GEDDES BROOK INTERIM REMEDIAL MEASURE WORK PLAN

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APRIL 2011

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ACRONYMS

CQAP	Construction Quality Assurance Plan
CWTP	Construction Water Treatment Plant
GAC	granular activated carbon
gpm	gallons per minute
IRM	Interim Remedial Measure
LCP	Linden Chemical Plant
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ppm	parts per million
SGAC	sulfur-impregnated granular activated carbon
SWPPP	Stormwater Pollution Prevention Plan
USEPA	United States Environmental Protection Agency

SECTION 1

INTRODUCTION

This Geddes Brook Interim Remedial Measure (IRM) Work Plan (Work Plan) includes plans, methodologies, and a milestone schedule for implementing the remediation. It has been prepared in accordance with the requirements of the Order on Consent (Index #D7-0003-01-09) entered into by Honeywell International, Inc. (Honeywell) and the New York State Department of Environmental Conservation (NYSDEC) for the Geddes Brook IRM.

This Work Plan is organized into five sections and one appendix:

Section 1 – Introduction
Section 2 – Project Organization
Section 3 – Remedial Activities
Section 4 – Schedule
Section 5 - References
Appendix A – Design Drawings
Appendix B – Stormwater Pollution Prevention Plan (SWPPP)
Appendix C – Project Safety Plan

A site description and history are available in the *Draft 100% Design Report for the Geddes Brook IRM* (Parsons, 2010a).

SECTION 2

PROJECT ORGANIZATION

This section summarizes the project organization and the functions and responsibilities of various team members. A project organization chart is provided as Figure 2.1; key team members and their responsibilities are provided below. Contact information for key team members is provided in Table 2.1.

2.1 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC)

The NYSDEC is the lead regulatory agency for the site. This state agency will review and approve plans, drawings, reports, and schedules. Mr. Tracy Smith is the NYSDEC Project Manager for the Geddes Brook IRM.

2.2 UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

The USEPA is the federal regulatory agency overseeing the remedial action for the site. NYSDEC will coordinate with USEPA, which will review submittals of plans, drawings, and reports to assess compliance with USEPA regulatory criteria. Mr. Robert Nunes is the USEPA Project Manager for the Geddes Brook IRM.

2.3 HONEYWELL

Honeywell is responsible for the design and implementation of the Geddes Brook IRM. Mr. John McAuliffe, P.E., is the Honeywell Syracuse Program Director and primary Honeywell contact for this project. Mr. William Hague is Honeywell's Director for Remediation Design and Construction, and will review and provide input on project approaches and deliverables.

2.4 PARSONS

Parsons will serve as the prime contractor for construction and will manage the schedule and execution of the project. The responsibilities of key Parsons' personnel are described below.

2.4.1 Project Manager

Mr. Matt Warren will be the Parsons Project Manager and will be responsible for the overall execution of the project. The Project Manager will be accountable to the Parsons Program Manager (Mr. Steve Warren), Honeywell Syracuse Program Director (Mr. John McAuliffe), and Honeywell's Director of Remediation Design & Construction (Mr. William Hague). Mr. Matt Warren will be responsible to Honeywell and Parsons Management to meet the project objectives. Mr. Matt Warren will be responsible for managing subcontractors, maintaining the project schedule, managing the project budget, and ensuring the technical adequacy of the work performed. He will also be the primary point-of-contact for Honeywell on technical, schedule, and contractual issues.

2.4.2 Design/Certifying Engineer

Mr. Ray D'Hollander, P.E. will be the Design/Certifying Engineer for this project. Mr. D'Hollander will be responsible for managing design issues during construction, including the review of submittals for compliance with the design, approving all changes to the design, and periodically making site inspections to assess compliance of construction with the design.

2.4.3 Construction Manager

The Construction Manager for the project will be Mr. Darren Fuller. Mr. Fuller will be responsible for completion of the construction work, and will implement on-site construction activities and direct on-site construction personnel, including subcontractors. He will submit documentation to the design/certifying engineer as required in the contract documents, and maintain construction quality and safety standards.

Mr. Fuller will supervise the following:

- Subcontractor work scope
- Excavation and restoration activities
- Water treatment
- Materials management
- Operations at the LCP containment area

2.4.4 Site Health and Safety Officer

The site Health and Safety Officer for this project will be Mr. John Scurek. Mr. Scurek will review and implement the Project Safety Plan. Mr. Scurek will conduct periodic health and safety audits of the project, which will include a review of personnel training records to verify they are trained in accordance with the site-specific health and safety plan, and will coordinate with site personnel and project management so that safe and compliant site work practices are implemented.

TABLE 2.1
KEY TEAM MEMBER CONTACT INFORMATION

Name	Title/Function	Address	Phone No(s)	Cell	Email
John McAuliffe	Syracuse Program Director	Honeywell 301 Plainfield Road Suite 330 Syracuse, NY 13212	(315) 552-9782	(315) 440-0859	John.McAuliffe@ honeywell.com
William Hague	Director, Remediation Design and Construction	Honeywell 101 Columbia Road Morristown, NJ 07962	(973) 455-2175	(973) 896-9366	William.Hague@ honeywell.com
Steve Miller	RD/CM Liaison	Parsons 301 Plainfield road Suite 350 Syracuse, New York 13212	(315) 552-9713	(315) 935-5400	Steve.Miller@ parsons.com
Stephen Warren	Parsons Portfolio Manager	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 552-9744	(315) 415-3170	Stephen.Warren@ parsons.com
Jim O'Loughlin	Parsons Deputy Program Manager	Parsons 150 Federal Street 4th Floor Boston, Massachusetts 02110-1713	(617) 449-1563	(617) 279-3436	James.O'Loughlin@ parsons.com
Shane Blauvelt	Parsons Design Project Manager	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 552-9675	(315) 559-9740	Shane.Blauvelt@ parsons.com
Ray D'Hollander	Design/ Certifying Engineer	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 552-9683	(315) 247-4780	Ray.DHollander@ parsons.com
Matt Warren	Project Manager	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 552-9743	(315) 877-1389	Matthew.Warren@ parsons.com
Darren Fuller	Construction Manager	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 552-9694	(315) 251-5410	Darren.Fuller@ parsons.com
John Scurek	Health and Safety Officer	Parsons 301 Plainfield Road Suite 350 Syracuse, New York 13212	(315) 451-9560	(732) 685-3303	John.Scurek@ parsons.com

SECTION 3

REMEDIAL ACTIVITIES

3.1 COMMUNITY AIR MONITORING

A community air monitoring plan has been developed for the Geddes Brook IRM that is based on the New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan (NYSDOH, 2000). Air monitoring will take place at the upwind and downwind perimeter of work zones. Wind direction will be assessed twice a day based on field observations and monitoring locations will be adjusted accordingly. These work zones include excavation areas associated with the Geddes Brook IRM and the LCP Containment Area (Figure 3.1). Monitoring in the excavation areas for worker protection is described in the Project Safety Plan (Appendix C).

3.1.1 Particulate Monitoring

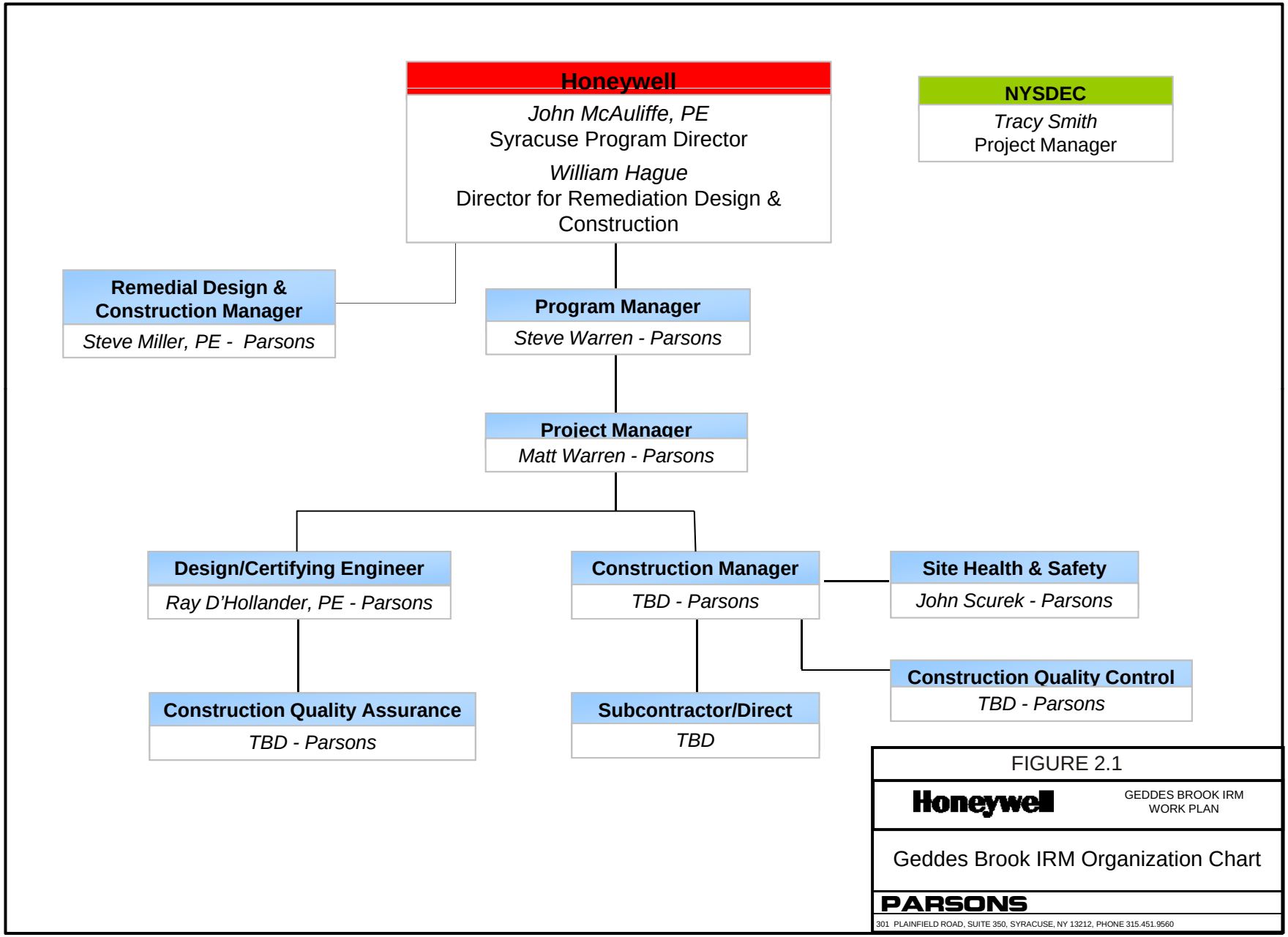
During construction activities, the air will be continuously monitored for particulates (i.e., dust) to identify if particulate levels at the work zone perimeter occur above site-specific control levels. Proactive measures such as using reduced-dust road construction materials, wetting site roadways with a water truck, applying dust-suppressing materials onto roadways, or applying water to wet-down excavations or soil placement/grading activities will be used to mitigate the potential for dust.

The NYSDOH has established a work perimeter action level for particulates at 150 ug/m^3 above upwind levels which provides a measure of protection for the downwind community. Alarms on the equipment at the Geddes Brook site perimeter will be set at a lower site-specific control level (100 µg/m^3 above upwind levels). If this lower site-specific control level is exceeded for a 15-minute period, additional dust suppression measures (such as increasing the use of water or reducing equipment speeds) will be implemented. If the NYSDOH perimeter limit is exceeded, the work generating the dust will be stopped and there will be a re-evaluation of the activities.

The dust monitoring will use real-time monitors capable of measuring dust less than 10 micrometers (PM-10) and capable of integrating PM-10 concentrations over a period of 15 minutes. Equipment will alert appropriate site personnel immediately if dust particulate concentrations exceed the control level.

3.1.2 VOC Monitoring

During construction activities, air will be monitored for total volatile organic compounds (VOCs) to assess if any concentrations at the work zone perimeter occur above the site-specific



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control levels. If NYSDOH action levels are exceeded, the work generating VOCs will be stopped and there will be a reevaluation of the work.

VOC monitoring equipment will consist of photo-ionization detectors (PIDs) that will measure total VOC concentrations continually during construction activities. The equipment will log data real time, calculate a 15-minute average, and, if investigation levels are reached, notify the mobile phone of the appropriate site personnel.

The NYSDOH has established a work perimeter action level for VOCs at 5 parts per million (ppm) above upwind levels which provides a measure of protection for the downwind community. To provide additional assurance, the equipment will be set at a lower site-specific investigation level of 2 ppm. If the air monitors detect VOC concentrations exceeding the lower investigation level for a 15-minute period, the source of the emissions will be investigated and evaluated.

If VOCs reach an average control level of 3 ppm for a 15-minute period, measures including covering the excavation or applying foam will be implemented. If a 15-minute average of 5 ppm (perimeter limit) is reached, work will be stopped until corrective measures are implemented.

Since VOCs are not a site specific CPOI, they are not anticipated to be of concern at the Site. Therefore, if monitoring results indicate that VOC's are not of concern during the first month of intrusive construction activities, VOC monitoring may be discontinued with NYSDEC concurrence.

3.2 SPILL RESPONSE

3.2.1 Spills from Vehicles and/or Equipment

Petroleum-based fuels and oils will be used for operation of heavy equipment. Fuels will be brought on-site by a fuel tanker and stored on-site in portable storage tanks. On-site fuel storage tanks will have secondary containment and comply with the National Fire Protection Association (NFPA) 30 "Flammable and Combustible Liquids Code" and Occupational Safety and Health Administration (OSHA) 1910.106.

Procedures to prevent spills during construction are listed below:

1. Materials will be stored in a neat, orderly manner in their appropriate containers.
2. Products will be kept in their original containers with the original manufacturer's label.
3. Substances will not be mixed with one another unless recommended by the manufacturer.
4. Whenever possible, products will be used up or the packages will be resealed before proper disposal of contents and containers off-site.
5. Manufacturers' recommendations for proper use and disposal will be followed.

6. Periodic inspections on the use and storage of materials will be conducted and recorded on an inspection form.
7. Vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage of petroleum products.
8. Petroleum products will be stored in closed containers that are clearly labeled. Used oils will be disposed of properly.
9. Materials will be brought on-site in quantities that limit or minimize the amount of storage.
10. Paint containers will be tightly sealed and properly stored when not in use. Excess paint, solvents, etc., will not be discharged to the storm sewer facilities but will be properly disposed of according to manufacturer's instructions, or state and local regulations.

3.2.2 Spill Response Kit

A spill response kit will be on-site at all times. Used spill containment and absorbent materials will be properly contained, labeled, and disposed of in accordance with state and local regulations.

3.2.3 Spill Reporting

Petroleum spills covered by the NYSDEC Technical Field Guidance – Spill Reporting and Initial Notification Requirements, (Spill Guidance Manual), must be reported to DEC hotline (1-800-457-7362) within 2 hours of discovery.

3.3 MOBILIZATION AND SITE PREPARATION

The remedial activities to be conducted at the site will require the implementation of stormwater controls, erosion prevention and sediment control measures in accordance with the SWPPP, provided in Appendix B. The SWPPP identifies the controls that will be used as well as associated design details. Controls will be inspected at least weekly by a qualified inspector as defined in the SWPPP and adjusted as needed to account for changing conditions.

3.3.1 Utilities and Existing Conditions

Prior to mobilization, Dig-Safe New York will be contacted to identify and mark public utilities near the work area. Pre-construction photographs will be taken to document pre-existing conditions at the site and adjoining public facilities and roads.

3.3.2 Site Security

Site access will be restricted. Clearly identifying work zones (e.g., using flagging tape, construction fencing, signs) and restricting public access to these areas will be used as security measures. Precautions will be observed in order to protect materials, equipment and completed work from damage by theft, vandalism and/or sabotage.

Each day, portable equipment will be secured in designated areas, heavy equipment will be relocated to a safe location. Temporary fencing will be installed as required.

3.3.3 Dust Control

Dust generated on-site from construction activities will be monitored continuously in accordance with the air monitoring program described in Section 3.1. Standard dust control practices will be employed to reduce dust generated on-site and control fugitive dust emission.

3.3.4 Survey

The site boundaries are shown on Figure 3.1. Survey benchmarks will be provided around the perimeter of the Linden Chemical Plant (LCP) containment area and the Geddes Brook floodplain by a licensed surveyor. Surveying will be conducted in accordance with Specification 01720 – Project Surveying.

3.3.5 Site Clearing

Site clearing will be performed in each designated work area as appropriate, including an area for site laydown adjacent to the Geddes Brook floodplain as shown on the Site Preparation and Erosion/Sediment Control Plan in the attached SWPPP. Site clearing will consist of cutting and removing trees as per Specification 02100 – Clearing and Grubbing. Brush mowing may be performed in areas. Common reed may be left intact (i.e., uncut) to aid in evapotranspiration and therefore help reduce the volume of construction water.

3.3.6 Road Upgrades and Crossings

Upgrades to existing site roads will include placement and grading of sub-base material as needed. Crossings over the previously installed cut-off wall at the LCP containment area will be constructed as per the design detail in Appendix D-4 of the SWPPP.

Stabilized construction entrances will be constructed where site traffic enters/exits public roads. These will conform to the design details indicated in the SWPPP, and will be top-dressed as required. Decontamination pads will be incorporated in accordance with the SWPPP.

Temporary haul roads within the Geddes Brook floodplain area are integral to the construction sequencing and will be constructed as required to support remediation of the floodplain. Section 3.7.2 discusses the proposed sequencing in further detail and the Site Preparation and Erosion/Sediment Control Plan included in the attached SWPPP indicates the proposed location of the temporary haul roads and construction road stabilization of existing access roads in the Geddes Brook Floodplain. The actual number and location of haul roads will be determined based on field conditions. Temporary haul roads and stabilization of existing access roads will be completed according to the NYSDEC State Standards and Specifications for Erosion and Sediment Control. Geotextiles used for haul road construction within the remedial footprint will be removed prior to final restoration activities.

New temporary haul roads outside the remediation footprint may or may not be retained for use during the Ninemile Creek remedial action, maintenance phase of the project, or in consideration of the future use of the property. If the haul roads are within 100 feet of a delineated wetland, decisions regarding the haul road (e.g., leave in place, restore in kind, topsoil and seed, etc.) will be made in consultation with the NYSDEC.

3.4 GROUNDWATER MONITORING WELL ABANDONMENT

Piezometers within the footprint of the Geddes Brook floodplain will be abandoned according to the schedule and procedures detailed in Specification 02085 - Groundwater Monitoring Well Abandonment. A drilling subcontractor will be used to abandon the piezometers that extend below final excavation grade.

3.5 GEDDES BROOK CULVERT CLEAN-OUT

In general, removal of the sediments within the Geddes Brook Culverts will take place once upstream soil/sediment has been removed. It is anticipated that sediment removal will be accomplished by alternately isolating one culvert and diverting flow through the other culvert.

Sediments removed from within the culverts will be collected, hauled to and consolidated at LCP. Construction water resulting from the cleaning of the culverts will be contained and treated at the Construction Water Treatment Plant (CWTP).

3.6 TEMPORARY CHANNEL DIVERSIONS

The Geddes Brook channel and floodplain areas, as well as key structures, have been named as shown of Figure 3.2. Diversions in these areas are described below.

3.6.1 Middle Geddes Brook

Before conducting excavations in the Middle Geddes Brook area, surface water flows will be diverted to allow for dewatering of the excavation area. This will reduce the effort to dewater/stabilize materials for hauling and consolidation at LCP. Diversion berms will be constructed in the West Flume and Upper Geddes Brook as shown on Figure 3.2. Further detail regarding the design of diversion berms is provided in the SWPPP.

A pump with a floating screen or similar device to limit sediment intake will be installed upstream of the West Flume Diversion Berm. Water will be pumped from the West Flume and discharged upstream of the Upper Geddes Brook Diversion Berm. To reduce scour, rock protection will be installed at the discharge point or the water will be pumped directly inside the Geddes Brook Culverts. A second pump with a floating intake screen will then be used to pump water from upstream of the Upper Geddes Brook Diversion Berm to inside the Geddes Brook Culverts. Sediment from the initial 15 to 20 feet of the Geddes Brook culverts shall be removed, or otherwise protected, prior to diversion in order to reduce the likelihood of generating turbidity

at the diversion discharge point. Following remediation and restoration of Middle Geddes Brook, the diversion berms will be removed.

3.6.2 Outfall 019 and Iron Brook

A similar diversion method as described above will be implemented for the Outfall 019 and Iron Brook areas. Diversion berms (Outfall 019 and Iron Brook Diversion Berms as shown on Figure 3.2) will be constructed upstream of the excavation areas and water pumped via floating intakes to inside the Geddes Brook Culverts.

3.6.3 Geddes Brook Channel Diversion Downstream of Geddes Brook Culverts

The following sequence of diversion activities is anticipated (although alternative methods may be developed):

- The area west of the current access road (access road that is currently located immediately west of the current channel alignment), as shown on Figure 3.2, will be remediated and finished grade within the proposed channel alignment in this area will be established, prior to disturbing the current channel alignment. This will allow the Geddes Brook culvert flow to stay in the current channel without diversion and minimize the duration of the pump around described below.
- Once finished grade within the proposed channel alignment is established in the area west of the current access road, a short stretch (anticipated to be less than 50 ft.) of the current channel alignment immediately downstream of the Geddes Brook Culverts will be remediated in the wet through flowing water. During these removals, best management practices will be implemented (e.g., downstream check dams) to help prevent release of sediments.
- Following approval of post-excavation sample results in the short stretch immediately downstream of the Geddes Brook Culverts, the Lower Geddes Brook Diversion Berm will be installed downstream of the Geddes Brook Culverts to create a retention pond. The water collected in the retention pond will be pumped and piped directly to Ninemile Creek, with suitably sized rock protection installed at the discharge to Ninemile Creek to reduce scour.
- The current channel will be dammed off at the outlet into Ninemile Creek (Ninemile Creek Diversion Berm), and de-watered, with construction water directed to the CWTP. Remediation of the remaining current channel alignment, areas under the current access road, and floodplains east of the current channel alignment will commence, followed by subgrade shaping.
- Upon completion of the remediation of the current channel and construction of the proposed channel, the Ninemile Creek Diversion Berm will be removed, allowing backflow from Ninemile Creek to enter the newly restored channel.
- Once the Ninemile Creek Diversion Berm has been removed, the Lower Geddes Brook Diversion Berm will be removed, allowing the water to pass in the proposed channel.

Any additional grading outside the channel alignment will be completed once the flow is in the proposed channel.

Turbidity monitoring during stream diversion will be in accordance to Specification 02140 – Construction Water Management, (Appendix B – 100% Design Report for the Geddes Brook Interim Remedial Measure).

3.7 EXCAVATION AND MATERIAL HANDLING

3.7.1 Middle Geddes Brook and Outfall 019

Excavation of materials from Middle Geddes Brook and Outfall 019 will be conducted from upstream to downstream following installation of the temporary channel diversions described in Section 3.6. Excavated material will be temporarily staged within the limits of excavation or direct loaded onto trucks for hauling to and consolidation at the LCP containment area.

3.7.2 Geddes Brook Floodplain

The anticipated sequencing for removals in the Geddes Brook Floodplains (Eastern and Western) is provided below. Actual sequencing will be determined in the field based on field conditions.

- Initially, 2 ft. of material will be removed from the utility berm. As this 2-ft. removal progresses and post-excavation sample results are approved, the berm will be backfilled to create a temporary haul road.
- Excavations in the Western Floodplain (Figure 3.2) will begin following installation of required portions of the haul road on top of the utility berm. Early in the removal process, soil/sediment immediately adjacent to Ninemile Creek will be removed down to clay and post-excavation sample results will be collected. This will allow for the installation of a perimeter access road around the Western Floodplain area. The access road will be constructed to an elevation of approximately 368 ft. which is higher than the surface water elevation in Ninemile Creek recorded during the two major storm events between March and September of 2010. This will help isolate the Western Floodplain from NMC under most flow conditions in addition to facilitating the remedial activities. It is anticipated clay will serve as the road subgrade material, a woven geotextile will be placed on top of the subgrade, and approximately 12 – 24 inches of NYSDOT Type 1 or 2 material will be compacted on top of the geotextile.
- Following installation of required portions of the temporary haul roads, excavation of the Western Floodplain will continue. Excavations will start in the areas closest to Ninemile Creek.

- Remediation in the Eastern Floodplain (i.e., areas east of the utility berm) will follow the same general concepts as for the Western Floodplain. However, the sequencing in this area will take place as summarized in Section 3.5.3.

Excavated material will be staged adjacent to the floodplain haul roads within the limits of excavation prior to being loaded onto trucks and hauled to the LCP containment area. Construction water will be collected and transferred to the construction water treatment system. Paint-filter testing will be performed on samples of excavated materials prior to hauling and consolidation at LCP. If staged materials do not pass the paint filter test, material solidification may be required as described in Section 3.7.3, prior to loading the materials onto trucks. Hauling of materials over public roads will be performed in accordance with local, state, and federal regulations.

3.7.3 Material Solidification (if required)

Solidification of excavated material may be required if the material does not pass the paint filter test. Excavated materials staged adjacent to the floodplain haul roads may be mixed with a stabilization material (e.g., Portland Cement, fly ash, quick lime) if necessary. Water will be used to suppress dust created when dumping the cement and during mixing activities. Conventional excavators will mix the material into the staged soil/sediment until the material has solidified to the point where it will pass the paint filter test. The ratio of stabilization material to excavated material will be determined based on field conditions. Specialty excavator mixing attachments (e.g., rakes, high speed rotary blender) may be used in the event that the conventional bucket does not properly solidify material. After a sufficient set up period, the material will be loaded onto trucks and hauled to the LCP containment area. Alternative methods may be used to stabilize materials based on observed field conditions.

3.8 POST-EXCAVATION SAMPLING

Post-excavation sampling will be performed as per the Construction Quality Assurance Plan, (CQAP). The location and elevation of post-excavation sample grids will be surveyed. Samples will be analyzed on an expedited basis to facilitate field decisions and minimize the volume of construction water. It is assumed that DEC will provide notification if samples are not acceptable within one working day of receiving sample results.

3.9 MATERIAL RE-USE AND BACKFILLING

Following approval of post-excavation sample results, the subgrade will be shaped in accordance with the design drawings. To the extent practical, sub-grade shaping will be conducted by re-using on-site clay materials.

Final grades will be achieved through the placement of clay, topsoil, channel grade substrate, rip-rap, and/or habitat subgrade fill in accordance with the design drawings and specifications.

In general, subgrade shaping, backfilling and seeding will be conducted soon after approval of post-excavation sample results, taking into account other project considerations including the potential for re-contamination, weather conditions, etc., to help with the establishment of vegetation and stormwater minimization.

3.10 LCP CONTAINMENT AREA

Contaminated materials excavated during the Geddes Brook IRM will be placed in the LCP containment area in accordance with Specification 02219 – Waste Excavation, Consolidation and Disposal. Refer to Appendix A-1 for the anticipated LCP containment area grades following placement of material excavated from the Geddes Brook remediation areas.

Material placement at LCP will be conducted in three phases to limit the area of contaminated materials open to stormwater contact. Phasing will begin at the western end of the area and progress east. Figure 3.3 illustrates the general phasing concept.

Before consolidating soil/sediment in the LCP containment area, the existing topsoil layer may be removed and staged for re-use. Prior to re-use of the topsoil, it will be sampled per Specification 02200 – General Earthwork. Perimeter and interior berms will be installed to create cells that will contain and direct runoff from storm events. The perimeter berms will be installed within the cut-off wall limits and will be approximately 5 ft. high. The interior berms will be installed generally perpendicular to the slope and at the approximate locations illustrated on Figure 3.3. They will be approximately 5 ft. high near the intersection point with the perimeter berm and may be shorter as they progress up the slope. A perforated drain line will run along the inside toe of the perimeter berms to gather runoff and distribute it to one or more pumping points. The drain lines will be bedded in pea gravel or concrete sand.

As each cell becomes filled with soil/sediment and retention capacity for storm water runoff volume becomes reduced, the adjacent cell will be prepared (i.e., remove topsoil and install berms/drain lines). It may be appropriate to remove portions of the interior berms between the cells to allow for drainage from the previous cell to the current cell. This configuration may provide for more continuous drainage and storage of runoff. This decision will be made in the field based on actual field conditions.

Material placement and grading will be conducted so that the western and northern perimeters of the containment area can be graded and capped, as soon as practical, to reduce the open area and generation of construction water.

Following consolidation of excavated materials, a temporary cap will be constructed. The temporary cap may be soil or a flexible membrane liner.

3.11 CONSTRUCTION WATER MANAGEMENT

Excavations of contaminated soils/sediments are expected to generate construction water that will require treatment. This water may be generated by dewatering operations during

excavation of materials, during materials handling and loading, and at the LCP Containment Area. Rainfall on disturbed contaminated soil and sediment will also produce water that will require treatment.

3.11.1 Construction Water Treatment Plant (CWTP)

A CWTP with a design peak flow rate of 200 gallons per minute (gpm) will be constructed and operated to treat construction water from the Geddes Brook remediation activities prior to direct discharge to the West Flume, as per Specification 02140 – Construction Water Management. The CWTP will be located to the east and adjacent to the LCP containment area. Refer to Figures 3.4 and 3.5 for the anticipated CWTP and conveyance pipe locations and layout.

The major CWTP components are summarized below and in the attached process flow diagram (Figure 3.6).

Primary Settling

- Near-source primary settling will be conducted local to the Outfall 019 and Geddes Brook remediation areas in order to remove rapidly settling solids (e.g., sand and grit) from the wastewater stream prior to long-distance conveyance and further treatment at the CWTP.

Influent Holding and Equalization

- Influent holding and equalization tanks will receive construction water pumped from the primary settling tanks and the LCP containment area. The holding and equalization system will be comprised of twelve 21,000-gallon open top frac tanks.

Coagulation, Flocculation, and Solids Settling

- Coagulation and flocculation will be conducted in three-stages. The first two stages will be for chemical addition and pH control under rapid mix conditions. The third stage will be for flocculation under low-intensity mixing conditions to provide particle agglomeration.
- Chemical metering systems will be provided for the rapid mix stages to allow the system to control wastewater pH and promote the precipitation, coagulation, and flocculation of solids.
- Tube-settling clarifiers arranged in parallel, will promote the settling of solids and will be fabricated from 18,000-gallon open top frac tanks with internal weirs.

Pre-Carbon Bag Filtration

- Coarse bag filtration will be conducted prior to the activated carbon adsorbers. This filtration will aid in mitigating the accumulation of particles and head-loss in the adsorbers, which in turn will help minimize the requirements for adsorber backwash (and associated system downtime).

Activated Carbon Adsorption

- Activated carbon adsorption will be conducted in a series of four adsorber vessels. Each vessel will hold between 8,000 and 10,000 pounds of activated carbon. The first two adsorbers will be loaded with standard coal-based carbon (e.g., Calgon Filtrasorb F-300). The last two adsorbers may be filled with either more standard carbon or sulfur-impregnated carbon (e.g., Calgon HGR), depending on operating experience. Backwash will be conducted using treated effluent as needed to preserve head loss through the adsorbers. Spent backwash will be returned to the head of CWTP for treatment.

Post-Carbon Filtration

- Fine bag filtration following the activated carbon adsorbers will help capture carbon fines.

Effluent Holding, Discharge, and Reuse

- Effluent clearwells will consist of three parallel open top frac tanks. Treated effluent will be used for select plant water needs (e.g., polymer makeup and adsorber backwash). Excess effluent will be discharged to the West Flume.

Solids Handling and Dewatering

- Sand, grit, and sludge will accumulate in various system components over time (e.g., primary settling tanks and IPC) and will need to be periodically removed. These materials may be put in a transfer truck for hauling to the Willis Avenue dewatering facility. Following dewatering activities at Willis Avenue, the materials may be hauled back to LCP for consolidation in the containment area or disposed of off-site.
- Filtrate from dewatering at the Willis Avenue facility may be collected and returned to the CWTP for treatment.

The CWTP will be operated on an as needed basis. Workers will be on-site when the facility is operating. Times of operation will include any period in which water or solids are being pumped to the facility, being processed by the facility, or discharging from the facility.

3.12 RESTORATION

Restoration activities will be conducted in accordance with the 100% Design Report for the Geddes Brook Interim Remedial Measure (Parsons 2010a).

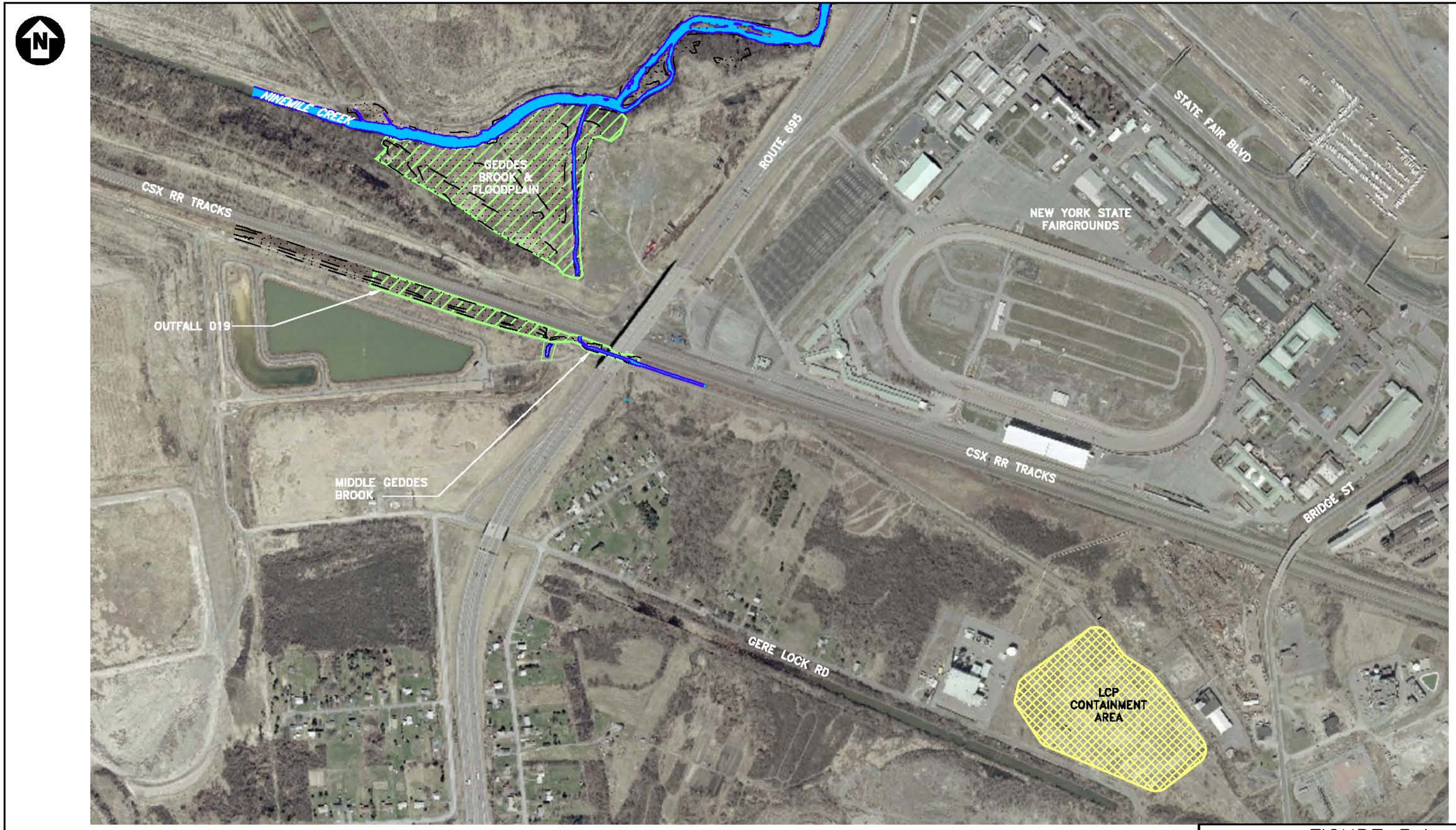

FIGURE 3.1

Honeywell

GEDDES BROOK IRM WORK PLAN

SITE BOUNDARIES

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\443575 HONEYWELL NINEMILE\10 TECHNICAL CATEGORIES\10.1 CAD\REPORTS\WORK PLAN\443575-WP-002.DWG
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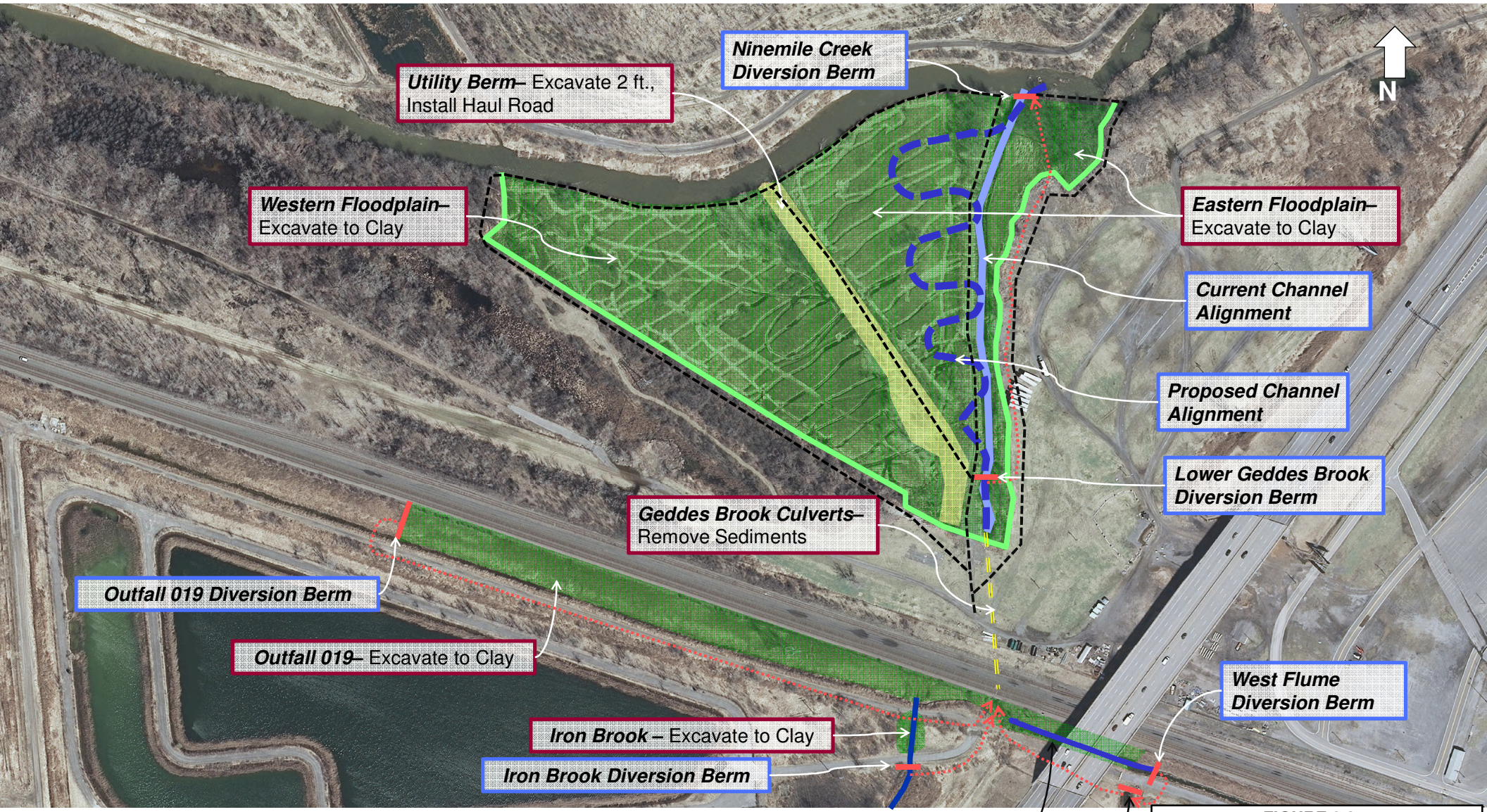


Legend:
- Diversion berm
- Approximate location of temporary bypass piping
- Approximate location of temporary haul roads

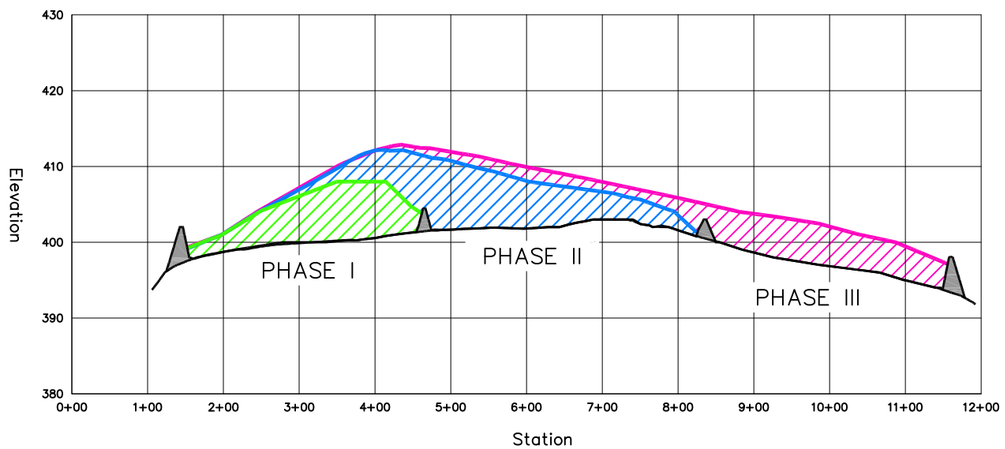
FIGURE 3.2

Honeywell NINEMILE CREEK SYRACUSE, NEW YORK

Temporary Channel Diversions and Excavation Areas

PARSONS
301 Plainfield Road, Suite 350, Syracuse, NY 13212, Phone 315.451.9560

P:\Honeywell -SYR\445568 …\09 Reports\9.1 Work Plans\Work Plan\figures…figure 3.2



ALIGNMENT A PROFILE

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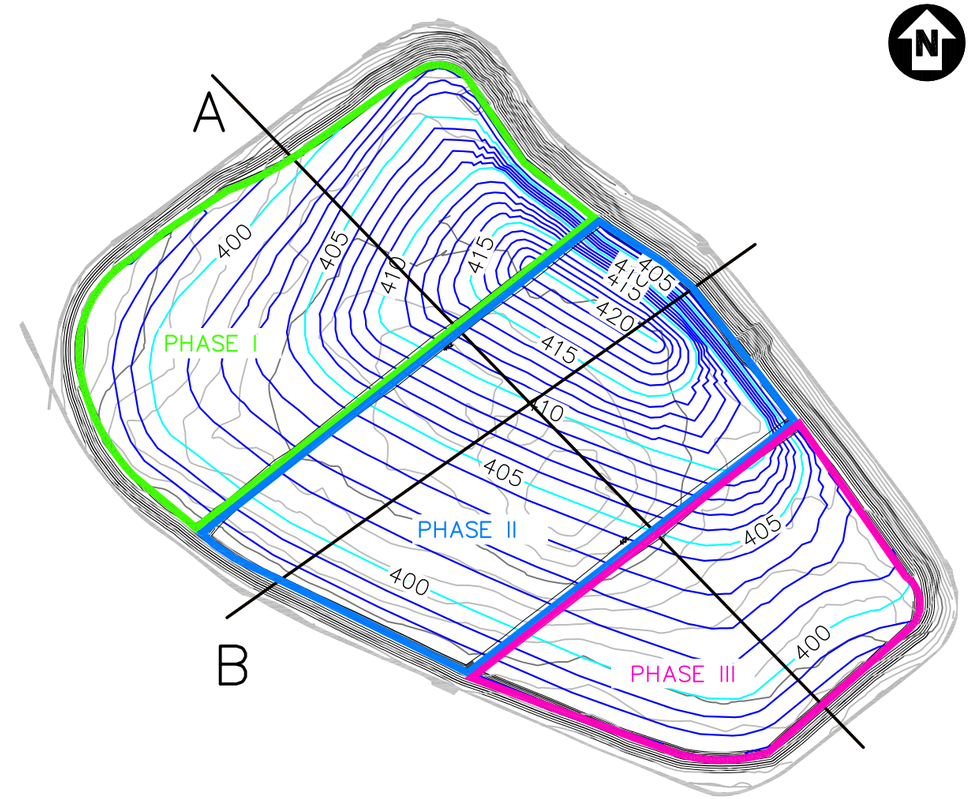
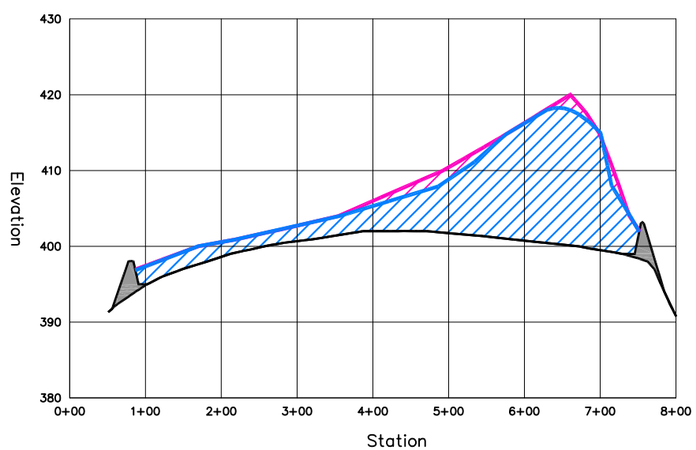
1"=20' (VERTICAL)



SITE LAYOUT

SCALE: 1"=200'



ALIGNMENT B PROFILE

SCALE: 1"=200' (HORIZONTAL)
1"=20' (VERTICAL)

200 100 0 200 400

SCALE: 1"=200'

FIGURE 3.3

Honeywell

GEDDES BROOK IRM
WPRK PLAN

MATERIAL PLACEMENT CONCEPT

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\446179 - GEDDES CWTP\10.0 TECHNICAL CATEGORIES\10.1 CAD\REPORTS\GB IRM APPENDIX\LCP CAP.DWG
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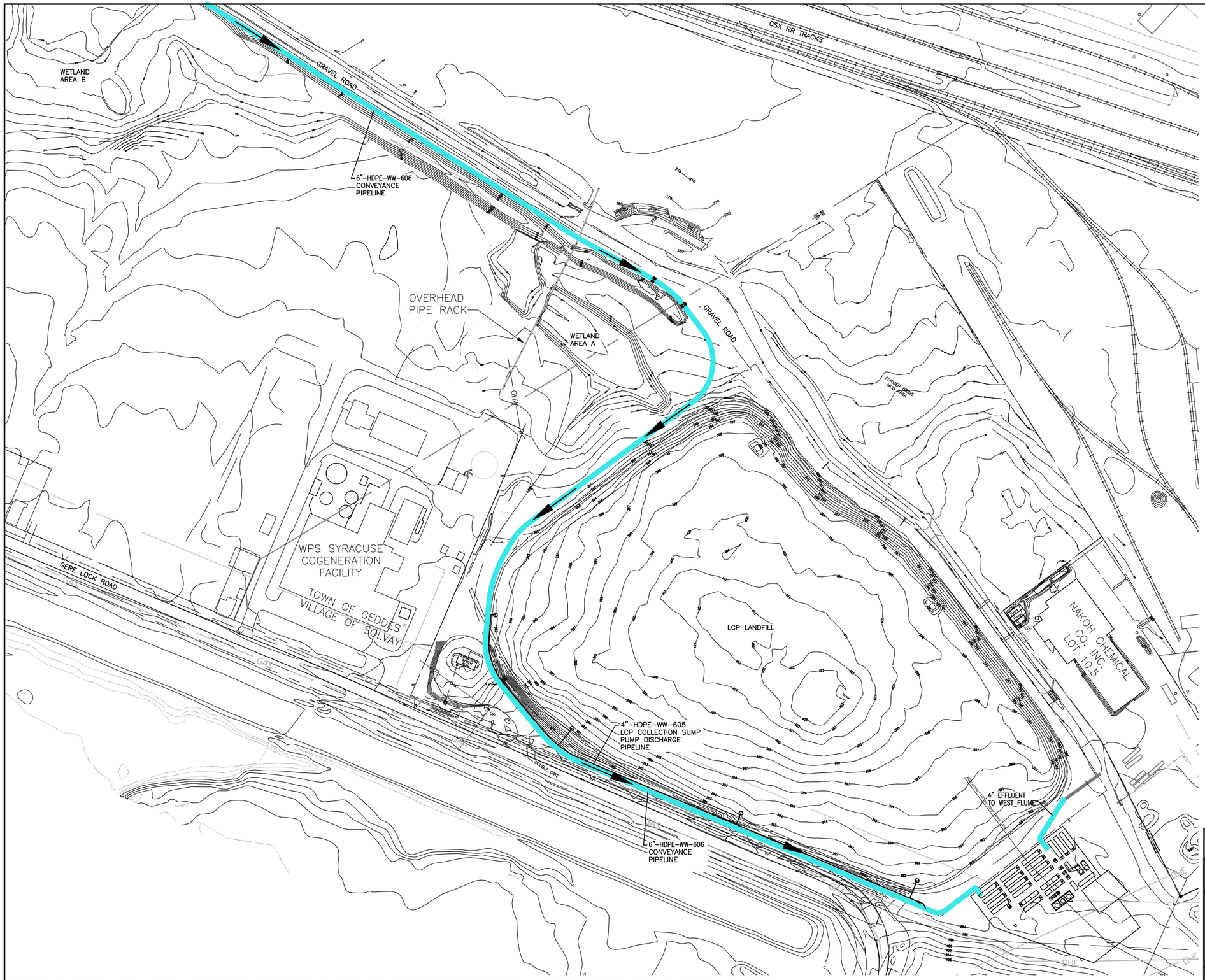

200 100 0 200 400

SCALE: 1"=200'

FIGURE 3.4

Honeywell

GEDDES BROOK IRM WORK PLAN

PIPE ROUTING AND CWTP LAYOUT PLAN

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\446179 - GEDDES CWTP\10.0 TECHNICAL CATEGORIES\10.1 CAD\DESIGN\DISCIPLINE FOLDERS\EA\WORKPLAN\446179-100-M-001 TO 007 1-13-11.DWG
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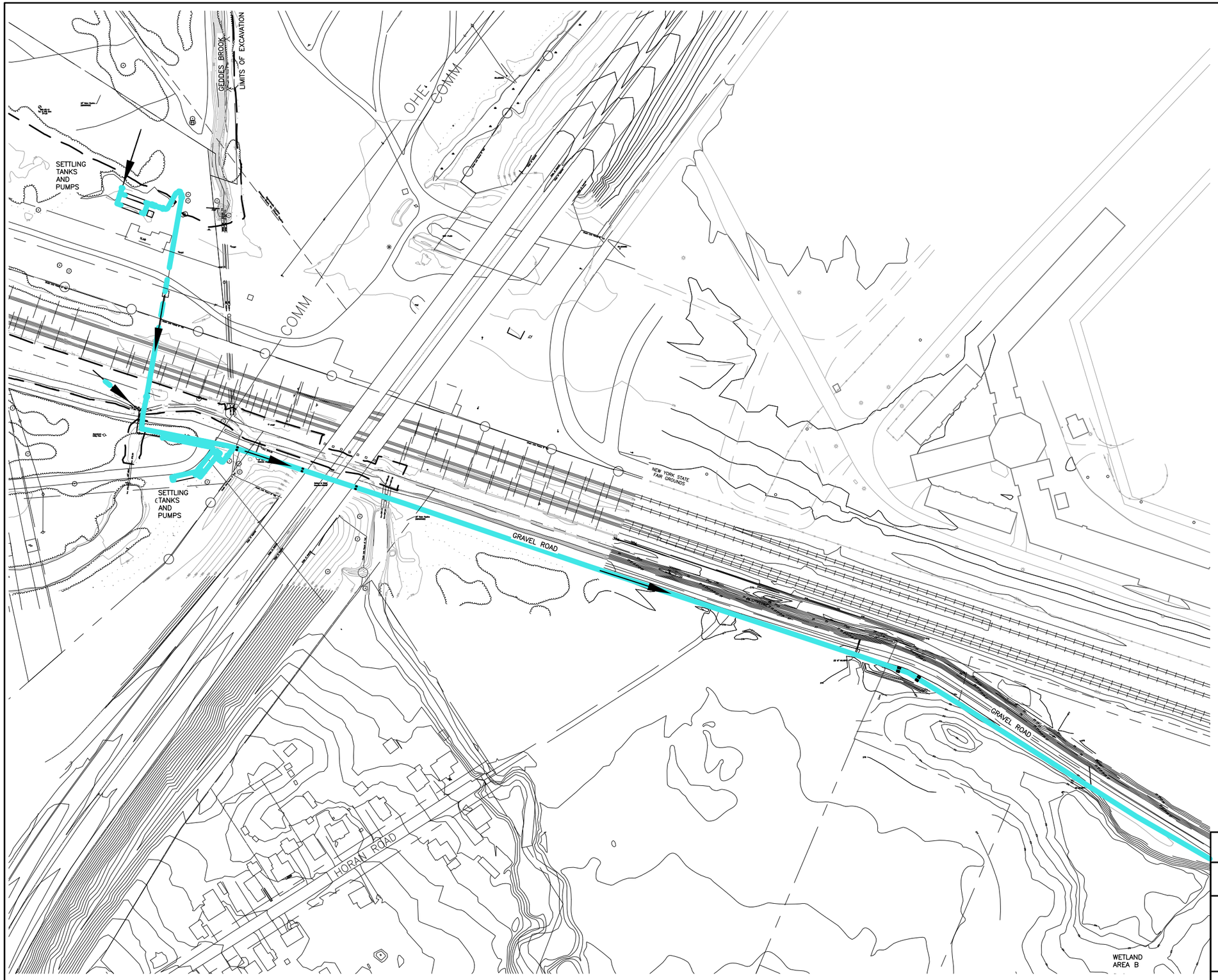

N

200 100 0 200 400

SCALE: 1"=200'

FIGURE 3.5

Honeywell

GEDDES BROOK IRM WORK PLAN

PIPE ROUTING AND CWTP LAYOUT PLAN

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\446179 - GEDDES CWTP\10.0 TECHNICAL CATEGORIES\10.1 CAD\DESIGN\DISCIPLINE FOLDERS\EA\WORKPLAN\446179-100-M-001 TO 007 1-13-11.DWG
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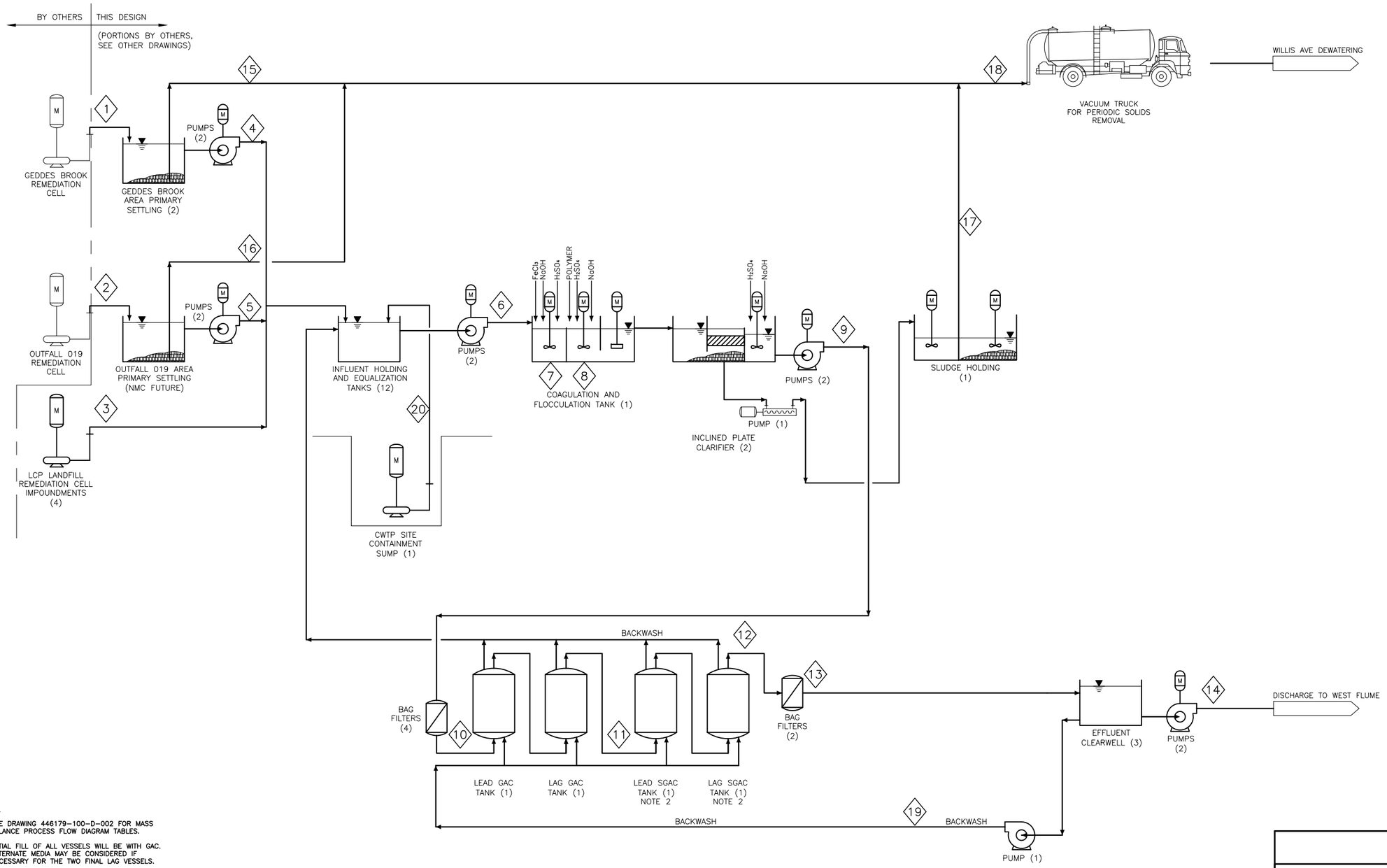

NOTES:

1. SEE DRAWING 446179-100-D-002 FOR MASS BALANCE PROCESS FLOW DIAGRAM TABLES.
2. INITIAL FILL OF ALL VESSELS WILL BE WITH GAC. ALTERNATE MEDIA MAY BE CONSIDERED IF NECESSARY FOR THE TWO FINAL LAG VESSELS.

LEGEND:

9 INDICATES MASS BALANCE STREAM NUMBER

FIGURE 3.6

Honeywell

GEDDES BROOK IRM WORK PLAN

PROCESS FLOW DIAGRAM

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\446179 - GEDDES CWTP\10.0 TECHNICAL CATEGORIES\10.1 CAD\DESIGN\DISCIPLINE FOLDERS\EA\WORKPLAN\446179-100-D-001.DWG
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SECTION 4

SCHEDULE

The anticipated schedule for the Geddes Brook construction activities is noted below.

April 2011	Mobilization
April-November 2011	LCP Containment Area Preparation and Management
November 2010-May 2011	Construction Water Treatment Plant Site Preparation, Construction, and Commissioning
April-June 2011	Middle Geddes Brook and Outfall 019 Removals, Subgrade Shaping, Backfilling and Seeding
July-August 2011	Middle Geddes Brook and Outfall 019 Plant Installation
May-June 2011	Culvert Cleaning
May-October 2011	East and West Floodplain Removals, Subgrade Shaping, Backfilling and Seeding
November 2011	LCP Containment Area Temporary Closure
Fall 2011 – Spring 2012	East and West Floodplain Plant Installation

Construction activities are anticipated to take place between the working hours of 6 a.m. to 8 p.m., with the exception of CWTP operations which may be conducted 24-hours a day, as required.

SECTION 5

REFERENCES

Parsons, 2010a. *Draft 100% Design Report for the Geddes Brook Interim Remedial Measure.*

New York State Department of Health (NYSDOH), 2000. *Generic Community Air Monitoring Plan.*

Occupational Health and Safety Administration (OSHA), 2010. *Occupational Health and Safety Regulations (Standards 29 CFR) Part 1926 - Safety and Health Regulations for Construction.*

New York State Department of Conservation (NYSDEC), *Technical Field Guidance – Spill Reporting and Initial Notification Requirements, (Spill Guidance Manual).*

APPENDIX A

DESIGN DRAWINGS

APPENDIX B

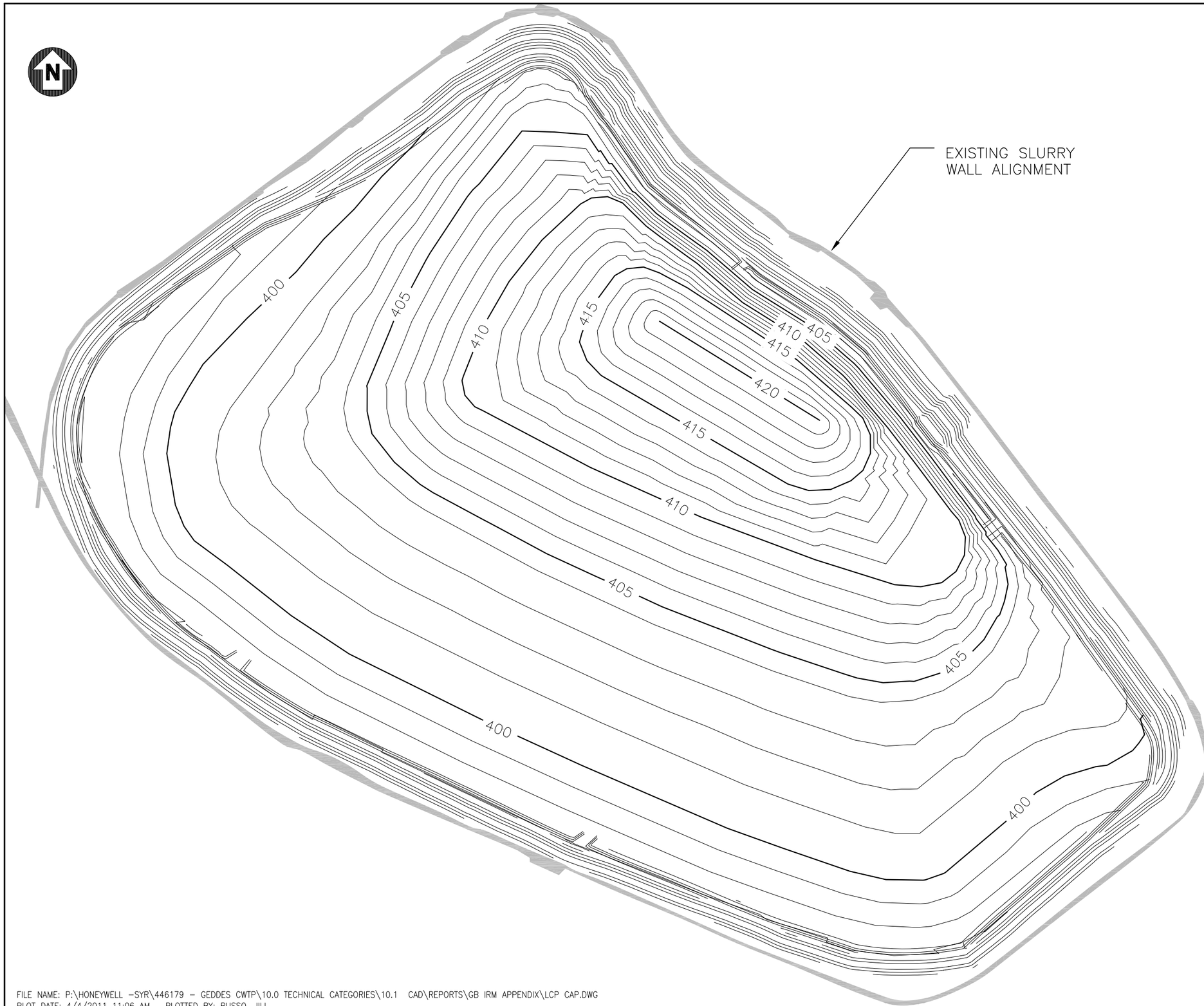
STORMWATER POLLUTION PREVENTION PLAN

APPENDIX C

PROJECT SAFETY PLAN

APPENDIX A

DESIGN DRAWINGS



NOTES:

1. GRADES SHOWN ARE BASED ON ANTICIPATED ESTIMATED VOLUME OF MATERIAL TO BE CONSOLIDATED IN 2011. CONTOURS SUBJECT TO CHANGE BASED ON ACTUAL VOLUMES, CONTRUCTION CONDITIONS, AND POTENTIAL FUTURE USE (e.g., CONSOLIDATION OF NINEMILE CREEK MATERIALS).

100 50 0 100 200

SCALE: 1"=100'

FIGURE A-1

Honeywell

IRM DESIGN
SYRACUSE, NEW YORK

ANTICIPATED LCP CONTAINMENT AREA GRADES

PARSONS

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