access where work is taking place. Additional measures may be taken to secure equipment left unattended. For example, portable equipment will be secured in designated areas, heavy equipment will be relocated to a safe location, and work areas will be properly barricaded. Temporary fencing and signage will be installed as required in places where work activities may be taking place. The site perimeter will be posted with signs stating "DANGER – CONSTRUCTION AREA – UNAUTHORIZED PERSONNEL KEEP OUT" or acceptable alternate.

The Onondaga County West Shore Recreational Trail is normally accessible to the public from the New York State Fair Orange Parking Lot. Honeywell will sequence the construction activities to allow continued public access to the trail to the extent possible. However, sometimes the nature and extent of construction activities will require that access to this area be restricted or closed. During these periods, highly visible barriers and signs will inform the public of the closure and will also communicate the schedule for when the area will be re-opened to the public. Honeywell will coordinate any changes to the trail access with the Onondaga County Parks Department.

3.1.2. Vapor & Odor Control

Vapors released during site activities represent a potential health hazard and odor problem. The following controls will be implemented to mitigate these issues:

- Controlling the amount of soils/vegetative material disturbed concurrently.
- Air monitoring will be conducted per the CAMP.

3.1.3. Dust Control

Dust released during remedial activities represents a nuisance and a potential health hazard.

The following controls will be implemented to mitigate dust issues:

- Water will be used to suppress dust on haul roads and access ways as required by dust monitoring and visual observations
- A water truck will be on site to support dust control activities if dry, dusty conditions are encountered
- The site speed limit of 10 mph (or as otherwise posted) will be enforced. Slower vehicle speeds reduce road dust and minimize the potential for accidents and spills. Dust monitoring will be conducted per the Community Air Monitoring Program (CAMP).

3.2. TRAFFIC MANAGEMENT

Truck and heavy equipment traffic represents the most frequent point of interaction between the Wastebeds 1-8 project and members of the local community and is therefore one of the most critical elements of community health and safety planning. A driver safety program has been established and serves to communicate project requirements to truck drivers and equipment operators and monitors compliance with project traffic rules. This program also prescribes measures for addressing out-of-compliance operators, up to removal of non-compliant operators from the project.

In addition to the safety program, heavy equipment operators must have a license or certificate that indicates they have passed a written test and "road" test for the type of equipment they will be operating. Heavy equipment will be equipped with backup alarms, horns, and other safety devices.

Temporary fuel storage tanks will be labeled as to their content and be protected from collision by site vehicles using solid barricades including balusters, chain link fence, or equivalent. Spill kit (55 gallon sorbent capacity contained in an overpack) and one 20lb Type ABC fire extinguisher will be located within 45 feet of fueling areas. Tanks will be rated for above ground use and provided with secondary containment. Tanks and dispensing hose will be bonded and grounded. Temporary secondary containment must be provided in the refueling area that includes the storage tank and dispensing hoses.

4 CHEMICAL PARAMETERS OF CONCERN

The OSHA HAZWOPER standards (29CFR1910.120 and 1926.65) and OSHA Hazard Communication Standard require that site personnel, subcontractors, and visitors must be informed of chemical hazards associated with their work area. Exposure to surficial Solvay waste, a non-hazardous white to gray material present at the site as a result of historical industrial activities and land uses, is the primary concern for site workers and visitors. Potential exposure pathways to this material include:

- Contaminated soil and/or water
- Inhalation of contaminated dusts
- Skin contact/absorption with contaminated soils and/or water

The primary route of exposure is inhalation of airborne contaminants and contaminated dusts. However, inhalation of airborne contaminants approaching the OSHA PELs is unlikely because of natural ventilation of the work area, safe work practices, PPE, and/or air monitoring. Additional information pertaining to the site environmental conditions can be found in the *Revised Remedial Investigation Report* (O'Brien & Gere, 2014A) and the *Revised Final Feasibility Study Report* (O'Brien & Gere, 2014).

5 EMERGENCY RESPONSE PLAN

This emergency response section provides contact information for resources to be contacted in the event of a site emergency.

5.1. EMERGENCY PHONE NUMBERS

Emergency phone numbers will be posted or provided on site. Emergencies encountered on this site will be responded to by a combination of off-site emergency services and site personnel.

TABLE 5.1 - EMERGENCY NUMBERS

Fire, Explosion, Emergency Medical
OSHA-Recordable Injuries, Unexpected Structural Collapse, Petroleum Spills

Honeywell		
Project Manager	**Steve Miller**	(315) 741-3723
State or Local Resources		
Hospital	**Upstate Medical University** 750 East Adams Street Syracuse, NY 13210-2375	(315) 464-5611
Occupational Clinic	**Industrial Medical Associates** 961 Canal St, Syracuse	(315) 478-1977
Police	**Town of Geddes Police Department** 1000 Woods Road Syracuse, NY 13209	911 (315) 468-3283
Fire Department	**Solvay Fire Department** 1925 Milton Ave Solvay NY 13209	911 (315) 468-1710
NYS DEC	To be notified by O'Brien & Gere upon major vapor or dust release	(845) 561-4400 (main number)
NYS DEC	**Region 7 – Syracuse** 615 Erie Blvd West Syracuse, NY	(315) 426-7200
NYSDOH	**NYSDOH** Corning Tower Empire State Plaza Albany, NY 12237	(866) 881-2809

Refer to attached **Figure 2** for Hospital Route Map.

5.2. GENERAL EMERGENCY RESPONSE PLAN

In the event of a site emergency, O'Brien & Gere will call the site Honeywell Emergency Response Team and/or 911. When necessary, an O'Brien & Gere representative will coordinate the arrival of on-site emergency personnel Honeywell emergency response employees.

6 REFERENCES

New York State Department of Health (NYSDOH). 2000. *Generic Community Air Monitoring Plan Revision 1.* NYSDOH. http://www.dec.ny.gov/docs/regions_pdf/spldgair.pdf. June 2000.

O'Brien & Gere. 2014. *Revised Feasibility Study Report Operable Unit 1 Wastebeds 1 through 8 Geddes, New York.* O'Brien & Gere Engineers, Inc., Syracuse, New York. May 2014.

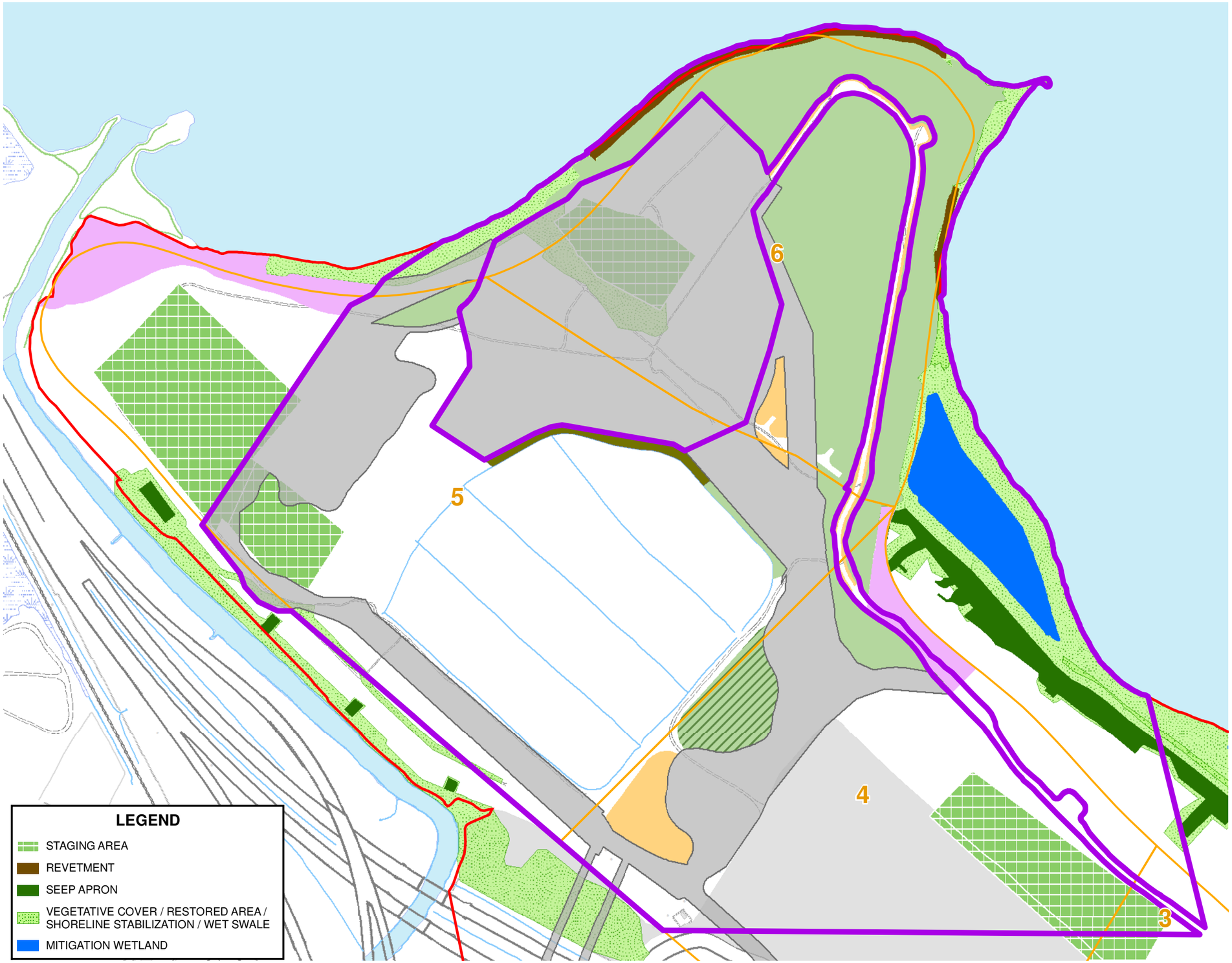
O'Brien & Gere. 2014A. *Revised Remedial Investigation Report Wastebeds 1 through 8 Site, Geddes, New York.* O'Brien & Gere Engineers, Inc., Syracuse, New York. August 2014.

O'Brien & Gere. 2015. *Revised Remedial Design/Remedial Action Work Plan, Wastebeds 1-8 Operable unit 1 (OU-1), Town of Geddes, Onondaga County, New York.* June 29, 2015.

O'Brien & Gere. 2015A. *Revised Remedial Action Work Plan, Wastebeds 1-8 Operable unit 1 (OU-1), Town of Geddes, Onondaga County, New York.* August 6, 2015.

Figures

I:\Honeywell.1163\60388.Wastebeds-1-8-O\Docs\DWG\MXD\PERIMETER AIR QUALITY MONITORING BOUNDARY.mxd



This document was developed in color. Reproduction in B/W may not represent the data as intended.

PLOTDATE: 07/28/15 2:42:07 PM newtonjm

FIGURE 1

N

LEGEND

- PERIMETER AIR QUALITY MONITORING BOUNDARY
- 1 FOOT VEGETATED COVER - 2015
- VEGETATION ENHANCEMENT COVER - 2015
- 6 INCH VEGETATION ENHANCEMENT COVER - 2015
- VEGETATION ENHANCEMENT COVER 2015 - BASED ON THE RESULTS OF ADDITIONAL PRE-DESIGN SAMPLING
- ADDITIONAL VEGETATION ENHANCEMENT AREAS THAT MAY BE COVERED IN 2015 IF SCHEDULE PERMITS
- AMPHITHEATER FOOTPRINT
- PARKING LOT AREA
- APPROXIMATE WASTEBED BOUNDARY
- WASTEBEDS 1-8 SITE LIMITS

HONEYWELL
INTERNATIONAL INC.
OU-1 RAWP
WASTEBEDS 1-8
GEDDES, NEW YORK

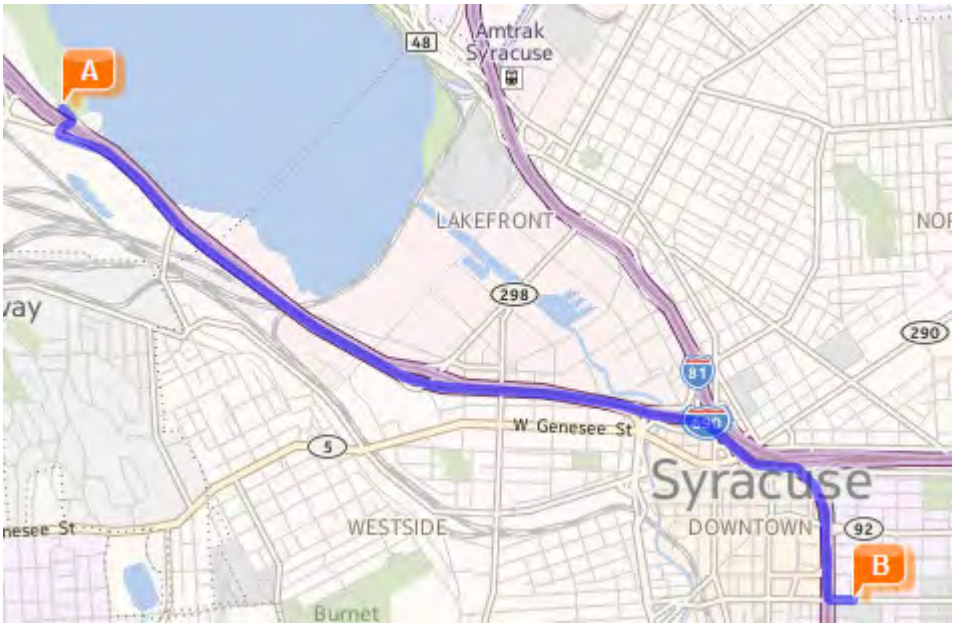
PERIMETER AIR QUALITY MONITORING BOUNDARY

0 150 300 600
Feet

JULY 2015
1163.60388

O'BRIEN & GERE

FIGURE 2 – HOSPITAL ROUTE MAP



1) Start at Orange Parking Lot Gate

2) Turn right

3) Bear left

4) Turn Left onto State Fair Blvd (CR-80)

5) Take ramp onto I-690 E.

6) Take the I-81 S/Binghamton exit onto I-81 S.

7) Take exit #18/Harrison St/Adams St.

8) Take left ramp

9) Take ramp onto Almond St.

10) Turn Left onto E. Adams St.

Exhibit 1
NYSDOH gCAMP

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

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Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

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