FINAL
Site-Specific Work Plan for:

HYDROGEOLOGIC INVESTIGATION AT THE GRIFFON PARK SITE NYSDEC REGION 9 – NIAGARA COUNTY NIAGARA FALLS, NEW YORK

Prepared For:

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1.0 PROJECT BACKGROUND

This hydrogeologic investigation is part of the New York State Department of Environmental Conservation's (NYSDEC's) Inactive Landfills Initiative. The objective of the Initiative is to assess inactive landfills in New York State for potential impacts to drinking water sources and other potential receptors.

2.0 PROJECT OBJECTIVES

The objective of this hydrogeological investigation is to provide an initial assessment of the potential for impacts to groundwater in the immediate vicinity of the Griffon Park Site. This objective will be accomplished by installing five groundwater monitoring wells, sampling groundwater from the wells and one leachate location, and analyzing the samples for a suite of potential organic and inorganic contaminants. The groundwater and leachate sample data will be evaluated to assess whether groundwater quality has been impacted by the landfill.

3.0 SITE SETTING

The Griffon Park Site is located at 9551 Buffalo Avenue, in the City of Niagara Falls, Niagara County, New York. GPS coordinates at the site are 43.07478316, -78.95138389 and the property has tax I.D. of 161.18-1-34.1. The property occupies approximately 10 acres and the landfill is assumed to occupy the majority of the property. The property is owned by the City of Niagara Falls, 745 Main Street, Niagara Falls, New York. The site is currently a city park (Griffon Park) along the Niagara River and includes parking areas, picnic tables, a playground, a boat launch, and a kayak launch. The city-owned site contains municipal solid waste (MSW). The site is immediately west of the 102nd Street landfill. The 102nd Street landfill is fenced in and has monitoring wells lining the site boundary.

The topography is generally flat but slopes slightly downward next to the Niagara River. The site is bound by the Niagara River to the south, a tributary to the Niagara River to the west, the 102nd Street landfill to the east and Buffalo Avenue to the north. Groundwater flow direction is likely to the southwest and depth to groundwater is likely shallow, between 5 and 10 feet below ground surface.

The cap condition is good, it is well vegetated and shows no signs of subsidence or erosion. There are occasional instances of exposed waste along the banks of the tributary to the Niagara River. Leachate has been identified pooled by the boat launch in the northern portion of the site.

The NYSDEC GIS database indicates that all nearby areas are served by public water supplies. There are currently no monitoring wells situated at the site.

3.1 GROUNDWATER OCCURRENCE AND FLOW

Based on the topography and stream patterns, groundwater flow is anticipated to be to the southwest. Nearby areas are served by public water supplies. There are many residences and business within a quarter of a mile of the site that are served by public water. Depth to groundwater is shallow and is thought to be less than 50 feet below the ground surface.

4.0 HYDROGEOLOGICAL INVESTIGATION SCOPE OF WORK

Field activities will be conducted in accordance with the programmatic Quality Assurance Project Plan (QAPP), Field Activities Plan (FAP), and Health and Safety Plan (HASP), which have been prepared and approved specifically for the NYSDEC Inactive Landfill Initiative program. Site-specific elements and specific job safety analyses for soil borings and monitoring well installations will be added to the Health and Safety Plan specifically for the Griffon Park Site.

A Community Air Monitoring Plan will be implemented for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area during invasive activities on-site.

The specific field procedures to be used during this investigation are described in the programmatic FAP. That document describes the drilling methods, well installation and sampling methods, and handling of investigation-derived waste. The programmatic QAPP describes the analytical procedures to be used by the laboratory in analyzing the groundwater samples.

4.1 SUBSURFACE UTILITY CLEARING

The local DIG SAFE service will be used to mark out subsurface utility lines near the proposed monitoring well locations. Monitoring well boring locations will be adjusted in the field as necessary to avoid subsurface obstructions and utilities. Each well boring location will also be hand-dug to 5 feet to ensure the location is clear of subsurface utilities. The proposed well locations are shown on Figure 3.

4.2 MONITORING WELL INSTALLATIONS

Access to well locations may require an ATV-based or track mounted drill rig. A small amount of brush and small trees may require removal to access proposed well locations. For the Griffon Park Site, three wells have been situated along the southwest (downgradient) side of the landfill and two to the northeast (upgradient) to provide adequate coverage in the upgradient (MW-01 and MW-05) and downgradient (MW-02, MW-03 and MW-04) directions.

Following hand clearing the location to 5 feet below ground surface, five well borings will be drilled into the overburden using hollow-stem augers or another acceptable technique based on the conditions present. Alternate drilling techniques are described in the programmatic FAP. Split-spoon soil samples will be collected continuously at each boring location. The borings will be advanced to the first water-bearing zone that is considered acceptable for placing a monitoring well that will yield enough groundwater for sampling.

Based on the site setting in the landfill area, it is anticipated that the wells will be less than 50 feet deep. The well borings will be drilled deep enough to allow a 10-foot well screen to be placed allowing for fluctuations in the water table to remain within the screened zone. This will be considered the “target depth”.

Once the target depth and conditions are reached, monitoring wells will be constructed with 2-inch inside diameter polyvinyl chloride (PVC) casing with a 10-foot long, #10-slot PVC screen with the screen extending at least 2 feet above the water table interface, if conditions allow. Each well will be completed with a protective casing. Should site conditions dictate modifications to the well design, these will be made in the field by the supervising geologist.

Following installation, the new monitoring wells will be developed to remove material which may have settled in and around the well screen. Development will use methods described in the FAP. Following well development, the locations and elevations of the monitoring well PVC casings will be established relative to an arbitrary onsite datum using a Total Station instrument.

All drilling equipment will be decontaminated by pressure washing between borings and before entering or leaving the site.

Drill cuttings and other soils generated on-site may be disposed of by spreading along the ground adjacent to the borehole that will be used for well installation. The soils that contain wastes, free product, NAPL, or otherwise grossly contaminated will not be spread out and will be containerized for subsequent characterization and disposal. Water generated during the investigation may be discharged to an unpaved area of the site.

4.3 GROUNDWATER AND LEACHATE SAMPLING

Once well installation and development is complete, a groundwater sample will be retrieved from each well and up to one leachate location may be sampled. Groundwater and leachate samples will be collected and analyzed as described in the FAP and QAPP. Bailers or low-flow pumps may be used to collect the groundwater samples. The wells will be purged prior to sampling, and all sampling equipment will be dedicated to that sampling location or will be decontaminated between sampling locations using the methods provided in the FAP.

The groundwater and leachate samples will be analyzed for modified baseline VOCs, polycyclic aromatic hydrocarbons (PAHs), 1,4-dioxane, per- and polyfluoroalkyl substances (PFAS), baseline leachate indicators, and modified baseline metals. A complete list of analytical parameters is provided in Table 1 and the sampling summary is provided in Table 2.

5.0 HYDROGEOLOGICAL INVESTIGATION REPORT

The hydrogeological report will summarize the program and site-specific objectives, the field and analytical methods used, the site geology and hydrogeology including groundwater occurrence and flow directions, and the results of the groundwater sampling.

TABLE 1 – ANALYTICAL PARAMETERS

Parameter	Method	Parameter	Method
Leachate Indicators (water samples only)		**PAHs + 1,4-Dioxane**	
Ammonia	350.1 / SM20 4500NH3 B/D	Acenaphthene	8270D SIM
Chemical Oxygen Demand	410.4	Acenaphthylene	8270D SIM
Total Organic Carbon	EPA 9060 / SM20 5310B/C	Anthracene	8270D SIM
Total Dissolved Solids	SM20 2540C	Benzo(a)anthracene	8270D SIM
Sulfate	300	Benzo(a)pyrene	8270D SIM
Alkalinity	SM20 2320B	Benzo(b)fluoranthene	8270D SIM
Chloride	300	Benzo(g,h,i)perylene	8270D SIM
Bromide	300	Benzo(k)fluoranthene	8270D SIM
Total hardness as CaCO3	SM20 2340C	Chrysene	8270D SIM
		Dibenzo(a,h)anthracene	8270D SIM
Inorganics		Fluoranthene	8270D SIM
Arsenic	SW6010C	Fluorene	8270D SIM
Barium	SW6010C	Indeno(1,2,3-cd)pyrene	8270D SIM
Beryllium	SW6010C	Naphthalene	8270D SIM
Boron	SW6010C	Phenanthrene	8270D SIM
Chromium	SW6010C	Pyrene	8270D SIM
Copper	SW6010C	1-4-Dioxane	8270D SIM
Iron	SW6010C		
Lead	SW6010C	**Per- and polyfluoroalkyl Substances (PFAS)**	
Manganese	SW6010C	N-ethyl perfluorooctanesulfonamidoacetic acid	Modified 537
Nickel	SW6010C	N-methyl perfluorooctanesulfonamidoacetic acid	Modified 537
Selenium	SW6010C	Perfluorobutanesulfonic acid (PFBS)	Modified 537
Thallium	SW6010C	Perfluorodecanoic acid (PFDA)	Modified 537
Zinc	SW6010C	Perfluorododecanoic acid (PFDoA)	Modified 537
Mercury	SW7470A (water) SW7471B (soil)	Perfluoroheptanoic acid (PFHpA)	Modified 537
		Perfluorohexanesulfonic acid (PFHxS)	Modified 537

TABLE 1 - ANALYTICAL PARAMETERS

(Continued)

Parameter	Method	Parameter	Method
Per- and polyfluoroalkyl Substances (PFAS) (cont'd)			
		Perfluorohexanoic acid (PFHxA)	Modified 537
		Perfluorononanoic acid (PFNA)	Modified 537
		Perfluorooctanesulfonic acid (PFOS)	Modified 537
		Perfluorooctanoic acid (PFOA)	Modified 537
		Perfluorotetradecanoic acid (PFTA)	Modified 537
		Perfluorotridecanoic acid (PFTriA)	Modified 537
		Perfluoroundecanoic acid (PFUA)	Modified 537
		Perfluoroheptanesulfonic acid (PFHpS)	Modified 537
		Perfluorodecanesulfonic acid (PFDS)	Modified 537
Perfluorobutanoic acid (PFBA)	Modified 537	Perfluoroctanesulfonamide (PFOSA)	Modified 537
Perfluoropentanoic acid (PFPeA)	Modified 537	6:2 Fluorotelomer sulfonate (6:2 FTS)	Modified 537
		8:2 Fluorotelomer sulfonate (8:2 FTS)	Modified 537

TABLE 1 - ANALYTICAL PARAMETERS

(Continued)

Parameter	Method	Parameter	Method
Volatile Organic Compounds			
Acetone	SW8260C	Ethylbenzene	SW8260C
Acrylonitrile	SW8260C	2-Hexanone	SW8260C
Benzene	SW8260C	Bromomethane	SW8260C
Bromochloromethane	SW8260C	Chloromethane (Methyl chloride)	SW8260C
Bromodichloromethane	SW8260C	Dibromomethane	SW8260C
Bromoform	SW8260C	Methylene chloride	SW8260C
Carbon disulfide	SW8260C	2-Butanone (Methyl ethyl ketone)	SW8260C
Carbon tetrachloride	SW8260C	Idomethane (Methyl iodide)	SW8260C
Chlorobenzene	SW8260C	4-Methyl-2-pentanone (Methyl isobutyl ketone)	SW8260C
Chloroethane	SW8260C	Styrene	SW8260C
Chloroform	SW8260C	1,1,1,2-Tetrachloroethane	SW8260C
Dibromochloromethane	SW8260C	1,1,2,2-Tetrachloroethane	SW8260C
1,2-Dibromo-3-chloropropane	SW8260C	Tetrachloroethene	SW8260C
1,2-Dibromoethane (Ethylene dibromide)	SW8260C	Toluene	SW8260C
1,2-Dichlorobenzene	SW8260C	1,1,1-Trichloroethane	SW8260C
1,4-Dichlorobenzene	SW8260C	1,1,2-Trichloroethane	SW8260C
trans-1,4-Dichloro-2-butene	SW8260C	Trichloroethene	SW8260C
1,1-Dichloroethane	SW8260C	Trichlorofluoromethane	SW8260C
1,2-Dichloroethane	SW8260C	1,2,3-Trichloropropane	SW8260C
1,1-Dichloroethene	SW8260C	Vinyl acetate	SW8260C
cis-1,2-Dichloroethene	SW8260C	Vinyl chloride	SW8260C
trans-1,2-Dichloroethene	SW8260C	o-Xylene	SW8260C
1,2-Dichloropropane	SW8260C	m,p-Xylene	SW8260C
cis-1,3-Dichlororpropene	SW8260C	Xylenes, Total	SW8260C
trans-1,3-Dichlororpropene	SW8260C		

TABLE 2 – ANALYTICAL SAMPLE SUMMARY

Samples	Matrix	Laboratory Analysis	No. of Samples	Trip Blank	Equipment/ Field Blank	Total
MW-01	Groundwater	See Table 1	1			1
MW-02	Groundwater	See Table 1	1			1
MW-03	Groundwater	See Table 1	1			1
MW-04	Groundwater	See Table 1	1			1
MW-05	Groundwater	See Table 1	1			1
SEEP-01	Leachate	See Table 1	1			1
TB-1	Water	VOCs		1*		1
FB-1	Water	PFAS; See Table 1			1*	1
EB-1	Water	PFAS; See Table 1			1*	1

* Per day

Figure 1

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Griffon Park
Site Location Map

Inactive Landfill Initiative

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: RR

Plot Date: 6/25/2021

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N

Elevation Contours (feet)

Estimated Site Limits

Water Feature

0 200 400 800

Feet

Plotted By: RR

Plot Date: 6/25/2021

Figure 2

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

Griffon Park
Site Setting

Inactive Landfill Initiative

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Plotted By: RR

Plot Date: 7/27/2021

Figure 3

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Griffon Park
Site Plan

Inactive Landfill Initiative

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

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