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Part VII of IX Environmental Monitoring Plan

Chaffee Landfill Facility Facility DEC ID 9-1462-00001 Town of Sardinia, New York

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Waste Management of New York, LLC Chaffee, New York

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1. Introduction

This Environmental Monitoring Plan (EMP) updates the Chaffee Landfill Facility EMP dated December 2012 and incorporates monitoring for lateral landfill development of Cells 7 and 8 (herein referred to as Area 7/8 Development) on the southern side of the existing landfill footprint of the Western Landfill Area and the Closed Landfill. The EMP addresses the requirements in the regulations at 6 NYCRR Part 363-4.6(f) and (g). The EMP for the Chaffee Facility is a separate document and is submitted as a component of the Facility Manual describing operational groundwater, surface water and leachate monitoring. The EMP also includes discussions pertaining to the operation and maintenance of the monitoring points and contingency plans. Sources of other information contributing to this EMP include the Hydrogeologic Investigation Report (HIR) (GEI, 2020), historic hydrogeologic studies, and environmental monitoring data collected from 15+ years of monitoring landfill containment systems and environmental media including groundwater, surface water and sediment at the Chaffee Landfill.

1.1 EMP Organization

The remainder of Section 1.0 provides general background information for the Chaffee Landfill Facility and the Area 7/8 Development. The sections which follow are summarized below:

- Section 2.0 summarizes geologic and hydrogeologic conditions and describes the Critical Stratigraphic Section (CSS) for the facility per Part 363-4.6(f)(1).
- Section 3.0 describes the environmental monitoring program for groundwater, surface water/sediment, landfill containment systems, and landfill gas per Part 363-4.6(f)(2) through (3) including a topographic site plan showing all monitoring points per Part 363-4.6(f)(6) with an implementation plan per Part 363-4.6(f)(7). Monitoring points described in Section 3.0 meet sampling design requirements per Part 363-4.6(f)(8) inclusive of Water Quality Monitoring Programs per Part 363-4.6(f)(9).
- Section 4.0 presents procedures to evaluate data obtained by the monitoring program per Part 363-4.6(f)(4).
- A Site Analytical Plan (SAP) is presented in Section 5.0 per Part 363-4.6(g) with a discussion of laboratory quality assurance/quality control in Section 6.0.
- Section 7.0 discusses the data quality review, reporting and recordkeeping procedures per Part 363-4.6(f)(5) and (10).

Background

The Chaffee Landfill Facility is located in the Town of Sardinia, Erie County, New York. The landfill is owned and operated by Waste Management of New York (WMNY) under Solid Waste Management Facility (SWMF) Permit I.D 9-1462-00001/00006. The location of the facility is shown on Figure 1. The landfill facility includes: the original 51-acre Closed Landfill; the 57.3-acre Western Area inclusive of cells 1 through 6; the 13.7-acre Valley Fill Area consisting of Overliner Cell 1 and Overliner Cell 2 situated between the Closed Landfill and Western Area; and permitted areas for soil borrow. These site features and the proposed Area 7/8 Development are shown on Figure 2.

Leachate collected at the Closed Landfill is conveyed by a perimeter collection trench and piping to leachate storage tanks. The Western Area is divided into six landfill cells (Cell 1 through Cell 6), each of which is constructed with a primary and secondary leachate collection system. Cell 6, the original landfill cell constructed in the Western Area, is equipped with a porewater drain. The porewater drain is constructed in the Upper Silty Clay and is checked quarterly for groundwater but has remained dry for several years. The Valley Fill Area includes the Overliner Cell 2 Area to the north and Overliner Cell 1 Area to the south. The primary leachate collection systems for the Overliners are joined while each Overliner cell is equipped with an individual secondary leachate collection system.

2. Hydrogeologic Setting and Critical Stratigraphic Section

2.1 Regional and Site Hydrogeology

The Chaffee Landfill disposal areas, including the Area 7/8 Development, are situated entirely on glacial moraine sediments (known as the Lake Escarpment Moraine) which overlie deeper glacially-derived soils that fill a scoured bedrock valley that trends in a northwest-southeast direction. Depth to bedrock is more than 400 feet below the ground surface in the area of the Chaffee Landfill Facility. The Sardinia Aquifer has been mapped by the USGS at a distance of approximately 1,600 feet the south of the Area 7/8 Development and consists of saturated outwash sand and gravel near the ground surface and confined deposits of sand and gravel at depths greater than 100 feet.

The 2022 Hydrogeologic Investigation Report (that is part of this Application) and the 2005 MMCE Hydrogeologic Investigation for the Western Area characterized the following geologic units to depths of 100 feet below ground surface at the Chaffee Landfill Facility. Based on hydrogeologic properties, the following hydrostratigraphic units within the moraine were identified:

- Discontinuous Perched Water in Upper Silty Clay/Till
- Upper Silty Sand and Gravel (also referred to as the Upper Water-Bearing Zone)
- Lower Silty Clay Aquitard
- Lower Silty Sand and Gravel (also referred to as the Lower Water-Bearing Zone)
- Deeper Till Aquitard

The hydrogeologic investigation findings are described below and the Critical Stratigraphic Section (CSS) is identified in Section 2.3.

Perched water exists within discontinuous lenses of sand and gravel in the Upper Silty Clay along the northern boundary of the Area 7/8 Development where the surface clay till is relatively thicker. In the southern half of the expansion area, perched water occurring within lenses of sand and gravel was not found. However, several Upper Silty Clay monitoring wells have been observed to accumulate small amounts of water over long periods of time. This accumulation does not represent a water table and is more likely a result of seepage into the well sand pack of water temporarily present in the larger pore spaces after precipitation events. Where observed, the rate of seepage is insufficient for sampling using conventional methods. The Upper Silty Sand and Gravel is the Upper Water-Bearing Zone in the Area 7/8 Development and occurs under water table (unconfined) conditions. Depth to the water table in the expansion area is typically 15 feet or more at current grades. In the northern portion of the facility, the Upper Silty Clay is thicker and depth to the upper-water bearing zone is typically more than 40 feet below the ground surface. Recharge to the upper-water bearing zone occurs primarily through horizontal flow as vertical flow is restricted by the low permeability of the Upper Silty Clay. The Upper Water-Bearing Zone is bound at the bottom by the laterally continuous Lower Silty Clay Aquitard. This low permeability unit is approximately 7 to 22 feet thick below the Area 7/8 Development footprint. The aguitard was found to be thickest south of the Area 7/8 Development (i.e., more than 38 feet thick) and was encountered at thicknesses of 10 feet or more in borings completed in the northern portion of the facility during the MMCE 2005 Hydrogeologic Investigation. The aquitard is saturated but does not readily transmit groundwater as it primarily consists of medium plasticity silty clay having a geometric mean laboratory measured permeability of 4.62×10^{-8} cm/s. Hydrogeologic information collected during the 2019 investigation demonstrated that the Lower Silty Clay Aquitard is effective in restricting the vertical movement of groundwater between the Upper and Lower Water-Bearing zone thereby isolating deeper water-bearing zones from the Upper Water-Bearing Zone.

The groundwater flow direction beneath the Area 7/8 Development in the Upper Water-Bearing Zone is seasonally dependent and transitions from a southerly direction during the spring and summer months to a northerly direction in the late summer, fall, and winter months. Surface water in Wetland SD-1 (shown on Figure 2) situated west and southwest of the development area and in the Sedimentation Basins influence the groundwater flow direction below the Area 7/8 Development by recharging groundwater in the Upper Water-Bearing Zone. The measured horizontal hydraulic gradients in the Upper Water-Bearing Zone beneath the development area are very low to flat causing low groundwater seepage velocities. Groundwater seepage velocities were estimated to average 0.59 feet/year in a south direction below the central and southernmost portion of the Area 7/8 Development during the spring and early to mid-summer months. When the groundwater flow direction transitions to a northeast direction during the late summer months, extending through the fall and winter months, the average estimated seepage rate was calculated to be 2.07 feet/year beneath the Area 7/8 Development. Site hydrogeologic data indicate theoretical particle transport (excluding natural attenuation processes) below the Area 7/8 Development within the Upper Water-Bearing Zone would occur at an annual net vector rate of approximately 1.33 feet/year in a northeastward direction.

Surface water in Wetland SD-1 and in Sedimentation Basins #1, #2, and #3 recharges groundwater near the Southern Expansion Area. Exfiltration of water from the Sedimentation Basins was found to influence the direction of groundwater flow in the Upper Water-Bearing Zone below the Area 7/8 Development. During regionally higher groundwater elevations which occur in the late winter and spring, exfiltration from the Sedimentation Basins has less of an influence on groundwater flow direction in the Area 7/8 Development and groundwater flow in

the Upper Silty Sand and Gravel occurs to the south. However, as groundwater elevations regionally decline during the summer and fall, a progressive shift in groundwater flow direction occurs in a northeast direction caused by higher heads maintained by the exfiltration of Sedimentation Basin surface water and heads in Wetland SD-1. These groundwater conditions are shown respectively on potentiometric surface maps for June 2019 and December 2019 included in Appendix A.

Groundwater quality of the Upper Water-Bearing Zone in the expansion area is representative of background conditions. Groundwater quality east, west, and south of the expansion area is very similar to the chemistry of existing wells located along the northern boundary of the expansion area indicating groundwater quality below the Area 7/8 Development in the Upper Water-Bearing Zone is consistent. PFAS compounds were detected in groundwater locally at well MWSE-4 near the Sedimentation Basins. Sampling of surface water in the Sedimentation Basins confirmed PFAS presence in surface water. Sampling of surface water in Hosmer Brook confirmed PFAS presence downstream from the Basin #3 discharge but the concentrations were below New York State Department of Health (NYSDOH) drinking water regulatory criteria established for public water supply in 10 NYCRR Part 5, Subpart 5-1 Public Water Systems.

2.2 Surface Water Conditions

The Chaffee Landfill is located near a watershed divide which occurs naturally at the maximum elevation of the Lake Escarpment Moraine near Hand Road. Surface water drainage on the north side of the moraine crest flows within the Cazenovia Creek Watershed System and drainage south of the crest flows within the Cattaraugus Creek Watershed System (MMCE, 2005). At the Chaffee Facility, surface water run-off from the eastern portion of the Closed Landfill is collected by drainage swales and directed to Sedimentation Basin #4 situated at the southeast corner of the landfill. Permitted discharge from this detention basin eventually discharges to Wetland SD-1 that is part of the Hosmer Brook sub-watershed within the Cattaraugus Creek Watershed.

Drainage in the Western Landfill Area and Area 7/8 Development are directed to Sedimentation Basins #5, #1, #2, and # 3 which in turn flows to the south within the Hosmer Brook subwatershed (Cattaraugus Creek Watershed). Basin #5 is lined and surface water can be mechanically isolated from downstream Sedimentation Basins #1, #2, and #3.

Wetlands with perennial surface water exist east and west of the Area 7/8 Development and influence groundwater elevations in the study area. Drainage from Wetland SD-1 east of the West Soil Borrow Area and expansion area drains to Hosmer Brook having its headwaters in wetlands west and southwest of the Chaffee Facility. Drainage from Wetland SD-1 located west and southwest of the Area 7/8 Development occurs through a culvert installed beneath an access road southwest of Sedimentation Basin #3 (Figure 2).

The reclaimed West Borrow Area located southeast of the Area 7/8 Development footprint contains a sedimentation basin that will be removed during construction of Cell 8.

2.3 Critical Stratigraphic Section

The 2021 hydrogeologic investigation report for the Area 7/8 Development permit application described the Critical Stratigraphic Section (CSS) for the Facility. The CSS includes stratigraphic units into which contaminants that escape from a facility might reasonably be expected to enter and cause contamination. The CSS for the Chaffee Landfill Facility including the Area 7/8 Development includes:

- the Upper Silty Clay/Till; and
- the Upper Silty Sand and Gravel.

The CSS designation requires groundwater monitoring of the Upper Silty Clay/Till where perched conditions sporadically occur on the northeast side of the expansion area (area of overlap onto the Closed Landfill) and of the water-bearing zone in the Upper Silty Sand and Gravel unit below the Area 7/8 Development. This monitoring approach is consistent with the monitoring strategy previously developed for the facility.

3. Environmental Monitoring Program

The following sections describe the environmental monitoring program for the Chaffee Landfill Facility inclusive of the Area 7/8 Development. The monitoring program describes sampling and monitoring of environmental media including:

- Groundwater
- Leachate Containment Systems
- Surface water and sediment
- Landfill gas

Sampling locations are shown on Figure 2. Sampling procedures are described in the Site Analytical Plan presented in Section 5.0.

3.1 Groundwater Monitoring

3.1.1 Groundwater Monitoring Network Description

The groundwater monitoring network consists of either single wells or well pairs located at the perimeter of the Closed Landfill, Western Landfill Area, and Area 7/8 Development. Table 1 summarizes the list of groundwater monitoring wells that comprise the Chaffee Landfill Groundwater Monitoring Network (including the hydrostratigraphic unit monitored) and well locations are shown on Figure 2. Borehole logs and well completion details for each well are included in Appendix B.

New monitoring well construction will include installation of a well pair MWSE-5(S) and MWSE-5(I) at the northeast corner of the Area 7/8 Development to monitor potential perched groundwater in the thicker section of the Upper Silty Clay and groundwater occurring in the Upper Water-Bearing Zone of the Upper Silty Sand and Gravel, respectively.

3.1.2 Existing (Background) Groundwater Quality Monitoring

The hydrogeologic investigation preliminarily characterized existing groundwater quality in the Area 7/8 Development consistent with Part 363-4.6(f)(9)(i). The results found that groundwater quality in the southern portion of the Area 7/8 Development was similar to existing water quality monitored along the southern boundary of the Closed Landfill. Prior to completion of landfill cell construction and waste deposition in the Area 7/8 Development, a more comprehensive

assessment of existing groundwater quality will be conducted. Consistent with 6NYCRR 363-4.6(f)(9)(b)(3), existing water quality will be established in the new monitoring wells to characterize groundwater chemistry in the Area 7/8 Development for future evaluation of operational monitoring data. As discussed in Section 4.1.1, operational groundwater data will be evaluated utilizing intrawell comparison methods - a procedure in which chemistry of a sample collected from each monitoring well is evaluated in relation to its own historical data.

Establishing existing water quality in new wells in the monitoring network adjacent to the Area 7/8 Development will require eight quarterly events of groundwater sample collection and analysis (Part 363-4.6(f)(9)(i)(b)(3(iii)) where the first quarterly event (initial event) is analyzed for the Part 363 Expanded List of parameters followed by seven additional quarterly events of sampling and analysis for the Part 363 Baseline List of parameters plus any additional parameters that were detected in the initial event. Analytical data will establish existing (background) water quality prior to waste placement. Upon completing these sampling events and determination of Water Quality Action Values (WAQVs) (discussed in Section 4.1.1), waste placement in the constructed cell can occur. Based on the confirmed occurrence of PFAS in groundwater at MWSE-4, the list of PFAS constituents will be added to the Part 363 Baseline Parameter List for wells MWSE-3 and MWSE-4, located in proximity to the Area 7/8 Development.

Groundwater quality monitoring has occurred for decades at the Chaffee Landfill facility under the former NYSDEC Part 360 regulations, which required that the facility establish a database of existing water quality for the existing landfill disposal area. As the groundwater monitoring program for the entire landfill facility will be regulated under Part 363-4.6 with the operation of the Area 7/8 Development, existing groundwater quality has not been established for all parameters included on the Part 363-4.6(h) Expanded List. Per discussion with NYSDEC, the NYSDEC refers to these parameters as "emerging contaminants" and include the following constituents: Per- and polyfluoroalkyl substances (PFAS), 1,4-dioxane (Method 8270D SIM with isotope dilution), uranium and radium 226 and radium 228. To establish existing groundwater quality for the emerging contaminants for wells monitoring the existing landfill footprint (Western, Valley Fill, and Closed Landfill), the upgradient monitoring well MW-50 (monitors Upper Silty Sand and Gravel) and three downgradient well pairs (each pair monitoring saturated areas of the Upper Silty Clay and the Upper Silty Sand and Gravel), which include wells MW-16(S)/MW-16, MW-N(S)/MW-N(I) and MW-7R/MW-14R, will be sampled during two quarterly events (see Implementation Plan in Section 3.5) and analyzed for the emerging contaminants (see Figure 2). The results will be used to establish Water Quality Action Values (WQAVs) that will be representative of the existing groundwater quality for the saturated portions of the Silty Clay and the Upper Silty Sand and Gravel at the existing landfill areas outside the Area 7/8 Development.

A schedule for sampling is included in the Implementation Plan included in revised Section 3.5.

3.1.3 Operational (Detection) Groundwater Quality Monitoring

Groundwater samples will be collected from monitoring wells identified on Table 1 to monitor groundwater quality of the CSS during landfill operation. Sampling and analysis of groundwater will consist of three (3) quarters of sampling for the Part 363 Routine List of parameters and one (1) quarter of sampling for the Baseline List.

3.1.4 Water Level Monitoring

A synoptic round of water level measurements will be recorded in monitoring wells and piezometers screened in the Upper Silty Sand and Gravel listed in Table 1 on the first day of quarterly groundwater sample collection. Water level measurements will be used to assess horizontal groundwater flow direction and seepage velocity in the upper water-bearing zone. Water levels will be recorded in all monitoring wells prior to sample collection per Section 5.3.1.

3.1.5 Monitoring Well Installation and Decommissioning

Construction of the Area 7/8 Development will necessitate decommissioning of several existing monitoring wells on the northern boundary of the Area 7/8 Development as wells are within the areas of Cells 7 and 8 overlap and completion of water quality monitoring in the West Soil Borrow Area. New wells will be installed to monitor the Upper Silty Clay and Upper Sand and Gravel at the northeast corner of Area 7/8 Development to provide more appropriate well spacing. Piezometers PZ01-19 and PZ02-19 will be outfitted with a protective casing and completed with proper surface seals.

Monitoring wells requiring decommissioning include:

• MW-K(S), MW-K(I), MW-R4A, MW-4CR, MW-82B, and MW-R3 (aka MW-3R).

In addition, two groundwater monitoring wells (i.e., MWBA-2 and MWBA-3) in the former West Soil Borrow Area will be decommissioned. Monitoring well MWBA-1, situated southeast of the Area 7/8 development will be retained to provide groundwater elevation data in this portion of the property.

Piezometers requiring decommissioning include:

• PZ03-19, PZ04-19, PZ05S-19, PZSB11D-19, PZBA2D-19, PZMWSE3D-19, PZ04D-19, and PZ05D-19

Monitoring wells and piezometers will be decommissioned in accordance with Part 363-4.4(k)(6). The location of these piezometers are shown on Figure 4 of the Hydrogeologic Investigation Report.

Construction of new monitoring wells will conform to requirements outlined in Part 363-4.4(k)(2) and will include well development and hydraulic conductivity testing.

3.2 Leachate Containment Systems Monitoring

Following closure of the original landfill footprint (Closed Landfill), landfill cells at the Chaffee Landfill Facility were constructed utilizing double composite liner systems with leak detection. The purpose of the liner system is to prevent the release of leachate constituents into the environment. The double-liner system has primary and secondary composite liners and primary and secondary leachate collection systems.

Liquid in the secondary leachate collection and removal system (SLCS) from each of the eight landfill cells (Cells 1 through 8), as well as overliner sections (Cell 1, Cell 2, and Cell 7/8 Overliners), have separate leachate collection systems, and will be sampled at the leachate side riser ports and analyzed on a semiannual basis for the Part 363 Baseline list of parameters. Leachate sampling locations are shown on Figure 2. Pre-disposal SLCS liquid quality will be characterized in new cells prior to the deposition of waste and then semiannually thereafter for each operational cell for a period of five years. After five years, the monitoring frequency and parameters list will be evaluated and revised with concurrence from the NYSDEC if the concentrations of constituents have not changed significantly as supported by statistical analysis.

Leachate in the primary leachate collection and removal system will be collected and analyzed on a semi-annual basis for the Part 363 Expanded list of parameters (Table 2A). The sample from the primary leachate collection system will be a composite of the liquid from the entire landfill. The Western Landfill Area and Area 7/8 Development drain to a common storage tank area as shown on Figure 2 and sampled at the Leachate Loadout Building. The Closed Landfill drains to five leachate collection points, identified as Tanks #1 and #2, Manhole 3 / 4, and collection sump #5 as shown on Figure 2. Manhole 3 / 4 and collection sump #5 are pumped to the two above ground leachate storage tanks shown on the southwest side of the Closed Landfill shown on Figure 2. Therefore, a composite sample is taken from the above ground storage tanks and the Closed Landfill Tanks #1 and #2. The composite sample is combined based on approximate leachate volumes generated at each of the three sampling locations. After five years, the monitoring frequency and parameters list for primary leachate testing will be evaluated and revised with concurrence from the NYSDEC.

A porewater drain system is constructed beneath Cell 6 of the Western Landfill Expansion. The porewater drain is pumped quarterly. When water is present in the system, samples will be analyzed quarterly for the same parameter list concurrent with the groundwater monitoring program.

3.3 Surface Water/Sediment Monitoring

Surface water samples will be collected quarterly from the discharge at Sedimentation Basin #3 and Sedimentation Basin #4 as shown on Figure 2. The discharge from the basins occurs into rip rap rock-filled conveyance channels. If sediment is observed to accumulate on the surface of the rip rap rock, a sample will be collected for laboratory analysis. Surface water will be analyzed for the same list of parameters as the concurrent groundwater sampling program. Basin #3 discharge will include the analysis for PFAS with the Baseline Parameter List in Table 2B. Sediment samples will be analyzed for parameters shown in Table 2D.

During Baseline sampling events, an additional surface water sample will be collected from Hosmer Brook downstream from the discharge area of Basin #3. The sample is designated as HBSW-1 and is shown on an aerial inset in Figure 2. The sample will be analyzed for the list of PFAS constituents consistent with sampling at wells MWSE-3 and MWSE-4 and Basin #3 discharge.

In the event a leachate release is suspected, a surface water sampling location in the containment area of Sedimentation Basin #5 will be included in the monitoring program.

3.4 Landfill Gas Control Monitoring

The potential for off-site migration of landfill gas will be monitored through permanent landfill gas monitoring probes. Permanent gas monitoring probes are constructed around the perimeter of the Closed Landfill and Western Landfill Expansion Areas. New gas probes to be located around the Area 7/8 Development include: GP- 29R through GP-34. New gas monitoring probes will be installed at locations shown on Figure 2.

Several existing landfill gas migration monitoring probes require decommissioning prior to Cell 7 and Cell 8 construction due to overlap of Area 7/8 Development on to the southern boundary of the Western and Closed Landfill Areas and include: GP-29, GP-5R, GP-3, and GP-4. Decommissioning of deeper gas probes GP-29 and GP-5R will follow monitoring well decommissioning protocols (see Section 3.1.5). Gas probes GP-3 and GP-4 are shallow, 14 feet and 12 feet deep respectively, and can be decommissioned by removal with an excavator bucket during cell construction. The NYSDEC will be notified prior to decommissioning and new gas probe installations.

Under Part 363-7.1(e), routine monitoring of potential landfill gas migration is required to demonstrate that the concentration of methane and other explosive gases generated by the landfill areas do not exceed:

• Twenty-five percent of the lower explosive limit for gases in structures on or off-site, excluding gas control or recovery system components; and

• The lower explosive limit for the gases at or beyond the property boundary.

Quarterly monitoring for the presence of landfill gas, pressure and water level will be completed at the gas probe locations. The quarterly gas monitoring results will be submitted separately from groundwater, surface water, and leachate containment system monitoring reports.

Upon detection of methane or other explosive gas levels exceeding the limits specified above, the facility will take the following actions to ensure safety and protection of human health:

- The NYSDEC will be immediately notified (within 24 hours of detection).
- Within seven days of detection, submit to the NYSDEC the methane gas levels detected and provide a description of the steps taken to protect health, safety, and property: and
- Within 30 days of detection, submit a plan to implement a remediation plan for the methane gas releases and schedule for the implementation of this plan within 60 days beyond the date of the detection. This plan will describe the nature and extent of the problem and the proposed remedy.

3.5 Environmental Monitoring Program Summary and Implementation Plan

This section summarizes the environmental monitoring program and includes an implementation plan per Part 363-4.6(f)(7). The Environmental Monitoring Program for the Chaffee Landfill Facility is summarized below:

Groundwater Monitoring Well Sampling:	Parameter List:	
(Upper Silty Clay)		
• 18 monitoring perched water in Upper Silty Clay Till	 1 Baseline List event (Q1) (Table 2B) / 3 Routine events (Q2, Q3, Q4) (Table 2C) 	
 (Upper Water-Bearing Zone) 23 monitoring Upper Silty Sand and Gravel 	 1 Baseline List event (Q1) (Table 2B) + PFAS analysis at wells MWSE-3 and MWSE-4 / 3 Routine events (Q2, Q3, Q4) (Table 2B) 	

Piezometer and Monitoring Well Water Levels:	
• 27 monitoring wells and piezometers for groundwater elevation (synoptic event for Upper Silty Sand and Gravel)	• None
Surface Water and Sediment Sampling:	
 Basin #3 Discharge Surface Water / Sediment 	 1 Baseline List event + PFAS in surface water (Q1) / 3 Routine events (Q2, Q3, Q4) (sediment per Table 2D)
Basin #4 Discharge Surface Water / Sediment	 1 Baseline List event (Q1) (Table 2B) / 3 Routine events (Q2, Q3, Q4) (Table 2C) (sediment per Table 2D)
Hosmer Brook	• 1 Baseline event (Q1) for PFAS only
Secondary Leachate Collection Sampling:	
 Western Area – 6 SLCS samples Valley Fill Area – 2 SLCS samples Area 7/8 Development – 3 SLCS samples 	 2 Baseline List Events (Semi-annual, Q1 and Q3) (Table 2B)
Primary Leachate Collection Sampling:	
 Facility Composite Primary Leachate 1 Primary 	• 2 Expanded List Events (Semi-annual, (Q1 and Q3) (Table 2A)
Landfill Gas Monitoring:	
• 27 Gas probe locations	• Quarterly for Lower Explosive Limit

The following is an Implementation Plan identifying the anticipated implementation schedule of EMP activities following NYSDEC permit issuance with an estimated time frame of two to three years to complete detailed design and Area 7/8 Development infrastructure buildout and complete Cell 1 South/Cell 7 construction:

EMP Activity	Schedule
Installation, development, and slug testing of wells MWSE-5(S) and -5(I) at Area 7/8 Development	Within 180 days of NYSDEC Permit approval
Decommissioning of the eight (8) wells listed in Section 3.5	Concurrent with new well installation
Decommissioning of the nine (9) piezometers listed in Section 3.5	Concurrent with new well installation
Decommission of gas probes listed in Section 3.4	Concurrent with new well installation
	GP-29R, GP-30, and GP-31 one quarter prior to Cell1 South/Cell 7 operation
Installation of gas probes	GP-32, GP-33, and GP-34 one quarter prior to Cell 8 operation
Initiation of Existing (Background) Water Quality (EWQ) Monitoring (Area 7/8 Development)	Following Installation of MWSE-5(S) and – (I) complete eight (8) Quarterly Events Concurrent with Site-Wide Monitoring events (complete prior a minimum of one quarter prior to DEC approval for waste deposition in Cell 1 South/Cell 7)
Initiation of Existing Water Quality for Emerging Contaminants (Existing Landfill Areas)	Concurrent with Site-Wide Monitoring events and EWQ monitoring above collect (two) Quarterly Events
Submit Background Water Quality Monitoring Report for Area 7/8 Development Area and emerging contaminants for Existing Landfill Areas	Submit at least one (1) Quarter prior to Initiating Operational Water Quality for Area 7/8 Development
Initiation of Operational Water Quality in Area 7/8 Development Area (6 new wells) with Existing Landfill Areas	Upon NYSDEC authorization to operate Cell 1 South/Cell 7
Contingency Monitoring Program	See Section 4.1.5

4. Data Evaluation

This section describes methods to evaluate environmental monitoring data during EMP implementation. Section 5.1.2 identifies reference documents for data comparison criteria described in this section.

4.1 Groundwater

The proposed methods to evaluate groundwater quality at the Chaffee Landfill Facility are based on landfill design, detailed understanding of the hydrogeological conditions, and the assessment of groundwater quality data gathered from historical groundwater monitoring. The data evaluation procedures are consistent with those specified in 6NYCRR Part 363-4.6(f)(9).

4.1.1 Background Monitoring

Background water quality will be established for wells in the Area 7/8 Development listed in Table 1. As described in Section 3.1.2, new wells will be installed to monitor the Area 7/8 Development. As required for intrawell monitoring evaluations, each monitoring well will be sampled a minimum of eight (8) times and the data collected will be used to calculate a mean concentration for each constituent using all available background monitoring data. The mean value will constitute the "existing water quality value". Natural and seasonal variability will produce variations in the detected concentration of naturally occurring constituents. Therefore, the standard deviation from the mean and the coefficient of variation will be determined for each constituent. Water Quality Action Values (WQAVs) will be established for each constituent for each well for intrawell data evaluation. Where the coefficient of variation is 0.5 or less and less than 15 percent of the data are non-detects, Type A statistical trigger values will be calculated by adding three standard deviations to the mean. Where the percentage of non-detected constituent concentrations exceed 15 percent, the coefficient of variation is greater than 0.5, or there are other indications that the data set is not normally distributed, the existing water quality value will be defined as the median data set and a Type B statistical trigger value corresponding to the 90th percentile of the data set will be used as the WQAV. The calculated statistical trigger values will be used to establish a threshold where further evaluation of operational groundwater monitoring data is required.

Similarly, WQAVs will be established for the NYSDEC emerging contaminants on the Part 363 Expanded Parameter List (PFAS, 1,4-dioxane, uranium and radium 226 and radium 228) for the existing landfill areas following two rounds of sampling from the seven wells specified in Section 3.12 and shown on Figure 2. The WQAVs will be established after four sampling events from the wells identified in Section 3.1.1 considered to be representative of existing water quality. Statistical trigger values will be determined as described above.

4.1.2 Operational Monitoring

Groundwater chemistry at the Chaffee Facility will continue to be evaluated using intrawell comparisons as described in Section 3.1.3. Operational groundwater monitoring using intrawell data comparisons is common practice and is fully supported by the NYSDEC and USEPA (USEPA Unified Guidance Document, 2009). In addition, intrawell data comparisons are more effective than upgradient to down-gradient comparisons at sites such as the Chaffee Facility where groundwater chemistry is spatially variable and groundwater flow patterns are seasonally controlled. Intrawell data evaluation methods primarily support the assessment of naturally occurring inorganic constituents in groundwater. Since landfill leachate contains low concentrations of man-made organic chemicals as well as natural inorganic constituents, the detection of organic chemicals in groundwater will be a leading indicator of a release of leachate to groundwater.

Analytical data obtained for groundwater samples collected during landfill operational monitoring (inclusive of the Western Area, Closed Landfill Area, Valley Fill, and Area 7/8 Development) will be evaluated through constituent-specific comparisons to:

- Organic and inorganic constituent detections above Class GA groundwater quality standards and guidance values presented in TOGS 1.1.1 (TOGS Standard).
- WQAVs established during background monitoring of the Areas 7/8 Development and development of WQAVs for the Western Area and Closed Landfill Area.
- Significant increasing chemical constituent concentration data trends either related or unrelated to overall background changes to water quality as observed on time-series plots and the pattern of well trilinear Piper Plots and/or Stiff diagrams changes.

If a constituent concentration (non-organic) is above the TOGS standard and WQAV, then the constituent in question will be evaluated for naturally increasing concentrations due to changing background chemistry per Section 4.1.3. If background chemistry has not substantially changed, the well in question will be re-sampled to increase the reliability of the data within 14 days after notification of the NYSDEC. If an organic detection above TOGS standard is determined not to be related to laboratory analytical bias (i.e., false positive), the well will be re-sampled. The re-sampling analyte list will be discussed and agreed upon with the NYSDEC prior to sampling. An evaluation of the geochemical conditions in the secondary leachate collection systems will be immediately undertaken to assess a potential relationship between the anomalous detections.

4.1.3 Alternative Source Demonstration

An alternative source demonstration is performed if analytical or sampling error is suspected or natural changes in background chemistry result in a statistically significant increase. If re-

sampling is undertaken and confirms the condition described in Section 4.1.2 where a constituent concentration is detected above the TOGS standard, above WQAVs, and background constituent concentrations change, further investigation into the cause of the detection will be undertaken. This assessment, known as an Alternative Source Demonstration, will address potential causes of the condition such as natural groundwater variability caused by landfill construction, potential issues with conveyance piping for leachate and LFG, and potential issues associated with storm water runoff that are conditions not associated with an integrity issue of a landfill liner system which could necessitate assessment monitoring (as described in Section 4.1.4). If such a condition is determined to be the cause of the anomalous detected conditions, a report will be completed and submitted to the NYSDEC that describes the results of the Alternative Source Demonstration.

4.1.4 Assessment Monitoring

Assessment monitoring will be undertaken following the confirmation of the anomalous condition described above. Assessment monitoring will be concurrent with any actions taken during the Alternative Source Demonstration. Assessment monitoring may involve expanding the analytical parameter list from the Routine Parameter List to either the Expanded List or Baseline List depending on the nature of the anomalous detection. For example, if organic chemicals are of concern, then the Expanded Parameter List will be used for the next two (2) quarterly sampling events. If the nature of the anomalous detection is related to inorganic constituents, then the Baseline Parameter List will be used for the next two (2) quarterly sampling events. Nearby wells may be included in the assessment monitoring program should the nature of the anomalous detection suggest an expanded assessment of groundwater chemistry is warranted. The selection of the assessment monitoring parameter list and identification of wells to be included in the assessment monitoring program will be discussed with the NYSDEC.

The assessment monitoring results will be documented in the quarterly monitoring reports. Assessment monitoring will be discontinued if the source of the anomalous detection is found to be unrelated to landfill activities or corrective actions address the anomalous detections and water quality returns to pre-condition levels.

4.1.5 Contingency Monitoring

If is determined that there is a significant increase for one or more of the parameters during two successive monitoring events at any monitoring well, and the Alternative Source Demonstration and Assessment Monitoring are unable to explain the significant increases or anomalous conditions, Waste Management will, within 14 days of this finding, notify the department indicating which parameters have shown significant increases. In addition, at that time, the facility will implement a contingency monitoring program meeting the requirements within 90 days. A contingency water quality monitoring program will be developed if:

- The Alternative Source Demonstration does not identify the cause of the anomalous detection; and
- Assessment monitoring continues to confirm the existence of the anomalous condition.

Contingency monitoring efforts under this plan will focus on characterizing the nature and extent of the release and initiate an analysis of corrective actions. Depending on the nature and magnitude of the condition causing the anomalous detections in groundwater, the assessment of groundwater quality farther downgradient from the facility may be warranted. Under conditions requiring implementation of contingency monitoring, a written Contingency Monitoring Plan (CMP) will be prepared describing a scope of work with sampling and analysis activities to be undertaken to address the anomalous conditions. The CMP will be provided to the NYSDEC for approval prior to implementation. Any additional wells installed to support contingency monitoring will be analyzed twice within 14 days for the Expanded Parameter List (or list agreed upon with the NYSDEC) to assess existing water quality. Results will be provided to the NYSDEC as outlined in the CMP. Contingency monitoring could also include, but not be limited to monitoring of additional monitoring wells for an expanded list of parameters; more frequent monitoring of landfill systems (i.e., secondary leachate collections systems); additional monitoring of off-site selected domestic wells; and systems installed for corrective action.

4.2 Surface Water and Sediment

The results of surface water quality sampling and analysis will be compared with historical data from the same sampling point using one (1) or more of the following: time series plots, Piper Plots, and/or Stiff Diagrams to assess overall changes in surface water quality. Data tables will include comparisons to New York State surface water quality standards and guidance values and appropriate New York State Sediment Guidance.

4.3 Landfill Containment Systems

Data for composite primary leachate samples and individual cell secondary leachate collection systems will be evaluated for overall changes in leachate quality. Sample results may be compared with historical data using time series, Piper Plots, and/or Stiff Diagrams to assess overall changes in leachate water quality, as required to evaluate conditions different than background. If quarterly checks of the Cell 6 porewater drain produces a sampleable quantity of water, results will be compared to groundwater quality standards and guidance values.

5. Site Analytical Plan

This section of this EMP constitutes the SAP as required under 6NYCRR Part 363-4.6(g) and is subdivided into three (3) subsections:

- Data Quality Objectives
- Analytical Quality Assurance/Analytical Quality Control
- Field Sampling Procedures

Laboratory procedures and data quality review are discussed in Sections 6.0 and 7.0, respectively.

5.1 Data Quality Objectives

Data Quality Objectives (DQOs) are qualitative and quantitative statements which specify the quality of the data required to support the goals of the monitoring program and are determined based upon the end use of the data. The end use of the data collected under this monitoring plan will be to document or monitor the functional performance of the engineered containment systems at the Chaffee Landfill Facility including the Area 7/8 Development and to demonstrate to the regulatory agency that the facility is not causing adverse impacts to the environment. The users of the data include regulatory agencies, landfill owner, landfill operator and the public (i.e., interested parties and environmental professionals). The DQOs will be met by establishing standardized field and lab procedures. Given that most of these procedures are specified within the regulations, the DQOs are essentially already established by the NYSDEC and will thus be attained by following the regulations. The goals of the various components of the regulations designed to meet the DQOs are discussed below.

5.1.1 Monitoring Programs

The primary objective of monitoring program implementation is to demonstrate that landfill operations are not adversely impacting environmental media. A monitoring program has been established to meet this objective.

Existing Groundwater Quality

The goal for Existing Water Quality monitoring (also referred to as background water quality) is to collect and analyze representative groundwater samples such that the data can be used to establish a benchmark for comparison to future sampling events. The collected data will be

processed and evaluated for both spatial and temporal variability and will be used to establish WQAVs as described in Section 4.1.1.

Operational Groundwater Quality

The goal of the operational water quality monitoring program is to collect and analyze samples and evaluate the resulting data to determine if groundwater quality at a particular sample location has changed through landfill operation activities. The methods used to evaluate impacts to groundwater are described in Section 4.1.2.

Landfill Containment Systems

The goal of monitoring landfill systems is to assess potential changes in leachate quality; liquid quality in secondary leachate collection systems; groundwater quality in underdrains and storm water quality discharged from storm water retention ponds. Understanding the quality of liquids in landfill systems is important since it is the primary source of potential impact to site media.

Surface Water/Sediment

The goal of the surface water/ sediment quality monitoring program is to collect and analyze samples to determine if surface water/sediment quality has changed through landfill operation activities.

Landfill Gas Control Monitoring

The goal of landfill gas monitoring is to determine if landfill gas vapors are migrating below the ground surface near the landfill containment systems.

5.1.2 Regulatory Programs and Standards

Data collected from various media monitored and sampled will be compared to regulatory guidance. The most current New York State Ambient Water Quality Standards and Guidance Values will be used, in part, to provide a comparative basis for the evaluation of the results of the environmental monitoring program. Applicable water quality regulations, standards, and criteria include:

Groundwater Monitoring Results

- Official Compilation of Codes, Rules, and Regulations of the State of New York, Chapter X, Division of Water Resources, Article 2, Part 703.5 (Classes and Quality Standards for Ground Waters as Applicable to Class GA Waters).
- Maximum Contaminant Levels (MCL's) as established under 40 CFR Part 141 (Safe Drinking Water Act).

Surface Water Monitoring Results

• Official Compilation of Codes, Rules, and Regulations of the State of New York, Chapter X, Division of Water Resources, Article 2, Title 6, Part 701, Classification and Standards of Quality and Purity.

Sediment Monitoring Results

• NYSDEC Technical Guidance for Screening Contaminated Sediments dated November 22, 1993 and January 2014 update

Landfill Operations

• 6NYCRR Part 363-7 Operating Requirements for Solid Waste Management Facilities

5.1.3 Analytical Parameters and Detection Limits

The analytical parameters for liquids incorporated into this EMP have been subdivided into three (3) groups: Routine Parameters, Baseline Parameters and Expanded Parameters as defined by 6NYCRR Part 363-4.6(h). The analytical methods and detection limits for liquids to be employed for this EMP are presented in Table 2A through 2C. Table 2D presents the analytical methods and detection limits for sediment samples.

5.2 Analytical Quality Assurance/Analytical Quality Control

The following section presents and discusses the analytical objectives and procedures, which will be employed to meet the DQOs.

5.2.1 Analytical Goals and Protocols

The goal of the analytical program is to collect, document, and analyze the environmental samples in accordance with established methods and procedures such that the resulting data is representative of the sample matrix in the field and can be used for comparison to existing environmental conditions and standards. This goal will be accomplished through the assignment of qualified personnel, adherence to established quality control procedures, and the use of standardized methods and protocols for the collection, shipping, and analysis of the environmental samples.

5.2.2 Project Personnel and Responsibilities

The EMP will be implemented and managed by WMNY under the regulatory authority of the NYSDEC. WMNY subcontracts EMP implementation services including environmental reporting, sampling and laboratory analytical services to a NYSDOH ELAP certified laboratory in accordance with the NYSDEC's ASP.

The following shows affiliates and responsibility participation in this monitoring plan:

Responsibility	Current Affiliation
Program Management	WMNY – Market Area Engineer
Environmental Compliance and Sampling Manager	WMNY – Environmental Compliance Manager and Landfill Operations Manager (Landfill Containment System Sampling Assistance)
Environmental Reporting	GEI Consultants, Inc. or WMNY approved contractor
Field Sampling	Golder Associates or WMNY approved contractor
Laboratory Analytical Services	Eurofins TestAmerica-Buffalo or other ELAP certified laboratory

If listed affiliate and/or responsibility change, a revised table will be provided to the NYSDEC.

5.2.3 Quality Control Procedures and Objectives for Measurement

To ensure that the data generated as a part of the EMP fulfills the needs of the DQOs, quality assurance practices will be maintained both in the field and in the laboratory. Quality control procedures and standards related to the field and laboratory are discussed in greater detail below.

Field Methodologies

It is essential to any monitoring program that samples (i.e., groundwater, surface water, leachate etc.) collected in the field and destined for laboratory analyses be representative of the conditions present at the time of sampling. To ensure sample representativeness and completeness, all sampling procedures will be completed in accordance with the Field Sampling Procedures (Section 5.3) and in Waste Management's internal sampling guidelines which are consistent with EPA sampling protocols for environmental media.

For field-generated data (e.g. temperature, specific conductivity, pH measurements and turbidity measurements), the accuracy and precision of the data will be within the limits of the field instrument. Field instruments will be calibrated, used, and maintained according to the instrument manufacturer's directions and those procedures described in this SAP and Waste Management's Environmental Media Sampling Procedures.

Field Precision

The precision for field measurements is as follows:

<u>pH meter</u> - consecutive readings should agree within ± -0.2 pH units after the
instrument has been field calibrated with standard buffers.
Conductivity meter - consecutive readings of a thermally stable sample should agree
within $\pm 5\%$ after the instrument has been calibrated.
Thermometer - consecutive measurements of a given sample should agree to within
<u>+/-1</u> degree Celsius.
<u>Eh Meter</u> - consecutive readings should agree to within ± -0.25 millivolt (Mv). after
meter calibration.
<u>Dissolved Oxygen Meter -</u> consecutive readings should agree to within ± -0.2
milligram/liter (mg/l) after meter calibration.
<u>Turbidimeter -</u> consecutive readings should agree to within $\pm -20\%$ after meter
calibration.
<u>Particulate Monitor</u> - $\pm 0.1\%$ of reading or 0.001 mg/m ³ ,
<u>Multi-gas -</u> consecutive readings should agree to within $\pm -1\%$ LEL, after meter
calibration.
<u>Noise Meter -</u> consecutive readings should agree to within ± -0.1 dB after meter
calibration.

Field Accuracy

The objective for accuracy of field measurements is to achieve and maintain factory equipment specifications for the field equipment. Field measurements cannot be assessed for accuracy by spiking the medium with the analytical parameter and measuring the increase in response; therefore, these instruments can only be assessed for accuracy by the response to a known sample (such as calibration standard) used to standardize them. For example, the pH meter is calibrated with buffer solutions traceable to the NIST (formerly the National Bureau of Standards).

Laboratory Certification and Methodologies

Eurofins TestAmerica-Buffalo is certified under the NELAC Program on an annual basis and audited every two (2) years by NYSDEC. As such all laboratory procedures utilized by Eurofins TestAmerica have been pre-approved by the NYSDEC. Laboratory procedures will adhere to established analytical method protocols and Eurofins TestAmerica's SOPs.

Parameters to be tested for as a part of this EMP include the 6NYCRR Part 363 (Effective date November 4, 2017) Routine Parameters, Baseline Parameters and Expanded Parameters. Samples will be analyzed following the methods in the NYSDEC ASP or an equivalent method.

The analytical methods and laboratory PQLs are provided in Table 2A to 2D. A discussion related to some of these quality assurance measurements is provided below. The laboratory analysis plan is provided in Section 6.0.

Precision

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value. Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), range (maximum value minus minimum value), and relative range are common.

Analytical precision will be assessed by analyzing MS and MSD samples organics and matrix spike and laboratory duplicate samples (inorganics) and determining the RPD.

For all Part 363 Baseline and Expanded Parameter analyses a MS/MSD or laboratory duplicate pair will be collected at a frequency of not less than five (5) percent (one per twenty samples) or one (1) per sampling event, whichever is more frequent.

Total system precision, including field precision will be determined by analyzing duplicate samples collected in the field at the same location. The formula for calculating RPD is as follows:

$RPD = \{ (V1-V2)/(V1+V2)/2 \} X 100$

Where:	RPD	=	Relative Percent Difference.
	V1, V2	=	The 2 values obtained by analyzing the duplicate samples or
			spike and spike recovery values.
	V1-V2	=	The absolute value of the difference between the two
			measurements.
	(V1+V2)/2	=	Concentration of analyte obtained by analyzing the sample
			duplicate or spike recovery.

Accuracy

Accuracy is a measure of the difference between a measured value and the "true" or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material and is expressed as the percent of the known quantity, which is recovered, or measured. The recovery of a given analyte is dependent upon the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Additionally, initial and continuing calibrations must be performed and accomplished within the established method control limits to define the instrument accuracy before analytical accuracy can be determined for any sample set. Sampling accuracy may be determined through the assessment of trip blanks (volatile organics only) for each sample set.

Accuracy is normally measured as the percent recovery (%R) of a known amount of analyte. The %R for a matrix spike is calculated as follows:

$$R = \underline{SSR-SR} \times 100$$

SA

Where:

%R	=	Percent recovery
SSR	=	Concentration of analyte obtained by analyzing the sample plus the
		spike
SR	=	The background value; i.e., the concentration of the analyte
		obtained by analyzing the sample.
SA	=	Concentration of the analyte spike added to the sample.

Percent recovery of a laboratory control sample is determined by dividing the measured value by the known value and multiplying by 100.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter, which is most concerned with the proper design of the sampling program. Samples must be representative of the environmental media being sampled. Selection of sample locations and sampling procedures will incorporate consideration of obtaining the most representative sample possible.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree that is technically possible, that the data derived represents the in-place quality of the material sampled. Every effort will be made to ensure chemical compounds will not be introduced into the sample via sample containers, handling, and analysis. Dedicated sampling devices will be employed whenever possible, and Waste Management's Environmental Media Sampling Procedures included in C will be followed. Analysis of trip blanks (volatile organics only) and method blanks will also be performed to monitor for possible sample contamination from field and laboratory procedures.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. The analytical laboratory will follow acceptable procedures to assure the samples are adequately homogenized prior to taking aliquots for analysis, so the reported results are representative of the sample received.

Finally, samples will be taken and Chain-of-Custody (COC) procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. Details of COC, and blank/duplicate procedures will be discussed in sections to follow.

Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid (USEPA, 1987). The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested. Completeness is defined as follows for all sample measurements:

 $%C = (V/T) \times 100$

Where:%C= Percent completenessV= Number of measurements judged valid.T= Total number of measurements.

Comparability

Comparability expresses the degree of confidence with which one (1) data set can be compared to another. The comparability of all data collected for this EMP will be ensured by:

- Using identified standard methods for both sampling and analysis phases;
- Requiring traceability of all analytical standards and/or source materials to USEPA or NIST;
- Requiring that all calibrations be verified with an independently prepared standard from a source other than that used for calibration (if applicable);
- Using standard reporting units and reporting formats including the reporting of QC data;
- Performing a complete data validation on a representative fraction of the analytical results, including the use of data qualifiers in all cases where appropriate; and
- Requiring that all validated flags be used at any time an analytical result is used for any purpose whatsoever.

These steps will ensure all future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

5.2.4 Standard Operating Procedures

Field sampling methods are described in Section 5.3. Standard operating procedures are followed by the field sampling team and are consistent with Waste Management and EPA sampling protocols for the collection of environmental samples from the media identified in this EMP. SOPs can be provided to the NYSDEC if requested.

Standard operating procedures related to the laboratory have been pre-approved by the NYSDOH as part of the NELAP Certification of Eurofins TestAmerica-Buffalo. All laboratory analytical procedures will be completed in accordance with ASP protocols. The laboratory analysis plan is provided below in Section 6.0.

5.3 Field Sampling Procedures

The following section describes the procedures for collecting and shipping samples for laboratory analysis.

5.3.1 Procedures Prior to Sampling

General procedures followed prior to sample collection at each sampling point are as follows:

- 1. Locate the sampling point.
- 2. Observe and record the condition of the sampling point and its surrounding area on a Field Information Form. Information to be noted includes:
 - The condition of monitoring point's identification sign;
 - Recent disturbance in vicinity of sampling point;
 - Condition of the security system for sampling point;
 - Well, tank, or manhole integrity including condition of any cement footing or protective casing. In addition, note physical surroundings, obstructions, or kinks in well casing, water in annular space, grease around top of well on threaded cap, etc.;
 - Weather conditions (i.e., wind direction when sampling for volatiles and note if sampling was performed downwind of an active area); and
 - Evidence of suspected contamination.

Prior to groundwater well purging and sampling, an accurate water level measurement is taken with a portable, conventional electric probe indicator that is triple rinsed with deionized water before each use. A permanent datum is provided at each well location. The water level measurement is recorded on the Field Information Form. Additionally, if previous analytical results suggest the potential presence of NAPLs, the well will be checked for immiscible layers prior to evacuation using an oil water interface probe. Otherwise, any observations of floaters or sinkers will be noted on the field data sheet during sampling.

In addition to the procedures above, a well condition inspection will be performed each sampling event as described in the sampling procedures. During inspection on a once every five (5) year basis, sediment accumulation in the well will be checked. The pump will be pulled from the well and the well depth will be measured and compared to well completion logs. If well condition inspections find sediment accumulation in the well (within one $\{1\}$ foot of the pump intake), the well will be redeveloped to remove accumulated sediment.

5.3.2 Sample Collection

Groundwater Sampling

WMNY groundwater monitoring well sampling systems dedicate all purging and sampling equipment to each well, thus minimizing any potential cross-contamination between wells that may be otherwise incurred during conventional water sampling. Samples will be collected using low flow sampling methods with dedicated QED sampling pumps, peristaltic pumps, or bailers.

Field measurements consisting of specific conductance, Eh, pH, turbidity, and groundwater temperature measurements will be measured and recorded after collection of the volatile sample. Procedures provided with the instruments will be used for calibration and testing. All results will be recorded on the Field Information Form.

For the field measurements of Eh, pH, specific conductivity, dissolved oxygen and turbidity, an appropriately calibrated meter such as a Cole Palmer ORPTESTR, Myron L (pH & sc), YSI Model 55 DO Meter and DRT-15C field turbidity meters (or similar) will be utilized. The frequency of calibration of all field parameter measuring equipment will be in accordance with the manufacturer's requirements. If the values obtained are not within the normal range, the WMNY Program Manager will be notified immediately as it may be necessary to resample. The initial sample will not be discarded. Additional samples may be requested by the WMNY Program Manager to ascertain the cause of abnormal readings.

The collected groundwater samples will not be filtered. However, in the event that the turbidity of the sample cannot be reduced to 50 NTUs through sampling techniques or well development, micropurging and/or collection, analysis of both filtered and unfiltered samples for metals parameters may be used. A standard 0.45 micro filter capsule will be used if filtering is required. Once the sample has been collected the sample point will be secured and all sampling disposables will be removed from the area and properly disposed. Samples requiring organic analysis will not be field filtered.

The groundwater parameters which are collected at any site are collected based upon their volatilization sensitivity. The following order is followed by the sampling team.

- 1. Volatile Organics
- 2. Field Readings
- 3. Total Organic Carbon
- 4. Extractable Organics
- 5. Total Metals
- 6. Phenols
- 7. Cyanides
- 8. Wet Chemistry
- 9. Others

Notes:

- Other samples may be collected and analyzed in addition to those listed above.
- If the monitoring well is very turbid, collections of samples for metals shall be performed immediately after volatile organics to minimize the influence of turbidity. Filtered samples for metals analysis may be collected in addition to a total metals sample if sample turbidity is greater than 50 NTU.

Surface Water Sampling

Upon arrival at the sampling location the general condition of the sample location and its surroundings will be recorded on a Field information Form. In addition, general sampling point integrity, weather conditions, visible contamination, odors, and unusual surface conditions will be observed. Surface water samples will be obtained as grab samples. Samples will be obtained from near the water surface.

Surface water samples will not be collected during precipitation events. The sampling conditions will be evaluated by the sampling team immediately prior to sample collection. A suitable work area will be set up as close to the sampling station as possible. Individual sample containers will be filled in the same priority order as detailed for groundwater.

Sediment Sampling

Upon arrival at the sampling location the general condition of the sample location and its surroundings will be recorded on a Field information Form. In addition, general sampling point integrity, weather conditions, visible contamination, odors, and unusual surface conditions will be observed. Sediment samples will be obtained from the upper five centimeters of sediment. Sediment samples at any location will be collected once the surface water sampling at the location has been completed. As with surface water samples, the sequence for collection of sediment samples will be from the most downstream location to the most upstream location.

Samples will be collected in such a manner as to minimize disturbance of the sediment and minimize washing of the sediment as it is retrieved through the water column. Due to the shallowness of the water column, sediment samples will be collected with a stainless steel spatula. The collected sediment will be placed into a stainless steel bowl and the water will be decanted from the bowl. The process will be repeated until sufficient volume is present to fill required sample jars. The sample material in the bowl will be homogenized. Because none of the samples will be submitted for analysis for volatile organic compounds, constituent loss due to volatilization is not a concern. If analysis is required for volatile organic matter and soil particles on the Field Information Form. The mixing bowl and all non-dedicated sampling equipment will be cleaned by washing with a non-phosphate detergent and rinsing with distilled/deionized water. Once the sample has been collected the sample point will be secured and all sampling disposables will be removed from the area and properly disposed.

Leachate Sampling

Upon arrival at the sampling location the general condition of the sample location and its surroundings will be recorded on a Field information Form. Leachate samples will be collected from sample ports off of the side riser piping at the leachate station pump house with assistance from WMNY operational staff. Adequate time for venting between collecting landfill system samples should LFG be present. Leachate should be the last sample collected if pore water and secondary leachate collection systems are sampled.

Field QC Sample

Field QC samples are used to monitor the reproducibility and representativeness of field sampling activities. The field QC samples are handled transported and analyzed in the same manner as the associated field samples. Field QC samples will include trip blanks, field duplicates and MS/MSDs. The quantity, field QC sample type and analysis are discussed in the Laboratory Analysis Plan in Section 6.0.

5.3.3 Sample Preservation, Shipment, and Holding Times

Since multiple analyses will be required, different types of containers and preservatives may be necessary. In these situations, multiple pre-labeled containers will be supplied by the laboratory for each sampling point. The appropriate preservatives will be provided in small vials during sample bottle preparation by the analytical laboratory. The volume requirements, containers, preservatives, and holding times for each parameter are listed in Table 3.

The appropriate sample bottles that have been prepared in the laboratory with the appropriate preservative will be used to collect samples from each location. Containers for collecting samples for volatile organics analysis will be filled to slightly more than full before the septum and cap are placed on the container to ensure that it is free of head space (sampling personnel will check for air bubbles by inverting the container and tapping it). Following filling and capping the bottles will be inverted to mix the preservatives with the sample.

Immediately after collection, bottles will be placed in insulated shuttles or coolers with ice packs. Volatile organic containers will be arranged such that they do not come into contact with the ice packs. Executed Field Information Forms and Chain-of-Custody Forms will be placed inside the sample coolers and custody sealed. Samples will then be transported to Eurofins-Buffalo, or other approved laboratory, and will arrive within 48 -hours of collection or sooner as necessary to meet sample holding time requirements.

5.3.4 Chain-Of-Custody

At the time each sample is taken, a COC form will be completed by the sampler and placed in the sample chest. Upon transfer of sample possession to subsequent custodians, the COC form will be signed by the person taking custody of the sample container. Upon receipt of samples at

the laboratory, the shipping container seal will be broken and the condition of samples, including temperature, will be recorded by the receiver. The COC forms will be included in the analytical report prepared by the laboratory and will be considered an integral part of that report.

As part of the COC procedure, each sample container will be labeled with the sample number and the parameter to be sampled.

All sampling procedures, measurements, and observations will be recorded on the COC forms, including the following information:

- Facility site name, sample point identification number, and other pertinent identifiers;
- Sample method (dedicated bailer or bladder pump, grab, composite, etc.);
- Type of sample and necessary treatment (e.g. filtering, if necessary);
- Sampler's identity and signature;
- Analytical requirements; and
- Other information required by Waste Management's sampling SOPs.

Upon receipt of the samples at the laboratory, the date and time of arrival will be noted on the COC forms. The laboratory receiver will verify that the seal is intact and custody has not been broken, and make note of sample bottle condition on the forms. These forms will be retained by the laboratory and returned with the results of the analysis.

5.4 Gas Monitoring

Explosive gas concentrations in gas monitoring probes will be conducted using a Q-RAE Plus multi-gas meter, or equivalent. The meter utilizes catalytic compensated hydrocarbon sensor and microprocessor electronics to analyze and display explosive gas concentrations. Explosive gas readings (percent methane measured as the lower explosive limit) will be recorded at each gas probe.

6. Laboratory Analysis Plan

This section describes the procedures for laboratory analysis.

In accordance with 6NYCRR Part 363-4.6(g)(4), WMNY will use an analytical laboratory that is certified by NYSDOH, ELAP to perform ASP laboratory services in the State of New York. The current analytical laboratory is Eurofins TestAmerica (ETA). ETA will maintain this certification through the analysis of performance samples and routine auditing by NYSDOH as required by ELAP. ETA-Buffalo laboratory has established SOPs relating to the receipt, analysis and reporting of samples. A copy of Eurofins TestAmerica's Laboratory Quality Manual is not included herein, but will be provided on request. In the event that WMNY changes analytical laboratory service providers, NYSDEC will be notified and will provide a copy of that laboratories quality assurance manual, if requested.

6.1 Program Quality Assurance/Quality Control Procedures

Trip blanks, equipment blanks, field (aka blind) duplicates and matrix spike samples provide quality assurance/quality control measures for the monitoring program.

6.1.1 Trip Blanks

Trip blanks are a required part of the field sampling QA/QC program. They are used to detect contamination that may be introduced in the field (either atmospheric or from sampling equipment), in transit, or in the bottle preparation, sample log-in, or sample storage stages at the laboratory. Laboratory method blanks are used during the analytical process to detect any laboratory introduced contamination that may occur during analysis.

Trip blanks are samples of organic-free water (e.g. deionized) prepared at the laboratory. They remain with the sample bottles while in transit to the site, during sampling, and during the return trip to the laboratory. Trip blank sample bottles must not be opened at any time during this process. Upon return to the laboratory, trip blanks will be analyzed using the same procedures and methods that are used for the collected field samples.

One (1) trip blank will be analyzed for each cooler containing samples to be analyzed for volatile organics. Coolers which do not contain samples for volatile organics analysis will not require a trip blank to be analyzed. The trip blanks will be prepared by the laboratory and placed in the coolers prior to sample collection.
6.1.2 Field Duplicates

Field Duplicate Samples are samples that are submitted from a split of the same sample media. Field duplicates will be used to assess the sampling and analytical reproducibility. Both samples are collected utilizing the same methods and are submitted for the same laboratory analysis however different sample identification numbers are used.

For Routine, Baseline or Expanded Parameter analysis, field duplicate samples will be collected at a frequency of one (1) per every 20 samples or one (1) per event, whichever is more frequent. These samples will be collected from a randomly selected location, which is known to produce sufficient volumes of water.

6.1.3 Matrix Spike/Duplicate

MS/MSD Samples are two (2) additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology.

For routine parameter analysis, one (1) matrix spike and one (1) matrix spike duplicate/laboratory duplicate sample will be analyzed per laboratory batch as required by the analytical methods.

For Baseline or Expanded Parameter analysis, one (1) matrix spike and matrix spike duplicate/laboratory duplicate will be collected at a frequency of one (1) per every 20 samples or one (1) per event, whichever is more frequent.

These samples will be collected from a randomly selected location. Groundwater sample locations will be collected from wells which are known to produce sufficient volumes of water.

6.2 Laboratory Quality Control Procedure

The laboratory quality control program has been audited, certified and approved by NYSDEC and describes the mechanisms the laboratory employs to ensure that all data reported meets or exceeds all applicable USEPA and NYSDEC requirements. It describes the laboratory's experience, its organizational structure, and procedures in place to ensure quality of the analytical data. The laboratory quality manual and laboratory SOPs outline the sampling, analysis, and reporting procedures used by the laboratory.

The laboratory has established specific procedures and checklists for the receipt, storage, and handling of environmental samples to assure their integrity and security. These procedures are discussed in detail in the laboratory SOPs and include detailed chain-of-custody records, secured

storage and laboratory areas, and the tracking of each sample from its receipt at the lab through data generation and reporting.

The acceptance criteria and frequency for both initial and continuing calibration of the analytical instruments used by the laboratory are documented in laboratory SOPs and are described in NYSDEC ASPs. The laboratory will complete internal data validation in case narratives for Routine Parameters in accordance with NYSDEC requirements.

DQR, or equivalent, are requests submitted to the laboratory to formally review results that differ from historical results, or that exceed certain permit requirements or quality control criteria. The laboratory prepares a formal written response to each DQR explaining the discrepancy. The DQR is the first line of investigation following any anomalous result.

Audits are an important component of the quality assurance program at the laboratory. Audits are conducted by the laboratory. Internal system and performance audits are conducted periodically to ensure adherence by all laboratory departments to the QAPP. External audits are conducted by accrediting agencies or states. These reports are transmitted to department managers for review and response. Corrective measures must be taken for any finding or deficiency found in an internal or external audit.

Corrective action will be necessary if precision or accuracy limits are outside the acceptable limits. In such an event, the following corrective actions may be employed, depending upon the particular situation.

- Calculations are rechecked.
- Sample handling, i.e., digestion, concentration, and/or extraction logs are checked for discrepancies in sample handling.
- Analyte concentration is reviewed to determine if it has severely influenced the reliability of the precision or recovery calculations.
- Instrument and method performance is verified by inspecting data on standard reference materials processed in the same data set.
- Quality control data on the other samples in the data set, including surrogate recovery, internal standards, etc., are reviewed to determine if the problem is method related or sample related.
- If original sample is available, the sample is assessed for homogeneity.
- If sample is unavailable and no explanation for poor quality control results can be determined, additional samples will be obtained. If additional sample is unavailable, the results are issued with a qualification as to their accuracy.

The laboratory has established procedures and responsibilities for corrective actions as well as a summary of probable sources and suggested corrective actions. These are presented in the laboratory SOPs.

6.3 Practical Quantitation Limits (PQL)

Laboratory results will utilize laboratory-specific PQLs as the reporting limits of applicable low detection analytes (especially organics). The USEPA developed the concept of the PQL to address the issue of analytical variability. The PQL concept was developed for compliance with the Safe Drinking Water Act (50 FR 46906, Nov. 13, 1985) where it is defined: "The PQL thus represents the lowest level achievable by good laboratories within specified limits during routine laboratory operating conditions."

The reporting limits (RLs) listed on Tables 2A through 2D are the PQLs for laboratory analytes, as established by USEPA.

6.4 Analytical Methodologies

The analytical methods, holding times and sample preservatives to be used for the analysis of each parameter are included in Table 3.

7. Data Quality Review, Reporting and Recordkeeping

Prior to submittal of a monitoring report to the NYSDEC, several data evaluation, reporting, and recordkeeping tasks will be implemented. The following sections describe the evaluation, reporting and recordkeeping procedures that are followed upon receipt of the analytical report.

7.1 Data Quality Review

Each analytical report received from the laboratory will undergo two (2) levels of quality management. These quality assessment procedures are described below.

7.1.1 Initial QA/QC Checks

Before the data are subjected to statistical analysis, WMNY will evaluate the data by examining the quality control information accompanying the data report from the laboratory. Relevant quality control data include measures of accuracy (percent recovery), precision (RPD), and sample contamination (blank determinations).

Data that fail any of these checks will be flagged for closer evaluation and a DQR. Results of the DQR will be submitted with the analytical data in the routine monitoring report. A brief summary of these relevant quality control data follows. A more complete description is contained in the laboratory QAPP.

Accuracy defines the relationship between the laboratory's measurements of a sample's concentration and the "true", but unknown concentration of the sample. Because the "true" concentration is unknown, accuracy must be measured indirectly by determining the percent recovery of a sample called the MS. The MS is analyzed under the same conditions as the groundwater sample and its concentration is determined. Because the MS has a known concentration it's percent recovery can be calculated. It is assumed that the groundwater sample behaves exactly like the MS and thus the "true" concentration of the submitted groundwater sample can be back-calculated. Control criteria for percent recovery are taken from regulatory method requirements.

Precision is the assessment of the variability that can be expected in data that result from the analytical procedures employed. It provides a measure of the reproducibility which is estimated through duplicate measurements of a MS. Two (2) matrix spike samples are prepared as described above, an MS and an MSD. Both spikes are analyzed along with the unknown sample and the RPD between the two (2) spikes is determined. Control criteria for RPD are taken from regulatory method requirements.

The potential for sample contamination is assessed by measurements of "blank" samples. Blanks are samples of ultra-pure laboratory water that are not spiked with any analytes and are carried through the field sampling and laboratory environments. These samples are known as "field," "lab," and "equipment" blanks. It is assumed that any analytes that occur in the field or laboratory which might add to the concentration of the analyte in the sample will be picked up by the blank samples and measured. If any of the analytes of interest are found in the blank samples it is an indication of potential contamination of the unknown sample.

7.1.2 Data Validation

Analytical data will be reviewed by a validator that is not associated with the laboratory that is experienced and qualified in NYSDEC validations.

Five percent (5%) of the analytical data generated for groundwater sampling events for which Baseline or Expanded Parameters are analyzed will be validated. NYSDEC Category B QA/QC criteria for five percent (5%) of the samples will be reviewed.

Data will be validated consistent with USEPA analytical methods used for sample analysis for the project. Qualifiers added to the data and the conditions for addition of the qualifiers are those specified in EPA guidance documents "National Functional Guidelines for Organic Data Review", dated October 1999, EPA-540/R-99/008, "National Functional Guidelines for Inorganic Data Review", dated February 1994, EPA-540/R-94-013.

7.1.3 Qualitative Data Evaluation

Following the initial QA/QC checks, all data will undergo a second level of review by graphing historical time trends and comparing new results with these historical trends to flag visual outliers or other anomalous data. If a clearly anomalous result is found, a DQR will be initiated with the laboratory to ascertain if laboratory error is involved. In addition, field information will be checked for anomalous occurrences or observations that might help to explain the outlier result.

7.2 Data Reporting Requirements

Data obtained from the environmental monitoring data will be reported to the NYSDEC within 90 days of concluding the last date of sample collection, unless more rapid reporting is required as a result of significant increases. The reporting of the sampling event and analytical data will be completed in accordance with 6NYCRR Part 363-4.6(f)(10).

The quarterly reports will include a review of site conditions, tables providing the data and comparisons to NYSDEC groundwater standards, the results of time series graphs and Piper, Stiff and Ternary diagrams as appropriate, groundwater elevation data, any data quality issues determined by the laboratory or the outside independent data validator for a baseline event and

conclusions regarding the presence/absence of significant increases. In addition, leachate quality data (semi-annual), underdrain water quality (for operating underdrains), surface water and sediment quality, ambient air monitoring, and noise monitoring will be submitted with each quarterly report.

Per Part 363-4.6(f)(10)(v), an annual report will also be submitted (included with the Fourth Quarter Report) which summarizes the data collected over the previous year, including discussions regarding observed changes in groundwater, surface water, leachate, etc. and will include potentiometric surface maps supporting evaluations of groundwater flow directions.

7.3 Data Record Keeping Requirements

All analytical data are maintained by the laboratory indefinitely. The laboratory ensures that, at each stage of a process where a permanent data record is required, security measures are in place to guarantee the integrity of the data. SOPs are in place for computer security, computer data storage and back-up. In addition, all raw chemical data provided by the laboratory will be available for review upon request.

8. References

- Miller, T.S. and W.W. Staubitz. 1985. Hydrogeologic Appraisal of Five Selected Aquifers in Erie County, New York. U.S. Geological Survey, Water Resources Investigations Report 84-4334.
- McMahon & Mann Consulting Engineers, P.C. and Terra-Dynamics, Inc, February 2005. Hydrogeologic Report for Chaffee Western Landfill Expansion – Part 360 Permit Modification Application.
- McMahon & Mann Consulting Engineers, P.C.. Borrow Area Use Plan for the East and West Soil Borrow Area Chaffee Landfill. March 2009.
- McMahon & Mann Consulting Engineers, P.C., December 2012, Environmental Monitoring Plan – Chaffee Landfill Valley Fill Permit Expansion
- State of New York Codes, Rules and Regulations, Title 6 Department of Environmental Conservation, Chapter IV. Quality Services, Subchapter B. Solid Wastes, Part 363 Landfills, Effective Date November 4, 2017.
- U.S. Environmental Protection Agency (EPA). 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities – Unified Guidance. EPA 350/R-09-007. March
- U.S. Environmental Protection Agency (EPA National Functional Guidelines for Organic Data Review. October 1999, EPA-540/R-99/008.
- U.S. Environmental Protection Agency (EPA) National Functional Guidelines for Inorganic Data Review. February 1994, EPA-540/R-94-013.

Tables

Table 1. Detection and Hydraulic Monitoring NetworkEnvironmental Monitoring PlanChaffee Landfill Facility Town of Sardinia, New York

Wall Nama		Detection Monitoring Well /		
(Client ID)	Hydraulic Monitoring	Hydraulic Position	Hydrostratigraphic Unit	
(Chent ID)		to Landfill Areas		
Closed Landfill Are	ea			
MWR1BR		X / NA		
MW2R		X / NA		
MW7R		X / NA		
MW9R		X / NA	Upper Silty Clay (perched	
MW11R		X / NA	water)	
MW12B		X / NA		
MW24BR		X / NA		
MW80B		X / NA		
MWR1A	Х	X / Up/Down		
MW10R	Х	X / Down		
MW12A	Х	X / Down		
MW13R	Х	X / Up/Down	Upper Silty Sand and	
MW14R	Х	X / Down	Gravel	
MW24AR	Х	X / Up/Down		
MW80A	Х	X / Down		
MW81	Х	X / Down		
Western Landfill A	rea/Valley Fill			
MW32		X / NA		
MW16(S)		X / NA		
MWL(S)		X / NA		
MW18BR		X / NA		
MWM(S)		X / NA	Upper Silty Clay (perched	
MWN(S)		X / NA	water)	
MWO(S)		X / NA		
MWP(S)		X / NA		
MWQ(S)		X / NA		
MW50	Х	X / Up		
MW17	Х	X / Down		
MW30	Х	X / Side		
MW16	Х	X / Down		
MWL(I)	Х	X / Down	Upper Silty Sand and	
MWM(I)	Х	X / Down	Gravel	
MWN(I)	Х	X / Down		
MWO(I)	Х	X / Side		
MWP(I)	Х	X / Down		
MWQ(I)	Х	X / Down		
Area 7/8 Developm	ient			
MWSE-5(S)		1	Upper Silty Clay (perched water)	
MWSE-1	Х	X / Up/Down		
MWSE-2	Х	X / Up/Down		
MWSE-3	Х	X / Up/Down	1	
MWSE-4	Х	X / Up	Upper Silty Sand and	
MWSE-5(I)	Х	X / Up/Down	Gravel	
MWBA-1	Х	•]	
PZ02-19	X			
P3-03	X			

Notes:

(NA) Not applicable - No hydraulic gradient in perched zone as saturation is not laterally continuous.

Up/Down indicates groundwater flow direction is seasonally influenced. See potentiometric surface maps for seasonal change in groundwater flow direction.

Table 2A. Expanded Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting Limits Environmental Monitoring Plan Chaffee Landfill Facility Chaffee, New York

EXPANDED SAMPLING EVENTS				
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	630-20-6	8260C	1	ug/L
1,1,1-Trichloroethane	71-55-6	8260C	1	ug/L
1,1,2,2-Tetrachloroethane	79-34-5	8260C	1	ug/L
1,1,2-1 richloroethane	79-00-5	82600	1	ug/L
1, I-Dicitior detriane	75-34-3	82600	1	ug/L
1, I-Dichloropropene	75-35-4	82600	1	ug/L
1, 1-Dicilioropropene	96-18-4	82000	1	ug/L
1.2-Dibromo-3-Chloropropane	96-12-8	82600	1	
1.2-Dibromoethane	106-93-4	8260C	1	
1.2-Dichlorobenzene	95-50-1	8260C	1	ug/L
1.2-Dichloroethane	107-06-2	8260C	1	ua/L
1.2-Dichloroethene. Total	540-59-0	8260C	2	ua/L
1,2-Dichloropropane	78-87-5	8260C	1	ug/L
1,3-Dichlorobenzene	541-73-1	8260C	1	ug/L
1,3-Dichloropropane	142-28-9	8260C	1	ug/L
1,4-Dichlorobenzene	106-46-7	8260C	1	ug/L
2,2-Dichloropropane	594-20-7	8260C	1	ug/L
2-Butanone (MEK)	78-93-3	8260C	10	ug/L
2-Hexanone	591-78-6	8260C	5	ug/L
4-Methyl-2-pentanone (MIBK)	108-10-1	8260C	5	ug/L
Acetone	67-64-1	8260C	10	ug/L
Acetonitrile	75-05-8	8260C	15	ug/L
Acrolein	107-02-8	8260C	20	ug/L
Acrylonitrile	107-13-1	8260C	5	ug/L
Allyl chloride	107-05-1	8260C	1	ug/L
Benzene	71-43-2	8260C	1	ug/L
Bromodichloromethane	75-27-4	8260C	1	ug/L
Bromomothana	71 92 0	82600	1	ug/L
Carbon disulfide	74-03-9	82600	1	ug/L
Carbon tetrachloride	70-10-0 56 23 5	82600	1	ug/L
Chlorobenzene	108-00-7	82600	1	
Chlorobromomethane	74-97-5	82600	1	ug/L
Chloroethane	75-00-3	8260C	1	
Chloroform	67-66-3	8260C	1	ug/L
Chloromethane	74-87-3	8260C	1	ug/L
Chloroprene	126-99-8	8260C	1	ua/L
cis-1,2-Dichloroethene	156-59-2	8260C	1	ug/L
cis-1,3-Dichloropropene	10061-01-5	8260C	1	ug/L
Dibromochloromethane	124-48-1	8260C	1	ug/L
Dibromomethane	74-95-3	8260C	1	ug/L
Dichlorodifluoromethane	75-71-8	8260C	1	ug/L
Ethyl methacrylate	97-63-2	8260C	1	ug/L
Ethylbenzene	100-41-4	8260C	1	ug/L
Hexachlorobutadiene	87-68-3	8260C	2	ug/L
lodomethane	74-88-4	8260C	1	ug/L
Isobutyl alcohol	78-83-1	8260C	25	ug/L
m,p-Xylene	179601-23-1	8260C	2	ug/L
Nethol methods whete	126-98-7	8260C	5	ug/L
Methodese Obleside	80-62-6	8260C	1	ug/L
	/5-09-2	8260C	1	ug/L
	91-20-3	82000	1	ug/L
Dropionitrile	90-47-0	02000	10	ug/L
Styrene	107-12-0	82600	10	ug/L
Tetrachloroethene	127-18-4	82600	1	
Toluene	108-88-3	82600	1	ug/L
trans-1 2-Dichloroethene	156-60-5	82600	1	ug/L
trans-1.3-Dichloropropene	10061-02-6	8260C	1	ua/L

Table 2A. Expanded Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting Limits Environmental Monitoring Plan Chaffee Landfill Facility Chaffee, New York

EXPANDED SAMPLING EVENTS				
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Volatile Organic Compounds (Continued)				
trans-1,4-Dichloro-2-butene	110-57-6	8260C	1	ug/L
Trichloroethene	79-01-6	8260C	1	ug/L
I richlorofluoromethane	75-69-4	8260C	1	ug/L
Vinyl decide	75-01-4	8200C	5	ug/L
Xylenes Total	1330-20-7	82600	2	
Semi-Volatile Organic Compounds	1000 20 1	02000	2	ug/L
1 4-Dioxane	123-91-1	8270D SIM MS ID	0.2	ua/l
Thionazin	297-97-2	625.1 LL_PREC	1	
1.2.4.5-Tetrachlorobenzene	95-94-3	8270D	5	ug/L
1,2,4-Trichlorobenzene	120-82-1	8270D	10	ug/L
1,2-Dichlorobenzene	95-50-1	8270D	10	ug/L
1,3,5-Trinitrobenzene	99-35-4	8270D	10	ug/L
1,3-Dichlorobenzene	541-73-1	8270D	10	ug/L
1,3-Dinitrobenzene	99-65-0	8270D	20	ug/L
1,4-Dichlorobenzene	106-46-7	8270D	10	ug/L
1,4-Naphthoquinone	130-15-4	8270D	10	ug/L
1-Naphthylamine	134-32-7	8270D	10	ug/L
2,3,4,6-Tetrachlorophenol	58-90-2	8270D	5	ug/L
2,4,5-Trichlorophenol	95-95-4	8270D	5	ug/L
2,4,6-1 richlorophenol	88-06-2	8270D	5	ug/L
2,4-Dichlorophenol	120-83-2	8270D	5	ug/L
2,4-Dimethylphenol	105-07-9 E1 29 E	8270D	5	ug/L
2,4-Dinitrophenoi	121 14 2	8270D	10	ug/L
2,4-Dinitioloidene	87-65-0	8270D	10	
2 6-Dinitrotoluene	606-20-2	8270D	5	ug/L
2-Acetylaminofluorene	53-96-3	8270D	10	ug/L
2-Chloronaphthalene	91-58-7	8270D	5	ua/L
2-Chlorophenol	95-57-8	8270D	5	ug/L
2-Methylnaphthalene	91-57-6	8270D	5	ug/L
2-Methylphenol	95-48-7	8270D	5	ug/L
2-Naphthylamine	91-59-8	8270D	10	ug/L
2-Nitroaniline	88-74-4	8270D	10	ug/L
2-Nitrophenol	88-75-5	8270D	5	ug/L
3,3'-Dichlorobenzidine	91-94-1	8270D	5	ug/L
3,3'-Dimethylbenzidine	119-93-7	8270D	40	ug/L
3-Methylcholanthrene	56-49-5	8270D	10	ug/L
3-Methylphenol	108-39-4	8270D	10	ug/L
3-NillOdniine	<u>99-09-2</u>	8270D	10	ug/L
	92-67-1	8270D	10	ug/L
4-Bromonbenyl phenyl ether	101-55-3	8270D	5	
4-Chloro-3-methylphenol	59-50-7	8270D	5	ug/L
4-Chlorophenyl phenyl ether	7005-72-3	8270D	5	ug/L
4-Methylphenol	106-44-5	8270D	10	ug/L
4-Nitroaniline	100-01-6	8270D	10	ug/L
4-Nitrophenol	100-02-7	8270D	10	ug/L
5-Nitro-o-toluidine	99-55-8	8270D	10	ug/L
7,12-Dimethylbenz(a)anthracene	57-97-6	8270D	10	ug/L
Acenaphthene	83-32-9	8270D	5	ug/L
Acenaphthylene	208-96-8	8270D	5	ug/L
Acetophenone	98-86-2	8270D	5	ug/L
Anthracene	120-12-7	8270D	5	ug/L
Benzolajantnracene	56-55-3	8270D	5	ug/L
	30-32-8 205-00-2	02/UU	5 F	ug/L
Benzola h ilhendene	101 24 2	82700	5	ug/L
Benzolkifluoranthene	207-08-9	8270D	5	ug/L

Table 2A. Expanded Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting Limits Environmental Monitoring Plan Chaffee Landfill Facility Chaffee, New York

EXPANDED SAMPLING EVENTS					
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units	
Semi-Volatile Organic Compounds (Continued)					
Benzyl alcohol	100-51-6	8270D	20	ug/L	
bis(2 chloro-1-methylethyl) ether	108-60-1	8270D	5	ug/L	
Bis(2-chloroethoxy)methane	111-91-1	8270D	5	ug/L	
Bis(2-chloroethyl)ether	111-44-4	8270D	5	ug/L	
Bis(2-ethylhexyl) phthalate	117-81-7	8270D	5	ug/L	
Butyl benzyl phthalate	85-68-7	8270D	5	ug/L	
Chlorobenzilate	510-15-6	8270D	20	ug/L	
Chrysene	218-01-9	8270D	5	ug/L	
Dialiate	2303-16-4	8270D	10	ug/L	
Dibenz(a,n)anthracene	53-70-3	8270D	5	ug/L	
Dibenzoluran	132-64-9	8270D	10	ug/L	
Directly phinalate	60.51.5	8270D	5	ug/L	
Dimethyl phthalate		8270D	5	ug/L	
Dinieuryi philialate	84 74 2	8270D	5	ug/L	
Di-n-octyl phthalate	117-84-0	8270D	5		
Dinoseh	88-85-7	8270D	10		
Diphenylamine	122-39-4	8270D	10	ug/L	
Disulfoton	298-04-4	8270D	10	ug/L	
Ethyl methanesulfonate	62-50-0	8270D	10	ua/L	
Famphur	52-85-7	8270D	40	ua/L	
Fluoranthene	206-44-0	8270D	5	ua/L	
Fluorene	86-73-7	8270D	5	ug/L	
Hexachlorobenzene	118-74-1	8270D	5	ug/L	
Hexachlorobutadiene	87-68-3	8270D	5	ug/L	
Hexachlorocyclopentadiene	77-47-4	8270D	5	ug/L	
Hexachloroethane	67-72-1	8270D	5	ug/L	
Hexachloropropene	1888-71-7	8270D	10	ug/L	
Indeno[1,2,3-cd]pyrene	193-39-5	8270D	5	ug/L	
Isodrin	465-73-6	8270D	10	ug/L	
Isophorone	78-59-1	8270D	5	ug/L	
Isosafrole	120-58-1	8270D	10	ug/L	
Kepone	143-50-0	8270D	50	ug/L	
Methapyrilene	91-80-5	8270D	50	ug/L	
Methyl methanesulfonate	66-27-3	8270D	10	ug/L	
Naphthalene	91-20-3	8270D	5	ug/L	
Nitrobenzene	98-95-3	8270D	5	ug/L	
N-Nitrosodietnylamine	55-18-5	8270D	10	ug/L	
N-Nitrosodi n butulamina	024 16 2	0270D	10	ug/L	
N-Nillosodi-h-bulyidifilite	924-10-3	8270D	10	ug/L	
N-Nitrosodipropylamine	621-64-7	8270D	5	ug/L	
N-Nitrosomethylethylamine	10595-95-6	8270D	10		
N-Nitrosoniperidine	100-75-4	8270D	10	ug/L	
N-Nitrosopyrrolidine	930-55-2	8270D	10	ug/L	
o-Toluidine	95-53-4	8270D	10	ug/L	
Parathion	56-38-2	8270D	10	ua/L	
Parathion methyl	298-00-0	8270D	10	ug/L	
p-Chloroaniline	106-47-8	8270D	5	ug/L	
p-Dimethylamino azobenzene	60-11-7	8270D	10	ug/L	
Pentachlorobenzene	608-93-5	8270D	10	ug/L	
Pentachloronitrobenzene	82-68-8	8270D	10	ug/L	
Pentachlorophenol	87-86-5	8270D	10	ug/L	
Phenacetin	62-44-2	8270D	10	ug/L	
Phenanthrene	85-01-8	8270D	5	ug/L	
Phenol	108-95-2	8270D	5	ug/L	
Phorate	298-02-2	8270D	10	ug/L	
p-Phenylene diamine	106-50-3	8270D	800	ug/L	

Table 2A. Expanded Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill FacilityChaffee, New York

EXPANDED SAMPLING EVENTS					
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units	
Semi-Volatile Organic Compounds (Continued)					
Pronamide	23950-58-5	8270D	10	ug/L	
Pyrene	129-00-0	8270D	5	ug/L	
Safrole	94-59-7	8270D	10	ug/L	
Thionazin	297-97-2	8270D	10	ug/L	
Triethyl phosphorothioate	126-68-1	8270D	10	ug/L	
Polychlorinated Biphenyls (PCBs)		-			
PCB-1016	12674-11-2	8082A	0.53	ug/L	
PCB-1221	11104-28-2	8082A	0.53	ug/L	
PCB-1232	11141-16-5	8082A	0.53	ug/L	
PCB-1242	53469-21-9	8082A	0.53	ug/L	
PCB-1248	12672-29-6	8082A	0.53	ug/L	
PCB-1254	11097-69-1	8082A	0.53	ug/L	
PCB-1260	11096-82-5	8082A	0.53	ug/L	
Herbicides and Organochlorine Pesticides					
2,4,5-T	93-76-5	8151A	0.48	ug/L	
2,4-D	94-75-7	8151A	0.48	ug/L	
	93-72-1	8151A	0.48	ug/L	
	72-34-0	0001D	0.05	ug/L	
	72-00-9 50 20 3	8081B	0.05	ug/L	
Aldrin	309-00-2	8081B	0.05		
alpha-BHC	319-84-6	8081B	0.05		
beta-BHC	319-85-7	8081B	0.00	ug/L	
Chlordane (technical)	12789-03-6	8081B	0.5	ug/L	
delta-BHC	319-86-8	8081B	0.05	ug/L	
Dieldrin	60-57-1	8081B	0.05	ug/L	
Endosulfan I	959-98-8	8081B	0.05	ug/L	
Endosulfan II	33213-65-9	8081B	0.05	ug/L	
Endosulfan sulfate	1031-07-8	8081B	0.05	ug/L	
Endrin	72-20-8	8081B	0.05	ug/L	
Endrin aldehyde	7421-93-4	8081B	0.05	ug/L	
gamma-BHC (Lindane)	58-89-9	8081B	0.05	ug/L	
Heptachlor	76-44-8	8081B	0.05	ug/L	
Heptachlor epoxide	1024-57-3	8081B	0.05	ug/L	
Nethoxychlor	72-43-5	8081B	0.05	ug/L	
Flooring to a Alland Outration and	8001-35-2	8081B	0.5	ug/L	
Fluorinated Alkyl Substances	07040.07.0		40		
6:2F15	27619-97-2		19	ng/L	
0.2 FIS	2001 50 6		19	ng/L	
N-methylperfluorooctanesulfonamidoacetic acid (NMeEOSAA)	2355-31-0		19	ng/L	
Perfluorobutanesulfonic acid (PEBS)	375-73-5	PFC_IDA	19	ng/L	
Perfluorobutanoic acid (PEBA)	375-22-4	PFC IDA	1.9	ng/L	
Perfluorodecanesulfonic acid (PFDS)	335-77-3	PFC IDA	1.9	ng/L	
Perfluorodecanoic acid (PFDA)	335-76-2	PFC IDA	1.9	ng/L	
Perfluorododecanoic acid (PFDoA)	307-55-1	PFC_IDA	1.9	ng/L	
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	PFC_IDA	1.9	ng/L	
Perfluoroheptanoic acid (PFHpA)	375-85-9	PFC_IDA	1.9	ng/L	
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFC_IDA	1.9	ng/L	
Perfluorohexanoic acid (PFHxA)	307-24-4	PFC_IDA	1.9	ng/L	
Perfluorononanoic acid (PFNA)	375-95-1	PFC_IDA	1.9	ng/L	
Pertluorooctanesulfonamide (FOSA)	754-91-6	PFC_IDA	1.9	ng/L	
Perfluorooctanesultonic acid (PFOS)	1763-23-1		1.9	ng/L	
Periluorooctanoic acid (PEDcA)	335-67-1		1.9	ng/L	
Perfluorotetradecapoic acid (PETeA)	2700-90-3		1.9	ng/L	
	72620 04 8		1.9	ng/L	
Perfluoroundecanoic acid (PEUnA)	2058-94-8	PFC IDA	1.9	ng/l	

Table 2A. Expanded Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill FacilityChaffee, New York

EXPANDED SAMPLING EVENTS					
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units	
Leachate Indicators					
Alkalinity, Total	N/A	310.2	10	mg/L	
Bromide	24959-67-9	300.0 28D	0.4	mg/L	
Biochemical Oxygen Demand	N/A	5210B	2	mg/L	
Chloride	16887-00-6	9251	1	mg/L	
Chemical Oxygen Demand	N/A	410.4	5	mg/L	
Color	N/A	2120B	5	Color Units	
Ammonia (as N)	7664-41-7	350.1	0.02	mg/L as N	
Nitrate	14797-55-8	Nitrate_Calc	0.05	mg/L as N	
Total Kjeldahl Nitrogen	N/A	351.2	0.15	mg/L as N	
Total Organic Carbon	7440-44-0	SM5310D	1	mg/L	
Phenolics, Total Recoverable	N/A	9065	0.005	mg/L	
Total Dissolved Solids	N/A	2540C_Calcd	10	mg/L	
Sulfate	14808-79-8	9038	15	mg/L	
Calcium and Magnesium Hardness	N/A	SM2340B	0.5	mg/L	
Inorganic Parameters	-	•		-	
Aluminum	7429-90-5	6010C	0.2	mg/L	
Antimony	7440-36-0	6010C	0.02	mg/L	
Arsenic	7440-38-2	6010C	0.015	mg/L	
Barium	7440-39-3	6010C	0.002	mg/L	
Beryllium	7440-41-7	6010C	0.002	mg/L	
Boron	7440-42-8	6010C	0.02	mg/L	
	7440-43-9	6010C	0.002	mg/L	
Chromium	7440-70-2	6010C	0.004	mg/L	
Chromium beyavalent	18540-20-0	71964	0.004	mg/L	
Cobalt	7440-48-4	60100	0.004	mg/L	
Copper	7440-50-8	6010C	0.004	mg/L	
Cvanide. Total	57-12-5	9012B	0.01	mg/L	
Iron	7439-89-6	6010C	0.05	ma/L	
Lead	7439-92-1	6010C	0.01	mg/L	
Magnesium	7439-95-4	6010C	0.2	mg/L	
Manganese	7439-96-5	6010C	0.003	mg/L	
Mercury	7439-97-6	7470A	0.0002	mg/L	
Nickel	7440-02-0	6010C	0.01	mg/L	
Potassium	7440-09-7	6010C	0.5	mg/L	
Selenium	7782-49-2	6010C	0.025	mg/L	
Silver	7440-22-4	6010C	0.006	mg/L	
Sodium	7440-23-5	6010C	1	mg/L	
Thallium	7440-28-0	6010C	0.02	mg/L	
Tin	7440-31-5	6010C	0.01	mg/L	
Vanadium	7440-62-2	6010C	0.005	mg/L	
Zinc	7440-66-6	6010C	0.01	mg/L	
Radiological					
Radium-226	7440-14-4	903	0.922	pCi/L	
Radium-228	7440-14-4	904	0.922	pCi/L	
Uranium	7440-61-1	908	0.161	pCi/L	
Field Data					
Field pH	N/A	FieldSampling	N/A	SU	
Oxidation Reduction Potential	N/A	FieldSampling	N/A	millivolts	
Specific Conductance	N/A	FieldSampling	N/A	umhos/cm	
Temperature	N/A	FieldSampling	N/A	Degrees C	
Turbidity	N/A	FieldSampling	N/A	NTU	

Table 2B. Baseline Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill FacilityChaffee, New York

CAS Number Specific Method Laboratory Reporting Limit Units Volatie Organic Compounds 1	BASELINE SAMPLING EVENTS				
Volatio Organic Compounds 0 <th>Analyte</th> <th>CAS Number</th> <th>Specific Method</th> <th>Laboratory Reporting Limit</th> <th>Units</th>	Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
1.1.1.2.Tetrachkoroethane 650.20-6 8260C 1 ug/L 1.1.2.Tetrachkoroethane 771-55-6 8260C 1 ug/L 1.1.2.Tetrachkoroethane 779-34-5 8260C 1 ug/L 1.1.2.Tetrachkoroethane 779-34-3 8260C 1 ug/L 1.1.0.bickorooethane 775-35-4 8260C 1 ug/L 1.1.0.bickorooethane 75-35-4 8260C 1 ug/L 1.2.Ditromoothane 96-12-8 8260C 1 ug/L 1.2.Ditromoothane 106-90-4 8260C 1 ug/L 1.2.Ditromoothane 107-96-2 8260C 1 ug/L 1.2.Ditromoothane 107-96-2 8260C 1 ug/L 1.2.Ditromoothane 107-96-2 8260C 1 ug/L 1.2.Ditromootherene 107-96-2 8260C 1 ug/L 1.2.Ditromootherene 104-87-5 8260C 1 ug/L 1.3.Dichoroborezene 541-72-1 8260C 1 ug/L	Volatile Organic Compounds				
1.1.1.1.1ndbiordefmane 71:55-6 2600C 1 ugl. 1.1.2.2-Tenchloroethane 79:34-5 2600C 1 ugl. 1.1.2.1.1.2.5-Tenchloroethane 79:34-5 26200C 1 ugl. 1.1.0.bchtoroethane 75:34-3 26200C 1 ugl. 1.1.0.bchtoroethane 75:34-3 26200C 1 ugl. 1.1.0.bchtoroethane 75:34-3 26200C 1 ugl. 1.2.0.bchtoroethane 66:12.9 82800C 1 ugl. 1.2.0.bchtoroethane 70:59-1 82800C 1 ugl. 1.2.0.bchtoroethane 70:59-0 82800C 1 ugl. 1.2.0.bchtoroethane 71:43-73-1 82800C 1 ugl. 1.2.0.bchtoroethane 56:47-73-1 82800C 1 ugl. 1.3.0.bchtoroethane 56:42-07 82800C 1 ugl. 1.3.0.bchtoroethane 56:42-07 82800C 1 ugl. 1.3.0.bchtoroethane 56:42-07 82800C 1 ugl. 2.0.bchtoroethane 56:42-07 82800C 1	1,1,1,2-Tetrachloroethane	630-20-6	8260C	1	ug/L
11.2.1-Childronomenane 79.94.5. 2290.0. 1 upl. 1.1.2.Trickinoreshane 79.90.5. 2280.0. 1 upl. 1.1.0.Linkinoreshane 75.34.3 2280.0. 1 upl. 1.1.0.Linkinoreshane 75.35.4 2280.0. 1 upl. 1.2.5.Trickinoreshane 96.18.4 2280.0. 1 upl. 1.2.5.Trickinoreshane 96.18.4 2280.0. 1 upl. 1.2.5.Dickinorpapane 96.12.4 2280.0. 1 upl. 1.2.5.Dickinorpapane 96.12.4 2280.0. 1 upl. 1.2.5.Dickinorpapane 96.72.4 2800.0. 1 upl. 1.2.5.Dickinorpapane 96.74.7 8890.0. 1 upl. 1.3.Dickinorpapane 78.97.5 8890.0. 1 upl. 1.3.Dickinorpapane 98.47.5 8890.0. 1 upl. 1.3.Dickinorpapane 98.47.5 8890.0. 1 upl. 2.4.Dickinorpapane 99.4.0.7 8890.0. 1 upl. 2.4.Dickinorpapane 99.4.4.1 82.90.0. 1	1,1,1-Trichloroethane	71-55-6	8260C	1	ug/L
1.1.2.1.1.0.000000000000000000000000000	1,1,2,2-I etrachloroethane	79-34-5	8260C	1	ug/L
1-10-bit orderhene 175-354 24000 1 ught 1-10-bit orderhene 175-354 24000 1 ught 1-10-bit orderhene 663-566 28000 1 ught 1-23-Trickforppane 96-16-8 28000 1 ught 1-23-Trickforppane 96-16-8 28000 1 ught 1-23-Trickforppane 96-16-8 28000 1 ught 1-2-bit orderhene 106-20-8 88000 1 ught 1-2-bit orderhene 107-6-2 88000 1 ught 1-3-bit orderhene 175-47-8 88200 1 ught 1-3-bit orderhene 169-49-7 88200 1 ught 1-3-bit orderezene 594-72-1 82000 1 ught 2-bit orderezene 594-72-1 82000 1 ught 2-bit orderezene 594-76-8 82000 1 ught 2-bit orderezene 594-76-8 82000 1 ught 2-bit orde	1,1,2-1 richloroethane	79-00-5	82600	1	ug/L
1.1.9.bit/industation 25.25-7 25.25-7 1 upl. 1.2.9.bit/oropopane 96.18-8 82600 1 upl. 1.2.9.bit/oropopane 96.18-8 82600 1 upl. 1.2.9.bit/oropopane 96.18-8 82600 1 upl. 1.2.9.bit/oropopane 96.56-1 82600 1 upl. 1.2.9.bit/oropopane 96.56-2 82600 1 upl. 1.2.9.bit/oropopane 96.56-3 82600 1 upl. 1.2.9.bit/oropopane 96.47-31 82600 1 upl. 1.3.9.bit/oropopane 96.47-31 82600 1 upl. 1.3.9.bit/oropopane 168.40-7 82600 1 upl. 2.9.bit/oropopane 168.40-7 82600 1 upl. 2.9.bit/oropopane 169.40-7 82600 1 upl. 2.9.bit/oropopane 169.40-7 82600 1 upl. 2.9.bit/oropopane 169.40-7 82600 1 upl.		75-54-5	0200C	1	ug/L
1.2.3.Tethnologication 06.1.9.7 0.2000 1 0.91 1.2.3.Tethnologication 06.1.9.8 0.2000 1 0.91 1.2.3.Tethnologication 0.61.9.8 0.82000 1 0.91 1.2.3.Dictionos-dictoropanie 0.65.9.4 8.2600 1 0.91 1.2.3.Dictionosethane 0.65.9.4 8.2600 1 0.91 1.2.3.Dictionosethane 107.06.2 8.2600 1 0.91 1.3.Dictionosethane 78.87.5 8.2600 1 0.91 1.3.Dictionosethane 164.2.9.4 8.2600 1 0.91 1.3.Dictionosethane 164.2.9.4 8.2600 1 0.91 1.3.Dictionosethane 164.2.9.4 8.2600 1 0.91 2.3.Dictionosethane 164.2.9.4 8.2600 1 0.91 2.3.Dictionosethane 167.4-1 8.2600 10 0.91 2.4.Dictionosethane 167.4-1 8.2600 10 0.91 2.4.Dictionosethane 167.4-1 8.2600		563 58 6	82600	1	ug/L
12.Dbrome 3-Chloropopane 96-12-8 8280C 1 0gt 12.Dbromesthane 109-52.H 8280C 1 0gt 12.Dbromesthane 109-50.H 8280C 1 0gt 12.Dbromesthane 107-62.F 8280C 1 0gt 12.Dbromesthane 107-62.F 8280C 1 0gt 13.Dbromorphane 147-31.F 8280C 1 0gt 13.Dbromorphane 147-23.F 8280C 1 0gt 13.Dbromorphane 167-67.F 8280C 1 0gt 2.Dbromorphane 167-78.8 8280C 1 0gt 2.Dbromorphane 167-74.1 8280C 1 0gt 4.Methyl-2 pentanone (MBK) 107-13.8 8280C 1 0gt 4.Acotone 167-64.8	1,2-3-Trichloropropane	96-18-4	8260C	1	
1 Divormethane 104-93-4 82200 1 ugit 1 2.Dichtorosethane 195-0-1 82200 1 ugit 1 2.Dichtorosethane 107-06-2 82800 1 ugit 1 2.Dichtorosethane 78-97-5 82800 1 ugit 1.3.Dichtoroptane 142.29-9 82800 1 ugit 1.3.Dichtoroptane 1624-67 82800 1 ugit 1.4.Dichtoroptane 1624-67 82800 1 ugit 2.Dichtoroptane 664-20-7 82800 1 ugit 2.Dichtoroptane 664-20-7 82800 10 ugit 2.Dichtoroptane 664-11 82800 10 ugit 4.Methyl-2-pentanone (MBK) 106-10-1 82800 10 ugit Acctone 67-84-1 82800 10 ugit Acctone 77-55-8 82800 1 ugit Acctone 77-52-4 82800 1 ugit	1.2-Dibromo-3-Chloropropane	96-12-8	8260C	1	
12-Dichirorbenzene 95-50-1 8280C 1 ugl. 12-Dichirorbethane 107-06-2 8280C 1 ugl. 12-Dichirorbethane 78-87-5 8280C 1 ugl. 13-Dichirorpropane 78-87-5 8280C 1 ugl. 13-Dichirorpropane 142-28-9 8280C 1 ugl. 14-Dichirorpropane 594-20-7 8280C 1 ugl. 22-Dichirorpropane 594-20-7 8280C 10 ugl. 22-Butanone (MEK) 78-93-3 8260C 10 ugl. 24-Metnyl-2pertanone (MEK) 106-10 8260C 5 ugl. Acetone 67-64-1 8260C 10 ugl. Acetone 67-64-1 8260C 10 ugl. Acetonitile 107-02-8 8260C 15 ugl. Acetonitile 107-02-8 8260C 1 ugl. Aryointile 107-03-1 8260C 1 ugl. Aryointile 107-0	1 2-Dibromoethane	106-93-4	8260C	1	ug/L
12-Dichloroethene, Total 107-06-2 8280C 1 ugl. 12-Dichloroptene, Total 540-59-0 8280C 1 ugl. 13-Dichloroptene 541-73-1 8280C 1 ugl. 13-Dichloroptene 144-28-9 8280C 1 ugl. 14-Dichloroptene 164-42-7 8280C 1 ugl. 12-Dichloroptene 594-20-7 8260C 1 ugl. 2-Dichloroptene 594-78-8 8260C 5 ugl. 2-Hexanone 676-44-1 8260C 5 ugl. Acctone 676-44-1 8260C 10 ugl. Acctone 676-44-1 8260C 20 ugl. Accolein 107-02-8 8260C 10 ugl. Accolein 107-02-8 8260C 1 ugl. Beromodichloromethane 77-45-2 8260C 1 ugl. Bromoderm 75-26-2 8260C 1 ugl. Garbon disulfide 75-15-0	1.2-Dichlorobenzene	95-50-1	8260C	1	ua/L
12-Dichloroethene, Total 540-59-0 8280C 2 ugl. 1.3-Dichloroponane 78-87-5 8280C 1 ugl. 1.3-Dichloroponane 541-73-1 8280C 1 ugl. 1.3-Dichloroponane 142-28.9 8280C 1 ugl. 2.2-Dichloroponane 594-0-7 8280C 1 ugl. 2.2-Dichloroponane 594-0-7 8280C 10 ugl. 2.4-Dichloroponane 591-76-6 8280C 10 ugl. 2.4-batanne (MEK) 106-10 8280C 5 ugl. Acetone 67-64-1 8280C 10 ugl. Acetone 107-02-8 8260C 15 ugl. Acryonitile 107-13-1 8260C 1 ugl. Aly choride 107-05-1 8260C 1 ugl. Berozneithane 75-27-4 8260C 1 ugl. Berozneithane 75-25-2 8260C 1 ugl. Bromodorm 75-25-3 <td>1.2-Dichloroethane</td> <td>107-06-2</td> <td>8260C</td> <td>1</td> <td>ua/L</td>	1.2-Dichloroethane	107-06-2	8260C	1	ua/L
1.3-Dichloropropane 78-87-5 8260C 1 upl. 1.3-Dichloropropane 142-28-9 8260C 1 upl. 1.4-Dichloropropane 142-28-9 8260C 1 upl. 2.2-Dichloropropane 594-20.7 8260C 1 upl. 2.2-Dichloropropane 594-20.7 8260C 1 upl. 2.4-Dichloropropane 691-78-6 8260C 1 upl. 2.4-Dichloropropane 691-78-6 8260C 5 upl. 2.4-Dichloropropane 67-84-1 8260C 10 upl. 4-Methyl.2-pentanne (MIBK) 106-10-1 8260C 10 upl. Acctonin 107-02-8 8260C 10 upl. Acrolein 107-13-1 8260C 1 upl. Bromodichloromethane 77-43-2 8260C 1 upl. Bromodichloromethane 77-43-2 8260C 1 upl. Grabon disulfide 75-16-0 8260C 1 upl. <	1,2-Dichloroethene, Total	540-59-0	8260C	2	ug/L
13-Dichlorobenzene 541-73-1 8260C 1 ug/L 13-Dichloropropane 142-28-9 8260C 1 ug/L 2.2.Dichloropropane 594-20.7 8280C 1 ug/L 2.4.Dichloropropane 594-78-3 8280C 10 ug/L 2.4.Butanne (MEK) 78-93-3 8280C 10 ug/L 2.4.Hexanone 591-78-6 8280C 10 ug/L 4.4.Methyl-2-pentanone (MIBK) 1061-01 8260C 15 ug/L Acctonitrile 75-68-8 8260C 10 ug/L Acctonitrile 107-02-8 8260C 1 ug/L Acryonitrile 107-05-1 8260C 1 ug/L Bernzene 71-43-2 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-26-2 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfid	1,2-Dichloropropane	78-87-5	8260C	1	ug/L
13-Dichloropropane 142-28-9 8280C 1 ug/L 14-Dichloroberzene 106-6-7 8280C 1 ug/L 2.2-Dichloropropane 594-20-7 8280C 1 ug/L 2.Butanone (MEK) 78-93-3 8280C 10 ug/L 2-Hexanone 591-78-6 8280C 5 ug/L Acetone 67-64-1 8260C 5 ug/L Acetone 67-64-1 8260C 10 ug/L Acconelin 107-02-8 8280C 12 ug/L Acrolein 107-05-1 8280C 1 ug/L Benzene 71-43-2 8280C 1 ug/L Bromodichoromethane 77-52-4 8280C 1 ug/L Bromodethane 77-52-2 8280C 1 ug/L Bromodethane 75-52-2 8280C 1 ug/L Carbon disufide 75-10 8280C 1 ug/L Chrorobranomethane 74-97-5 8280C	1,3-Dichlorobenzene	541-73-1	8260C	1	ug/L
1.4-Dichlorobenzene 106-46-7 8260C 1 ug/L 2.2-Dichloropropane 594-20-7 8260C 10 ug/L 2.4-Dichloropropane 591-78-6 8260C 5 ug/L 2.4-Hextmone 591-78-6 8260C 5 ug/L 4-Methyl-2-pentanone (MIBK) 108-10-1 8260C 5 ug/L Acetone 67-64-1 8260C 10 ug/L Acconitrile 107-02-8 8260C 20 ug/L Acrylonitrile 107-05-1 8260C 1 ug/L Berzene 71-43-2 8260C 1 ug/L Bromofich 75-27-4 8260C 1 ug/L Bromofich 75-27-4 8260C 1 ug/L Carbon disufide 56-23-5 8260C 1 ug/L Carbon disufide 75-60-3 8260C 1 ug/L Chiorobenzene 108-90-7 8260C 1 ug/L Chiorobenzene 76-6-3 <t< td=""><td>1,3-Dichloropropane</td><td>142-28-9</td><td>8260C</td><td>1</td><td>ug/L</td></t<>	1,3-Dichloropropane	142-28-9	8260C	1	ug/L
2.2-Dichloropropane 594-20-7 8260C 1 ug/L 2:Hutanone (MEK) 78-93-3 8260C 5 ug/L 4:Methyl-2:pentanone (MIBK) 108-10-1 8260C 5 ug/L 4:Methyl-2:pentanone (MIBK) 106-10-1 8260C 5 ug/L Acetone 67-64-1 8260C 10 ug/L Acetone 107-02-8 8260C 15 ug/L Acrolein 107-02-8 8260C 1 ug/L Acrolein 107-13-1 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-80-8 8260C 1 ug/L Bromodichloromethane 75-15-0 8260C 1 ug/L Carbon disulfde 75-16-0 8260C 1 ug/L Chioropromethane<	1,4-Dichlorobenzene	106-46-7	8260C	1	ug/L
2-Butanone (MEK) 78-93-3 8260C 10 ug/L 2-Hexanone 591-78-6 8260C 5 ug/L 4-Methyl-2-pentanone (MIBK) 108-10-1 8260C 5 ug/L Acetone 67-64-1 8260C 10 ug/L Acetonitrile 107-02-8 8260C 20 ug/L Acrylonitrile 107-05-1 8260C 1 ug/L Acrylonitrile 107-05-1 8260C 1 ug/L Bernzene 77-43-2 8260C 1 ug/L Bromodichioromethane 75-27-4 8260C 1 ug/L Bromodism 75-27-4 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfide 75-16-0 8260C 1 ug/L Chiorobenzene 74-97-5 8260C 1 ug/L Chiorobenzene 74-97-5 8260C 1 ug/L Chiorororm 67-68-3 8260C	2,2-Dichloropropane	594-20-7	8260C	1	ug/L
2-Hexanone 591-78-6 8260C 5 ug/L Acetone 67-64-1 8260C 10 ug/L Acetone 67-64-1 8260C 10 ug/L Acetone 75-05-8 8260C 10 ug/L Acrolein 107-02-8 8260C 20 ug/L Acrolein 107-13-1 8260C 5 ug/L Acrolein 107-02-8 8260C 1 ug/L Acrolein 107-03-1 8260C 1 ug/L Bernondchloromethane 75-27-4 8260C 1 ug/L Bromonferm 75-27-4 8260C 1 ug/L Bromonferhane 75-27-4 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon terachioride 168-92-5 8260C 1 ug/L Chorobromomethane 74-97-5 8260C 1 ug/L Chorobromethane 174-97-5 8260C 1	2-Butanone (MEK)	78-93-3	8260C	10	ug/L
4-Mettyl-2-pentanone (MIBK) 108-10-1 8280C 5 ug/L Acetone 67-64-1 8280C 15 ug/L Acronitrile 107-02-8 8280C 20 ug/L Acronitrile 107-02-8 8280C 20 ug/L Acronitrile 107-05-1 8280C 1 ug/L Benzene 171-43-2 8280C 1 ug/L Bromorem 75-25-2 8280C 1 ug/L Bromorem 75-25-2 8280C 1 ug/L Bromorem 75-25-2 8280C 1 ug/L Bromorem 75-85-2 8280C 1 ug/L Carbon disulide 75-10-8 8280C 1 ug/L Carbon disulide 75-10-8 8280C 1 ug/L Chlorobenzene 108-90-7 8280C 1 ug/L Chlorobenzene 176-93 8280C 1 ug/L Chlorobenzene 176-93 8280C 1	2-Hexanone	591-78-6	8260C	5	ug/L
Acetone 67-64-1 8260C 10 ug/L Acetonirile 75-05-8 8260C 10 ug/L Acrolein 107-02-8 8260C 20 ug/L Acrolein 107-13-1 8260C 5 ug/L Acrylonitrile 107-05-1 8260C 1 ug/L Benzene 77-43-2 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-25-2 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Chloroberzene 108-90-7 8260C 1 ug/L Chloroberzene 176-97-5 8260C 1 ug/L Chloroberme 75-90-3 8260C 1 ug/L Chloroberme 176-98-3 8260C 1 ug/L Chloroberme 176-98-3 8260C <t< td=""><td>4-Methyl-2-pentanone (MIBK)</td><td>108-10-1</td><td>8260C</td><td>5</td><td>ug/L</td></t<>	4-Methyl-2-pentanone (MIBK)	108-10-1	8260C	5	ug/L
Actonitrile 75-05-8 2260C 15 ug/L Acrolein 107-02-8 8260C 20 ug/L Acrylonitrile 107-13-1 8260C 1 ug/L Ally chloride 107-05-1 8260C 1 ug/L Benzene 77-43-2 8260C 1 ug/L Bromodichioromethane 75-25-2 8260C 1 ug/L Bromomethane 74-83-9 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Chorobenzene 108-90-7 8260C 1 ug/L Chorobenzene 75-00-3 8260C 1 ug/L Chlorobramethane 75-07-3 8260C 1 ug/L Chloroform 67-66-3 8260C 1 ug/L Chloroprene 126-99-8 8260C 1 ug/L Chloropromethane 75-71-8 8260C	Acetone	67-64-1	8260C	10	ug/L
Acrolein 107-02-8 2260C 20 ug/L Acrylonitrile 107-13-1 8260C 5 ug/L Benzene 71-43-2 8260C 1 ug/L Bernondichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 77-83-9 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon tetrachloride 56-23-5 8260C 1 ug/L Chlorobenzene 108-80-7 8260C 1 ug/L Chlorobenzene 74-87-5 8260C 1 ug/L Chlorobenzene 74-87-3 8260C 1 ug/L Chlorobenzene 74-87-3 8260C 1 ug/L Chlorobenzene 74-87-3 8260C 1 ug/L Chlorobenzene 126-99-8 8260C 1 ug/L Chloroprene 126-97-3	Acetonitrile	75-05-8	8260C	15	ug/L
Actylonitrile 107-13-1 8260C 5 ug/L Benzene 107-05-1 8260C 1 ug/L Benzene 71-43-2 8260C 1 ug/L Bromofichoromethane 75-27-4 8260C 1 ug/L Bromoform 75-27-2 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfide 56-23-5 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobenzene 1061-01-5 8260C	Acrolein	107-02-8	8260C	20	ug/L
Ally chloride 107-05-1 8260C 1 ug/L Benzene 71-43-2 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 75-25-2 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon tetrachloride 56-23-5 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 78-00-3 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobenzene 76-03 8260C 1 ug/L Chlorobenzene 78-09-8 8260C 1 ug/L Chlorobrommethane 74-87-3 8260C 1 ug/L Chlorobroprene 126-59-2 8260C 1 ug/L cis-1,2-Dichoroethene 126-49-8 8260C 1 ug/L Dibromochloromethane 74-85-	Acrylonitrile	107-13-1	8260C	5	ug/L
Benzene 71-43-2 8260C 1 ug/L Bromodichloromethane 75-27-4 8260C 1 ug/L Bromodichloromethane 74-83-9 8260C 1 ug/L Bromodisulfide 75-10 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Carbon disulfide 75-16-0 8260C 1 ug/L Chlorobranene 108-90-7 8260C 1 ug/L Chlorobranene 74-97-5 8260C 1 ug/L Chlorobromomethane 74-97-5 8260C 1 ug/L Chloroform 67-66-3 8260C 1 ug/L Chloroform 74-87-3 8260C 1 ug/L Chloroprene 126-99-8 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromorethane 75-71-8 8260C 1 ug/L Dibromorethane 76-32 8	Allyl chloride	107-05-1	8260C	1	ug/L
Bromodichloromethane 75-27-4 8260C 1 Ug/L Bromoform 75-25-2 8260C 1 ug/L Bromomethane 74-83-9 8260C 1 ug/L Carbon disulfide 75-15-0 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobethane 74-97-5 8260C 1 ug/L Chlorobethane 74-87-3 8260C 1 ug/L Chloroprene 126-99-8 8260C 1 ug/L Chloroprene 106-10-15 8260C 1 ug/L Dibromochloromethane 74-95-3	Benzene	71-43-2	8260C	1	ug/L
Bromowerhane 73-25-2 2800. 1 Ug/L Carbon disulfide 75-15-0 82600. 1 ug/L Carbon disulfide 75-15-0 82600. 1 ug/L Carbon tetrachloride 56-23-5 82600. 1 ug/L Chiorobenzene 108-90-7 82600. 1 ug/L Chiorobenzene 75-00-3 82600. 1 ug/L Chiorobenzene 75-00-3 82600. 1 ug/L Chioroform 67-66-3 82600. 1 ug/L Chioroform 126-99-8 82600. 1 ug/L Chioroptene 126-99-2 82600. 1 ug/L cis-1,3-Dichloroptene 10061-01-5 82600. 1 ug/L Dibromochloromethane 74-95-3 82600. 1 ug/L Dibromomethane 74-95-3 82600. 1 ug/L Dibromothane 74-85-3 82600. 1 ug/L Ethylbenzene 170-48-3<	Bromodicniorometnane	75-27-4	82600	1	ug/L
Biointoineurane 74-03-9 62000 1 ug/L Carbon tetrachloride 75-15-0 8260C 1 ug/L Carbon tetrachloride 56-23-5 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobromomethane 74-97-5 8260C 1 ug/L Chlorobromomethane 74-97-3 8260C 1 ug/L Chlorobromomethane 74-97-3 8260C 1 ug/L Chloromethane 74-97-3 8260C 1 ug/L Chloromethane 74-97-3 8260C 1 ug/L Cis1-12-Dichloroptopene 1006-101-5 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Dibromochloromethane 77-1-8 8260C 1 ug/L Dibromochloromethane 77-8-3 8260C 1 ug/L Ethyly	Bromomothana	75-25-2	0200C	1	ug/L
Carbon tetrachloride 15-13-2 6200C 1 ug/L Carbon tetrachloride 56-23-5 8260C 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobenzene 67-66-3 8260C 1 ug/L Chlorobethane 74-87-3 8260C 1 ug/L Chlorobethane 126-99-8 8260C 1 ug/L Chlorobethane 126-99-8 8260C 1 ug/L Cis-1,2-Dichloroethene 126-99-8 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Dibromomethane 74-95-3 8260C 1 ug/L Dibromomethane 74-85-3 8260C 1 ug/L Hexachlorobutadiene	Carbon digulfido	74-63-9	82600	1	ug/L
Obtool Relationate 30-2-30 32-200 1 ug/L Chlorobenzene 108-90-7 8260C 1 ug/L Chlorobenzene 74-97-5 8260C 1 ug/L Chlorobenzene 75-00-3 8260C 1 ug/L Chloroberthane 77-00-3 8260C 1 ug/L Chloroberthane 74-87-3 8260C 1 ug/L Chloroberthane 126-99-8 8260C 1 ug/L Chloroberthene 156-59-2 8260C 1 ug/L Dichorofiluoromethane 124-48-1 8260C 1 ug/L Dibromochloromethane 74-85-3 8260C 1 ug/L Dibromochloromethane 74-85-3 8260C 1 ug/L Dibromochloromethane 74-85-3 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Isobutyl alcohol	Carbon tetrachloride	56-23-5	8260C	1	ug/L
Disorbit Disorbit	Chlorobenzene	108-90-7	8260C	1	
Disorderination The Decision Decision Lagree Chloroethane 75-00-3 8260C 1 ug/L Chloroethane 67-66-3 8260C 1 ug/L Chloroprene 74-87-3 8260C 1 ug/L Chloroprene 126-99-8 8260C 1 ug/L cis-1,2-Dichloroethene 156-59-2 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Dibromochloromethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ibtoromothane 74-88-3 8260C 1 ug/L Ibtoromothane 74-88-3 8260C 1 ug/L Ibtorobutatiene 87-68-3 8260C 2 ug/L Iodomethane 74-88-4	Chlorobromomethane	74-97-5	8260C	1	
Chloroform 67-86-3 8260C 1 ug/L Chloroform 67-86-3 8260C 1 ug/L Chloromethane 126-99-8 8260C 1 ug/L Cibiroprene 136-59-2 8260C 1 ug/L cis-1,2-Dichloroethene 136-59-2 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Dibromochloromethane 74-95-3 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethylbenzene 1004-1-4 8260C 1 ug/L Idodomethane 74-88-3 8260C 1 ug/L Idodomethane 74-88-4 8260C 1 ug/L Idodomethane 74-88-4 8260C 2 ug/L Idodomethane 78-83-1 8260C 2 ug/L Methylene Chloride 76-9-2	Chloroethane	75-00-3	8260C	1	
Otherwise 74-87-3 8260C 1 ug/L Chloromethane 126-99-8 8260C 1 ug/L cis-1,2-Dichloroethene 126-99-8 8260C 1 ug/L cis-1,2-Dichloroethene 10661-01-5 8260C 1 ug/L cis-1,3-Dichloropropene 10061-01-5 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromomethane 74-95-3 8260C 1 ug/L Dibromomethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 97-63-3 8260C 1 ug/L Hexachlorobutadiene 74-88-3 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Methylene Ch	Chloroform	67-66-3	8260C	1	ug/L
Chloroprene 126-99-8 8260C 1 ug/L cis-1,2-Dichloroethene 156-59-2 8260C 1 ug/L cis-1,3-Dichloropropene 10061-01-5 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromomethane 74-95-3 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Methacrylonitrile 169-98-7 8260C 2 ug/L Methacrylonitrile 169-98-7 8260C 2 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Methacrylonitrile 169-98-7 8260C 1 ug/L Methyl	Chloromethane	74-87-3	8260C	1	ua/L
cis-1,2-Dichloroethene 156-59-2 8260C 1 ug/L cis-1,3-Dichloropropene 10061-01-5 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromothloromethane 74-95-3 8260C 1 ug/L Dichlorodifluoromethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 2 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Naphthal	Chloroprene	126-99-8	8260C	1	ua/L
cis-1,3-Dichloropropene 10061-01-5 8260C 1 ug/L Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromomethane 74-95-3 8260C 1 ug/L Dibromomethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 1 ug/L Iodomethane 74-88-4 8260C 1 ug/L Iodomethane 74-88-4 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Idomethane 126-98-7 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 1 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Naphthalene 95-47-6<	cis-1,2-Dichloroethene	156-59-2	8260C	1	ug/L
Dibromochloromethane 124-48-1 8260C 1 ug/L Dibromomethane 74-95-3 8260C 1 ug/L Dichlorodifluoromethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 1 ug/L m.p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 1 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Propionitrile	cis-1,3-Dichloropropene	10061-01-5	8260C	1	ug/L
Dibromomethane 74-95-3 8260C 1 ug/L Dichlorodifluoromethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 2 ug/L Iodomethane 74-88-4 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L m.p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 1 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5	Dibromochloromethane	124-48-1	8260C	1	ug/L
Dichlorodifluoromethane 75-71-8 8260C 1 ug/L Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethyl methacrylate 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 2 ug/L Iodomethane 74-88-4 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Isobutyl alcohol 78-83-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 2 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Nethyl methacrylate 91-20-3 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L O-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-1	Dibromomethane	74-95-3	8260C	1	ug/L
Ethyl methacrylate 97-63-2 8260C 1 ug/L Ethylbenzene 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 2 ug/L lodomethane 74-88-4 8260C 1 ug/L lsobutyl alcohol 78-83-1 8260C 2 ug/L m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Nethyl methacrylate 80-62-6 8260C 1 ug/L Nethylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L O-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4	Dichlorodifluoromethane	75-71-8	8260C	1	ug/L
Ethylbenzene 100-41-4 8260C 1 ug/L Hexachlorobutadiene 87-68-3 8260C 2 ug/L lodomethane 74-88-4 8260C 1 ug/L lsobutyl alcohol 78-83-1 8260C 2 ug/L m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Nethylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L O-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5	Ethyl methacrylate	97-63-2	8260C	1	ug/L
Hexachlorobutadiene 87-68-3 8260C 2 ug/L lodomethane 74-88-4 8260C 1 ug/L lsobutyl alcohol 78-83-1 8260C 25 ug/L m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Nethylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L O-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Ethylbenzene	100-41-4	8260C	1	ug/L
Iodomethane 74-88-4 8260C 1 ug/L Isobutyl alcohol 78-83-1 8260C 25 ug/L m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Nethyl methacrylate 80-62-6 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Toluene 100-42-5 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Hexachlorobutadiene	87-68-3	8260C	2	ug/L
Isobutyl alcohol 78-83-1 8260C 25 ug/L m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	lodomethane	74-88-4	8260C	1	ug/L
m,p-Xylene 179601-23-1 8260C 2 ug/L Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Isobutyl alcohol	78-83-1	8260C	25	ug/L
Methacrylonitrile 126-98-7 8260C 5 ug/L Methyl methacrylate 80-62-6 8260C 1 ug/L Methyl methacrylate 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	m,p-Xylene	179601-23-1	8260C	2	ug/L
Methyl methacrylate 80-62-6 8260C 1 ug/L Methylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Methacrylonitrile	126-98-7	8260C	5	ug/L
Metnylene Chloride 75-09-2 8260C 1 ug/L Naphthalene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 1 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Methyl methacrylate	80-62-6	8260C	1	ug/L
Napritraiene 91-20-3 8260C 1 ug/L o-Xylene 95-47-6 8260C 1 ug/L Propionitrile 107-12-0 8260C 10 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L	Methylene Chloride	75-09-2	8260C	1	ug/L
O-Aylerie 95-47-6 8260C 1 Ug/L Propionitrile 107-12-0 8260C 10 ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L		91-20-3	8260C	1	ug/L
Proportiume 107-12-0 8260C 10 Ug/L Styrene 100-42-5 8260C 1 ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L trans-1,3-Dichloropropene 10061-02-6 8260C 1 ug/L	U-Aylefie Dranianitrila	95-47-6	82000	1	ug/L
Styrene 100-42-5 6200C 1 Ug/L Tetrachloroethene 127-18-4 8260C 1 ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L trans-1,3-Dichloropropene 10061-02-6 8260C 1 ug/L	Styropo	107-12-0	82600	10	ug/L
Toluene 12/10-4 0200C 1 Ug/L Toluene 108-88-3 8260C 1 ug/L trans-1,2-Dichloroethene 156-60-5 8260C 1 ug/L trans-1,3-Dichloroptopene 10061-02-6 8260C 1 ug/L	Tetrachloroethene	100-42-5	020UU 8260C	1	ug/L
trans-1,2-Dichloroptene 10660-5 8260C 1 Ug/L trans-1,3-Dichloroptene 10661-02-6 8260C 1 ug/L	Toluene	102 22 2	82600	1	ug/L
trans-1,2-Dichloropropene 10061-02-6 8260C 1 ug/L	trans_1_2-Dichloroethene	156_60_5	82600	1	
	trans-1.3-Dichloropropene	10061-02-6	8260C	1	ug/L

Table 2B. Baseline Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill FacilityChaffee, New York

BASELINE SAMPLING EVENTS				
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Volatile Organic Compounds (Continued)				
trans-1,4-Dichloro-2-butene	110-57-6	8260C	1	ug/L
Trichloroethene	79-01-6	8260C	1	ug/L
Trichlorofluoromethane	75-69-4	8260C	1	ug/L
Vinyl acetate	108-05-4	8260C	5	ug/L
Vinyl chloride	75-01-4	8260C	1	ug/L
Xylenes, Total	1330-20-7	8260C	2	ug/L
Leachate Indicators				
Alkalinity, Total	N/A	310.2	10	mg/L
Bromide	24959-67-9	300.0_28D	0.4	mg/L
Biochemical Oxygen Demand	N/A	5210B	2	mg/L
Chloride	16887-00-6	9251	1	mg/L
Chemical Oxygen Demand	N/A	410.4	5	mg/L
	N/A	2120B	5	
Ammonia (as N)	14707 55 9	350.1	0.02	mg/L as N
Nillale Total Kieldahl Nitrogen	14797-55-6 N/A	351.2	0.05	mg/Las N
Total Organic Carbon	7440 44 0	SM5310D	0.15	mg/L do N
Phenolics Total Recoverable	N/A	9065	0.005	mg/L
Total Dissolved Solids	N/A	2540C Calcd	10	mg/L
Sulfate	14808-79-8	9038	15	ma/L
Calcium and Magnesium Hardness	N/A	SM2340B	0.5	ma/L
Inorganic Parameters				9
Aluminum	7429-90-5	6010C	0.2	ma/l
Antimony	7440-36-0	6010C	0.02	mg/L
Arsenic	7440-38-2	6010C	0.015	mg/L
Barium	7440-39-3	6010C	0.002	mg/L
Beryllium	7440-41-7	6010C	0.002	mg/L
Boron	7440-42-8	6010C	0.02	mg/L
Cadmium	7440-43-9	6010C	0.002	mg/L
Calcium	7440-70-2	6010C	0.5	mg/L
Chromium	7440-47-3	6010C	0.004	mg/L
Chromium, hexavalent	18540-29-9	7196A	0.01	mg/L
Cobalt	7440-48-4	6010C	0.004	mg/L
Copper Overside Tatel	7440-50-8	6010C	0.01	mg/L
	57-12-5	9012B	0.01	mg/L
	7439-09-0	6010C	0.05	mg/L
Magnesium	7439-92-1	6010C	0.01	mg/L
Manganese	7439-96-5	6010C	0.003	mg/L
Mercury	7439-97-6	7470A	0.0002	mg/L
Nickel	7440-02-0	6010C	0.01	mg/L
Potassium	7440-09-7	6010C	0.5	mg/L
Selenium	7782-49-2	6010C	0.025	mg/L
Silver	7440-22-4	6010C	0.006	mg/L
Sodium	7440-23-5	6010C	1	mg/L
Thallium	7440-28-0	6010C	0.02	mg/L
Vanadium	7440-62-2	6010C	0.005	mg/L
Zinc	7440-66-6	6010C	0.01	mg/L
Field Data				
Field pH	N/A	FieldSampling	N/A	SU
Oxidation Reduction Potential	N/A	FieldSampling	N/A	millivolts
Specific Conductance	N/A	FieldSampling	N/A	umhos/cm
Temperature	N/A	FieldSampling	N/A	Degrees C
l urbidity	N/A	FieldSampling	N/A	NTU

Table 2C. Routine Parameter List (6NYCRR Part 363-4.6(h)) with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill FacilityChaffee, New York

ROUTINE SAMPLING EVENTS				
Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Leachate Indicators				
Alkalinity, Total	N/A	310.2	10	mg/L
Bromide	24959-67-9	300.0_28D	0.4	mg/L
Biochemical Oxygen Demand	N/A	5210B	2	mg/L
Chloride	16887-00-6	9251	1	mg/L
Chemical Oxygen Demand	N/A	410.4	5	mg/L
Ammonia (as N)	7664-41-7	350.1	0.02	mg/L as N
Nitrate	14797-55-8	Nitrate_Calc	0.05	mg/L as N
Total Kjeldahl Nitrogen	N/A	351.2	0.15	mg/L as N
Total Organic Carbon	7440-44-0	SM5310D	1	mg/L
Phenolics, Total Recoverable	N/A	9065	0.005	mg/L
Total Dissolved Solids	N/A	2540C_Calcd	10	mg/L
Sulfate	14808-79-8	9038	15	mg/L
Calcium and Magnesium Hardness	N/A	SM2340B	0.5	mg/L
Inorganic Parameters				
Cadmium	7440-43-9	6010C	0.002	mg/L
Calcium	7440-70-2	6010C	0.5	mg/L
Iron	7439-89-6	6010C	0.05	mg/L
Lead	7439-92-1	6010C	0.01	mg/L
Magnesium	7439-95-4	6010C	0.2	mg/L
Manganese	7439-96-5	6010C	0.003	mg/L
Potassium	7440-09-7	6010C	0.5	mg/L
Sodium	7440-23-5	6010C	1	mg/L
Field Data				
Field pH	N/A	FieldSampling	N/A	SU
Oxidation Reduction Potential	N/A	FieldSampling	N/A	millivolts
Specific Conductance	N/A	FieldSampling	N/A	umhos/cm
Temperature	N/A	FieldSampling	N/A	Degrees C
Turbidity	N/A	FieldSampling	N/A	NTU

Table 2D. Sediment Baseline Parameter List with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill Facility

Chaffee, New York

Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Inorganic Parameters				
Aluminum	7429-90-5	6010C	10.00	mg/Kg
Antimony	7440-36-0	6010C	15.00	mg/Kg
Arsenic	7440-38-2	6010C	2.00	mg/Kg
Barium	7440-39-3	6010C	0.50	mg/Kg
Beryllium	7440-41-7	6010C	0.20	mg/Kg
Cadmium	7440-43-9	6010C	0.20	mg/Kg
Calcium	7440-70-2	6010C	50.00	mg/Kg
Chromium	7440-47-3	6010C	0.50	mg/Kg
Chromium, hexavalent	18540-29-9	7196A	0.80	mg/Kg
Cobalt	7440-48-4	6010C	0.50	mg/Kg
Copper	7440-50-8	6010C	1.00	mg/Kg
Cyanide, Total	57-12-5	9012B	1.00	mg/Kg
Iron	7439-89-6	6010C	10.00	mg/Kg
Lead	7439-92-1	6010C	1.00	mg/Kg
Magnesium	7439-95-4	6010C	20.00	mg/Kg
Manganese	7439-96-5	6010C	0.20	mg/Kg
Mercury	7439-97-6	7471B	0.02	mg/Kg
Nickel	7440-02-0	6010C	5.00	mg/Kg
Potassium	7440-09-7	6010C	80.00	mg/Kg
Selenium	7782-49-2	6010C	4.00	mg/Kg
Silver	7440-22-4	6010C	0.60	mg/Kg
Sodium	7440-23-5	6010C	140.00	mg/Kg
Thallium	7440-28-0	6010C	6.00	mg/Kg
Vanadium	7440-62-2	6010C	0.50	mg/Kg
Zinc	7440-66-6	6010C	2	mg/Kg
Volatile Organic Compound (VOCs)				
1,1,1,2-Tetrachloroethane	630-20-6	8260C	5.00	ug/Kg
1,1,1-Trichloroethane	71-55-6	8260C	5.00	ug/Kg
1,1,2,2-Tetrachloroethane	79-34-5	8260C	5.00	ug/Kg
1,1,2-Trichloroethane	79-00-5	8260C	5.00	ug/Kg
1,1-Dichloroethane	75-34-3	8260C	5.00	ug/Kg
1,1-Dichloroethene	75-35-4	8260C	5.00	ug/Kg
1,2,3-Trichloropropane	96-18-4	8260C	5.00	ug/Kg
1,2-Dibromo-3-Chloropropane	96-12-8	8260C	5.00	ug/Kg
1,2-Dichlorobenzene	95-50-1	8260C	5.00	ug/Kg
1,2-Dichloroethane	107-06-2	8260C	5.00	ug/Kg
1,2-Dichloropropane	78-87-5	8260C	5.00	ug/Kg
1,4-Dichlorobenzene	106-46-7	8260C	5.00	ug/Kg
2-Hexanone	591-78-6	8260C	25.00	ug/Kg
Acetone	67-64-1	8260C	25.00	ug/Kg
Acrylonitrile	107-13-1	8260C	25.00	ug/Kg
Benzene	71-43-2	8260C	5.00	ug/Kg
Bromoform	75-25-2	8260C	5.00	ug/Kg
Bromomethane	74-83-9	8260C	5.00	ug/Kg
Carbon disulfide	75-15-0	8260C	5.00	ug/Kg

Table 2D. Sediment Baseline Parameter List with Maximum Laboratory Reporting LimitsEnvironmental Monitoring PlanChaffee Landfill Facility

Chaffee, New York

Analyte	CAS Number	Specific Method	Laboratory Reporting Limit	Units
Carbon tetrachloride	56-23-5	8260C	5.00	ug/Kg
Chlorobenzene	108-90-7	8260C	5.00	ug/Kg
Bromochloromethane	74-97-5	8260C	5.00	ug/Kg
Dibromochloromethane	124-48-1	8260C	5.00	ug/Kg
Chloroethane	75-00-3	8260C	5.00	ug/Kg
Chloroform	67-66-3	8260C	5.00	ug/Kg
Chloromethane	74-87-3	8260C	5.00	ug/Kg
cis-1,2-Dichloroethene	156-59-2	8260C	5.00	ug/Kg
cis-1,3-Dichloropropene	10061-01-5	8260C	5.00	ug/Kg
Dibromomethane	74-95-3	8260C	5.00	ug/Kg
Bromodichloromethane	75-27-4	8260C	5.00	ug/Kg
Ethylbenzene	100-41-4	8260C	5.00	ug/Kg
1,2-Dibromoethane	106-93-4	8260C	5.00	ug/Kg
2-Butanone	78-93-3	8260C	25.00	ug/Kg
4-Methyl-2-pentanone	108-10-1	8260C	25.00	ug/Kg
Methylene Chloride	75-09-2	8260C	5.00	ug/Kg
Styrene	100-42-5	8260C	5.00	ug/Kg
Tetrachloroethene	127-18-4	8260C	5.00	ug/Kg
Toluene	108-88-3	8260C	5.00	ug/Kg
trans-1,2-Dichloroethene	156-60-5	8260C	5.00	ug/Kg
trans-1,3-Dichloropropene	10061-02-6	8260C	5.00	ug/Kg
trans-1,4-Dichloro-2-butene	110-57-6	8260C	5.00	ug/Kg
Trichloroethene	79-01-6	8260C	5.00	ug/Kg
Trichlorofluoromethane	75-69-4	8260C	5.00	ug/Kg
Vinyl acetate	108-05-4	8260C	10.00	ug/Kg
Vinyl chloride	75-01-4	8260C	5.00	ug/Kg
Xylenes, Total	1330-20-7	8260C	10.00	ug/Kg

Notes:

Shading indicates Routine Parameters CAS RN is the Chemical Abstract Number Method is EPA method # PQL is Practical Quantification Limit ug/kg is micrograms per kilogram mg/L is milligrams per kilogram

PART 363 - BASELINE LIST PARAMETERS

PARAMETER ¹	<u>METHOD</u>	SAMPLE COLLECTION ² AND CONTAINER	SAMPLE ^{3,4} <u>PRESERVATION</u>	RECOMMENDED⁵ <u>HOLDING TIME</u>
Alkalinity	310.2	100 ml P,G, zero headspace	Cool, 4°C	14 days
Ammonia	350.1	125 ml P,G	Cool, 4°C	28 days
Biochemical Oxyger Demand, 5d-BOD5	n 405.1	500 ml P,G	Cool, 4°C	48 hours
Boron	6010	100 ml P	Preserve in lab	6 months
Bromide	300.0	125 ml P,G	Cool, 4°C	28 days
Chemical Oxygen Demand (COD)	410.4	125 ml P,G	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Chloride	300.0	125 ml P,G	Cool, 4°C	28 days
Color	110.2	125 ml P,G	Cool, 4°C	48 hours
Cyanide (Total)	9010	125 ml P,G	Cool, 4°C NaOH to pH >12	14 days
Hardness	130.1	100 ml P,G	HNO ₃ to pH <2	6 months
Kjeldahl Nitrogen, Total	351.1	125 ml P,G	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Metals Aluminum (Total) Antimony (Total) Arsenic (Total) Barium (Total) Beryllium (Total) Chromium (Total) Chromium (Total) Chromium (Total) Cadmium (Total) Cobalt (Total) Cobalt (Total) Iron (Total) Lead (Total) Magnesium (Total) Magnesium (Total) Nickel (Total) Potassium (Total) Selenium (Total)	6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 0010 7470 6010 6010 6010 000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	500 ml P,G	HNO₃ to pH <2	6 months

PART 363 BASELINE LIST PARAMETERS (Continued)

PARAMETER ¹	<u>METHOD</u>	SAMPLE COLLECTION ² AND CONTAINER	SAMPLE ^{3,4} <u>PRESERVATION</u>	RECOMMENDED ⁵ <u>HOLDING TIME</u>
Silver (Total) Sodium (Total) Thallium (Total) Vanadium (Total) Zinc (Total)	6010 6010 6010 6010 6010			
Nitrate	300.0	125 ml P,G	Cool, 4°C	48 hours
Phenols	9066	125 ml G only	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Sulfate	300.0	125 ml P,G	Cool, 4°C	28 days
Total Dissolved Soli residue on evaporatie (TDS/ROE) 180° C	ds 160.1 on	500 ml P	Cool, 4°C	7 days
Total Organic Carbo (TOC)	on 9060	2-40 ml vial or 125 ml P	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Volatile Organics	8260	2-40 ml vial w/septum caps	Cool, 4°C HCl to pH <2	14 days
Field Parameters Static water levels in wells		nearest 0.01 ft		
Specific Conductanc Temperature	e 9050	nearest 0.5 $^{ m O}$ F		
Floaters and Sinkers	(observation)			
рН	9040			
Eh				
Dissolved Oxygen				
Field Observations				
Turbidity	180.1			

PART 363 EXPANDED LIST PARAMETERS

PARAMETER ¹	<u>METHOD</u>	SAMPLE COLLECTION ² AND CONTAINER	SAMPLE ^{3,4} PRESERVATION	RECOMMENDED ⁵ <u>HOLDING TIME</u>
Alkalinity	310.2	100 ml P,G, zero headspace	Cool, 4°C	14 days
Ammonia	350.1	125 ml P,G	Cool, 4°C	28 days
Biochemical Oxygen Demand, 5d-BOD5	405.1	500 ml P,G	Cool, 4°C	48 hours
Boron	6010	100 ml P	Preserve in lab	6 months
Bromide	300.0	125 ml P,G	Cool, 4°C	28 days
Chemical Oxygen Demand (COD)	410.4	125 ml P,G	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Chloride	300.0	125 ml P,G	Cool, 4°C	28 days
Color	110.2	125 ml P,G	Cool, 4°C	48 hours
Cyanide (Total)	9010	125 ml P,G	Cool, 4°C NaOH to pH >12	14 days
Hardness	130.1	100 ml P,G	HNO ₃ to pH <2	6 months
Kjeldahl Nitrogen, Total	351.1	125 ml P,G	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Metals Aluminum (Total) Antimony (Total) Arsenic (Total) Barium (Total) Beryllium (Total) Chromium (Total) Chromium (Total) Cadnium (Total) Cobalt (Total) Cobalt (Total) Copper (Total) Iron (Total) Lead (Total) Magnesium (Total) Mercury (Total) Nickel (Total) Potassium (Total) Selenium (Total)	6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010 7470 6010	500 ml P,G	HNO3 to pH <2	6 months

EXPANDED LIST PARAMETERS (Continued)

PARAMETER ¹	<u>METHOD</u>	SAMPLE COLLECTION ² AND CONTAINER	SAMPLE ^{3,4} <u>PRESERVATION</u>	RECOMMENDED ⁵ HOLDING TIME
Sodium (Total) Thallium (Total) Tin (Total) Vanadium (Total) Zinc (Total)	6010 6010 6010 6010 6010			
Nitrate	300.0	125 ml P,G	Cool, 4°C	48 hours
Phenols	9066	125 ml G only	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Sulfate	300.0	125 ml P,G	Cool, 4°C	28 days
Sulfide	9030	500 ml P,G	Cool, 4°C NaOH, ZnOAc to pH >9	7 days
Total Dissolved Solid residue on evaporatio (TDS/ROE) 180° C	ds 160.1 on	100 ml P	Cool, 4°C	7 days
Total Organic Carbor (TOC)	n 9060	2-40 ml vial or 125 ml P	Cool, 4°C H ₂ SO ₄ to pH <2	28 days
Volatile Organics	8260	4-40 ml glass vial w/septum caps	Cool, 4°C HCl to pH <2	14 days
Acid Extractables	8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Base/Neutral Extractables	8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Herbicides	8151	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
PCB	8082	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Radium-226	903.1	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pl	H < 2 6 mos
Radium-228	904.0	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pl	H < 2 6 mos
Total Uranium	908.0	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pl	H < 2 6 mos.

EXPANDED LIST PARAMETERS (Continued)

PARAMETER ¹ Pesticides	<u>METHOD</u> 8081	SAMPLE COLLECTION ² AND CONTAINER 1000 ml Glass	SAMPLE ^{3,4} <u>PRESERVATION</u> Cool, 4°C	RECOMMENDED⁵ <u>HOLDING TIME</u> Extract within 7 days;
		only (Amber) w/Teflon liner	рН 5 - 9	analyze within 40 days
Semi-volatile Organ	nics 8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Per- & polyfluoroal	kyl	D C 250I	Tui	14 Jan
Substances (PFAS)	537 MOD	P,G 250 mL	Trizma® at 5g/L	14 days
1,4-Dioxane	8270D SIM	1000 ml Glass only (Amber)	Cool, 4°C	Extract within 7 days; analyze within 40 days
Field Parameters Static water levels n in wells	earest 0.01 ft			
Specific Conductant Temperature neares	ce t 0.5 ^o F			
Floaters and Sinkers	s (observation)			
pН	9040			
Eh				
Dissolved Oxygen				
Field Observations				
Turbidity	180.1			

Notes

- 1. Table include Part 363-4 Baseline and Expanded list parameters and is inclusive of parameters on the Routine List.
- 2. Plastic (P) or Glass (G). For metals, polyethylene with a polypropylene cap (no liner) is preferred.
- 3. Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
- 4. When any sample is to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table 5-4, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCI) in water solutions at concentrations of 0.04% by weight or less (pH about 1.62 or greater); Sulfuric acid (H₂SO₄) in water solutions of 0.35% by weight or less (pH about 1.62 or greater); Sulfuric acid (H₂SO₄) in water solutions of 0.35% by weight or less (pH about 1.15 or greater); Solium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).
- 5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of sample under study are stable for the longer time, and has received a variance from the Regional Administrator. Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show this is necessary to maintain sample stability. Note: Many tests can be combined in bottles. For example, Chloride, Fluoride, Nitrate, Nitrite, pH, Sulfate, TDS, TSS will be collected in a 1 liter plastic bottle.

Figures





	CLOSED LANDFILL AREA
— — — 1450 — — —	EXISTING CONTOURS
	AREA 7/8 CONTOURS
- · · - · · -	EXISTING STORMWATER BASIN
	EXISTING CULVERT
555555555555555555	EXISTING RIP-RAP
	PROPERTY LINE
	APPROXIMATE WESTERN AREA AND VALLEY FILL CELL BOUNDARIES
	APPROXIMATE BORROW AREA LIMIT
	–100' WETLAND BUFFER –DELINEATED WETLAND
⊕MW-1BR	MONITORING WELL
⊖ GP-28	GAS PROBE
(AREA 7/8 DEVELOPMENT MONITORING WELL
\	PIEZOMETER FOR WATER LEVELS ONLY
•	SURFACE WATER SAMPLE LOCATION
	LEACHATE SAMPLING LOCATION
*	DENOTES A SAMPLE THAT IS COMPOSITED TO REPRESENT FACILITY-WIDE PRIMARY LEACHATE

0	2000	4000
SC	ALE: 1" = 200	0'
GEI Consultants	GROUNDW WELL NE PROE	ATER MONITORING TWORK AND GAS BE LOCATIONS
Project 1900192	April 2020	Fig. 2



Potentiometric Surface Maps



^{\\}geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0619.dwg - 2/28/2020



[\]geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_1219.dwg - 2/28/2020

Appendix B

Borehole and Well Construction Logs

Closed Landfill Area Logs

1				et (Test Borings and Loga East Aurora, New York 14062 • (716)	1 (100-	N C	··· [· · · · ·		
k Pi	ğ Wi Roje(.ient	FIL	, I L L	R-1 Repl land	lace L Rc Ref	emer bad,	- Tr	of My installation LOCATION Near Bropose wh of Saminia - Propose Prvice DATE STARTED 9/7	uth d_1 /83	SUR east andf:	R1A F. ELEVRIB CORDET C	1485.0 <u>1484</u> . %WA: of	.3
			T	B	LOWS					<u>-</u>	UMPLETED	9/12/8	33
fer	PTH et_	SAMPLE			5 AMP		N	DESCRIPTION & CLASSIFICATION		WELL		WEIJ.	 -
					53 23 23 24 27 30 24 30 24 16	83 83 25 30 34 41 32 27 27 28	47 47 42 46 52 46 31 32 21	<pre>Singlety moist black silt loam (SANDY-SILT) topsoil, loose 0.3 Slightly moist brown silt loam (SANDY-SILT), loose, blocky soil structure </pre>	Two inch inside diameter PVC pipe	Cement bentonite grout seal	(1) (2)	(1) 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8.0 9.0 12 14. 10t' crei
Y <u>.</u> N - N	UMB	ER (OF B	LOW	s to) DRI	VE	2 "SPOON 12 "WITH 140 IN WE FA	11.01		Continue	<u>×1 on 2</u>	? <u></u>



DIMENSIONS, INC.

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Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

TORING WELL _R-1_continued

SURF. ELEV.

9k	PROJECT	Replacement of MW installation
		Hand Road, Town of Sardinia
		ATT Defuse Contion

LOCATION Near southeast corner of proposed landfill expansion

Ę.

0/7/00

CLIENT	. •••	<u></u>						······································	DATE STARTE	<u> </u>	/83	C	OMPLETED	
DEPTH	MPLE 40.		BLC SA	MPL					SSIFICATION		WEI	L	WATER TABLE & REMARKS	
feet	Υ.	6	/12	18	24	N					R-1A		1	
	9 10	6		14	20	25	Ext Ext (CL thi	previous sheet clear transferences remely moist of AYEY-SILT), ve nly laminated	t insition to - lark gray si ery stiff, with very th	<u>18.0</u> lt loam			Coarse silty lake sediment to 1.2 feet over water sorted and depos-	
20					18		coa	rse silt lense	es .	70.0			ited mostly sand	
-	11	6	8	17		25	Ext	clear tra remely moist on y loam (CLAYE	ansition to lark gray si (-SILT) with	1ty 2 to			some silt and clay to 3.0 feet over silty lake sediment	
					23		- 5%	mostly fine s:	ize gravel,	very			to 14.0 feet over	
	12	5				_	st1 +hi	if, thinly lar	lenses	very			clayey lake sediment	
			9	14		23	uu		161269				to 18.0 feet over silty lake sedi-	
					19		<i>,</i>	clear tra	ansition to	_ <u>2</u> 8 <u>.</u> 0_			over clayey lake	
25	13	4	7			22	1	•		•	pipe	al	feet over water	
				15	20			<i>.</i>		•	RC	t se	ited mostly sand to 42.8 feet over	
	414	5					í	,			Ч	1 2	water sorted and	
		<u> </u>	9	14		23	l'				amet	te G	deposited mostly sand and gravel	
					21		, i	·			đ	18	with mostly stone	
	15	5	11			-				•	side	Sent(layers to end of	
3.0				20		31	Ext	tremely moist	dark gray si	.lty	ц Ц Ц	ent/1		
	-				30	1	c la	ay (CLAYEY-SIL	T) with 2 to	>5%s ∽1		l le		
	-16	1	14				· th:	inly laminated	with very t	hin -				

coarse silt lenses

16

17 8

18 6 SZ

36

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28

29

18

20

" SPOON 12 " WITH 140 Ib. WT. FALLING 30 " PER BLOW.

Continued on 3.....

	•		Ę	$\left\{ \left(\right. \right. \right. \right\}$; (EARTH DIMENSIONS,	IN	1 C		
	•							Test Borings and Loga East Aurora, New York 14082 • (716)	655-17	17		
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/ 9K	. '		 H	land		anen vad	TC	MW installation LOCATION Near so	uther	ust	corner of	19
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٩					1-0	24	├──	Extremely moist dark gray silty	1-1			
		19	9	1	+			mostly fine size group has be				
				21		1		thinly laminated with very thin		5 J		•
					24		45	coarse silt lenses		6		
		ļ			4	36		Moist distinctly 42.2		t t		
		20	8	<u> </u>				sand (SAND) with 5 to 15s mostly	¥.	l e		
	•		┼┯	17	 		39	/ rounded gravel, stratified, loose		bt		•
	40				22			/ when disturbed		2	• 	
-						-33	- <u></u>	Moist distinctly mothed have		ant	· .	
		-21	-7					gravelly loamy sand (SAND) with		en la		
				13			31	40 to 50% mostly rounded and		0	41.0	
					-18			subrounded gravel & occasional		(1)		
	·	22	14			-28		stratified, loose when disturbed	•	(1)	42.0	
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					55		89	Extremely moist distinctly mottled			the second second	•
						25		brown fine sandy loam (SILTY-SAND)				
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	45	_		44				very gravelly loamy sand (SAND)	ੇ ਮੂ	12		1-++
					50		94	/with 40 to 50% mostly rounded and	et :		PVC we	211
						32		, subrounded gravel & occasional	lan -	:	screer	1
		_24	8					fied, loose when disturbed	2.0	:		
				ᆦ		<u> </u>	14 ^{.1}	clear transition to 49.0	- pt		11	
					-27			wet faintly mottled grayish brown.	() SI	۲ <u>۲</u>	:	
		25	7			-34		with 40 to 50% mostly rounded and	न	S.		
	ĺ			17				subrounded gravel & occasional	- Li	1Ze		
•,	[17	{	34	cobble of mixed lithology, strati-	g	ທ		
-	_50					19	-1	The floor transition to 50,5	Ę.	4 1		•
		26	ı					Wet grayish brown loamy sand (camp)		Ę.		
	Ļ			16			1	with 5 to 15% gravel, medium to				
	Ļ				27		4 P	coarse size sand, stratified 51 0	l T			
						53		= clear transition to - $-$				· •
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	feet	07	<u> </u>	/12	10	1/2	4		"	بلبلنا	WATER TABLE & REM.
		27	-	21	1		- 35	Wet grayish brown gravelly loamy	<u>├</u>		•
					74	17		subangular graval correction			(1) # 10 slot
							1-	cobble, stratified, loose when			(2) # 4 size
	55							disturbed	(1)	(2)	
								Wet gray very gravelly loams and	'		
•								(SAND) with 40 to 50% mostly fine			
	· · ·							size subrounded gravel, loose when	ις μ		
	- F							sand lenses which tend to liquefy	•		•
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DEF DEF NO. DEF TIM	*TH HOLE 36 JC *TH SOIL DRILL 36' G/ *TH ROCK CORE N/A WE DIST. N/A US. N/A *TH WL N/A HF HF	B NO. 02 1 INSP. IATHER_F MP31 NP	<u>23-934</u> <u>GC</u> RAIN <u>6_F</u> <u>N/A</u> rED_N/	0 PR DR DR DR DR MT A. WT	OJECT <u>CH</u> ILLING ME ILLING CO ILL RIG <u></u> SAMPLE CASING	IAFFEE_ THOD_4 SJB_ CME_55 R HAMM HAMME	LANDFILL_WELL_INST&_DECOMM. BORING NOMWR-1 1.25"_ID_HSA SHEET2_OF_3 SERVICES,_INC, SURFACE EL. 1485.1 JOX DRILLER_D.M. DATUM_N/A MER_140_LB. DROP_30"_(AUTO) STARTED_1520/12-11-00 R N/A DROP_N/A CONFLETED 1940/12-11
A. C. D. P. R. S. T. I. W.	AMPLE TYPES S. AUGER SAMPLE BR OF CHURK SAMPLE BR OF COPEN C S. DENISON SAMPLE CA PTICHER SAMPLE CA PTICHER SAMPLE CA T. SLOTOD TUBLE DEF PARAMELEO, DEFN FRAC D. THIN-WALLEO, DEFN FRAC S. WASH SAMPLE LU U	BLACK BROWN COARSE CASING CANEY CLAYEY FINE FINE FRACMENT GRAMENT GRAMENT GRAMENT GRAMENT	ABB MIC MOT OG ORG PH PM R RES RX	REVIA MCCAI MCCAI MOTT NON- ORAA ORGA PRES RED RESIC ROCK	ITIONS LED -PLASTIC INIC SURE-HYDRAUL SURE-HYDRAUL	10 TH MH SS SS SS SS SS SS SS SS SS SS SS SS SS	SOIL DESCRIPTION - RANGE OF PROPORTION SOIL DESCRIPTION - RANGE OF PROPORTION SATURATED 500E - 12-307 SATURATED 7500E - 12-307 SATURATED 20-507 SATURATED 20-507 SATURAT
ELEV. DEPTH	DESCRIPTION CLAY TILL UNIT	BLOW FT.		NO. TY	SAMPLES HAMM. BLOW PER 6 N. (FORCE)	S REC/A	TT DEPTH SAMPLE DESCRIPTION AND BORING NOTES
	Stiff to hard, gray, SILTY CLAY, trace to little fine to medium gravel, gravel sub-angular to			$\Big\}$	$\left \right $	$\left \right $	
	sub-rounded, meaium plasticity, thinly laminated, occasional wet silt and sand layers. (CL)	11	mminni	3	3 5 6 8	14"	Stiff, gray, CLAYEY SILT, little fine to med. grav thinly laminated, moist, moderate plasticity, gravel sub-angular to sub-rounded. (CL)
	·	8	4		2 3 5 7	23"	Stiff—mod stiff, gray SILTY CLAY, fine to medium gravel, moist, gravel sub—angular to sub—rounde (CL)
18		10			4 4 6 6	16"	Stiff, gray, SILTY CLAY, little f—m, gravel thinly laminated, medium plasticity, moist. (CL)
21		10	6		3 4 6 8	16"	Stiff, gray, SILTY CLAY, trace, f-m, gravel thinly laminated, medium plasticity, moist. gravel sub-rounded to sub-angular (CL)
23		8	777777777777777777777777777777777777777		2 3 5 6	20"	Stiff, gray, SILTY CLAY, trace, f-m, gravel thinly laminated, medium plasticity, moist. (CL)

DEPTI DEPTI DEPTI NO. (DEPTI TIME	H HOLE	NO. 023- ISP	-9340 GC IN F N/A D_N/A	PR DR DR DR WT	OJECT <u>CHAF</u> LLING METH LLING CO. <u>S</u> LL RIG <u>CMI</u> SAMPLER I CASING HA	FEE_L OD_4.2 SJB_SE E_5502 HAMME MMER_	LANDFILL_WELL_INST&_DECOMM. BORING NO. MWR-1BF .25"_ID_HSA SHEET 3_0F_3 SERVICES,_INC. SURFACE EL. 1485.1 0X DRILLER D.M. DATUM N/A IER_140_LB. DROP_30"_(AUTO) STARTED 1520/12-11-02 R N/A COMPLETED 0940/12-12-00
SA As: Cos P.S. R.C. T.P. W.S.	AUDER TYPES AUDER SAMPLE BL CHUNK SAMPLE CA DENSON SAMPLE CA DENSON SAMPLE CA PITOHER SAMPLE CA SUSTED RUBE CA SUSTED RUBE FRAG THIN-WALLED, PISTON GL WASH SAMPLE LY0	BLACK BROWN COARSE CASING CLAYEY CLAYEY FINE FRACMENTS CRAVEL LAYERED LITTLE	ABBF	MED MICT NON ORAGE PRED RED RED RED RED RED RED	ATTONS	SAT SD SIY SIY SIY SIY SIY SIY SIY SIY SIY SIY	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-5% UTIL: - 5-12% SUIT - 5-12% S
ELEV. DEPTH	DESCRIPTION	BLOWS, FT.	1	N0. 1	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
25	CLAY TILL UNIT Stiff to hard, gray, SILTY CLAY, trace to little fine to medium gravel, gravel sub-angular to sub-rounded, medium	6		8	1 2 4 4	20'	Mod., stiff, gray, SILTY CLAY, trace, fine gravel, - thinly laminated, gravel sub-angular to sub-rounded. (CL - Two fine SAND and SiLT lenses @25.2' and 25.5' medquick dilatancy (saturated) (SM
26	plasticity, thinly laminated, occasional wet silt and sand layers. (CL)	9		9	2 3 6 8	17"	Stiff, gray, SILTY CLAY, trace, fine gravel, thinly laminated, mod. plasticity, moist, gravel sub-rounded to sub-angular, occ. med. gravel. (CL
28		12		10	3 5 7 - 9	21"	Stiff, gray, SILTY CLAY, little, f-m gravel, thinly laminated, gravel sub-angular to sub-rounded, moist. (CL
- 30 		14		11	5 7 7 8	21"	Stiff, gray, SILTY CLAY, trace, fine gravel, gravel sub-rounded to sub-angular, moist. occ. m. gravel (CL
33		16		12	4 7 9 12	10"	Stiff, gray, SILTY CLAY, trace, fine gravel, - occ. med. gravel, moist, med. plasticity. (CL)
		22		13	6 9 13 14	24"	Hard, gray, SILTY CLAY, trace, fine, gravel — med. plasticity, moist. (CL) —

MONITORING WELL INSTALLATION DIAGRAM Well No.: MWR-1BR Sheet 1 of 1 Project: Chaffee Landfill Well Inst. Job No.: 023-9340 Water Depth: N/A Drilling Method: 4.25" I.D. H.S.A. Ground Elev .: 1485.1 GA Insp.: GOC Date: 12/11-12/12/02 Riser Elev.: 1487.63 Drilling Company: SJB Services Weather: RAIN Time Completed: 0940 Time Started: 1520 Drill Rig: CME 550X Temp: 18º F Cap Monitoring Point (well stickup=2.53') Vent Hole Anodized Aluminum 8 Inch Diameter Locking Protective Casing **Ground Surface** Drain Hole ~4.0 Feet thick Concrete Surface Seal 36 Inch Diameter Bentonite Cement Grout 1.0 Foot thick Fine Grained Choker Sand 3.0 Feet thick Bentonite Seal 2.4 Foot thick Fine Grained Choker Sand 3.88 Feet .20 Feet Schedule 40 PVC 2" Riser Pipe 2-Inch Diameter Schedule 40 PVC Continuous Wire Wrap .006 Slot Screen Screened Interval: 19.52 Feet Morie #00 Sand 0.5 Feet End Cap 0.5 Feet ~8-Inch " Borehole Well Bottom: 34.5' b.g.s. Thickness of sandpack: 24.6' Total depth of soil boring: 35' b.g.s. Golder Associates Inc. MWR-1BR Monitoring Well Detail CHAFFEE LANDFILL Buffalo, N.Y. Clay Till Unit CHAFFEE, NEW YORK Date: Checked by: Drawn by: NKW 7/25/2003 AJN Job No. 023-9340



Soil and Hydrogeologic Investigations • Wetland Delineations 1091 Jamison Road • Elma, NY 14059 (716) 655-1717 • FAX (716) 655-2915

	2A79a	an					HOLE NO.	. <u>MW-2R</u> SURF. ELEVATION	
I	ROJE	CT 1	Well #	2 Rep	acem	ent E	ast Side of	LOCATION	
		!	Chaff	e La	ndfill,	Town	of Sardinia	, Erle Co., NY	
I		IT Mu	cMaho	n & M	ann C	onsul	ting Enginee	ers. P.C DATE STARTED 2/08/02 COMPLETED 2/08/02	
	TEPTH	, -1	BI O	WS ON	J				
	NFT	•	SAM	PLER	•				
[SN	0/	6/	12/	18/				
		6	12	18	24	N			
	1	40					0.00	Extremely moist brown very gravelly	
			27			50	6.0	(SAND) fill with 40 to 60% gravel, very	
				23			0.0.0	fine to very coarse size sand, trace to	
-					30		0.00	soil structure. (SW). (GW) tending	
	2	_5_						toward (SM), (GM).	
ľ		-		9		15	9 2	2.5 B over silty fill with little clay to	
Ī					13			Moist olive gray (CLAYEY-SILT) fill 4.5 feet over sand fill with litt	le
	3	_6						with 5 to 10% mostly subangular gravel, Gravel to 6.0 feet over sity s	
5-			8			18		(ML-CL).	nd,
.	<u> </u>			10			9 9 9 9	4.5 gravel and clay to 12.0 feet o	ver
ŀ					10			Wet brown gravelly (SAND) fill with 15	
ľ			6			15		fine to very coarse size sand, trace	
[9				silt, compact, loose when disturbed, $1 \leftarrow 7.5$	
ŀ					_11_				
╞	5	_5_				·	· · · · · · · · ·		
ł			-7-1			16	· · /	CLAYEY-SILT) fill with 3 to 10%	
, t				-	10		<u>م مم م</u>	mostly subangular gravel, little to some	
	6	3					<u>q q.</u> .	clay, stiff, massive soil structure,	
-	<u>· </u>		3			9	<u></u>	grades downward to $8.0 + 11.0^{\circ}$	
-				_6			a a a	Extremely moist olive gray	
┝	_ +			<u> </u>	_8		•	(CLAYEY-SILT) with 5 to 10% mostly	
-		-2	-			-		subangular gravel, trace sand, little	
F				7		U		very thin coarse silt lenses, (ML-CL).	
					9			grades downward to 10.0	x
┝	8	4						Extremely moist mixed olive gray and	TE
5			3	-+	· ·	9		brown (SAND-SILT-CLAY) fill with 10 (2.0 FEET.	
┢				б				1 to 13% graver, inclue solid and clay, very 1.1 学 信. (2) 00 MORIE SAND PACK stiff, massive soil structure, (SC). 名目 (3) DENITORITE SEAL	
┢		3					;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	grades downward to 12.0	
F			3			8	**************************************	Wet olive gray (CLAYEY-SILT) with 3	
	·			5		Ŭ		to 5% mostly subangular gravel, little	
·					8			to some clay, stiff, thinly laminated (1.1) (1.1	
╞						·	\	(ML-CL).	
┝			<u> </u> ·					18.0	·
· -	-+						'	Boring completed at 18.0 feet.	
) L					l_		e		

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 "WITH 140 Ib. WT. FALLING 30 * PER BLOW LOGGED BY Brian R. Bartron, Donald W. Owens, (did)

SHEET 1 OF 1



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-3

SURF. ELEV. 1493.8

PROJECT	Monitoring well i	nstallation
2A79k	Chaffee, New York	
CLIENT	Chaffee Landfill	Ing

LOCATION <u>South central of proposed</u> <u>landfill expansion</u>

Chaffee Landfill, Inc.

DATE STARTED 9/7/83 COMPLETED 9/7/83

		쀭		BL S	OWS AMP	ON LER			T		
DEPT foot	г н 	WS SAM	0/6	6/12	12/1	18/2	N		W	ELL	WATER TABLE & REMARKS
		1	6	ř-	1-	<u> </u>	+-	Model	R	-3 +	
	Ī		<u> </u>	12	1-	+	+-	MOIST Black silt loam (CLAYEY-SILT)			Silty lake codimon
	ſ				30	1	- 43	Slightly moist faintly 1005	_		to end of horing
	Ī			<u> </u>		36	<u>_</u>	brown silt loam (CLAVEY_STIM) with		1	in or bernig.
	Ē	2	10		<u> </u>	1-20	Υ	2 to 5% mostly subancular gravel		I	
2		~	סר	26			+	of mixed lithology, hard, blocky soil	,	법	(1) #10 slotted
	ľ		·	~0	22		<u>5</u> 9	structure	• ·	1 Ā	PVC screen.
	ł				22	24	<u> </u>	$$ clear transition to $^{1.5}$	-	5	(2) Pontonita air
40 g		5	-		,	24		Moist distinctly mottled olive brown		E	(2) benchitte seal
5	\uparrow	3	2				┼──	2 to 5% monthly file		R	
	+			4	25		24	hard block soil structure		b 1 1	
	F			<u> </u>	12			- $ -$		l a	
•	\vdash	_				20		Moist distinctly mottled olive brown	L Å	5	
	H	-	9					silty clay loam (CIAYEY-SILT) with	р Д	l de	
. ·	┝	-+		19			49	2 to 5% mostly fine size gravel,	18	ပီ	
	┿				30			very stiff with nearly vertical gray			
	\vdash					37		desiccation cracks	H		8.0
	+	i _	15		-+			grades downward to	L C L	$\langle \alpha \rangle$	
•	\vdash			24		<u> </u>	61	Extremely moist faintly mottled olive	무	42)	9_0
	\vdash				37			brown silty clay loam (CLAYEY-SILT)	2		
10	+					46		shale gravel hand much like the			,
	E	4	9					laminated with yory thin second			
	L	·		15			27	silt lenses			• •
	\vdash			;	22		3/	\sim clear transition to 10.2	7	ъ Ц	· .
	L			_	·	24				Sa	
	2		7				·			eg P	
			Ŀ	12				Extremely moist dark gray cilty class		SI:	•
					9		<u> </u>	loam (CLAYEY-SILT) with 2 to 82	(1)	4	·
			-[27		mostly fine size black shale gravel		*	
	8	5			Τ	T		hard, weakly thinly laminated		,	4.0
15			Б	2				—			
	Ŀ			1	8		30				
		Γ	Τ		1.	55					
		T			+	-4-	-+:	16.0			6.0
		1	1		-†-	+		Boring completed at 16.0 feet	Nor	••• •	
				- -	+-				TAC M	ater	at completion.
		_									
N = NIM	RFI	2 00		<u></u>	TO	יייסח		2			· · · · · · · · · · · · · · · · · · ·
	0	· ur	00	5113	10	עואט	с.	SPOUN12 WITH140 Ib. WT. FAI	LING		30" PER BLOW.



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A

SURF. ELEV. <u>1478.0</u>

PROJECT	Replacement MW installation
2A79K-1	Hand Road, Town of Sardinia
CLIENT	CID Refuse Service

LOCATION <u>Near southwest corner of proposed</u> landfill expansion

DATE STARTED <u>8/20/84</u> COMPLETED <u>8/21/84</u>

-		Щ.		BL	OWS AMPI	ON LER			T		
	дертн feet	SAMI	0/6	6	12/18	18	N	DESCRIPTION & CLASSIFICATION	WI R-	ELL -4A	WATER TABLE & REMARKS
								Extremely moist distinctly mottled black mixed silty clay loam (CLAYEY- SILT) and silt loam (CLAYEY-SILT) topsoil, disturbed, firm 1.0 Moist distinctly mottled olive brown		nite grout	Ground level at R-4A is approx- imately 1 foot higher than wel
								 silty clay loam (CLAYEY-SILT), hard, weak blocky soil structure grades downward to 2.0 Moist faintly mottled olive brown 		lt-bento	# K-4. Silty lake sedi ment to 24.0
	5		ted					silty clay loam (CLAYEY-SILT) with 2 to 5% gravel & occasional cobble of mixed lithology, weakly thinly	ipe	Cemer	feet over water sorted and dep- <u>5.00</u> sited fine same and coarse silt
			s collec					laminated with nearly vertical gray desiccation cracks	er PVC p		to 27.0 feet ove silty lake sedi- ment to 30.5 fee
			samples	R - 4				Moist gray silty clay loam (CLAYEY- SILT) with 2 to 5% mostly black shale gravel & occasional cobble, hard.	diamete		over shaly silty glacial drift to 36.5 feet over water sorted and
	10		ased on	nt well				<pre>weakly thinly laminated clear transition to 8.0 Moist distinctly mottled brownish</pre>	n inside		deposited mostly sand and gravel to end of sampling
			cription h	replaceme				gray silty clay loam (CLAYEY-SILT) with 2 to 5% fine size gravel and coccasional cobble, hard, interlayered with extremely moist graysih brown coarse silt lenses 1/16-1 inch thick	Two incl	l backfil)	Starp I Ing .
			Des	fbr				$1 clear$ transition to $\frac{10.0}{2}$		Soi	
	15	1	4	25	7	6 50	2	Extremely moist dark gray silt loam (CLAYEY-SILT) with 2 to 5% subangular black shale gravel, hard, weakly thinly laminated			
				23	39	6	2				Cont. on sheet 2

N = NUMBER OF BLOWS TO DRIVE _____ "SPOON _12 "WITH _ 140 Ib. WT. FALLING _____ "PER BLOW. George Moreau/Natural Resource Specialist



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A continued

SURF. ELEV.

PROJECT	<u>Replacement MW installation</u>	LOCATION NO.	ar southwor	t cornor c	f proposed
2A79K-1	Hand Road, Town of Sardinia	la	ndfill expa	<u>c corner c</u> nsion	proposed
CLIENT	CID Refuse Service	DATE STARTED	8/20/84	COMPLETED	8/21/84

	LE L		B	SAM	S ON PLER		Τ		T		
DEPTH foot	SAMI	0	6	12	18		N	DESCRIPTION & CLASSIFICATION	WI	TT	WATER TABLE & REMARKS
		ľ	<u>Y</u>	<u> </u>	5		+			-4A 	
	3	11			╧	–		Extremely moist dark gray silt loam			
			2	4				(CLAYEY-SILT) with 2 to 5% subangular			
				4	4			thinly laminated			
20					4	9		$= = = = = 0.027 \text{ transition to} \qquad 20.0$			
	4	8	<u> </u>				_				
			24	4		-6	5				
				4	1 	+-	-	(CLAYEV-SILT) with 2 to 5% sub-			
						9	-	black shale gravel, hard, thinly			
		1-1-5	2	7	+		-	laminated with coarse silt/fine sand			
				4		76	7	lenses			
					4	в		24.0	l 8		
	6	17	/					Wet olive silt low (SUU) interhedde	ן ה		
25			27	4		- 6	Δ	with wet gray loamy sand (SAND) fine	۴¥		
			ļ	37	7	ľ	_	to coarse size sand, very dense,	н Ч		
			├		30	5	4	thinly bedded with a slight tendency	ete	Ēil	
					+-	+	-			U K U	
				+	+	+-	╪	- $ -$ grades downward to $ 27.0$	di	q	
	7 1	WR	<u> </u>	1	+	+-	1	SILT) with 2 to 10% subargular black	ide ,	0il	WR - sampler
			13	1	1			shale gravel, hard, thinly laminated	ns.	Ň	penetration
				22		3	2	with fine sand/coarse silt lenses	ч Ч		with weight of
	8	9						· · · · · · · · · · · · · · · · · · ·	n Lhc		rous only.
			16			2	Э,		Q		
-				13	<u> </u>		+	- $ -$	Ę		
		1.170			6	_	4				
ŀ	-9	WR					-	Extremely moist to wet gray shalv			
			8	16		24	1	silt loam (CLAYEY-SILT) with 15 to			
					24		1	25% subangular black shale gravel			
	10	7						occasional (SILTY-SAND)			
ŀ			26			76		- $ -$ 34.0			
<u>,</u> ↓				50			1	See next sheet			
				L	80	L	<u> </u>				Cont. on sheet 3

N = NUMBER OF BLOWS TO DRIVE 2 "SPOON <u>12</u>" WITH <u>140</u> Ib. WT. FALLING <u>30</u>" PER BLOW. George Moreau/Natural Resource Specialist



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A continued

SURF. ELEV.

PROJECT	Replacement MW installation	LOCATION Nea	ar southwest corner o	f proposed
2A79K-1	Hand Road, Town of Sardinia	la	ndfill expansion	= proposed
CLIENT	CID Refuse Service	DATE STARTED		8/21/84

	뷛.		BL S	OWS AMPL	ON ER						
DEPTH	NA N	0/	16/	12/	18	N	1	DESCRIPTION & CLASSIFICATION	1	VELT	WATER TABLE & REMARKS
feet		10	$\sum_{n=1}^{n}$	18	/ 24			Extromoly moist such as a line	F	7-4A	
		18				├	-	shalv silt loam (CLAVEY-SILT) with			
	<u> </u>		27	1 77		64	1	25 to 40% mostly subangular shale			
				31		<u></u>	<u>k</u>	gravel and occasional cobble of mixed			-
	<u> </u>		<u> </u>		100	<u>74.</u>	₽"、	lithology, hard, massive soil		ļ li	
	12	35		1 - 11				structure 36.5		벗	
		42	<u>100</u>	15"			ł	$ clear$ transition to $ \frac{50.9}{2}$		Dac	
	13	42	1 00				ł	Moist faintly mottled brown very			
			100				}	gravelly sandy loam (SILTY-SAND) with		5	
	-							40 to 50% mostly subangular gravel		പ	
40	╞╼┠╍┥							lithology work dongo process to be			40.0
	- -		· · · -					cemented, weakly stratified	Q		
1	┝╼┠╌┤							callender, healty selderica			
Í	$\left - \right $						~ ~	43 0	υ		
								\sim grades downward to $\frac{1}{2}$	Ъ		
<u> 4</u> 5									ы		(1) Two inch #10
									net		slotted PVC
	표								iar		screen.
	R								q		
								Wat gray yory gravelly and leave	id€		
								(STLTY-SAND) with 40 to 50% mostly	ns		
	- 44 - 1							subangular gravel and occasional	ירן רי	ß	
	-#				{			boulder of mixed lithology, very	nc]	, in t	
ĺ	I.							dense, appears to be cemented,	.н С	Lt	
50	~							weakly stratified	ž	ียี	
										ng	
	┪									Jr.i	
					-+					ŭ	
ŀ										lγ	
	-¤-+ E				-+					<i>J</i> el	
	P	-†				{				rai	52.0
	U				$-\uparrow$			ł		U	
-	N	-+									
ŀ	 #			- -		-+			(1)		
	<u>z</u>	-+		-+	-+			Someling completed to 55 0 5			
				I	I .			Sampling completed to 55.0 feet.			p5.0

N = NUMBER OF BLOWS TO DRIVE <u>2</u> "SPOON <u>12</u>" WITH <u>140</u> Ib. WT. FALLING <u>30</u>" PER BLOW. George Moreau/Natural Resource Specialist

DEPT DEPT DEPT NO. 0 DEPT TIME	H HOLE JOB H H SOIL DRILL9' GA IN H ROCK COREA WEAT DISTN/A WEAT DISTN/A HRS. WLN/A HRS.	NO. 023- ISP	9340 C RAIN N/A N/A	_ PROJ _ DRILL _ DRILL _ DRILL _ WT. 1 _ WT. 1	JECT_CHAFT LING METHO LING COS _ RIG_CME SAMPLER H CASING HAI	EE_L D_4.2 JB_SE _550> IAMMEI MMER_	ANDFILL S ⁷ _ID_ RVICES (RVICES RVICES N/A	
SA AS. D.0.S. P.S. R.S. S.T. T.O. W.S.	MPLE TYPES AUGER SAMPLE BL DRIVE OPEN DRIVE OPEN PHONG OPEN PHONG TO BE PHONG TO BE SLOTTED TUBE SLOTTED TUBE THM-WALLED, PIETON THM-WALLED, PIETON U	BLACK BROWN COARSE CLASING CLAY CLAY FINE FINE FINE GRAVEL LAYERED UTTLE	ADD MIC MOT NP ORG PH PM R RES RX	MEDIUM MICACE NON-P ORANG ORGANI PRESSU PRESSU RESDU, RESDU,	OUS D LASTIC C RE-HYDRAULIC IRE-MANUAL AL	SAT SS RY WR ST	SAMPLE SATURAT SAND SILTY SOME TRACE WATER LI WEIGHT (C WEIGHT (C YELLOW	ED TRACE - 0-5% 'UTULE - 5-120K SAUG - 30-50% CONSISTENCY EVEL LS LOOSE 5 SOFT OF COMPACT FM FRM OF COMPACT FM FRM OF COMPACT FM FRM OF COMPACT FM FRM OF COMPACT FM FRM
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.		NO. TYPI	SAMPLES HAMU, BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
-4				\geq				Auger with no sampling from 0 to 4' bgs. Auger with standard sampling 4' to 9' bgs. Auger with continuous sampling 9' to 19' bgs.
5	FILL	3	11111111111	1	4 2 1	6"	-	Soft, red-Brown to gray brown, SiLTY CLAY trace, fine gravel, faint laminations (disturbed med. plasticity, moist to wet. (CL
	CLAY TILL UNIT				-			
	Stiff to very stiff, gray-brown to gray, SILTY CLAY to CLAYEY SILT, trace to some fine to medium gravel, gravel sub-angular to sub-rounded, medium to low plasticity, thinly laminated. (CL) (CL-ML)						-	
19 11 11 10	•	14		2	4 7 7 10	14"	-	Stiff, gray—brown SILTY CLAY trace fine gravel, thinly laminated, gravel sub—rounded, med. plasticity, pushed c. gravel piece into sompler. ((
		11		3	3 5 6 10	14"	-	11'-11.5': Red-brown-gray, changing to gray Stiff SILTY CLAY to 13', med. plasticity. (1 @12': 0.05' thick layer of CLAYEY SILT slow-med. dilatancy, wet. (1 trace fine gravel.
13		13		4	4 6 7 8	20"		Stiff, gray to brown-gray SILTY CLAY to CLAYEY SILT trace f-m gravel, moist, med. plasticity, thinly laminated. (Stiff, gray, SILTY CLAY, some, fine-med gravel, little m-c sand, laminations disturbed, mois (N

Golder Associates

DEPT DEPT DEPT NO. I DEPT TIME	H HOLE <u>36'</u> JOE H SOIL DRILL <u>36'</u> GA H ROCK CORE <u>N/A</u> WE DIST. <u>N/A</u> US. <u>N/A</u> TEN H WL. <u>N/A</u> HR WL. <u>N/A</u> HR	NO. 023- INSP	<u>-9340</u> F <u>RAIN</u> D <u>N/A</u> W <u>N/A</u> W	ROJEC RILLING RILLING RILL RI (T. SAM (T. CAS	T CHAFF METHO COSJ G_CME. IPLER H.	EE_LA D_4.23 IB_SEF _550X AMMEF IMER_	NDFILL 5"_ID_ RVICES, R_140_ N/A	
SA CS. O.S. P.S. R.C. T.O. T.P. W.S.	MPLE TYPES AUGER SAMPLE BR CRIVEN COPEN C CRIVEN SAMPLE CA PROJET SAMPLE CA PROJET SAMPLE CA SAMPLE CA SAMPLE F THN-WALLED, PISTON CA WASH SAMPLE U	BLACK BROWN COARSE CLAYEY CLAYEY RINE RRAGUENTS GRAVEL LAYERED LITTLE	ADDRE MIC M MIC M NP N OG OC ORG OC ORG OC ORG PH PM P R RES R RX R	EDIUM ICACEOUS OTTLED ON-PLASTIC RANGE RANGE RANGE RESSURE-H RESSURE-H EDIUAL OCK		SAT SAT SIY SIY SIR ¥¥ ¥¥ Y	SAMPLE SATURATI SANO SILTY SOME TRACE WATER LI WATER LI WATER LI WEIGHT C YELLOW	EVEL ULSOITH TRACE" - 0-3% -1/TTLE" - 3-3% SINC" - 30-3% SINC" - 30-50% CONSISTENCY EVEL USSEC \$ SOFT OF HAMMER OF COMPACT FM FIRM OF ROOS V VERY H HARD
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	. но	S/ TYPE P	AMPLES	REC/ATI	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
16	CLAY TILL UNIT Stiff to very stiff, gray-brown to gray,	17	11115		5 8 9 12	18"	-	Very stiff, gray SiLTY CLAY to CLAYEY SILT some, f—m gravel, low plasticity, no dilatar moist, thin disturbed laminations.
17	SILIT CLATED SOME SILT, trace to some fine to medium gravel gravel sub-angular to sub-rounded, medium to low plasticity, thinly laminated. (CL) (CL-ML)	21			5 10 11 17	21"	-	Very stiff, gray CLAYEY SILT to SILTY CLAY little f-m gravel, moist, low plasticity, thinly laminated; slightly disturbed. (CL-
	END OF BORING							BORING DRY PRIOR TO WELL INSTALLATION

- <u>1</u>

<u>, 19</u>

	MONITOR	ING WELL INSTAI	LATION DIAGR	AM				
b No.: 023-9340	Project: Chaf	ffee Landfill Well Inst.	Well No.: MWR-4CR	Sheet	1 of 1			
	Drilling Metho	od: 4.25" I.D. H.S.A.	Ground Elev.: 1479.	I Water D	Depth: N/A			
		Dany: SJB Services	Riser Elev.: 1482.19	Date: 12	2/12-12/13/02			
mp: 33° F =		= 550X	Time Started: 1600	Time Co	ompleted: 1400			
Anodized Alumin 8 Inch Diameter I Protective Casing	um _ocking	Vent Hole Mo	nitoring Point (well sticku Grour	ւթ=3.09') nd Surfac	:e			
Concrete Surface 36 Inch Diameter	Seal		~4.0 Feet thick		- 			
Schedule 40 PVC 2" Riser Pipe Bentonite Cemeni	t Grout	第80日 王術・ 正常に 日前に	1 Foot thick	-				
Fine Grained Cho	ker Sand		0.7 Foot thick	_				
Bentonite Seal			3.1 Feet thick	-				
Fine Grained Cho.	ker Sand		0.5 Foot thick	-				
			2.03 Feet	-				
			.30 Feet	-				
2-Inch Diameter S PVC Continuous V .006 Slot Screen Morie # 00 Sand	chedule 40 Vire Wrap		Screened Interval: 6.6	i2 Feet				
	End Cap		0.25 Feet	•				
			0.5 Feet					
		~8-Inch " Borehole						
al depth of soil boring:	19' b.g.s.	Thickness of sand	ipack: 9.7'	Well Botto	m: 18.5' b.g.s.			
older Associates Inc. Buffalo, N.Y.	CHAFF		MWR-4CR Mo Cla	MWR-4CR Monitoring Well Detail				
		E, NEW YORK	Drawn by:	Checked by:	Date:			
Job No. 023-9340			AJN	NKW	7/25/2003			





MONITORING WELL

PROJECT	Monitoring well installation
2A79m	Town of Sardinia, New York
CLIENT	CHAFFEE LANDFILL. INC.

7 R

LOCATION Northeast corner of landfill (north) road side of berm, 45.0 ft from centerline of road DATE STARTED <u>5/12/86</u> COMPLETED <u>5/13/86</u>

	2.		BL(OWS	ON ER			WE	LL	
DEPTH	A S	%	5/11	12/18	10/24	N	RESCRIPTION & CONSTRUCTION		<u>(1)</u>	
 	1	3	6	4		10	Moist dark brown silt loam (SANDY-SILT) fill, little very fine-medium size sand, with			Fill to 3.5 feet over likely coarse silty
	<u> </u>	2		$\left \right $	4		Abundant roots, (ML) 0. Moist dark brown silt loam	5		deposit sediment
			4	4		8	(SANDY-SILT) fill with 5 to 15 very fine to fine size gravel, little very fine-medium size	5		to 4.5 feet over water sorted and deposited sand
5	3	4	3			6	Moist faintly mottled olive brown loam (SANDY-SILT) with 5 to 15% mostly flat shale frag-			silt to 6.5 feet over silty lake sediment to 7.5
	4	3		3	3		<pre>\ ment, some very fine to coarse \ size sand, weak blocky soil \ structure, loose, (ML) 4.5</pre>			feet over water sorted and de- posited mostly
			5	6	5	11	Wet faintly mottled olive brown gravelly loam (SILTY-SAN with 20 to 40% subangular and			gravel and silt to 8.0 feet over clavey lake sed-
	5	5	6	8		14	<pre>/ flat to subround gravel, very / fine to coarse size sand, litt / cilt, loose, weakly stratified</pre>	Le	ntonít.	iments to 30.5 feet over water sorted and de-
10	6	4	٦	5	_7	12	(SM) clear transition to - 6.5 Extremely moist faintly mottle olive brown silt loam (CLAYEY SILT) with 5 to 15% subangular		ment-he	with some gravel and silt to 32.0 feet over silty lake sediments
	7	3	6		11		gravel, stiff, weak thinly bed ded with very thin coarse silt lenses (ML) 7.			to 34.0 feet over coarse silty lake sedi-
-	8	5		7	12		<pre>gravely loam (SILTY-SAND) wit 20 to 40% gravel, very fine to coarse size sand, little silt,</pre>			feet over silty lake sediments to 50.0 feet
15			6	7		.3	loose, stratified, (SM) 8. Moist faintly mottled brownish gray silty clay loam) E	•	over water sort- ed and deposited sand-silt-clay
	9	3	4	6		0	'(CLAYEY-SILT) with 3 to 5% mos 'ly subangular fine size gravel stiff, weak thinly bedded, wit <u>nearly vertical gray desiccation</u>			with some gravel Continued on sheet 2.
N = NUM	IBER	OF 6 Dal	LOW	/S T() DRI Gra	VE mz	<u>icracks, (CL)</u> <u>10.0</u> <u>2</u> grades downward to <u>10.0</u> <u>2</u> "SPOON <u>12</u> " WITH <u>140</u> b. WT. F a/Geologist	ALLIN	G_	30 " PER BLOW.
bs LOGGED E	IY 🗜)on	<u>ald</u>	W	. 0	wei	<u>is/Soil S</u> cientist SHEET		OF	4



'Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING

WELL 7R continued SURF. ELEV. 1493.48.

PROJECT	Monitoring well	<u>installation</u>
2A79m	Town of Sardinia	New York
	•	

CLIENT CHAFFEE LANDFILL. INC. LOCATION Northeast corner of landfill, (north) road side of berm. 45.0 ft. from centerline of road DATE STARTED 5/12/86 COMPLETED 5/13/86

	2.		BLA SJ	OWS	ON ER		DECEMBETION & CLASSIFICATION	w	.I.I.	WATER TABLE & REMARKS
	Ξ¥	2	%	17	1/	N		ļ.		
feet		\vdash	<u> ~ "</u>	<u> </u>	ľ .		Moict dark gray silty clay		1	to 56 5 feet a
	9				1-2	-	<pre>/ /// // // // // // // // // // // //</pre>			water corted a
	10	2			 		subangular fine size gravel.		1	denosited coar
			3	<u> </u>	Ļ	1 1 1	stiff, weak thinly laminated			eilt with some
	_			7		1	with very thin coarse silt			aravel to 58.0
20					7		lanses (CL)		1	feet over sha
2 ¥	11	2					1 = - arades downward to - 16.0			silty glacial
			Δ				grades downward to Extremely moist dark gray silts	.	1	to end of bor
				5		9	clay (CLAYEY-SILT) with <28 mos	- 11		
				۲ <u>ـ</u>			ly subangular fine size gravel	7	1	(1) Protective
				<u> </u>	8		stiff, weak thinly laminated	e la	1 E	metal cove
	12	3		ļ			with very thin coarse silt lense	s A	1 2	ing. 6 in
			4			12	(CL) 30 1	مار	ס	inside di
				8			$-$ clear transition to $-\frac{50}{2}$	10	e l	meter.
					10		Moist dark gray gravelly sandy	A	1.7	
		2					loam (SILTY-SAND) with 20 to 40	8	18	
25			3				very fine to coarse size sub-	E I	t l	
				6		9	angular gravel, fine to coarse	- je	Į	
				-			size sand, little silt, very	1 E	17	
					8		dense in place, loose when dis-	dj.	a la	
	14	2					turbed, stratified, (SM) 32.(l a	l e	
			4			- 1 d	/ Moist dark gray silty glay loar	D	e e	
				6	_ 1		/ MOISE GAIN GEAY SHELY CHAY LOAD	10	Ĭ	
					7		Cubangular fina size shale dra.	1.4		
					- 1		Juci thinly laminated with	C	0.00	28.5
ł	4-21		-				I ver, (ninty faminated with	12	100	
F				6			cracks (CL)	1.4	l₿₫	4
		-+			-+		$-$ clear transition to - $\frac{34.0}{100}$	1-	50	20.0
30	-+	+	+		-6		Extremely moist dark gray silt	12	<u>m e</u>	130.0
Ļ	16	4					/loam (SANDY-SILT) with < 28			
ļ		_	24			57	/ mostly subangular fine size	Ĭž		
Ļ				13	[, gravel, compact, thinly bedded,		Į	
L					40		(ML)			
	17	3			$_1$		1		Š	
			8						ŝ	
f	-1				— P	. ⁹ j			e	
ŀ	+	+	#	┹┦	16	[jZ	
┝	-+	+	-+	-+	- 01				Ś	Continued on
	18	4		-+	-+	1			2	sheet 3.
35			5 L	1	1	21			-45	

bslOGGED BY Donald W. Owens/Soil Scientist

SHEET _____ OF ____4___



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

MONITORING

WELL <u>7R continued</u>

SURF. ELEV. 1493.48

PROJECT	Monitoring well installation
2A79m	Town of Sardinia, New York
CLIENT	CHAFFEE LANDFILL, INC.

LOCATION Northeast corner of landfill, (north) road side of berm. 45.0 ft from centerline of road DATE STARTED 5/12/86

					ON ER		OFSCRIPTION & CLASSIFICATION	WE	LL	WATER TABLE & REMARKS
DEFTM	Į₹¥	1	•/	12/	10/	N				
feet	1	K.	<u>K"</u>	<u> </u>	<u>K-</u>	┢──	Extramely moist dark gray silt	1		
	<u>µ8</u>		┨───	17	10		Loam (SANDY-SILT) with <2% most	ļ		
	<u> </u>	<u> </u>	 		10	 	ly subangular fine size gravel,			
	19	15				 	compact, thinly bedded, (ML)			
	<u> </u>	<u> </u>	<u> </u>			115	-grades downward to 2020			
				9		ļ	•			
-			L		10	 	Extremely moist dark gray silt	be		Water level at
	20	3	I				loam (CLAYEY-SILT), stiff and	ित्	1	28 0 feet below
			4]	very stiff, thinly laminated			around level at
				7		μ1	with very thin coarse silt		1	9:00 am on 5/13/86
40			t	1	10	†	lenses, (ML)		[after sampling
	21	5			1 M	1		Ha		and augering to
		ľ			t		\sim 40.5	, T		42.0 feet the
			-8			20	= grades downward to -	Ě	Ĕ	previous day.
	<u> </u>	├				+		i-i	l N	
			 		14		Extremely moist dark gray silt	ס	e la	
	22	B		<u> </u>	┞──		loam (CLAYEY-SILT), very stiff,	de	N 	
			L a		ļ	62	thinly laminated with very thin	. <u>.</u>	v)	
				15		23	coarse silt lenses, (ML)	Ë	N	
					19			.	ч	
	23	6						1 - 5	pe l	
45		Γ	9					1 5	5	
	1			19		24			Ż	
					1.0		46.0	~		
	1	-			14		grades downward to			
	24	+-	10				Extremely moist dark gray silt	3		
			10	1 7		27	loam (CLAYEY-SILT) with 5 to 15		[
	<u> </u>						mostly subangular shale gravel,		{	
	Ļ				19		very stiff, thinly laminated			
	25	9					with two (2) wet gravelly silt loam	ł		
	ļ		17			31	(SANDY-SILT) interbeds a to 2	ł		
				14			inches thick, (ML) 50.0	{		
50					12		Wet damk any shaly loam (SAND-	1		
•	26	3					SILT-CLAV) with 20 to 40% mostly			
			8				subangular shale gravel. some	1		
				13		21	fine to coarse size sand, compa	t.		
					٥		thickly bedded with one (1) wet			Continued on
:	27	R					gravelly sandy loam (SILTY-SAND	1		sheet 4.
		ليبي				<u> </u>	interbed 2" thick between 51.0			
							31.2 IOOT GEPTA, [ML]		~	30
N = NUM	ABER	OF (VS T	D DR Co	IVE	ZSPOUNSWIN D. WI. F.	ALLIN	ч.	PEK BLOW,
De Locoro	ov	Do Do	ile na 1	171- 1 A	ພ. ພ.	nino. ⊿O	ans/Soil Scientist	3	٥r	- 4
	<u>.</u>	<u></u>	10.						_ `'	



Test Borings and Logs East Aurora, New York 14052 • (716) 655-1717

10NITORING

7R continued WELL

SURF. ELEV. 1493.48

Monitoring well installation PROJECT Town of Sardinia, New York 279m

LOCATION Northeast corner of landfill, (north) road side of berm, 45.0 it from conterline of road.

CHAFFEE LANDFILL, INC. CLIENT

Dale M. Gramza/Geologist

he LOGGED BY Donald W. Owens/Soil Scientist

DATE STARTED 5/12/86 COMPLETED 5/12/86

SHEET _____ 4 OF _____ 4

Deer	No.	BLOWS ON SAMPLER			DESCRIPTION & CLASSIFICATION			WATGE TABLE & REMARKS		
feet	3×		• "	11/10	119/24	N				
	7 7		4			41	Wet dark gray shaly loam (SAND			
				27		<u> </u>	SILT-CLAY) with 20 to 40% most	<u>א</u> ר	21	(2) Two Inc
					<u>32</u>		subangular shale gravel, some	Ľ	<u>_</u>	<u>54.0</u> diamete
	28	16					fine to coarse size sand, com-		ĕ	PVC pip
55			19				(1) wet gravelly sandy loam		8	
				27		46	(SILTY-SAND) interbed 2" thick		5	
					2R		between 51.0-51.2 foot depth,		2	
	29	49		Ļ		 	(ML) - grades downward to - $\frac{52}{10}$		e e	
			105			bar	Wet dark gray shaly loam (SAND	. :		
				18			SILT-CLAY) with 20 to 40% most	. <u>y</u>	입고	
		_		 	97		, subangular shale gravel, some		an s	
	30	20		L			fine to coarse size sand, thic.	<u>ו</u> י	o j v	
			40	 		00	sandy loam (SILTY-SAND) interb	يل.	10 I	<u>59.0</u>
				58	<u> </u>	50	between 53.7 to 54.0 foot dept		s1-	
60					21		$\frac{1}{100}$ (ML) arades downward to = $\frac{56.1}{100}$	\$]	2	
	31	10					Wet dark grav shaly silt loam		ч	
			14			32	(SANDY-SILT) with 20 to 40%		be D	
				18			' mostly subangular shale gravel		5	
					16		little fine size sand, very de	ise	Z	
	32	8					Vin place, tends to liquity when			
			9			28	L = - clear transition to -58.			
				<u>19</u>	1.5	20	Extremely moist dark gray shal	/		
					13	[silt loam (CLAYEY-SILT) with 2)		164.0
ļ							to 40% mostly subangular shale	Ι.		
65							gravel, little fine to coarse		NOW	vater at complet.
							stiff below 62.0 feet, noticed			
							one gravel interlayer between			
•							59.0-59.3 foot depth, (ML) 64.	2		
Ì										
						-1	Boring completed at 04.0 leet.			
ł										
ł			- 1							



DEP DEP NO, DEP TIME	TH HOLE61'JOB I TH SOIL DRILL61'GA IN TH ROCK COREN/AWEAT DISTN/AUSN/ATEMP TH MN/AHRS. TMN'AHRS.	NO. 023- ISP. G HER SN -8_ PROD. D DELAYED	-9340 OC OW F N/A O_N/A	_ PRO _ DRILI _ DRILI _ DRILI _ WT. S _ WT. S	JECT CHAF JING METHI JING CO. S RIG_CME SAMPLER H CASING HA	FEE_L OD_ 4.2 SJB_SE E_850 HAMME MMER.	ANDFILL_WELL_INST&_DECC 25"_ID_HSA RVICES,_INC. DRILLER_J.T. R_140_LBDROP_30"_(AU N/ADROP_N/A	MM. BORING NO. MW-9F SHEET 2_OF_2 SURFACE L. DATUM N/A TO) STARTED_1430/12-2-02 COMPLETED 1415/12-3-02 COMPLETED 1415/12-3-02
ASS DCS PSS RCCS RCCS ST TCD WS	AMPLE TYPES AUGER SAMPLE BR CHUNK SAMPLE CA DRENS FAMPLE CA DRENS FAMPLE CA PROSE CORE QLY SLOTED TUBE ROCK CORE QLY SLOTED TUBE THIN-WALLED, OPEN FRAG THIN-WALLED, OPEN FRAG THIN-WALLED, OPEN FLAG U	BLACK BROWN COARSE CASING CLAY DLAYEY THE RACMENTS RAVEL AYERED JITLE	ABBK MUC MOT NP OGG PH PM RES RX	NEDIUM NICACE NOTLEI NOT-PL ORGANIC PRESSU PRESSU RESIDUA RESIDUA ROCK	UNS Astic Re-Hydraulic Re-Manual L	SAT SADAYME¥¥≆ Y	SUL DESCRIPTION	- RANGE OF PROPORTION
ELEV. DEP TH	DESCRIPTION	BLOWS/ FT.		NO. TYPE	SAMPLES	REC /ATT	DEPTH SAMPLE DESCRI	PTION AND BORING NOTES
- 59 - 60	SAND AND GRAVEL UNIT Dense, gray, fine to coarse SAND, some fine to medium sub-angular to angular gravel, saturated. (SP-GP)	19		64	3 8 11 15	14"	- Very, stiff, brown-gro f. sand, occ. f. g some silt and fine med. dilatancy, sa	ny, CLAYEY SILT, trace ravel, thinly laminated, a sand partings, turated. (ML-CL

MONITORING WELL INSTALLATION DIAGRAM

Job No.: 023-9340 GA Insp.: GOC Weather: SNOW ∍mp: 24 ^o F	Project: Chaffee Landfill Well Inst . Drilling Method: 4.25" I.D. H.S.A. Drilling Company: SJB Services Drill Rig: CME 850	Well No.: MW-9R Ground Elev.: 1487.8 Riser Elev.: 1490.13 Time Started: 1430	Sheet 1 of 1 Water Depth: N/A Date: 12/2-12/3/02 Time Completed: 1415
Anodized Alumin 8 Inch Diameter	um Vent Hole	Monitoring Point (well stick	up = 2.33')
	Drain Hole —	Grou	nd Surface
Concrete Surface 36 Inch Diameter	e Seal	~4.0 Feet thick	
Schedule 40 PVC 2" Riser Pipe			
Poptonito/Comon		35.5 Feet thic	K
bentonite/Cemen			
Fine Grained Cho	ker Sand	1.5 Feet thick	-
Bentonite Seal		4.0 Feet thick	-
Fine Grained Cho	ker Sand	2.1 Feet thick	-
		3.30 Feet	-
2-Inch Diameter S PVC Continuous V .010 Slot Screen	Chedule 40 Vire Wrap	. 13 Feet	
Morie #0 Sand		Screened Interval: 9.	5 Feet
End	Cap E	0.35 Feet	-
		0.6 Feet	
	~8-Inch " Boreho	ble	
Total depth of soil boring:	61' b.g.s. Thickness of s	andpack: 13.9'	Well Bottom: 60.4' b.g.s.
Golder Associates Inc. Buffalo, N.Y.	CHAFFEE LANDFILL	MW-9R Mor Sand a	nitoring Well Detail nd Gravel Unit
	CHAFFEE, NEW YORK	Drawn by:	Checked by: Date:
Job No. 023-9340		AJN	NKW 7/25/2003

DEPTH DEPTH DEPTH NO. DIS DEPTH TIME W	HOLE <u>98</u> ' JOB N SOIL DRILL <u>98</u> ' GA IN ROCK CORE <u>N/A</u> WEATH ST. <u>N/A</u> US. <u>N/A</u> TEMP. WL. <u>N/A</u> HRS. M. <u>N/A</u> HRS.	0. 023-9340 SP. GC IER <u>CLOUDY</u> 45_F PROD. N/A DELAYED N/A	PROJECT <u>CHAFFEE</u> DRILLING METHOD DRILLING CO. <u>SJB</u> DRILL RIG <u>CME</u> WT. SAMPLER HAM	<u>4.25"_ID_HS</u> <u>SERVICESI</u> <u>550X</u> <u>MER_140_LI</u> <u>IER_N/A</u>	WELL_INST&_DECOMMBORING_NOBORING_NOBORING_NOBORING_NOBORING_NOBORING_NOSURFACE_EL1267_3 NCSURFACE_EL1513.3 DRILLER_D.MDATUMA DROP30"_(AUTO)STARTED_1248/12-16-02 DROP30"_(AUTO)STARTED_1159/12-18-02 DROPN/A COMPLETED 1159/12-18-02 SOUL_DESCRIPTION - RANGE_OF_PROPORTION
SAM	PLE TYPES AUGER SAMPLE BR GRUNK SAMPLE BR DRIVE OPEN CA DRIVE OPEN CA DRIVE OPEN CA SLOTEDULED OPEN FRAG THN-WALLED, PISTON LYD WASH SAMPLE U	ABB BLACK M BROWN MIC GOARSE WOT CLASING NP CLAY ORG CLAYEY ORG CLAYEY ORG CLAYER ORG FRAGMENTS PM GRAVEL R GRAVEL R GRA	REVIATIONS WEDIUM MICACEOUS MOTTEJSTIC ORANGE DEGSSURE-HYDRAULIC PRESSURE-HYDRAULIC PRESSURE-HAMUAL RESOUAL RESOUAL	SA SAMPLE SAT SATURATED SD SAND SI SILT SY SILTY SW SOME TR TRACE WW WATER LEW WH WEIGHT OF Y YELLOW	SOLE DESCRIMENT "TRACE" - 0-5% "LITLE" - 5-12% "SOLE" - 12-30% "SOLE" - 50% SOLE DESCRIPTION SOLE DESCRIPTION "TRACE" - 0-5% "LITLE" - 5-12% "SOLE" - 50% "SOLE" - 50%
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	SAMPLES NO. TYPE FANM. BLOWS PER 6 IN. (FORCE)	EC/ATT DEPTH	SAMPLE DESCRIPTION AND BORING NOTES Auger with no sampling from 0 to 4' bgs. Auger with standard sampling 4' to 49' bgs.
1114 5	CLAY TILL UNIT Stiff to very stiff, red-brown to gray, CLAYEY SILT to SILTY CLAY, trace fine to medium gravel, medium plasticity, thinly laminated, occassional elit and fine sand	12	5756	14"	Auger with continuous sampling 49 to of bgs Auger with standard sampling 61' to 83' bgs. Auger with continuous sampling 83' to 98' bg Stiff, red—brown to gray—grown SILTY CLAY mottled, faint thin laminations, moist, low plasticity, trace m. gravel. (
16 17 7 8 8	partings. (ML-CL) (CL)				
		19	5 8 11 17	24" -	Very stiff, gray, brown mottled slightly red-b CLAYEY SILT, trace, f-m sub-angular gro faint thin laminations, moist, occ. v.f. sand partings, very low plasticity (CL-ML
- - - - - - - - - - - - - - - - - - -		12	5 5 3 7	22"	14'-14.75': Stiff, brown, CLAYEY SILT, little, fine sand, occ. partings of fine sa dilatancy slow to mod.

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DEPTH DEPTH DEPTH NO. DI DEPTH TIME V	HOLE <u>98</u> ' JOB NO SOIL DRILL <u>98</u> ' GA INSF ROCK CORE <u>N/A</u> WEATHE ST. <u>N/A</u> US. <u>N/A</u> TEMP. WL. <u>N/A</u> HRS. PI AL. <u>N/A</u> HRS. DI	023-9340 - GC R CLOUDY 45_F ROD. N/A ELAYED_N/A	PROJECT <u>CHAFFI</u> DRILLING METHOU DRILLING CO. <u>SJ</u> DRILL RIG <u>CME</u> WT. SAMPLER H/ WT. CASING HAM	EE_LANDI <u>4.25"</u> <u>550X</u> <u>550X</u> MMER_1 MER_N/	FILL_WELL_INST&_DECOMM ID_HSA CES,_INC. DRILLER_D.M. 40_LB. DROP_30"_(AUTO) ADROP_N/A	BORING NO. <u>MW-10</u> SHEET <u>2_0F_8</u> SURFACE EL. <u>1513.3</u> DATUM <u>N/A</u> STARTED <u>1248/12-16-0</u> COMPLETED <u>1150/12-18</u> RANGE OF PROPORTION
A.S. C.S. D.O. P.S. R.C. S.T. T.P. W.S.	PLE TYPES AUGER SAMPLE BR BIL GUINK SAMPLE C CO DRIVE OPEN DE C CO DRIVE OPEN DE C C CO PICTURE SAMPLE C C C C PICTURE C C C C C TICHER OPEN C C C C TICHER OPEN FRAG CC TICHER C C C C C C C C C C C C C C C C C C C	ABB ABB ARSE MOT ARSE MOT ARSE MOT AND AND AND AND AND AND AND AND	REVIATIONS MICACEOUS NON-FEASTIC ORCANIC PRESSURE-HYDRAULIC PRESSURE-HYDRAULIC RESDUAL RESDUAL RESDUAL	SA SAI SAT SA SD SAI SI SI SI SI SI SI SI SI SI SI SI SI SI	SOIL DESCRIPTION MALE TRACED TRATED SOME TAND T CONS ME CONS ME LOSEL LS LOSES THET OF HANNER OP COMPA INSTIT OF RODS DN DENSE LLOW VERY	- 0-5% - 3-12% - 12-30% - 30-50% ISTENCY ST STOP FREF ST STOP H NARD
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	SAMPLES NO. TYPE HANM. BLOWS PER 5 IN. (FORCE)	REC/ATT DE	PTH SAMPLE DESCRIPT	ON AND BORING NOTES
17 17 17 17 18 19 19 19 19 19 10 19	CLAY TILL UNIT Stiff to very stiff, red-brown to gray, CLAYEY SILT to SILTY CLAY, trace fine to medium gravel, medium plasticity, thinly laminated, occassional silt and fine sand partings. (ML-CL) (CL)	5	1235	20"	Stiff, gray, SILTY CLAY thinly laminated, m	, trace f-m gravel, ed. plasticity, wet.
22		9	4366	19"	Stiff, gray, SILTY CL/ med. plasticity, th Layer of gray f SANC dilatancy quick fr	Y, trace f gravel, inly laminated,), little silt om 25.6'-25.9' saturated (S

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		· •	0						·
DE		NO 02	′U 3—934	1 40 d					DG
DE	EPTH SOIL DRILL 98' GA	NSP	GC	[[DRILLI	ING MET	HOD_4	. <u>25"_</u> IC	D_HSASHEET_SHEET
	PTH ROCK CORE <u>NZA</u> WEA D. DIST. <u>N/A</u> US. <u>N/A</u> TEMF	THER <u>C</u>	<u>_E</u>	[[ORILLI ORILL	ING CO RIG <u>C</u> M	<u></u>	SERVICE DX	SURFACE EL 1513.3
DE	PTH WLN/AHRS.	PROD	<u>_N/A</u>	<u>v</u>	vt. s	AMPLER	НАММ	ER_14	0_LBDROP_30"_(AUTO)_STARTED_1248/12-16-02
	ME MLNZAHRS.	DELAYE	ED. N/	<u>΄Α</u> γ	νт. с	ASING H		<u>N/A</u>	DROP <u>N/A</u> COMPLETED <u>1150/12-18-02</u>
	SAMPLE TYPES		AB	BRE	VIATIO	ONS			SOIL DESCRIPTION - RANGE OF PROPORTION
	A.S. AUGER SAMPLE BL C.S. CHUNK SAMPLE BR O.O. DRIVE OPEN C D.S. DENISON SAMPLE CA	BLACK BROWN COARSE CASING	N MC NOT NP	7322	IEDIUM NCACEOU NOTILED	JS STIC	5A 5A 50 51	SAMPL SATUR SAND SK T	E "UTTLE" 5-12x ATED "SOME" - 12-30x "AND - 30-50x
	P.S. PITCHER SAMPLE CL R.C. ROCK CORE CLY S.T. SLOTTED TUBE F T.O. THIN-WALLED, OPEN FRAG	CLAY CLAYEY FINE FRAGNENTS	OG ORG PH PM	000	RANGE RGANIC RESSURE RESSURE	E-HYDRAULIC	Si Y SM TR	SILTY SOME TRACE	CONSISTENCY
	I.P. THIN-WALLED, PISTON CL. W.S. WASH SAMPLE LYD U	GRAVEL LAYERED LITTLE	R RES RX	R	ED ESIOUAL OCK		WH WR Y	WEIGHT WEIGHT YELLOV	OF HANNER OF COMPACT ON PIRM OF RODS DH DENSE ST STIFF V VERY H HARD
ELEV	DESCRIPTION	BLOWS	5/			SAMPLES	loco (iii	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
				NO.	TYPE	PER 6 IN. (FORCE)	REC/A	1	
52	CLAY TILL UNIT					4		.	Stiff, gray SILTY CLAY, trace f gravel (CL)
Ē		13		11		0 7	24'	1	med. plasticity, moist.
L.	Stiff to very stiff, red-brown to gray,		7	1		9		·	
53	CLAYEY SILT to SILTY CLAY, trace fine to	\vdash	+		\square				
Ē	nedium gravel, medium plasticity, thinly					_			Stiff, gray SILTY CLAY, trace f gravel
Ē	silt and fine sand					2		-	occ. silt and v fine sand partings,
E 54		10		12		ර 7	24"	-	med. plasticity, moist. (CL)
È			1			7 9		_	
Ē						2			
E 55							1		Very Stiff Gray CLAYEY SILT to SILTY CLAY.
Ē						10		-	55'-56': frequent partings of vf Sand and Silt.
Ē						8	0.7"		JO.3: thin tens of to SAND trace im gravel, (CL)
- <u>-</u>		20		13		12	23	-	56'-57': becomes more CLAYEY SILT to SILT.
Ē						14		-	(ML-CL)
E - 57			Ē						
									Hard, gray SILTY CLAY to CLAYEY SILT,
Ē	•			·		15		-	occ. f gravel, low plasticity. (CL)
58		31	1	14		15	18"	_	
E .			Ę			16		ŀ	
E			E			22		1	Gray mc SAND and fm GRAVEL in end of spoon.
E 59		┠───┤		╉	+				
	SAND AND		I					Ŀ	Very dense, gray c—f SAND and f—m gravel trace, clayey silt, gravel sub—angular
Ē	GRAVEL UNIT		Ę			50		Ŧ	to sub-rounded, dry to moist. (GP-GM)
E 60	Dense to very dense,	>50	1 1	5	5	07.41	10"	-[
Ē	gray, coarse to fine SAND and fine to		4					Ļ	
E	(GP-GM) Very stiff oney		1					E	
Ę	SILTY CLAY to CLAYEY SILT to SILT, troce	$\overline{}$	1					\geq	
E	fine gravel, 65.7'-79' and 95.4'-97.6'	1	$\overline{\nabla}$				Χ	f	
E 62	(CL-ML) Dense to very dense,		Ĩ	\downarrow		\land		F	
Ęļ	gray, fine to medium, GRAVEL and medium to		3		\succ	$\langle $		7	
El	Coarse SAND, trace Clayey silt, wet.			X	1	\searrow		+	
E 63	/ / ->J;4: (UP)	L	4			ľ	\triangleleft	Ļ	· · · · · · · · · · · · · · · · · · ·
E		\square	1				$\left \right $	 F	
				-				¥	

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DEP DEP DEP NO. DEP TIME	TH HOLE 98 JOB TH SOIL DRILL 98' GA TH ROCK CORE N/A WEA DIST. N/A US. N/A TH WL. N/A HRS E WL. N/A HRS	NO. 02. INSP ITHER_C JP45 J. PROD. J. DELAY	<u>3-934</u> <u>GC</u> <u>LOUDY</u> <u>F</u> <u>N/A</u> ED_N/	<u>)</u> PR DR DR DR WT <u>A_</u> WT	IDJECT CHA ILLING MET ILLING CO ILL RIG <u>C</u> SAMPLER CASING F	HOD 4. SJB S ME 55(HAMM 1AMMEF	<u>LANDFILL_WELL_INST&_DE</u> .25"_ID_HSA <u>SERVICES_INC.</u> 0X DRILLER_D.M. ER_140_LB. DROP_30"_(A R_N/ADROPN/A	COMM. BORING NO. MW-10i SHEET 8_OF_8 SURFACE EL. 1513.3 DATUM N/A JUTO) STARTED 1248/12-16-01 COMPLETED 1150/12-18-01
SA A.S. D.O D.S P.S.S. S.T. T.D T.P W.S	AMPLE TYPES AUGER SAMPLE BR CHUNK SAMPLE BR DRIVE OPDN C DENISON SAMPLE CA PITCHER SAMPLE CA STITUTUTIES CONTROL C	BLACK BROWN COARSE CASING CLAY FINE FRACMENTS CRAVEL LAYERED UTTLE	ABB	REVIA MEDI MON- ORAC PREJ RESI ROCI	ATIONS	SA SAT SAT SIY SIY WH WH WH WH	SOIL DESCRIPTIO	N - RANGE OF PROPORTION "TRACE" - 0-5x "SOME - 12-12x "SOME - 12-30x "SOMS - 15-50x CONSISTENCY LOOSE S SOFT COMPACT PM HAND VERY H HAND
ELEV. DEPTH	DESCRIPTION	BLOWS FT.	\$/	NO. T	SAMPLES TPE HAMM. BLOWS PER 6 IN. (FORCE)	REC/A	T DEPTH SAMPLE DESC	RIPTION AND BORING NOTES
88	SAND AND GRAVEL UNIT Dense to very dense, gray, coarse to fine SAND and fine to medium GRAVEL (GP-GM) Very stiff, gray, SILTY CLAY to CLAYEY SILT to SILT, trace	48	· · · · · · · · · · · · · · · · · · ·	22	17 23 25 29	13"	Dense, gray f-c GR/ clayey silt, high & f gravel matr (hard drilling - c	AVEL, some m-c sand, trace percent of gravel in a sand rix, wet. (GP gravelly)
91	fine gravel. 65.7'-79' and 95.4'-97.6' (CL-ML) Dense to very dense, gray, fine to medium, GRAVEL and medium to coarse SAND, trace clayey silt, wet. 79'-95.4' (GP)	61		23	36 33 31 30	ο	(slop in spoon88'-90	looks similar to ' interval)
- 93		35	111112 11112	4	32 16 19 18	10"	Dense, gray m—f GR trace, clayey silt	AVEL and c SAND, , wet. (GP)
· 95		31	2	5	11 15 16 12	15"	Dense, gray f-m GRA - @95.4': Gray Clayey S low plasticity, slov	VEL, some m—c—f sand, (GP Silt little, fm(—) Gravel v dilatancy. (ML)
97		25		;	7 9 16 19	21"	Very stiff, SILTY CLAY, low plasticity 097.6': Gray m-c SAI wet	little, f-m gravel, (CL) ND, little f-m gravel, (SP)
98	END OF BORING						SET WELL @95.5'	per MARY MCINTOSH





		TO THEE MOTAE	LATION DIAGRA		
ob No.: 023-9340	Project: Chaff	ee Landfill Well Inst.	Well No.: MW-11R	Sheet 1	of 1
GA Insp.: GOC	Drilling Metho	d: 4.25" I.D. H.S.A.	Ground Elev.: 1513.9	Water Dep	oth: N/A
Veather: CLOUDY	Drilling Compa	any: SJB Services	Riser Elev.: 1516.31	Date: 12/1	9/02
emp: 45º F	Drill Rig: CME	550X	Time Started: 1525	Time Corr	pleted: 1630
Anodized Alun	inum	CapMor	nitoring Point (well stickup	= 2.41')	
8 Inch Diamete Protective Cas	er Locking ing	Drain Hole	Ground	l Surface)
Concrete Surfa 36 Inch Diame	ice Seal er		~4.0 Feet thick		
Fine Grained C	hoker Sand		0.5 Foot thick		
Bentonite Seal	<u> </u>		3.0 Feet thick		
Fine Grained C	hoker Sand		0.5 Foot thick		
Schedule 40 P	/C		2.35 Feet		
2" Riser Pipe	-		.15 Feet		
2-Inch Diamete	r Schedule 40	E			
PVC Continuou	is Wire Wrap	E E			
.006 Slot Scree	n	E	0 111 145	- ·	
Morie # 00 San	d		Screened Interval: 4.5	Feet	
	End Cap		0.5 Feet		
			0.5 Feet		
		~8-Inch " Borehole			
otal depth of soil borir	ng: 15.5' b.g.s.	Thickness of san	dpack: 7.5'	Nell Bottor	n: 15' b.g.s.
Golder Associates Inc Buffalo, N.Y.	CHAFF		MW-11R Mon Cla	nitoring W y Till Unit	ell Detail
lob No. 023 0340		EE, NEW TURK	Drawn by: A.IN	Checked by: NKW	Date: 2/6/2003



eal	Dale M.	Gramza,	/Geologist

			• *
EARTH DIMENSIONS, INC.			
Soil Investigations and Monitoring Well Instaudt	655-171	7	
1091 Jamison Road • Elilia, 112 SURF. E	_V		
ONITORING WELL 500 feet	west of	MW	#10-88
Monitoring Well Installation			
Adjacent parcel to CID Incr,	3/91	COMPL	ETED <u>1/15/91</u>
CLIENT CID LANDFILL, INC. DATE STARTED			
TOWN OF SARDINIA, NEW TOTAL	WELL	w	ATER TABLE & REMARKS
DEPTH CO SAMPLER DESCRIPTION & CLASSIFICATION			66.5 feet over apparent
1113 Moist to extremely moist gray silty			loamy glacial till to 67 5 feet over water
5 12 clay loam (CLAYEI-SINI), ury			sorted and deposited
9 stiff, thinly laminated with very			sand and graver with
12 A Shelby thin coarse silt lenses to20.0			feet over water sorted
Extremely moist to wet gray silly of Extremely moist to wet gray silly of the standard standa			with trace to little
1.1' REC loam (CLAYEI-SINI), some clay, stiff			silt to 74.0 feet over
25 10 thinly laminated with very lim course			posited sand and gravel
12 silt lenses			with trace silt to
14 3 Wet gray silt loam (SILT) with compact, soil			sorted and deposited
6 12 \ very fille since to liquefy when dis-			sand and gravel with
			feet over water sorted
			and deposited sand will
8		ort	feet over coarse silty
30 1614 10	ay o	й	lake sediment to end
7 16 Extremely moist to with <2% fine size	e dia	ite	01
gravel, some clay, stiff to very sti	se H	ton	
17.6 thinly laminated and one wet gray silt lenses, noticed one wet gray	Ris	pen	Water level at
gravelly sandy loam (SILTY-SALD) feet	ې ۲	int	13.2 feet below ground
105 between 39.0 to or a		(eme	surface at 8:30 a.m.
$\frac{18}{35}$ $\frac{14}{14}$ $\frac{29}{29}$			at 30.0 feet.
	39.1 ×	1	
196 is to use olive gray s	ilt		
Extremely moist to wet our toward si	ilt		
loam (SILT) with (2% fine size gravely loam (SILT) with (2% fine size gravely loam 40.0			
14 14 feet, weakly thinly laminated			
	() IL V	VT. FA	LLING 30 " PER BLOW.
	<u> </u>		2 OF <u>5</u>
N = NUMBER OF BLOOM AND	S	HEET	· · · · · · · · · · · · · · · · · · ·
LOGGED BY			

	Soil Investigations and Monitoring Well Installa	tions 6) 655	-1717
MONITORING WELL	1091 jamison Road • Eima, 101 14099 • (7)	ELV	
HOLE NO. <u>HER SI CO</u>	Installation LOCATION 500 feet	west	t of MW #10-88
Adjacent parcel 2A79x Hand Road	to CID Inc.,		· · · · · · · · · · · · · · · · · · ·
CLIENT CID LANDFILL, I	DATE STARTED	91	COMPLETED1/15/91
TOWN OF SARDINI	A, NEW YORK		
DEPTH LO SAMPLER	DESCRIPTION & CLASSIFICATION	WELL	WATER TABLE & REMARKS
	Extremely moist to wet olive gray silt		
20 43	loam (CLAYEY-SILT) tending toward silt		
	very stiff becoming hard below 40.0		
22 8	feet, weakly thinly laminated 42.0		
	Extremely moist gray silt loam (CLAY-		
33	EY-SILT), hard, thinly laminated	4	<u> </u>
45 27 70	with very thin coarse sitt fances 45.0		
43 /0	· · ·		ວັ ຢ
2412	Extremely moist to wet gray gravelly	+	
9 20	sandy loam (SILTY-SAND) with 20 to		
	shale gravel, very fine to coarse size	did	
25 5	sand, little silt, very dense to	L L	
	tified	Ris	
50 13		Ş	
	52.0		
27 8		5	
	Extremely moist to wet gray silt loam		
	(SILT) tending toward silt loam (CLAY-		
	hard and very stiff, thinly lamin-	1	
20 8	ated		Water level at 49.8 feet below ground su
			face at 8:30 a.m. w.
			6-5/8 inch augers an
30 8			
60 23			

		Soil Investigations an	d Monitoring Well Installd	tions		
MONT	TORING WELL	1091 Jamison Road	• Elma, NY 14059 • (71	(6) 655-1	.717	
HOLE	NO. <u>12A-91</u> continu	led	SURF.	ELV		
PROJE	CT Monitoring Wel	l Installation	LOCATION 500 feet	west	of MW #10-8	8
2A79	X Hand Road	er to CID Inc.,	·····			
CLIEN	CID LANDFILL,	INC.	DATE STARTED	91	_ COMPLETED	1/15/91
	TOWN OF SARDIN	IIA, NEW YORK			1	
DEPTH FEET	SAMPLER	DESCRIPTION & CLAS	SIFICATION	WELL	WATER TAB	LE & REMARKS
		(SILT) tending towar	rd silt loam (CLAY-		(1) 2"	I.D. PVC Scree
	15 20	EY-SILT) with 1 to 3	3% fine size gravel		(2) 550	b SLOT fine size sau
	32 6 17	hard and very stiff,	, thinly lamin-		(2) 550	
	12 24	clear transi	ition to $ \frac{61.5}{2}$		*3" spl	it spoon with
		Wet gray sandy loam	(SILTY-SAND) with		for ver	: inner tube rtical K value
	312	\ very fine to fine si	ize sand, little		g tot vo	
. 6	5 14 26	liquefy when disturt	ed, thinly bedded		0	
,	12 20	with occasional thir	1/16 to 1/8 inch		ui tu	
	B4 9 14	thick (CLAYEY-SILT)	lenses 62.5		to	
	15 41	SILT) with 1 to 3% n	postly fine size	T	Den	
`	26 41	' subrounded gravel, 1	ittle clay, very		ET .	
	85 6 21	\ stiff, thinly lamina	ated with very thin		nen	
	12 22	Coarse silt lenses	rand to		9	
_		Extremely moist oliv	ve gray silt loam	8		
/	3628	(SANDY-SILT) with 1	to 3% mostly fine	id	70.7	
	18 36	Size subangular grav	er, little very	l ser		
	18	i ed	66.5	Ris		
	37 7	Extremely moist oliv	e gray gravelly	S S		
	9 19	I TOAM (SAND-SILT-CLAY) WITH 15 to 25%		[ea	
	10 12	With very fine size	sand, trace to	D	ž	
	38 8	1 llittle clay, hard, m	assive soil	ton"	let	
	5 8 20	1 L clear transi	tion to $ \frac{67.5}{100}$	Sen 2		
	12	1 Extremely moist to w	et faintly mottled		<u>-7/5.</u> 5	
	3910	gray gravelly sandy	loam (SILTY-SAND)		<u>. // 8.</u> 0	
	13 28	with 20 to 40% mostly	erv fine to medium		g	
<u></u>	15 20	size sand, little si	lt, dense in place,		<u>kg77.5</u>	
	4011	loose when disturbed	, stratified 68.0		e S	
	12 * 28	' grades downwa	ard to $$	(1)	R	
80	16 27	See next shee	et.		- ₩	
		ר וי	140		.	
N =	NUMBER OF BLOWS TO DR	WE " SPOON	" WITH40I	b. WT. FA	LLING SU	" PER BLOW.
eal	GGED BY Dale M. Gra	mza/Geologist		SHEET	0	:

				\leq		Soil Investigations a 1091 Jamison Road	• Elma, NY 140	¼ Installa 59 ● (71	<i>tions</i> 6) 655	5-1717		
	MONIT	ORING	WELL -91 c	_ ontinu	led	207 2 January 100 - 100		SURF. E	LV			
	HULEN	. Mon	itori	— ng Wel	l İ	nstallation	LOCATION	00 feet	wes	t of	MW #1	0-88
	2A79x	Ad	acent	parco	el t	O CID Inc.						
	CLIENT			FILL,	INC		DATE STARTED	1/8/91	<u> </u>	co	MPLETED .	1/15/91
	DEPTH FEET	NO.	BLOWS	SARDII S ON LER		DESCRIPTION & CLA	SSIFICATION		WEL	L	WATER T	ABLE & REMARK
			8	22		Wet gray very grave (SILTY-SAND) with angular to subround to coarse size sand pact to dense in p.	elly sandy loa 40 to 60% most ded gravel, ve d, little silt lace, loose wh	m ly sub ry fin , com- en dis	en .006 _{slot}			
	85	43 7	9 12 12 14 3 13	21 15 26 21 21		<pre>turbed, stratified L = grades down Wet gray sandy load Very fine to coars to little silt, cod when disturbed, th L = clear trans Wet gray gravelly with 20 to 40% mos</pre>	nward to n (SILTY-SAND) e size sand, t mpact in place inly bedded sition to loamy sand (SA tly subrounded	72.5 with race , loos 74.0 ND) grave	2.0" I.D. PVC Scre	#1 size asand	7.5	
-	90					with very fine to o trace silt, compac- when disturbed, st grades down Wet gray gravelly s SAND) with 20 to 40 to subrounded grave coarse size sand, in place loose who	coarse size sa t in place, lo ratified wnward to sandy loam (SI 0% mostly suba el, very fine little silt, c en disturbed.s	nd, ose <u>82.</u> 0 LTY- ngular to compact		8	8.0	
	95					Wet gray very fine with trace silt, co liquefies when dist ed L = grades down	sition to loamy sand (S ompact, readil turbed, thinly nward to	_ <u>85.</u> 0 AND) y bedd- _86.5				
						Wet gray silt loam very fine size sand tends to liquefy w thinly bedded with inch thick (CLAYEY-	(SILT) with t d, compact in hen disturbed, thin 1/16 to -SILT) lenses	race place, 1/8 88.0				
			+		}	Boring completed at	: 88.0 feet.					
]	:						đ

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eal_OGGED BY Dale M. Gramza/Geologist _____ SHEET _5 ____ OF _5

MONITO HOLE NO. PROJECT 2A79x	RIN			アン		/			(CEE 1	717
HOLE NO. PROJECT 2A79x	- 1	GV	VEL	Т				1091 Jamison Road • Elma, NY 14059 • (71	0)0		
PROJECT 2A79x		2B-	-91		_			SURF. E	LV.		- 5) 51 #10 99
2A79x	M	bni	ito	ri	ng	We]	1] 1	nstallation, LOCATION 500 fee	<u>t v</u>	vest	OF MW #10-00,
	P F			loa	d d	e		6.0 fee	ts	sout	IN OI MW #12A-91
CLIENT		ID	LA		FII	L,	IN	DATE STARTED	<u>91</u>		_COMPLETED
	י יי		BLO	ws	ON						WATED TABLE & REMARKS
DEPTH FEET	a si	0 1	SAN 5	IPL	ER 18/1			DESCRIPTION & CLASSIFICATION	N	للنظ	WATER TABLE & REMAINS
	$\frac{3}{1}$	<u> </u>	<u>^12</u>	18	/24			Extremely moist faintly mottled olive			Coarse silty soil fi
ŀ		_	5			10		brown silt loam (SANDY-SILT) fill with			1.1 with trace gravel,
	_	_	_	5				5 to 10% subrounded gravel, little	l a		over water sorted and
	2	5		_	4			Very fine to near transition to $ 2.5$	н Ж	_ .	deposited sand with
	-	-	3			7.		Wet brown sandy loam (SILTY-SAND)	Ris Bi	2	little to some silt
				4		Ĺ		with fine to medium size sand, little	ß		4.1 sorted and deposited
	2	-		-	5			to some silt, loose, tilling bedded		3	4.6 sand with little gra
5	5	-	6			117		$-$ grades downward to $\frac{8.5}{2}$	F		trace silt to 9.3 fe
				6		12					over coarse silty la
					110		j	Wet gray sandy loam (SILTY-SAND) with	B		sand to 9.7 feet ove
	4	2	6	-		1,2	1	medium to coarse size sand, trace	١۶		silty lake sediment
				6		112	1	silt, compact, thinly bedded	L H	g	end of boring.
	1			ļ	7		/	9.3	2	S:	Drilled with 6-5/8 i
	5	3	5				/	Moist to extremely moist brown silt	₩	₽	hollow stem auger.
				6			r	loam (SANDY-SILT) tending towards	2		<u>9.7</u>
10			ļ		7		N.	silt loam (SILT) with 5 to 10% fine			10.3 grout
		-		$\left - \right $	┼		Λ	size sand compact, weakly thinly			(2) Bentonite pelle
							111	bedded Q 7	ļ		seal
				<u> </u>	<u> </u>			- clear transition to			(3) 550 size sand
			-	┼─		+		Moist gray silt loam (CLAYEY-SILT) with			
							\	stiff. thinly laminated 10.0			
				[ł	Augered to 10.3 feet 10.3			
15			-	╂				Barring completed at 10 3 feet			Water level at 4.6 f
		<u> </u>						BOTHING CONDITIONED AT 10.5 TEEL.			below ground surface
					<u> </u>						at 9:00 a.m., 1/8/91
	ļ			┼──		┼──					* Advanced augers 0.
		+		1			1	· · ·			feet without samplin
<u> </u>				\Box							
			 	╀─	╞				1		
			\vdash	┼──	+	+		۰. بر این افغان ا			
20				<u> </u>		Γ			<u> </u>		
						=		2 12 140	16	\ <i>\\</i> 7	ALLING 30 - "PER BLOW








				F	IEL	D BOF	RING	a log	
DEPTI DEPTI DEPTI NO. I DEPTI TIME	H HOLE <u>99'</u> JOB N H SOIL DRILL <u>99'</u> GA INS H ROCK CORE <u>N/A</u> WEATH DIST. <u>N/A</u> US. <u>N/A</u> TEMP. H WL. <u>N/A</u> HRS. F WL. <u>N'A</u> HRS. F	0. 023- SP. G ER_CLC 20_F PROD DELAYED	-9340 OC OUDY - N/A	PR DR DR DR WT	ROJE RILLII RILLI RILL RILL	CT CHAFF NG METHO NG CO. <u>S</u> RIG <u>CME</u> AMPLER H ASING HAI	EE_L D_4.2 JB_SE _850 AMMEI MMER_	ANDFILL_WELL_INST&_DECO 25" ID_HSA RVICES,_INC. DRILLER_D_MATT R_140_LB. DROP_30"_(AUT N/ADROPN/A	MM. BORING NO. MW-13R SHEET 5_0F_9 SURFACE EL. 1491.5 HIES DATUM N/A O) STARTED 1500/12-5-02 COMPLETED 1445/12-9-02
SAI AS. CS. O.S. P.C. ST. T.P. W.S.	MPLE TYPES AUGGR SAMPLE BR BU DRIVE OPAN C C C PENISON SAMPLE CA C C PTOLER SAMPLE CA SAOTED TWEE SAOTED TWEE THINT-WALLED, OPEN FRAG FF THINT-WALLED, PISTON C, O WASH SAMPLE UTO U	LACK ROWN DARSE ASING LAY NE RACHLENTS RAVEL LYTERED TTLE	ABBR MIC NOT NP ORC PH R RES RX	REVI NEC. NOT NOT NOT NOT NOT NOT NOT NOT	A TIC ACEOU I-PLA NGE SANIC SSURE SSURE SSURE	DNS IS STIC 	SAT SAT SD SD SM TRL WH WH WH Y	SOIL DESCRIPTION	
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	1	NO.	MPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH SAMPLE DESCRIF	PTION AND BORING NOTES
- - - - - - - - - - - - - - - - - - -	CLAY TILL UNIT								
50	gray, SILIY CLAY to CLAYEY SILT, trace to some fine to medium gravel, gravel sub-rounded, medium to iow plasticity, thinly iaminated, (CL) (CL-ML), occassional SILT layers (ML).	20		10		9 9 11 13	0	Sampler may have pu gravel — sampler (no recover	shed a piece of coarse basket intact y)
51									
55		11	mummum	11		WH 4 7 22	18"	Stiff, gray, CLAYEY S - trace f, gravel, th slow dilatancy. (hit piece of coars	ILT to SILTY CLAY, inly laminated, wet, (ML-C se Gravel @55.5')
57		14		12		4 6 8 13	15"	Stiff, SILTY CLAY to (some f-c sand, li - med. dilatancy, la saturated. Gravel sub-rounde	ttle f-m gravel, minae disturbed, d to sub-angular. (CL)
59	transition	24		13		5 14 10 14	24"	Very stiff, gray, CLAM interbedded parting occ. thin layers of looks disturbed, fa interbedded silts & f m gravel medf	I SILI, gs of fine sand and silt med f sand, saturated int laminae in silt & clay, fine sand little ast dilatancy (ML



Golder Associates



				FIELD B	ORIN	G LO	G	
DE	PTH HOLE JOB	NO. 023	3-9340	. PROJECT <u>C</u> H	AFFEE_	LANDFIL	L_WELL_INST&_DECOMM BORING NOMW-	<u>-13R</u>
	PTH SOIL DRILL <u>99</u> GA PTH ROCK CORE N/A WEA	INSP THER CL	<u>GOC</u>	DRILLING ME	THOD <u>4</u> SUB S	25"_ID	_HSASHEET_SHEET_	
NO	DIST. <u>N/A</u> US. <u>N/A</u> TEM	P. <u>20</u>	_F	DRILL RIG	CME_850)	DRILLER_D_MATTHES_DATUM_N/A	1.5
DE	PTH WL. <u>N/A</u> HRS	. PROD	N/A	WT. SAMPLE	R HAMM	ER <u>140</u>	LB. DROP 30"_(AUTO) STARTED 1500/12-5	5-02
TIM	IE WL. <u>N'A</u> HRS	. DELAYE	D <u>N/A</u>	WT. CASING	HAMMER	<u> N/A</u>	DROP_N/ACOMPLETED 1445/12	2-9-02
	SAMPLE TYPES		ABBRE	EVIATIONS			SOIL DESCRIPTION - RANGE OF PROPORTI	ION
C C C C C C C C C C C C C C C C C C C	LS. ALIGER SAUPLE EL LS. OFWIK SAMPLE ER LS. DENISON SAMPLE CA LS. DENISON SAMPLE CA S. PITCHER SAMPLE CA C. ROCK CORE C. C. NOCK CORE C. C. NOCK CORE C. S. DITCHENALED, OFEN FRAG P. THIN-WALED, PISTON G. LS. WASH SAMPLE LYO U	BLACK BROWN COARSE CASING CLAY FINE FINE FRAGMENTS GRAVEL LAYERED LITTLE	M MC NP ORG PH PM R RES RX	MEDIUN MICACEOUS NOTTLED NON-PLASTIC ORGANIC PRESSURE-HYDRAUL PRESSURE-HYDRAUL RESIDUAL RESIDUAL ROCK	SA SA SI SI SI SI SI SI SI SI SI SI SI SI SI	SAMPLE T SATURAJ SAN SILT SULTY SOME TRACE WATER L WEIGHT (YELLOW	ТРАСЕ – 0-5х "UTTLE" – 5-127 5002 – 12-207 АND – 30-307 CONSISTENCY EVEL LS LOOSE S SOFT OF HANNER CP COMPACT FN PRM OF ROOS DN DENSE ST STIFF V VERY H HARD	
ELEV DEPT	DESCRIPTION	BLOWS FT.		SAMPLE O. TYPE HAMM. BLO PER 6 IN. (FORCE)	S WS REC/A	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES	
Ē			11			\vdash		
F	SAND AND		-	\geq		-		
Ē	GRAVEL UNIT		11	11	\rightarrow	\downarrow		
- 85 -							85'—85.8': Very stiff, gray, SILTY CLAY to CI	LAYEY
È	Dense to very dense,		1 3				SiLT, thinly bedded, saturated,	
Ē	SAND and fine to						85.8'-86.6': Gray, CLAYEY SILT to SILTY CLA	<u>(CE)</u> Y,
- 86	(GP-GM) to dense,	24	-19		24"	·	v. stiff, thinly bedded, no dilatancy,	
E	gray, f-m-c SAND, little f-m gravel (SP),			13			med. pldsticity, moist.	
Ē	Very stiff, gray, SILTY CLAY to CLAYEY			36			86.6'-87': Gray, CLAYEY SILT, trace f-m Gra	ıvel
E 97	SILT to SILT, trace						med. diatancy, low plasticity, suturated.	(ML)
Ē	glaciolacustrine.						87'-87.5': Very stiff, gray, CLAYEY SILT,	
Ē	(CL-ML)		E	11			slow dilatancy, saturated	(ML)
E				20		[87.5'-89': Gray f-m GRAVEL, some m-c san	id,
F 88		>50		62/6	5 14"	4	trace clayey siit, saturatea.	(GP)
F] [
F						7		
E 89								
Ē			Ĩ				<u>89-89.5:</u> Stiff, gray, CLAYLY SILI, trace f-r GRAVEL, thinly laminated, wet. (CL	n ML)
F			1	16				
E		4.		19	10"		GRAVEL, prob. occ. c gravel with occ. laye	er
E		41]2'	22	19		gray, saturated, silt & clay	
Ē			1	23		└──┟	Gravel sub-angular (SP-	-GP)
E I			1			ļ		
E 91			-1-	 				
ΕI			1			1 . T	Dense, gray f-mc SAND,	
Ē			1			1	some f-m gravel, saturated Gravel sub-angular	(SP)
92		37	1 ₂₂		17"			
E			1	20		F	· · ·	
E			-	22				
E			1			\vdash		-+
E 3			-			t-		
F			Ŧ	20		⊢	Very hard, f SAND, occ. f-m gravel	
Εĺ			1	22			quick dilatancy, saturated (SP)
E 94		65	- 23	20	17"	+		-+
Εl			1	10		E		
Εl				47		1-		
È 95			-1-1		+			
El			11	16		Ľ	ery dense, gray, SiLT and fine SAND, quick dilatancy, saturated (M	
Εl		84	724	40	14"	-1-		
E 96	· · · · · · · · · · · · · · · · · · ·		1	39				
				•				

Golder Associates

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SAM AS CS OCS PCS ST TO TP WS	N/A_US. N/A_TE H M/A_HR H M/A_HR ML. N'A_HR MIL. N'A_HR MILE N'A_HR MILE BL ORIVER SAMPLE BL ORIVER SAMPLE CL ORIVER SAMPLE CL ORIVER SAMPLE CL MOM.CORE CL MOM.CORE CL MARN.SAMPLE CL MASH SAMPLE CL VASH SAMPLE CL WASH SAMPLE UN	BLACK MP S. PROL S. DELA BROWN BROWN CANNE CANNE CANE CANE CANE CANE CANE C	GOC CLOUI 20_F YED_N YED_N AI		DRIL DRIL DRIL WT. WT. WT. WT. WIAT WIGACEE REGANG WIAT RESSUI ESIDUA COL	LING METI LING CO L RIG <u>CM</u> SAMPLER CASING H IONS Destic Castro Castr	HOD_4 SJB_S HAMM AMMER AMMER	Services, inc. Sheet 9_0F_9 Deriver Services, inc. Surface EL. 1491.5 D Driller Datum Variation Started 1500/12-5-02 R N/A DROP 30"_(AUTO) Statutated Started 1140-15 Solil DESCRIPTION RANGE OF PROPORTION Save Solil 20-533 Solid Statuto Solid Save CONSISTENCY Water LS CONS V VERY H
ELEV. DEPTH	DESCRIPTION SAND AND GRAVEL UNIT Dense to very dense,	BLOI F	NS/ T.	NO.	TYPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
98	gray, coarse to fine SAND and fine to medium GRAVEL (GP-GM) to dense, gray, f-m-c SAND, little f-m gravel (SP), Very stiff, gray, SILTY CLAY to CLAYEY SILT to SILT, trace fine gravel, glaciolacustrine. (CL-ML)	>5	0	25	E	20 50/0.4	24"	(GM) Very dense, fm GRAVEL, some clayey silt, trace f sand, (ML-GM) Gravel angular to sub-angular in a Clayey Silt matrix saturated, dilatancy very slow to none.
	END OF BORING							



TE: ARTED <u>11/6/95</u> NISHED <u>11/8/96</u> SHEET <u>1</u> OF <u>3</u>	SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. <u>MW-148</u> SURF. ELEV <u>1500.01</u> G.W. DEPTH <u>See Notes</u>
PROJECT: CID-Replacemen	t Well LOCATION: CID- Chaffee	Landfill
PROJ. NO.: D- 867		
DEPTH SMPL BLOWS ON SAMPLER		NOTES
	L 1 Si Ero & Gray Clayey SILT little (-c Sand tr wood	/
	tr. gravel (moist, FILL)	-
	1 0.2	Poor Rec. sample =2
		_
3 1 2 3	0.6	
4 3 8 24	1.11 Contains tr. boulder fragments, tr. organics	-
/ 16 26		1 -
	1.01 Brn. f-c SAND, little- some Silt, tr. gravel, tr. boulder	-
	I fragments (moist, FILL)	Barchad H2O speculator
		@ 12' = 14' space
	1 5 Orange - Bro Clavey Sil T tr - little f-m Sand tr gravel	-
	(moist medium, ML)	-
	1 1.11 Becomes brn., contains tr. sand	-
		_
9; 5! 8! 16	<u>: 0.0;</u>	No Rec. sample#9
8 10		
1/1 10 XI 41 5	1.1.1 Ern. – Gray Silty CLAY, tr. sand, tr. gravel	X - dropped rods first t 2
_ 10 51 9	(moist medium, CL)	·
$-\frac{11}{2}$)· 1.4	-
	· · · · ·	-
19 7 3 6		_
· · · · · · · · · · · · · · · · · · ·		
- <u>5</u> 5 10	2.0 Becomes signtly laminated i contains numerous a 1	
<u> </u>	bartings and seams	
·= · · · · · · · · · · · · · · · · · ·		
<u> </u>		-
	7 2.5	
. <u>1 E</u>		Shale ool derruik
35 22		ataporox 37 5 - 3c
11 3 5 1	5 1.3 Err Clayey SILT in sand it grave impist medium Mul	,
÷: ÷ · · ·		:
N = NO BLOWS TO DRIV	ZE 2' SPOON 12' WITH A 140 LE. FIN WIT FALLING BO' PER ELOW	
DBILLER: K. Fuller	DRILL RIG TYPE : CME-85	VISUAL BY GEOLUGIS
METHOD OF INVESTIGATION A	STM D-1526 USING HOLLOW STEM AUGERS	

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ATE: TARTED INISHED SHEET	<u>11/6/96</u> 11/3/96 _2_OF <u>3</u>	-	SJB SERVICES, INC.	HOLE NO. <u>MW-14R</u> SURF. ELEV <u>1500.01</u> G.W. DEPTH <u>See Notes</u>
PROJECT	: CID Replacen	nent Well	LOCATION: Chaffee Landf	
PROJ. NO	D.: <u>D- 857</u>	<u></u>	· · · · · · · · · · · · · · · · · · ·	
01274 1	MEL BLOWS CH SAM	ALEA IREC.	SOIL OR ROCK	NOTES
-	$\frac{NG}{GI} = \frac{GI}{GI} = GI$	<u>i n (FT.) </u>	CLASSIFICATION	
-/-	7 9			
1/-	22 5 7	18 1.0	(stift)	-
1/1	11 18		Containe l'Ale fois Constituels fois Constitue to the	
45 /	23 3; 4		Contains lidie F–c Sand, lidie F–c Gravel, tr. boulder fragments (medium)	
17	24. 7 7	181 1.4	Grades to gray – brn., contains tr. – little f – c Sand	0.2' Sand and Gravel lenses
	11 17		tr. gravel (stiff)	noted @ approx. 47.0"
- / -	25 2 5		(ກາຍປາມເກ)	-
50	25 4 7	17 1.7	(stifi)	· _
	10 10			
_/-	271 5 10	24 1.5		-
-/	23 2 3	10 1.3	(medium)	-
· · / -	7 10	1 1		-
	29 8 14	23; 2.0	(hard)	-
58-1-	14:20		Fin - Gravit-c SAND, some- and Silit tripravel to clav	
· _ / -	11:11	1	(moist, firm, SM+SC)	
	3: 2 4	: 12 : 1.4	Olive - Brn. Clayey SILT, little file Sand, tr. grave	
	E 13	27 . 2	(moist, med.um, Mu) Kostri	-
	<u></u>			
	<u>az a e</u>	<u>+2 +3</u>	Contains little fill o Gravel (medium)	
	5 · · ·			
	<u> </u>			
	25 0 2	<u> </u>		Poor Rep sample mic
	13 27			_ cue to poulders
	<u>36 2 4</u> = =	-2 - 2	ioray - Error - ordinevel and the band state bit. I wat firm IGM	
		5E 1.1	Conterna oppasional Diavey Silt Seama trianale	
•			ver nombels	
	· · · · · · · · · · · · · · · · · · ·		Contains Miel IIIe Bin Iompach Bille BM	
•			Grav S LT trisand tridnave iccoastona cou ce	
-	<u> </u>		fragments (wet, very compact, ML,	_
		23 .2	Gray find GRAVEL and find Sand, trim little Svt. obcasion	el "Running Grave I
<u> </u>	<u></u>		Shi dearta (wel, Eff), GM)	
•. =	NO ELONG TO	DRIVE 21	SPODN 12' WITH A 147 LE PIN WT. FALLING SC' FER ELOW	CLASSIFICATION
DAL	LER. K. Fuller		DRILL RIG TYPE : CME-65	VISUAL BY GEOLOGIET
METI	HOD OF INVESTIGATIC	N ASTMD-1	525 USING HOLLOW STEM AUGERS	
	·····			
				Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.

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ATE: STARTED <u>11/6/96</u> ANISHED <u>11/3/95</u>	SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. <u>MW-14R</u> SURF. ELEV <u>1560.6</u>
SHEET 3 OF 3		G.W. DEPTH See Note
PROJECT: <u>CID Replacement V</u>	Vell LOCATION: CID Chaffee	Landfill
PROJ. NO.: <u>D- ε67</u>	<u> </u>	
CEPTH SWPL BLOWS CH SAMPLER	REC.: SOIL OR ROCK (FT.) CLASSIFICATION	NOTES
	1.01 Gray f - c SAND, some f - c Gravel, tr little silt (wet, firm, SW - SM)	
	1.7 (compact)	Contains occasional fine Gravel Lenses
	1.51 Gray f = m SAND, tr. = little silt, tr. gravel, contains occ.	
$\frac{1}{1} \frac{1}{1} \frac{1}$	1.2 Gray f - c SAND, tr little silt, tr little f - c gravel	_
	i 1.0 Gray f - c GRAVEL and f - c Sand, tr little silt (wet,	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		
	1.6	
		 2" PVC Monitoring We
		installed at completion. Refer to instaliation log
	· · · · · · · · · · · · · · · · · · ·	
2		
-		
-		
-		
· <u> </u>		
_ · · · · ·		
N = NO ELOWS TO DRIVE DRILLER: <u>K. Fuller</u>	E 2' SPOON 12' WITH A 140 LE. PIN WT. FALLING 30' PEP BLOW DRILL RIG TYPE : <u>CME-85</u>	VISUAL BY GEOLOGIE
METHOD OF INVESTIGATION AS	TM D-1586 USING HOLLOW STEM AUGERS	

COMPLETION	IG WELL NRECORD	G
Vell Number: <u>MW- 14P</u> Project: <u>CID Replacement Well</u> Project Number: <u>D-867</u> Priller: <u>K. Fuller</u>	Drilling Method: <u>ASTM D1586 Using</u> Geologist: <u>F. Minnolera</u> Installation Date(s): <u>November 8, 1</u> November 11.	ollow Stem Au 996/
GROUND ELEV. 1500.01	 Elevations/Top of Surface Casing: Stick-Up/Top of Surface Casing: Elevation/Top of Riser Pipe: Stick-Up/Top of Riser Pipe: Type of Surface Seal: Concrete Pad (3'X3') 	
	 I.D. of Surface Casing: <u>4" Square</u> Type of Surface Casing: <u>Lockable Galvanized</u> Type of Backfill: <u>Cement/Bentonite Gr</u> Borehole Diameter: <u>+/- 10"</u> I.D. of Riser Pipe: <u>2.0</u> Type of Riser Pipe: <u>PVC- Flush Spint</u> Decified Seal: <u>Type of Seal</u>: <u>Type of Seal</u> 	 cout
Actica come and active Filtren and a solution and active Filtren and active Backward and active Backward and active Seal and a solution and a	Desth of Sand Pack: Desth of Sand Pack: Desth Top of Screen: Type of Screen: <u>PVC - Continuous Sint</u> Sfot Size x Length: <u>.010 x 10.01</u> .D of Screen: <u>0.15</u> Type of Sand Pack:	
	Depth Bottom of Screen: Depth Bottom of Sand Pack: Type of Backfill Below Observation Well: Morie 'O' Filter Sand	<u> </u>
	Elevation/Depth of Hole:	94.0





Golder Associates

		- 023-934					WELL_INST&_DECOMM.	BORING NO. MW-24AR
DEPTH DEPTH DEPTH NO. DI DEPTH	I HOLE <u>94</u> JOB N I SOIL DRILL <u>94'</u> GA IN I ROCK CORE <u>N/A</u> WEATI IST. <u>N/A</u> US. <u>N/A</u> TEMP. I WL. <u>N/A</u> HRS. WI. <u>N/A</u> HRS.	IO. 023-934 SP. GC HER N/A N/A PROD. N/A DELAYED N/		RILLING METHOR RILLING CO. <u>S</u> RILL RIG <u>CME</u> SAMPLER F C CASING HA	<u>JB_SE</u> <u>JB_SE</u> <u>850</u> AMMER_	5"_ID_H RVICES, R_140`_L N/A	ISA INC. DRILLERD.M. DROP30"_(AUTO) DROPN/A	_SHEET <u>3_OF_8</u> _SURFACE_EL_ <u>1482.1</u> _DATUM_ <u>N/A</u> _STARTED_ <u>1330/3-17-03</u> _COMPLETED_ <u>0850/3-19-03</u>
SAM A.S. D.O. O.S.	APLE TYPES AUGER SAMPLE BR CHURK SAMPLE BR DRIVE OPEN DENISON SAMPLE CA	ABE			SA SAT SD SI SI	SAMPLE SATURATED SAND SILT SILTY	SOIL DESCRIPTION - R	ANGE OF PROPORTION 9-57 12-127 13-207 505 ENCY
P.S. R.C. S.T. T.D. T.P. W.S.	HICHELSAMEL CY ROCK CORE F SLOTTED TUBE F THIN-WALLED, OPEN GL THIN-WALLED, PISTON GL WASH SAMPLE LTD U	LAYEY ORG INE PH RAGMENTS PM RAVEL R RAVEL R AYERED RES JITLE RX	ORI PRE REE RES	GANIC ESSURE-HYDRAULIC ESSURE-WANUAL D SIDUAL CK	S# ₩ ₩ ₩ ₩	TRACE WATER LEV WEIGHT OF WEIGHT OF YELLOW	VEL LS LOOSE HAMWER CP COMPACT ROOS DN DENSE V VERY	S SOFT FM FIRM ST STIFF H HARD
ELEV. DEP TH	DESCRIPTION	BLOWS/ FT.	NO.	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION	AND BORING NOTES
24	CLAY TILL UNIT		115	7-8 8-12	1"			
- 25	Stiff , brown-gray, SILT and very fine SAND, with occassional partings of clayey		1111117					
26	brown, SILTY CLAY to CLAYEY SILT, trace fine gravel. (CL-ML)		· Internet		1 .			
27								
28							Med. stiff, brown—gray to SILT, some vf sand, a thinly laminated, slow	gray CLAYEY SILT to icc. f gravel, moist, dilatancy. (ML-SM
29		7		34	23"	-		
- - - - - - - - - - - - - - - - - - -								
- - - 31					Y			
32						-		
			~					
				4		-	CLAY, trace of sand, thinly laminated, low p	occ. f gravel, moist, plasticity. (Ml
- 34 			1 77	777	24	-		
- 35 			$\frac{1}{1}$		F			
F 36			T		\square	1		



						LD BO	RINC	a LOO	Li	
DEPTH	H HOLE94'	JOB	NO. 023	-934	0_ PRC	JECT_CHAF	FEE_L		WELL_INST&_DECOMM.	BORING NO. MW-24
DEPTH	I SOIL DRILL	<u>94</u> GA IN N/A WEAT	אSP' ארפ N/	<u>GC</u> 'A	DRIL	LING METH	OD <u>4.</u> SJB SE	RVICES	HSA	SHEET <u>UF_8</u> SURFACE EL1482.1
NO. D	NST. <u>N/A</u> US.	N/A TEMP	<u>N/A</u>	\			<u> 850 </u>		DRILLER_D.M.	
DEPTH	H WLN/A	HRS.	PROD	N/A	wt.	SAMPLER I	НАММЕ	R <u>140</u>	<u>_LB.</u> DROP <u>30" (AUTO)</u>	STARTED_1330/3-17-03
TIME	WL. <u>N/A</u>	HRS.	DELAYE	D <u>N/</u>	≜.ẃ⊤.	CASING HA	MMER.	N/A	DROP_N/A	COMPLETED _0850/3-19-
SAM	PLE TYPES			ABE	REVIA	TIONS			SOIL DESCRIPTION - I	RANGE OF PROPORTION
A.S.	AUGER SAMPLE	8L 8R	BLACK	M	MEDIU	u Eous	SA SAT	SAMPLE	ED "SOME"	- 0-5% - 5-12% - 12-30%
0.0. D.S. P.S.	DRIVE OPEN DENISON SAMPLE PITCHER SAMPLE	Č.	COARSE CASING CLAY	MOT NP OG	NOTIL NON-I ORANO	ED PLASTIC	SD SD SD SD SD SD SD SD SD SD SD SD SD S	SAND SILT SILTY		- 30-507
R.C. S.T. T.O.	ROCK CORE SLOTTED TUBE THIN-WALLED, OPEN THIN-WALLED, OPEN	FRAG	FINE FRAGMENTS		PRESS	URE-HYDRAULIC URE-MANUAL		TRACE WATER LI	EVEL LS LOOSE	S SOFT
W.S.	WASH SAMPLE	เรื่อ น	LAYERED	RES	RESIDI	JAL	ŴŔ	WEIGHT O	F RODS DN DENSE V VERY	ST STIFF H HARD
LEV.	DESCRIPT	10N	BLOWS,	1		SAMPLES	REC/AT	ОЕРТН	SAMPLE DESCRIPTION	N AND BORING NOTES
48	_			+		FORCE)			Very dense, gray—brown (o green, f-m GRAVEL,
1									little, c-f Sand trace	Clayey Silt,
	CLAY TIL	L UNIT				36			sub—angular to angula	r, wet. (GP-GM
40			65	1 3	10	33	12"			
	Stiff brown	tiff brown-oray				32				
:	SILT and ver	y fine		-		29		-	HARD — slow drilling	
	partings of	clayey	÷							
50	silt, (ML) to brown, SILTY	stiff, CLAY to			┠─┼─	-			Very dense, gray, c—f SA	ND and f—m GRAVEL,
	CLAYEY SILT,	trace				1			trace clayey silt,	
	LINE BURAER]		30			sub-angular to sub-r	ounded, wet. (SP-GF
51					11	27	16"	_		·····
						27			faintly stratified in sai	ndy layers
						27		-		
									<u></u>	· · · · · · · · · · · · · · · · · · ·
52						1				
				E					HARD drilling	
	,			\searrow		[$ \land$		Drillers notice harder and	softer layers
53			1	3			Υ	4		
				Ĩ				ŀ		··· ·····
						X		-	Augered to 55' bgs.	
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			/	Ξ				\mathbf{i}		
5	r		K-				┞──┨		Dense Grav cm-f SAND or	d f-m GRAVEL
				=				Ē	appears stratified	
				E		18		_ +	Gravel sub—rounded, we	t. (SP-GF
			25	Ē	12	18	15"	Ŀ		
~			130	3	·~	17		ŀ		
				-		14			· · · · · · · · · · · · · · · · · · ·	
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t			F	IELD BOI	RING	LOG	
DEPT	H HOLE 94' JOB N	0023-	9340_Pf	ROJECT_CHAF	FEE_L	ANDFILL_WELL_INST&_DECOMMBORING	NO
DEPT	H SOIL DRILL 94 GA INS	SPG	<u>C</u> DF	RILLING METH	00 <u>4.2</u>	5"_ID_HSASHEET.	 CE_EL1482_1
DEPT	H ROCK CORE N/A WEATH		<u>\</u> DF		- 850		N/A
NO.	DIST. <u>N/A</u> US. <u>N/A</u> TEMP		UP N/A w1	SAMPLER F		R 140_LB. DROP 30"_(AUTO) STARTE	D_1330/3-17-03
	M N/A HRS. [ELAYED.	<u>N/A</u> W	. CASING HA	MMER_	N/A DROP N/A COMPLI	ETED 0850/3-19-03
							PROPORTION
SA	MPLE TYPES		ABBREVI	ATIONS		SUL DESCRIPTION - RANGE OF	FROFORION
A.S. C.S.	AUGER SAMPLE BL BI CHUNK SAMPLE BR BU OPUNE OPEN C CU	LACK ROWN DARSE	NIC MIC NIC MIC NOT MO		SA SAT SD	SANDLE LITTLE - 3-124 SATURATED - 500KE - 12-30X SAND - 30-50X	
0.5. P.S. B.C.	DENISON SAMPLE CA C. PITCHER SAMPLE CL C ROCK CORE CLY C	ASING AY AYEY	NP NO OG OR ORG OR	N-PLASTIC ANGE GANIC	SIY SM		
S.T. T.O. T.P.	SLOTTED TUBE F F THIN-WALLED, OPEN FRAG FF THIN-WALLED, PISTON GL G	NE RAGNENTS RAVEL	PM PRI R REI	ESSURE-MANUAL	ж. Ж	WATER LEVEL LS LOOSE S SOF WEIGHT OF HAMMER CP COMPACT FM FIRM WEIGHT OF RODS DN DENSE ST STIF	r I F
W.S.	WASH SAMPLE LTO D		RX RO	äk	<u> </u>	YELLOW V VERY H HAR	D
ELEV.	DESCRIPTION	BLOWS/		SAMPLES	IPEC /AT	DEPTH SAMPLE DESCRIPTION AND BORI	NG NOTES
DEPTH		F1.	NO.	TYPE PER 6 IN. (FORCE)		84'-85': Hard, alive, brown-gray,	interbedded
E 84						CLAYEY SILT and fine SAND, w	et (ML-SM)
Ē	SAND AND			12		· · · · · · · · · · · · · · · · · · ·	
Ē.	GRAVEL UNIT			34	14"		
- 85	Dance to yony donce	76		42	'	85'-86': Layer gray to brown-gra	y fine SAND, (SP)
Ē.	gray-brown to gray,		1	32			
	coarse to fine SAND and fine to medium				1		
86	GRAVEL (GP-GM) Dense to very dense				+	Very dense gray f GRAVEL,	
Ē	gray, very fine, SAND.					and m-c SAND, saturated	(GP-SP)
-	(35)	ŀ		12		- Gravel sub-rounded to sub-an	gulur
- 		57	-20	22	18"		
Ē		57		35			
E			-	31			
Ē			1				
88					1	88'-89': Very dense, gray, f GRAV	VEL and m-c
E			Ξ			SAND, saturated, gravel sub-r	ounded.(GP-SP)
E			3	28			
E 89		75	- 21	40	19"	89'-90': Very dense, gray, fine S	AND,
Ē			-	35		trace Silt, saturated.	(SP)
E				37		· ·	
Ē			-				
E 90							
ΕI			-	11		- Dense, gray, vf to fine SAND, tra	ce Silt,
Ē						cross bedded.	(SP)
F- 91		34	- 22	10	16"		
E		- ·	-			91 5'-91 8': Gray f-m SAND m	ore silty @92'.
ΕI			-	28		quick dilatancy, saturated.	(SP)
E 92		 					
Ē							
₽ I			1	9		-Very dense, gray f-m GRAVEL,	moist, (GP-GM)
E I				24	,"		
E 93		42	-18	18	''		
E I			1	24		-	·····
E							
E 94	END OF RODING	╂──┨					······································
E	END OF BURING		1			`	
ΕI			1				
Εl			1				
E			1				
Εl			-			-	
EI			1				<u></u>
Γ		J		Oolder Ac			

MONITORING WELL INSTALLATION DIAGRAM





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DEPT	HOLE <u>16'</u> JOB	NO. 023	-934C	F	IELD BOI		ANDFILI	G well_INST&_DECOMMBORING NOMW-2. HSASHEET2_0F_2
DEPTI NO. D DEPTI TIME	H ROCK CORE <u>N/A</u> WEA WEA WEA WEA WEA WEA WEA WEA	THER <u>CL</u> - <u>35</u> - PROD - DELAYEI	OUDY F N/A D N/A		RILLING CO. <u>S</u> RILL RIG <u>CME</u> SAMPLER H C CASING HA	<u>SJB_SE</u> E_850 TAMME MMER	RVICES R 140 N/A	
SAN A.S. D.O.S. D.S. P.S. R.C. S.T. T.O. T.P. W.S.	APLE TYPES AUGER SAMPLE BL CHUNK SAMPLE BR DRIVE OFF CA DENSON SAMPLE CA DENSON SAMPLE CA NOTTED RUBE NUTED RUBE THIN-WALLED, PENN GL WASH SAMPLE LYD	BLACK BROWN COARSE CASING CLAY RINC CLAYEY RACKENTS GRAVEL LAYERED LITTLE	ABBF	REV.	ATIONS NUM ACCOUS THELASTIC NOCE SSURE-HYDRAULIC SSURE-HYDRAULIC DUIAL AU	SAT SD SIY SM SM WLH ₩R Y	SAMPLE SATURAT SANO SILT SILT SOME TRACE WATER LI WEIGHT C YELLOW	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-55 "LITTLE" - 5-137 "LITTLE" - 5-137 "ANO" - 10-55 "ANO" - 10-55 "ANO" - 10-55 "ANO" - 10-55 "CONSISTENCY EVEL LS LODSE ST STATE ON DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-55 "LITTLE" - 5-137 "ANO" - 10-55 "CONSISTENCY EVEL LS LODSE ST STATE ON DESCRIPTION - RANGE OF PROPORTION
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.		NQ.	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/AT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
-13	CLAY TILL UNIT Medium dense, olive-brown, fine to medium GRAVEL, little medium to coarse sand (GP) to stiff,	23		4	9 11 12 15	2"	-	Stiff to v. stiff, olive-brown to gray SLL and, f SAND, little f-m gravel, wet. (ML Water in boring. Very little recovery. Pushed large gravel piece.
· 14 · 15	gravel (ML).	13		5	2 5 8 8	15"	-	Med. dense, gray f-m SAND, some f-m gravel little, silt, saturated, quick-med. dilatancy, gravel sub-angular. (SP- Sampled to 16' bgs. Drilled to 15.5' bgs.
	END OF BORING							

······································	MONITORIN	G WELL INSTA	LLATION DIAGRA		
Job No.: 023-9340	Project: Chaffe	e Landfill Well Inst.	Well No.: MW-24BR	Sheet 1	of 1
GA Insp.: GOC	Drilling Method:	4.25" I.D. H.S.A.	Ground Elev.: 1483.1	Water De	epth: N/A
Weather: It. Rain	Drilling Compar	y: SJB Services	Riser Elev.: 1485.21	Date: 3/21/03	
Temp: 45° F	Drill Rig: CME 5	50X	Time Started: 1100	Time Cor	npleted: 1320
Anodized Alu 8 Inch Diame Protective Ca	minum ter Locking sing	Vent Hole Mc	onitoring Point (well stickup Groun d	= 2.11') d Surface	9
Concrete Sur 36 Inch Diam	face Seal eter		~4.0 Feet thick		
Fine Grained	Choker Sand		0.5 Foot thick		
Bentonite Sea	al		3.0 Feet thick		
Fine Grained	Choker Sand		0.5 Foot thick		
Schedule 40 I	PVC		2.35 Feet		
2" Riser Pipe			.17 Feet		
2-Inch Diame	ter Schedule 40				
PVC Continuo	ous Wire Wrap				
.006 Slot Scre	en				
Morie # 00 Sa	and		Screened Interval: 4.5	⊳ ⊢eet	
	End Cap		0.5 Feet		
			0.5 Feet		
		~8-Inch " Borehole	•		
fotal depth of soil bo	ing: 15.5' b.g.s.	Thickness of sa	ndpack: 7.5'	Well Botto	m: 15' b.g.s.
Golder Associates I Buffalo, N.Y.	nc. CHAFF		MW-24BR Mo Cla	onitoring N vy Till Unit	Vell Detail
	CHAFFE	E, NEW YORK	Drawn by:	Checked by:	Date:
Job No. 023-9340			AJN	ININIY	0/10/2003

DEPT DEPT DEPT NO. DEPT TIME	TH HOLE 94' JOB TH SOIL DRILL 94' GA IN TH ROCK CORE N/A DIST. N/A N/A US. N/A HRS. WL. N/A MPLE TYPES	NO. 02 NSP. HER N PROD. DELAYE	3-9340 GC /A A D/A ABB	- PRO - DRII - DRII - DRII - WT. - WT. - WT.	DJECT_CHA LLING METTI LLING CO LL RIG_CN SAMPLER CASING H	FFEE_I HOD_4. SJB_SI 4E_550 HAMME AMMER	LANDFILL_WELL_INST&_DEC 25"_ID_HSA ERVICES,_INC. DX DRILLER_D.M. ER_140_LBDROP_30"_(AU 2. N/A DROP_N/A SOIL DESCRIPTION	OMM. BORING NO. MW-8 SHEET 1_OF_8 SURFACE EL.1504. DATUM N/A JTO) STARTED COMPLETED 1230/12-20 COMPLETED 1230/12-20 COMPLETED 1230/12-20 COMPLETED 1230/12-20 COMPLETED 1230/12-20
A.S. C.S. D.S. P.C. S.T. T.D. T.P. W.S.	AUGER SAMPLE BL GHUNK SAMPLE BR DENISON SAMPLE CA DENISON SAMPLE CA DENISON SAMPLE CA NOCK CORE CLY SUGTED TUBE NOCK CORE PARA SAMPLE CLY WASH SAMPLE LYD U	BLACK BROWN CCARSE CASING CLAY CLAYEY FINE GRAVEL LATERED UTTLE	M WOT NP ORG PH PH R RES RX	MEDIU MICAC NON- ORANI ORANI ORANI ORANI ORANI ORANI ORANI ORANI ORANI ORANI ORANI ORANI	IM EQUS LED PLASTIC GE SURE-HYDRAULIC SURE-HYDRAULIC UAL	SAT SSD SIY SIM FRU WER	SAMPLE T SANDATED SAND SAND SELTY CONSIST SOME CONSIST SOME CONSIST SOME CONSIST SOME CONSIST WORK FOR ANNUER CONSIST WORK FOR ROOS ON DO VERNO V V	IRACE" - 0-5X ITTE" - 5-12X SOME" - 12-30X AND - 30-50X DNSISTENCY DNSISTENCY DNSISTENCY DNSISTENCY DNSISTENCY DNSISTENCY NEW FILL NEW
ELEV. DEPTH	DESCRIPTION	BLOWS FT.	5/	NO. 171	SAMPLES HAMM. BLOWS PE PER 6 IN. (FORCE)	REC/AT	DEPTH SAMPLE DESCR	IPTION AND BORING NOTES
-1	grass and roots, 0'-0.7' <u>CLAY TILL UNIT</u> Stiff to very stiff, olive-brown to gray-brown to gray,	3		1	1 1 2 5	18"	Soft, brown to olive CLAYEY SILT to S little fm gravel, v 1'-2': Stiff; become 1.5'-2': Gravel incre	brown, mottled, SILTY CLAY, vet. ((s more distinctly laminate ases
3	SILTY CLAY to ČLAÝEY SILT to SILT, trace to some fine to medium gravel, thinly laminated, low plasticity, occassional silt and sand layers. (CL-ML)	11	111111111111111111111111111111111111111	2	4 5 6 7	18"	Stiff, olive-brown, mo CLAYEY SILT, trac occ. m Gravel thinly laminated very low plasticity	ottled, SILTY CLAY to e f gravel, moist / (C
5		7	munimu	3	4 3 4 5	22"	Stiff, olive brown red- SILTY CLAY to CL/ occ. f Gravel thinly laminated very slow dilatanc	-brown, mottled, AYEY SILT, very moist, (CL to y
7		14	4		4 5 9 14	22"	Stiff, olive brown red CLAYEY SILT, trac thinly laminated occ. f Sand and S occ. m Gravel very low plasticity	yellow brown, mottled, ce f gravel, moist, Silt partings (CL–M
0		17			3 6 11 15	24*	Very stiff, olive brown mottled, CLAYEY S thinly laminated, vo 9.5': becomes dist	to gray—brown to gray, ILT, trace f gravel, moist, ery low plasticity, (CL-Mi inctly gray
1		19			5 8 11 9	23"	Very stiff, olive brown mottled, CLAYEY Si occ. yellow-brown s occ. silt & vf sand thinly laminated, ve	to gray brown to gray, LT, occ. f gravel, moist, silt partings, partings ry low to no plasticity. (CL-M

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DEPT DEPT DEPT NO. DEPT TIME	TH HOLE <u>94</u> , JOB N TH SOIL DRILL <u>94</u> GA IN TH ROCK CORE <u>N/A</u> WEAT DIST. <u>N/A</u> US. <u>N/A</u> TEMP. TH WL. <u>N/A</u> HRS. W. <u>N/A</u> HRS.	IO. 023 SP IER _N/ N/A PROD DELAYEI	9340 GC /A N/A D_N/A	PROJ DRILL DRILL DRILL WT. S WT. (JECT <u>CHAI</u> ING METH ING CO. RIG <u>CM</u> SAMPLER CASING HA	FEE_L OD_4.2 SJB_SE E_550 HAMMER	ANDFILL_WELL_INST&_DECOMM. BORING NO. MW-80A 25"_ID_HSA SHEET 2_OF_8 ERVICES,_INC. SURFACE EL. 1504.0 X DRILLER_D.M. DATUM_N/A IR_140_LB. DROP_30"_(AUTO) STARTED_1330/12-20-02 N/A DROP_N/A COMPLETED 1230/12-24-02
SA AS CS DO DS PS RC ST TO TP WS	MPLE TYPES ALIGER SAMPLE BR BR BU ORIVE OPEN C DENISON SAMPLE CA PITO-TRE SAMPLE CAC CORE ROCK CORE THIN - WALLED, PISTON WASH SAMPLE U U U U	LACK ROWN OARSE LAYE LAYE LAYEY INE RACMENTS RAVEL AYERED ITTLE	ABBRE	MEDIUM MICACEU MOTTLET NON-PL ORGANIC PRESSUI PRESSUI RESIOUA RED RESIOUA	ONS ASTIC RE-HYDRAULIC RE-MANUAL	SAT SO SIY SMR ¥¥¥ ¥ Y	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-5% SANDARATED 'SOUR' - 12-30% SAND
ELEV. DEPTH	DESCRIPTION	BLOWS, FT.		0. TYPE	SAMPLES	REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
	CLAY TILL UNIT Stiff to very stiff, olive-brown to gray-brown to gray, SILTY CLAY to CLAYEY	13	7		4 5 8 6	18"	Stiff, gray, CLAYEY SILT to SILT, occ. f Gravel, no plasticity thinly laminated, very slow dilatancy, no plasticity (CL-ML)
- 14 - 15	SILT to SILT, trace to some fine to medium gravel, thinly laminated, low plasticity, occassional silt and sand layers. (CL-ML)	11	111118		3 5 6 7	22*	V. stiff, gray, CLAYEY SILT, occ. f gravel, thinly laminated, very low plasticity, very slow dilatancy (CL-ML)
		9	9		3 4 5 7	24"	V. stiff, gray, CLAYEY SILT to SILT, trace, f sand occ. f gravel, slow dilatancy, thinly laminated (CL to ML) 16'-16.5': frequent partings of Silt and f Sand med. dilatancy, wet 17.5'-18': More Clayey (silt & clay) moist
		7			2 2 5 9	16"	18'-18.5': Stiff, gray, SILT, little vf sand, med. dilatancy, wet (ML) - 18.5'-19': Gray, CLAYEY SILT, trace f sand, (CL-ML) 19'-20': Gray, CLAYEY SILT, thinly laminated - occ. f Gravel (CL) low-med. plasticity
20		13			3 6 7 9	22"	Stiff, gray, CLAYEY SILT to SILTY CLAY, thinly laminated, med. plasticity. (CL) several layers (~0.1' thick) Silt and vf Sand med. to quick dilatancy wet ©20.5', 20.9' and 21.3' (ML laminations disturbed around Sand and Silt layers
23		6	112		2 2 4 6	24"	Med. stiff, gray, SILTY CLAY, thinly laminated, occ. f gravel, med. plasticity, (CL) occ. Silt and vf Sand partings. distinct color change to gray ©24' bgs

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Golder Associates

				FI	FLD B() RIN:	GLOG
DEPT DEPT DEPT NO. I DEPT TIME	``H HOLE94' JOB ``H SOIL DRILL94' GA IN ``H ROCK COREN/A WEAT DISTN/A USN/A TEMP ``H WLN/A HRS. WLN/A HRS.	NO. 023 NSP HER <u>N/</u> PROD DELAYE	<u>5-9340</u> GC /A A A A	PR(DRI DRI DRI WT. WT.	DJECT_CHA LLING METI LLING CO LL RIG_CI SAMPLER CASING F	HOD_4. SJB_S <u>AE_55(</u> HAMM IAMMEF	LANDFILL_WELL_INST&_DECOMM. BORING NOMW-80A .25"_ID_HSA SHEET3_OF_8 SERVICESINC. SURFACE EL. 1504.0 DX DRILLER_D.M. DATUM_N/A ER_140_LB. DROP30"_(AUTO) STARTED_1330/12-20-02 R_N/A DROP_N/A COMPLETED 1230/12-24-02
SAI A.S. C.S. O.O. P.S. R.C. S.T. T.P. W.S.	MPLE TYPES AUGR SAMPLE BR OHUNK SAMPLE CA PUNCE OPEN C DENISON SAMPLE CA PUNCHER SAMPLE CA ROCK CORE CLY SLOTTED TUBE THIN-WILLED, OPEN FRAC THIN-WILLED, OPEN RAC THIN-WILLED, OPEN CL UNCH CORE UNCH CORE UNC	BLACK BROWN COARSE CASING CLAY CLAY FINGUENTS GRAVEL LAYERED UTTLE	ABBF MC MC MOT NP OF OF OF OF C PH PM R R R R R	RESIC ROCK	TIONS ED PLASTIC SURE-HYDRAULIC SURE-HYDRAULIC SURE-HYDRAULIC SURE-HYDRAULIC	SA SAT SD SIY SIW WH WH WH	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-5X "TATURATED '0-12X SAND '-12-305 SLTY SOME CONSISTENCY WATER LEVEL LS LOOSE S SOFT WEIGHT OF HANNER CP COMPACT FM FIRM WEIGHT OF HANNER CP COMPACT FM FIRM WEIGHT OF ROOS DN DENSE ST STIFF YELLOW V VERY H HAAD
ELEV. DEPTH	DESCRIPTION	BLOWS, FT.	1	NO. T	SAMPLES	REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
- 25	CLAY TILL UNIT Stiff to very stiff, olive-brown to gray-brown to gray, SILTY CLAY to CLAYEY SILT to SILT, trace to some fine to	5		13	1 3 2 4	18"	Med. stiff, gray, vf SAND to f SAND and SILT, faintly laminated, quick dilatancy, saturated. (SM-ML)
26 27 28	medium gravel, thinly laminated, low plasticity, occassional silt and sand layers. (CL-ML)	9		14	4 4 5 9	21"	Stiff, Gray, f SAND and SILT, (ML-SP) quick dilatancy, saturated, grades to gray SILT little(-) f sand, (ML grades to Gray Silt (to 28') (ML) slow dilatancy all thinly laminated
29		15	1	5	3 5 10 12	18"	Stiff, gray CLAYEY SILT to SILT, little fine sand, saturated. 29'-30': stiffer than above; thinly laminated mod. dilatancy (ML)
31		15	11	5	4 8 7 11	17"	Stiff, gray, SILT ta CLAYEY SILT. little vf sand, thinly laminated, moist, mod. dilatancy. (ML)
33		12		,	5 5 7 11	17"	Stiff, gray, SILT to CLAYEY SILT, little v fine sand, thinly laminated, slow dilatancy, moist. (ML)
55		15			4 6 9 9	18"	Stiff, gray, SILT to CLAYEY SILT, little vf sand, moist, occ. f gravel, (ML) slow to moderate dilatancy.

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DEPTH DEPTH DEPTH NO. D DEPTH TIME	H HOLE <u>94'</u> H SOIL DRILL <u>94'</u> H ROCK CORE <u>N/A</u> HIST. <u>N/A</u> US. <u>N/A</u> H WL. <u>N/A</u>	JOB_NO023 GA_INSP WEATHER_N/ TEMPN/A HRS. PROD HRS. DELAYEI	9340 GC /A N/A D_N//	2_ PF DR DR DR DR WT	OJECT <u>CHAF</u> ILLING METHI ILLING CO. <u>S</u> ILL RIG <u>CME</u> SAMPLER H	FEE_L OD_4.2 JB_SE 5500 IAMME MMER_	ANDFILL_WELL_INST&_DECOMM. BORING NO. MW-80, 55"_ID_HSA SHEET 4_0F_8 RVICESINC. SURFACE EL.1504.0 C DRILLER_D.M. DATUM_N/A R_140_LB. DROP_30"_(AUTO) STARTED 1330/12-20-02 N/A DROP_N/A COMPLETED 1230/12-24-
SAN A.S. OOS P.S.C. F.O. T.P. W.S.	APLE TYPES AUGER SAMPLE GUINK SAMPLE DRIVE OPEN DENISON SAMPLE PITCHER SAMPLE ROCK CORE ROCK CORE ROCK CORE PITCHER SAMPLE THIN-MALED, OPEN THIN-MALED, PISTON WASH SAMPLE	BL BLACK BR BROWN C COARSE CA CASING CLY CLY CLY CLY CLY CLY CLAYER CASE CRAVEL CAYERCO LY U LITTLE	ABB HIC NOT NP OGC ORC ORC PH PM R RES RX	REVI MICT NOT ORG PRE RES ROS	ATIONS IUM ACOUS TEO -PLASTIC HORAL SSURE-HYDRAULIC SSURE-HYDRAULIC SSURE-HYDRAULIC SURE-HYDRAUL	SAT SSD SIY SFR.¥¥¥ ¥ Y	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-5x SAUPLE SAUTHER - 0-5x SAUPLE - 122 SAUPLE - 122 SAUPLE - 0-5x SOURE - 12-30X SULT - 0-5x SOURE - 12-30X SOURE - 12-30X SOURE - 0-5x SOURE - 12-30X SOURE - 0-5x SOURE - 12-30X SOURE - 12-
ELEV. DEPTH	DESCRIPTION	BLOWS, FT.	1	NO.	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
- 37	CLAY TILL U Stiff to very st olive-brown to gray-brown to g SILTY CLAY to CI SILT to SILT, tr	JNIT Liff, ray, AYEY ace		19	3 5 8 11	- 17 "	Stiff, gray, CLAYEY SILI to SILI, little f sand trace f gravel, wet - thinly laminated, slow-mod. dilatancy. (M
- 38 - 39 -	to some fine to medium gravel, th laminated, low plasticity, occass silt and sand lay (CL-ML)	ninly sional rers. 15		20	6 8 7 12	12"	Stiff, gray, CLAYEY SILT some() f sand, occ. fm gravel, moist, (1 mod. dilatancy. sample disturbed from pushing piece of gra
• 40 • 41		21		21	4 7 14 15	13"	Med. dense, gray, fine SAND some clayey silt, quick dilatancy, saturated, grades to Clayey Silt trace f Sand (ML
42		17		22	6 7 10 12	20"	Very stiff, gray, SILT, little vf sand, thinly laminated, occ. f Gravel, slow-mod. dilatancy, moist. (M
44		15		23	5 6 9 11	18"	Stiff, gray, SiLT to CLAYEY SILT, little fm gravel trace vf sand, slow dilatancy, moist. (N
40		13		24	4 5 8 12	22"	Stiff, gray, SILT and CLAY, some f-m gravel, trace vf sand, thinly laminated, med. plasticity, moist, no dilatancy. (C

DEP DEP NO. DEP TIME	TH HOLE94'JOI TH SOIL DRILL94'GA TH ROCK COREN/AWE DISTN/AUSN/AHR TH WLN/AHR WLN/AHR MPLE TYPES	B NO. 02 INSP ATHER APN S. PROD. S. DELAY	23-934 GC N/A /A /ED_N/A /ED_N/A	0_ P DI DI DI W AW	ROJECT <u>C</u> RILLING ME RILLING CO RILL RIG <u>C</u> T. SAMPLEI T. CASING ATIONS	HAFFEE THOD_ SJB_ CME_5 R HAM HAMME	LANDFILL_WELL 25 [°] _ID_HSA ERVICES,_INC. IXD ER_ <u>140_LB.</u> D N/AD S0I	
A.S. C.S. D.O. D.S. P.S. R.C. S.T. T.O. T.P. W.S.	AUGER SAMPLE BL GUIDR SAMPLE BR DENISON SAMPLE CA PITOHER SAMPLE CA PITOHER SAMPLE CL ROCK CORE CLY SLOTED TUBE THIN-WALLED, OPEN FRAG THIN-WALLED, OPEN FLAG THIN-WALLED, OPEN CL U	BLACK BROWN COARSE CASING CLAY CLAYEY FINE FRAGMENTS GRAVEL LAYERED UTTLE	M MIC MP PH PH RES RX	MELC NO NO PRED RED RESC	XUM ACEOUS THED NGE XANIC SSURE-HYDRAUL SSURE-HANUAL IDUAL K		SAMPLE SATURA TED SATU SATU SUNE TRACE WATER LEVEL WATER LEVEL WEIGHT OF RODS YELLOW	TRACE - S-15X LITE - S-15X SOME - 12-15X AND - 30-50X CONSISTENCY LS LOOSE S SOFT CP COMPACT FN FRM DN DENSE ST STIFF V VERY H HARD
ELEV. DEPTH	DESCRIPTION	BLOW FT.	s/	NO. 1	SAMPLES	S NS REC/	ОЕРТН	SAMPLE DESCRIPTION AND BORING NOTES
-49	CLAY TILL UNIT Stiff to very stiff, alve-brown to gray-brown to gray, SILTY CLAY to CLAYEY SILT to SILT, trace	13		25	2 4 9 9	21	Stiff, g occ. - thin mec	ray, CLAYEY SILT, f gravel, moist, ly laminated, l. plasticity. ((
-51	to some fine to medium gravel, thinly laminated, low plasticity, occassional silt and sand layers. (CL-ML)	14		26	4 6 8 8	23	Stiff, gr thini - mod	ay, SILTY CLAY, trace f gravel, y laminated, moist, . plasticity (
53		18		7	9 9 9 11	21"	52'-52.7 - 52.75'-5 53.2'-54 - - - -	25': V Stiff, gray, SILTY CLAY. (C 3.2': Gray, f SAND, occ. f gravel. (S ': Interbedded gray, f SAND and SILT & Y, little fm gravel. d. dilatancy (CL-N
55		22	1 1 1 1 1 1 1	3	6 9 13 21	24"	Very stiff slow	, gray, SiLT, little f—m gravel, dilatancy, moist. (Ml
7		21	1 1 1 1 29		5 8 13 16	24"	Very stiff, occ. f thinly	gray, SILT to CLAYEY SILT, Gravel, lamingted. (ML
	and/Gravel	-36 -	30		5 7 29 24	21*	Stiff, gray, slow di Gray, mf C	SILT to CLAYEY SILT, occ. f gravel, latancy, thin laminae, moist. (ML RAVEL, some cf sand, moist. (GP

DEPT DEPT DEPT NO. 0 DEPT TIME	H HOLE94'JC H SOIL DRILL94'G/ H ROCK CORE <u>N/A</u> WE DIST <u>N/A</u> US. <u>N/A</u> HF H ML <u>N/A</u> HF ML <u>N/A</u> HF	DB NO. 023- A INSP EATHER N/A MPN/A RS. PROD RS. DELAYED	-9340 3C A N/A <u>N/A</u> ABBf		LLING METH LLING METH LLING CO LL RIG_CM SAMPLER CASING H	FFEE_L (OD_4.2 SJB_SE IE_550 HAMMER.	LANDFILL_WELL_INST&_DECOMM. BORING NOMW-80 .25"_ID_HSA SHEET_6_0F_8 SERVICES,_INC. SURFACE EL. 1504.0 DX DRILLER_D.M. DATUM_N/A ER_140_LB. DROP_30"_(AUTO) STARTED_1330/12-20-01 R_N/A DROP_N/A COMPLETED 1230/12-20-01 SOIL DESCRIPTION RANGE OF
4.5. 0.0. 0.5. 0.5. 0.5. 0.5. 0.5. 1.0. 1.P. W.S.	AUGER SAMPLE BL CHUNK SAMPLE BR DRIVE OPEN C DENISON SAMPLE CA PITCHER SAMPLE CL ROCK CORE CL SLOTTED TUBE OF FRA ROCK CORE FRA THIN-WALLED, OPEN FRA THIN-WALLED, OPEN FRA THIN-WALLED, OPEN FL U	BLACK BROWN COARSE CASING CASING CAYEY FINE GRAVEL LAYERED UTTLE	M MC MOT NP ORG ORG PH PM RES RX	MEDIL MICAO MOTH NON- ORGA PRES RED RESID ROCK	IM ED ED PLASTIC GE NIC SURE-HYDRAULIC SURE-MANUAL UAL	SAT SD SI SM WH WH WR Y	SAMPLE TUTTE - 5-12X SATURATED 'SOME - 12-30X SATURATED 'SOME - 12-30X SLT SLT' CONSISTENCY TRACE LEVEL LS LOOSE SOFT WATER LEVEL LS LOOSE SOFT WEIGHT OF HAMMER OF CONFACT FM FIRM WEIGHT OF RODS DN DENSE ST STIFF YELLOW V VERY H HARD
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.		NO. TY	SAMPLES	REC/AT	
61	SAND AND GRAVEL UNIT Dense, gray, fine to medium, GRAVEL and medium to coarse SAND (GP-GM), to ver	- 37		31	6 14 23 21	16"	Dense, gray, fm GRAVEL and mc SAND, little clayey Silt, moist—wet Gravel sub—angular (GP-GM
- 62	dense fine to coars SAND, little fine to medium gravel (SP), f very stiff, gray, SILT to CLAYEY SILT little fine to medium gravel, trace very fine sand (ML-CL).	, 33		32	7 17 16 16	14"	Dense, gray, fm GRAVEL and m-c SAND, trace(-) silt, wet Gravel sub-angular to sub-rounded (G
- 64		26		33	6 9 17 18	24"	Dense, gray, mc SAND, little fm gravel, occ. partings of clayey silt, wet Gravel sub-rounded (SP)
- 66		47		34	5 10 37 53	18*	Very dense, f-m-c SAND, little f-m gravel, trace(-), silt, wet Gravel sub-rounded (SP)
- 69		28	····	55	26 15 13 10	16"	Very dense, f-m-c SAND, little f-m gravel, trace(-), Silt wet Gravel sub-rounded (SP
71		22	3	6	7 10 12 11	16*	Dense, gray, f-m-c SAND and f-m GRAVEL, wet (SP-GF

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DEP DEP DEP NO. DEPT TIME SA Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa Sa	TH HOLEJOB TH SOIL DRILLGA TH ROCK COREWEA DISTA USA WEA DISTA USA TEM TH WLN/AHRS MPLE TYPES AUGER SAMPLE GA DENSON SAMPLE GA DENSON SAMPLE GA PITCHER SAMPLE GA SAMPLE GA DENSON SAMPLE GA SAMPLE GA SAMPLE GA DENSON SAMPLE GA SAMPLE GA DENSON SAMPLE GA SAMPLE CA SAMPLE CA SAMPLE CA SAMPLE CA SAMPLE CA SAMPLE SAMPLE CA SAMPLE SAMPLE CA SAMPLE SAMPLE SAMPLE CA SAMPLE SAMPLE SAMPLE CA SAMPLE SAMPLE SAM	NO. 02 INSP	23-9340 GC I/A /A ED_N/A ED_N/A ABBRE	FIELD B PROJECT_CH DRILLING ME DRILLING CC DRILL RIG_C WT. SAMPLEI WT. CASING WT. CASING	IAFFEE_ THOD_4 SJB_S CME_550 R HAMM HAMMEF	GLOG
ELEV. DEPTH	DESCRIPTION SAND AND GRAVEL UNIT Dense, gray, fine to medium, GRAVEL and medium to coarse SAND (GP-GM), to very dense fine to coarse	BLOW FT.	S/ N	SAMPLE A TYPE 9 9 14 17	s p <mark>ws rec</mark> // 19"	Very Stiff, brown gray, CLAYEY SILT to SILT, trace() f gravel, occ. f Sand partings, thinly laminated, gravel sub-rounded, very slow dilatancy, moist-wet (CL-ML)
75	SANJ, little fine to medium gravel (SP), to very stiff, gray, SILT to CLAYEY SILT, little fine to medium gravel, trace very fine sand (ML-CL).	23		6 9 14 18	22"	Very stiff, gray, CLAYEY SILT to SILT, trace, f-m gravel, thinly laminated, moist-wet, gravel sub-rounded, (CL-ML) slow dilatancy
77		30	39 111 111 111 111	7 12 18 27	19"	Very stiff, gray SILT to CLAYEY SILT little, fm gravel trace vf sand, thinly laminated, occ. partings of Clayey Silt, moist-wet, Gravel sub-rounded, slow-med. dilatancy. (ML-CL) (sampler possibly hit cobble 0 ~77.6')
79		49	40	12 20 29 23	12"	Hard, gray, SILT to CLAYEY SILT, little fm gravel, thinly laminated, moist-wet, somewhat disturbed slow-med. dilatancy (ML) more Gravel at bottom of sampler
81		36	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	13 18 18 19	0	NO RECOVERY (SP)
83		76	42	24 52 24 25	6*	Very dense, gray, m-f GRAVEL, trace sand, wet. (GP) VERY LITTLE RECOVERY DRILLER SAYS IT FEELS "GRAVELLY"

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VEROC 2108

DEP DEP DEP NO. DEP TIME	TH HOLE 94' JOB TH SOIL DRILL 94' GA I TH ROCK CORE N/A WEA' DIST. N/A US. TH WL. N/A HRS. WL. N/A HRS.	NO. 023 NSP	934 GC /A N/A N/A	0 PRC DRII DRII DRII WT. A WT.	LING METH LING CO LING CO L RIGCM SAMPLER CASING H	FFEE_L IOD_4. SJB_SI E_550 HAMMER	LOG _LANDFILL_WELL_INST&_DECOMM. BORING NOMW-80/ 1.25"_ID_HSA SHEET_8_OF_8 SERVICESINC. SURFACE EL_1504.0 .0X DRILLER_D.M. DATUM_N/A IER_140_LB. DROP_30"_(AUTQ) STARTED_1339/12-20-02 R_N/A DROP_N/A COMPLETED 1230/12-24-04
S/ ASS OCS PSC PSC PSC PSC PSC PSC PSC PSC PSC P	AMPLE TYPES AUGER SAUPLE BL DRIVE GREAPELE CA DRIVE GREAPELE CA DRIVE GREAPELE CA DRIVE GREAPELE CA ROCK CORPUSED ROCK DORPORT CA SAUNTED TUBE THIN FWALED, OPEN FRAG THIN FWALED, OPEN FRAG	BLACK BROWN COARSE CASING CLAY CLAY RINE RRACHENTS GRAVEL LAYERED UTTLE	ABE	MEDIU MICAC NON-I ORAX ORAX PRESS PRESS RED RESSOL ROCK	TIONS ED PLASTIC INC URE-HYDRAULIC URE-MANUAL IAL	SAT SS SSYMR¥I¥¥ ¥¥	SOIL DESCRIPTION - RANGE OF PROPORTION THACE - 0-53 SANO
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	1	NO. TYP	SAMPLES	REC/AT	ATT DEPTH SAMPLE DESCRIPTION AND BORING NOTES
- 85	SAND AND GRAVEL UNIT Dense, gray, fine to medium, GRAVEL and medium to coarse SAND (GP-GM), to very	46		43	28 29 17 15	12"	V. dense, gray, f-m GRAVEL and cf SAND, wet. (GP-SF
- 86	dense fine to coarse SAND, little fine to medium gravel (SP), to very stiff, gray, SILT to CLAYEY SILT, little fine to medium gravel, trace very fine sand (ML-CL).	34		44	18 19 15 15	12"	Dense, gray, fm GRAVEL, some c-f sand, trace clayey silt, wet. (GP-SF
- 88 - 89	•	29		45	21 14 15 22	1"	Very little recovery — pushed c Gravel piece — stuck in spoon — Sand & Gravel? —
90		29		46	12 18 11 17	9"	Dense, gray, c-f SAND and f-m GRAVEL, wet (SP-GP)
93		15		17	1 6 9 29	12"	Dense, gray, cf SAND little fm gravel. wet VERY SANDY (SP)
	END OF BORING						

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DEPT DEPT	TH HOLE	JOB NO. 023 GA INSP	5—934(GOC	<u>)</u> PRC DRII	JECT <u>CHA</u>	<u>.FFEE_l</u> HOD <u>4.</u>	LANDFILL_WELL_INST&_DECOMMBORING NOMW-80
DEPT NO. U DEPT	H ROCK CORE <u>N/A</u> DIST. <u>N/A</u> US. <u>N/A</u> H WL. <u>N/A</u> I	WEATHER <u>LT</u> TEMP. <u>20.</u> HRS. PROD	<u>SNOV</u> _F _N/A	M_ DRIL DRIL WT.	.LING CO _L RIG <u>CM</u> SAMPLER	SJB_SE 4E_550 HAMME	SERVICES, INC. SURFACE EL. 1503.5 0X DRILLER_D.M. DATUM_N/A MER_140_LB. DROP_30"_(AUTO) STARTED_/12-27-02
ПМЕ	WLN'AH	HRS. DELAYE	:D_N//	<u>↓</u> wt.	CASING H	AMMER	R_N/ADROP_N/ACOMPLETED 1500/12-27-
SAI A.S. C.S. O.S. P.S. R.C. S.T. T.P. W.S.	MPLE TYPES AUGER SAMPLE B CHUKK SAMPLE B DRIVE OPEN POINT SAMPLE C POINT SAMPLE C SLOTTED TUBE F THIN-WALLED, PISTON G WASH SAMPLE L	IL BLACK R BROWN COARSE A CASING L CLAY LY CLAYEY RAG FINE RAG FINE IL GRAMENTS L CATERED J LITLE	ABBI MIC MOT OG OF PH PM R RES RX	REVIA MEDIUI MICACI MOTH ORANG ORANG ORANG ORANG ORANG ORANG PRESS PRESS RED RESIDI ROCK	TONS EQUS ED JASTIC EE JURE-HYDRAULIC JURE-HYDRAULIC JURE-MANUAL JAL	SAT SAT BBY BBY BIELISSY	SOIL DESCRIPTION - RANGE OF PROPORTION SAMPLE - 9-5% SAND - 5-12% SAND - 5-12% SAND - 50-50% SLT STAKE CONSISTENCY WATER LEVEL LS LOOSE S SOFT WATER LEVEL LS LOOSE S SOFT WATER LEVEL LS LOOSE S SOFT WATER LEVEL STANDARD FM PIRM WEIGHT OF RADAR
ELEV. DEPTH	DESCRIPTION	BLOWS FT.		NO. TY	SAMPLES	REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES
4	MUST HAVE PUSHED COBBI FOR FIRST ~5" CLAY TILL UN Stiff, gray-brown	<u>г</u> IT 13		1	27 7 6 7	14"	Stiff, olive-brown, SILT, trace fm gravel, thinly laminated and mottled, moist-wet some Red-Brown Gravel sub-angular slow-med. dilatancy (Mi
-7	to gray, SILT to CLAYEY SILT, trace fine gravel, thinly laminated, slow-mod. dilatancy, occassion very fine sand partings. (ML, ML-C	al 1.23	The second se	+			Auger with no sampling 3' to 9' bgs.
-8	• • •						Stiff, gray-brown, mottled, olive brown SILT
- 10 - 11	• • •	15	11112		5 7 8 12	21"	to CLAYEY SILT, occ. f Gravel, - thinly laminated Gravel sub-rounded to sub-angular slow dilatancy (ML-CL)
12	· ·	19			5 8 11 10	22"	Very stiff, brown-gray SILT, becoming more distinctly gray @12' @11.25': thick fine sand lens mottled thinly laminated (ML) slow-mod. dilatancy moist occ. v fine Sand partings occ. f Gravel (more distinctly gray)
14		13			2 6 7 10	23"	Stiff, gray, SILT, thinly laminated occ. f gravel, slow-med. dilatancy, occ. vf Sand partings. (ML)
	END OF BORING						

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	MONTORI	NG WELL INSTAL	LATION DIAGRA	MI		
Job No.: 023-9340	Project: Chaffe	ee Landfill Well Inst.	Well No.: MW-80B	Sheet 1 of 1		
GA Insp.: GOC	Drilling Method	1: 4.25" I.D. H.S.A.	Ground Elev.: 1503.5	Water Depth: N/A		
Weather: LIGHT SNOW	Drilling Compa	ny: SJB Services	Riser Elev.: 1506.59	Date: 12/27/02		
Temp: 20 °F	Drill Rig: CME	550X	Time Started: N/A	Time Completed: 1500		
Anodized Alumin 8 Inch Diameter	um Locking	Vent Hole	nitoring Point (well stickup	o= 3.09')		
]	Drain Hole —	Ground	d Surface		
Concrete Surface 36 Inch Diameter	e Seal		~4.0 Feet thick			
Bentonite/Cemer Fine Grained Cho	t Grout oker Sand		0.5 Foot thick			
Bentonite Seal	u		3.1 Feet thick			
Fine Grained Cho	ker Sand		0.5 Foot thick			
Schedule 40 PVC 2" Riser Pipe			2.20 Feet			
2-Inch Diameter S PVC Continuous .006 Slot Screen	Schedule 40 Wire Wrap		Screened Interval: 4.51	1 Feet		
Morie # 00 Sand	End Cap		0.67 Feet			
	•		0.5 Feet			
		~8-Inch " Borehole	·····			
otal depth of soil boring:	15.8' b.g.s.	Thickness of sand				
Golder Associates Inc. Buffalo, N.Y.	CHAFFI		L MW-80B Monitoring Well Detail			
Job No. 023-9340		E, NEW YORK	Drawn by: AJN	Checked by: Date: NKW 7/25/2003		

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DEPT DEPT DEPT NO. DEPT TIME	IH HOLE 92' IH SOIL DRILL 92' IH SOIL DRILL 92' IH ROCK CORE N/A DIST. N/A US. N/A IH N/A N/A N/A	JOB NO. 023- GA INSP. 9 WEATHER P_C TEMP. 24_F HRS. PROD. HRS. DELAYED	-9340 (C (LOUDY (N/A (N/A (PROJECT_ DRILLING M DRILLING C DRILL RIG_ VT. SAMPL	CHAFFEE_L IETHOD_4.2 :OSJB_SE CME_550 .ER HAMME G HAMMER.	ANDFILL 25"_ID RVICES, X R140 N/A	
SA AS. CS. DS. PS. RC ST. T.D T.P. WS.	MPLE TYPES AUGR SAMPLE CHURK SAMPLE DRIVE OPEN DEVISON SAMPLE PITCHER SAMPLE ROOK CORE SLOTED TUBE SLOTED TUBE THIN-WALLED, PISTON WASH SAMPLE	BL BLACK BR BROWN C COARSE CA CASING CL CLVF CL CLVF FRAG PRACHENTS GL CRAVEL L'D LATERED U LITTLE	ABBRE	MATIONS IEDIUM ICCCEOUS IOTTLED IOTTLED ICACE RIGANIC RIGAN	SA SAT SD STY SM AULIC TR AL HL HR Y Y	SAMPLE SATURATI SAND SILT SILT SILTY SILTY WATER LE WATER LE WEIGHT O YELLOW	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-5% "LITTLE" - 0-5% "LITTLE" - 0-5% "SOUT" - 12-305 "ANO" - 30-50% CONSISTENCY VEL VEL VEL LS LOOSE F HAMMER CP COMPACT F ROOS V VERY H HARD
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	нс	SAMP A TYPE HAMM. PER 6 (FOR	LES BLOWS IN. E	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
	CLAY TILL UN 0-4' Cery loose loose, brown-ollve brown with red-br mottling, fine SANI coarse to fine SA		mumfunt		1 1 16" 1	1	Very loose, brown-olive brown with red brown mottling, f SAND and SILT, moist (SM)
- 2 	and SILT, some fin gravel. (SM, SM-SP) 4'-8' Loose to dense, brown, fine medium, GRAVEL, lit coarse to fine sa trace to some cla silt, (GM) 8'-51' Stiff to ve stiff, brown gray gray, SILTY CLAY	to to nd, yey 7 ery to TO	1		1 1 ₉ 3	-	Loose, brown to olive brown with red-brown, mottling, f SAND, and silt some f gravel, moist (SM-SP)
	fine gravel, medium plasticity, thinly laminated, occassic layers of silt and fine sand and fine gravel. (CL, CL-ML	2 2 10	3		4 5 5		Loose f gravel, little cf SAND, trace clayey siit, wet, quick dilatancy. (GM)
- 6 		14	4		1 5 7" 3		M. dense brown f—m GRAVEL little, c—f sand, some clayey silt, wet no structure (GM)
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		16	5))))		Stiff, brown-gray CLAYEY SILT to SILTY CLAY, little f-m gravel to 9.75', thinly laminated moist. (CL) 9.75'-10': f-m GRAVEL, little cf sand, trace clayey silt, wet (GM
10 11 11 12		22	6		20"	-	Very stiff, gray, SILT and v fine SAND, occ. fine gravel, thinly laminated med.—quick dilatancy, moist (ML)

				FII	ELD BO	DRIN	g lo	G
DEP	TH HOLE JOB	NO. 02	3-9340	PR	DJECT <u>CH</u>	AFFEE_	LANDFIL	L_WELL_INST&_DECOMMBORING NOMW-
DEP	TH SOIL DRILL 92' GA	INSP.		DRI	LLING MET	HOD <u>4</u>	25"_ID_	HSA SHEET 2_OF_8
NO.	DIST. N/A US. N/A TEM	P. 24	<u></u> F		LLING CU.	<u></u> ME550		DRILLER D.M. DATIN N/A
DEP	TH WLN/AHRS	. PROD.	N/A		SAMPLER	НАММ	FR 140	DATOMDATOM
ТІМЕ	WL. N/A HRS	. DELAY	ED <u>N/A</u>	⊆wī.	CASING H	AMMER	N/A	DROP N/A COMPLETED 1530/12-
SA	AMPLE TYPES	·	ABB					
AS	AUGER SAMPLE BL	BLACK	M	MEDIU	M	54		
C.S. 0.0 D.S.	. CHUNK SAMPLE BR D. ORIVE OPEN C . DENISON SAMPLE CA	BROWN COARSE CASING	MIC MOT NP	MICAC MOTTL NON-	EOUS ED PLASTIC	SAT SD SI	SATURAI SAND	TED SOME - 12-307 "ANO" - 30-50%
P.S. R.C. S.T.	. PITCHER SAMPLE CL. . ROCK CORE CLY . SLOTTED TUBE F	CLAY CLAYEY FINE	OG ORG PH	ORANO	GË NIC SURE-HYDRAULIC	ŠY SM	SOME	CONSISTENCY
T.O. T.P. W.S.	THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL WASH SAMPLE LYD	FRAGMENTS GRAVEL LAYERED	S PM R RES	RED	URE-MANUAL	₩.	WATER L WEIGHT (EVEL LS LOOSE S SOFT OF HAMMER CP COMPACT FN FIRM DE BADS DN DENSE ST EDEC
	Ú		RX	ROCK		Ϋ́`	YELLOW	V VERY H HARD
ELEV. DEPTH	DESCRIPTION	BLOW FT.	s/	NO. TY	SAMPLES	REC/AT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
E					(FORCE)			Stiff, gray, CLAYEY SILT, trace, f-m gravel.
F	CLAY THE UNIT		1 3					thinly laminated, moist
E			1 3		4			Gravel sub—angular
F		116	I I	_	6			very low_plasticity.
E	0-4' Cery loose to	110	1 3	1	1 10	17	-	
ΕI	brown with red-brown					·		
F I	mottling, fine SAND to		1 3				1	
E14	and SILT, some fine		11					
F	gravel. (SM, SM-SP) 4'-8' Loose to							Very stiff, gray, CLAYEY SILT to SILTY CLAY, tr
EI	dense, brown, fine to		E					t-m gravel, low plasticity, moist,
E I	coarse to fine sand,	1	1 1		12			()
E 15	trace to some clayey	119			7	18"		
E I	8'-51' Stiff to very	11]		12			
E I	stiff, brown gray to oray. SILTY CLAY TO				12		-	
F I	CLAYEY SILT, trace]					
16	fine gravel, medium plasticity, thinly	\vdash	┼╂			·		Stiff gray CLAYEY SILT to SILT moiet
E I	laminated, occassional		1				ŀ	thinly laminated, occ. fm Gravel,
FI	fine sand and fine				3		-	very low to no plasticity. (C
E I	gravel. (CL, CL-ML)				6		-	
F ¹⁷		14)		21"	+	
E		i i			8		Ľ	
E					11		-	
					1.00		· -	
E '''								Stiff, gray, SILTY CLAY to CLAYEY SILT,
Εl			E				ŀ	trace (-) fm Gravel
-					3			thinly laminated
- 19		17]]		2	20"	L L	
					5		Le la	18.5': pocket of fm Gravel some, Silt & Clay
-					8		₋⊦	wet ((
			1 3		-		Ľ	
20			++	+		╞──┠		Stiff argy SILTY CLAY to CLAYEY SILT
								t. f gravel, low plasticity, thinly laminated.
-			-]		3		-E	moist
]		2		\vdash	
21		7	11			22"	+	
:			1		Ь		E	
			3		10		-l-	
2,2			1				\vdash	
~~			1	\square			M	. stiff, gray CLAYEY SILT, moist-wet
			1		2		F	occ. f Gravel
			E		2		1-	thinky loginated
- 23					3	10,"		v. slow dilatancy
		8	- 1'2		5		T	
. 1			E		8 I			·
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[FIE	ELD B	ORIN	NG LOG	
DEP DEP DEP NO. DEP TIME	TH HOLE <u>92</u> JOE TH SOIL DRILL <u>92'</u> GA TH ROCK CORE <u>N/A</u> WE/ DIST. <u>N/A</u> US. <u>N/A</u> TEM TH WL. <u>N/A</u> HRS	3 NO. 0 INSP. ATHER <u>F</u> (P. <u>2</u> 5. PROD	23-9340 GC 2_CLOUD 4_F N/A	DRIL DRIL DRIL DRIL WT.	JECT <u>C</u> LING ME LING CO L RIG <u></u>	HAFFEE_ THOD_4 	LANDFILL_WELL_INST&_DECOMM. BORING NOM 4.25"_ID_HSA SHEET3_OF_ SERVICES,_INC. SURFACE EL_1 50X DRILLER_D.M. DATUM_N/A MER_140_LB. DROP_30"_(AUTO) STARTED_0020/12	W- _8 495 2-30
			reu <u>n7</u>	<u> </u>	CASING	HAMMER	R N/A DROP N/A COMPLETED 1530	/12-
SA AS. CS. OO. S.S. RC. T.D. WS.	MPLE TYPES AUGRESAMPLE BL ORINKEOPEN C OPENISON SAMPLE CA PITORER SAMPLE CA PITORER SAMPLE CA PITORER SAMPLE CL SCOTTED TUES F ROCK COST	BLACK BROWN COARSE CASING CLAY CLAY FINEY FINEY FRAGMENT GRAVEL LAYERED LITTLE	ABBF	MEDIUM MICACE MOTTLE NON-PP ORANG ORGANI PRESSL PRESSL RED RESIDU, ROCK	TIONS	SA SA SY SY IC TRL WH WH Y	SOIL DESCRIPTION - RANGE OF PROPOR TOTAL SAURATED - 127 SAURATED - 127 SAURATED - 127 SAURATED - 127 SAURATED - 127 SUFF	RTIC
ELEV. DEPTH	DESCRIPTION	BLOW FT	/s/	NO. TYPE	SAMPLES	S REC/A	ATT DEPTH SAMPLE DESCRIPTION AND BORING NOTES	
25	CLAY TILL UNIT 0-4' Cery loose to loose, brown-olive brown with red-brown mottling, fine SAND to coarse to fine SAND	8		13	3 4 4 6	24'	M. stiff, gray, SILTY CLAY, moist occ. fm Gravel - thinly laminated med. plasticity no dilotancy	
- 27	and SILT, some fine gravel. (SM, SM-SP) 4'-8' Loose to dense, brown, fine to medium, GRAVEL, little coarse to fine sand, trace to some clayey silt. (GM) 8'-51' Stiff to very stiff, brown gray to gray, SILTY CLAY TO CLAYEY SILT trace	7		4	1 3 4 5	24"	M. stiff, gray, SILTY CLAY to CLAYEY SILT, r occ. f Gravel thinly lominated med plasticity	10
29	fine gravel, medium plasticity, thinly laminated, occassional layers of silt and fine sand and fine gravel. (CL, CL-ML)	7		5	1 2 5 5	20*	Same as above with trace(-) f Gravel	
31		11			2 4 7 8	24"	Stiff, gray, SILTY CLAY to CLAYEY SILT, moi occ. f Gravel med. plasticity thinly laminated @31' & 31.4': 1/2" thick layer of Silt and vf Sand quick dilatancy wet	(C
i3 4		11	111117		5 6 5 7	17"	Stiff, gray, SiLT and, vf to fine SAND, WET trace clayey silt interbedded with occ. layers of clayey silt quick dilatancy occ. f Gravel	(5
5		13	1 1 1 1 1 8		5 6 7 8	24"	34'-35': Stiff, gray, SILT and fine SAND interbedded with frequent partings of Silt & Clay to Clayey Silt wet 35'-36': Gray, SILTY CLAY with occ. partings fine Sand and Silt occ. f Gravel moist	& (M (C

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DEPT DEPT DEPT NO. 0 DEPT TIME	H HOLE <u>92'</u> JOB H SOIL DRILL <u>92'</u> GA H H ROCK CORE <u>N/A</u> WEA DIST. <u>N/A</u> US. <u>N/A</u> TEMF H WL. <u>N/A</u> HRS. WL. <u>N/A</u> HRS.	NO. 023 NSP THER P D24 PROD DELAYE	<u>-9340</u> F GC D CLOUDY D F D N/A W D_N/A W	PROJECT <u>CHA</u> DRILLING METH DRILLING CO DRILL RIG <u>CN</u> JT. SAMPLER JT. CASING H	FFEE_L 10D_4.2 SJB_SE IE_550 HAMME AMMER.	ANDFILL_WELL_INST&_ 25"_ID_HSA ERVICES,_INC. XDRILLER_D.I IR_140_LBDROP_30"_ N/ADROP_N/A	DECOMM. BORING NO. MW-8'' SHEET 4_OF_8 SURFACE EL. 1495.6 M. DATUM N/A _(AUTO) STARTED 0920/12-30- _COMPLETED 1530/12-33
SA A.S. C.G.O. D.S. R.C.T. S.T.O. T.P.S. W.S.	MPLE TYPES AUGR SAUPLE BL OHUNK SAUPLE BR OHUNK SAUPLE CA DENISON SAUPLE CA PITCHER SAUPLE CA STOTTOTTOTALEC CE STOTTOTALEC, PISTON CA HIMI-WALLEC, PISTON CA WASH SAUPLE LYD	BLACK BROWN COARSE CLAYN CLAY FING CLAYY FING GRAVEL LAYERED UTTLE	ABBREN MICT MIN MOT MIN NP OG OG PH PM R R R R R R R R R R R R R	AATIONS EDIUM ICACEOUS OTTED ON-PLASTIC RANGE RASSURE-HYDRAULIC RESSURE-HYDRAULIC EDI ESIDUAL OCK	SAT SQ SIY SMR WLH WR Y	SOIL DESCRIP SATURATED SATU SUT SUT SUT SUT WATCH OF HALMER WEICHT OF RODS VELOW	TION - RANGE OF PROPORTION "TRACE" - 9-5% "STATE" - 12-30% SMD" - 30-50% CONSISTENCY S LOOSE 5 SOFT S LOOSE 5 SOFT D DENSE ST STIFF W DENSE ST STIFF W DENSE ST STIFF
ELEV. DEPTH	DESCRIP TION	BLOWS FT.	NO.	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/AT	DEPTH SAMPLE C	DESCRIPTION AND BORING NOTES
- 37	CLAY TILL UNIT 0-4' Cery loose to loose, brown-olive brown with red-brown mottling, fine SAND to coarse to fine SAND	9		2 4 5 8	24"	Stiff, gray, SiLTY med. plasticit thinly laminat occ. f Gravel occ. partings	CLAY to CLAYEY SILT, y ed moist (of f to vf SAND
- 38 - 39	and SILT, some fine gravel. (SM, SM-SP) 4'-8' Loose to dense, brown, fine to medium, GRAVEL, little coarse to fine sand, trace to some clayey silt. (GM) 8'-51' Stiff to very stiff, brown gray to gray, SILTY CLAY TI CLAYEY SILT, trace fine orayel, medium	8	20	1 3 5 7	23*	M. stiff, gray, SIL trace(-) f Gr. - med plasticity thinly laminat	TY CLAY to CLAYEY SILT, moi: avel y .ed (
- 40 - 41	plasticity, thinly laminated, occassional layers of silt and fine sand and fine gravel. (CL, CL-ML)	15	21	4 6 9 12	18"	Stiff, gray, SILTY trace(-), f G - occ. m Grave med. plasticit thinly laminat	CLAY to CLAYEY SILT, ravel al moist (1 ty .ed
43	•	12	22	1 5 7 9	24*	Stiff, gray, SiLTY occ. to trace(- - thinly laminate med. plasticity	CLAY, -) f Gravel d moist (C
45		13	123	3 5 8 14	24"	Stiff, gray, SILTY occ. to trace(- thinly laminate med. plasticity 	CLAY, —) fine Gravel ad y wet ((g layers of Silt and fine Sand dilatancy moist ()
47		14	24	5 6 8 9	24"	Stiff, gray, SILT to f-m gravel, m occ. partings moist	o CLAYEY SILT, trace ned. dilatancy, of fine Sand and Silt (N

			1	FIELD BC	RINC	LOG	
DEPT DEPT	TH HOLE <u>92</u> 'JC TH SOIL DRILL <u>92</u> 'GA	INSP.	5 <u>-9340</u> (GC [PROJECT <u>CHA</u> DRILLING METH	FFEE_L	NDFILL_WELL_INS "_ID_HSA VICESINC.	T&_DECOMM. BORING NOMW-81 SHEET5_OF_8 SURFACE EL 1495.6
NO. DEPT TIME	DIST. <u>N/A</u> US. <u>N/A</u> TE H WL. <u>N/A</u> HF WL. <u>N/A</u> HF	MP. <u>34</u> S. PROD S. DELAYE	<u>_F</u> <u>N/A</u> v : <u>D_N/A_</u> v	DRILL RIG <u>CM</u> VT. SAMPLER VT. CASING H	4E_550 HAMME AMMER	DRILLE <u>140_LB.</u> DROP. N/A DROP.	R_D.M. DATUM_N/A 30"_(AUTO) STARTED_0920/12-30-02 N/A COMPLETED 1530/12-31-0
SA ASS. CDOS PRCT. T.O. T.O. T.V. WS	MPLE TYPES AUGER SAMPLE BR CHURK SAMPLE BR DRIVE OFEN HTORE SAMPLE CA NOCK CORE CA SLOTED TUBE OFEN SLOTED TUBE OFEN THIN-WALLED PISTON CA WASH SAMPLE UD	BLACK BROWN COARSE CASING CLAYEY CLAYEY CRAYEL CRAYEL LAYERED LAYERED LITTLE	ABBREY Mic M MOT M NP OG C ORG C OR	MATIONS HEDUM HEDUM HEACEOUS HOTLED INFANCE INFANCE HEACH HESSURE-HYDRAULC ED ESTOUAL GOX	ऽऽा ऽऽग्र ऽऽग्र ऽऽग्र ऽऽम् ऽऽम् ऽऽम् ऽऽम् ऽऽम् ऽऽम् ऽऽम् ऽऽ	SOIL DE SANPLE SANRAIED SAND SULT SOME WEIGHT OF HAMMER WEIGHT OF ROOS YELLOW	SCRIPTION - RANGE OF PROPORTION TRACE - 0-55 "LITTLE - 5-127 SNOT - 12-307 SNOT - 30-507 CONSISTENCY LS CONSTANCT FUNCTION ON DENSE STIFF V VERY H SNT NARD
ELEV. DEPTH	DESCRIPTION	BLOWS FT.	NO	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	REC/AT	DEP TH SA	MPLE DESCRIPTION AND BORING NOTES
49	CLAY TILL UNI 8'-51' Stiff to very stiff, brown gray to gray, SILTY CLAY TO CLAYEY SILT, trace fine gravel, medium plasticity, thinly	[/ 19		4 8 11 14	O		NO RECOVERY
-51	SAND AND GRAVEL UNIT	47		7 16 31 18	15"	Dense, gray moist - Very d (pushe Gravel,	<pre>//V. stiff, gray CLAYEY SILT to ~51'</pre>
53	51'-58' Dense, gray, coarse to fine SAND, little to some fine to medium gravel. (SM) 58'-71' Very stiff, gray, SILT to CLAYEY SILT, some fine to medium gravel, trace fine sand. (ML) 71'-92' Dense to very dense, oray.	29	- 27	10 18 11 12	17"	Dense, gra	y, cf SAND, some f-m gravel, wet
- 55	fine to medium GRAVEL, some clayey silt, trace coarse to fine sand, to gray, fine to coarse, SAND, little fine gravel. (GM, GM-SM)	23	- 28	8 11 12 16	2*	M. dense, g	ray fc SAND, some fm gravel, wet
- 57		13		3 2 11 12	18"	V loose, cf	SAND, little fm gravel, wet
- 59 - 59 - 60		15	30	7 7 8 11	22"	same as ab 58.25'-60': - interbedo f Sand p	ove to 58.25' Brown, gray SILT to CLAYEY SILT, fed with thin silts and aartings (ML)

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			F	ELD B	ORING	LOC	3
depth depth depth No. di depth time v	HOLE JOB NO SOIL DRILL GA INS ROCK CORE A WEATHI IST N/A US MA TEMP ML N/A HRS. F ML N/A HRS. F	023-9 P ERLTR 45F RODN ELAYED_	9340_PR CDR AINDR DR I/AWT N/A_WT	OJECT <u>C</u> ILLING ME ILLING CC ILL RIG <u></u> SAMPLE CASING	HAFFEE_L THOD_4.2 SJB_SE CME_5502 R HAMME HAMMER	ANDFILL 5"_ID_ RVICES, (R_140_ N/A	
SAN A.S. C.S. D.S. P.S. S.T. T.P. W.S.	IPLE TYPES AUGER SAMPLE BL BL GRUNK GPEN C C C DRUKK GPEN C C C DRUKE SAMPLE C C C PITCHER SAMPLE C C C C C C DRUKE SAMPLE C C C C C C C C C C DRUKE SAMPLE C C C STITUTION C C C STITUTION C C C WASH SAMPLE U U	ACK IOWN JARSE SING AY AYEY IACHENTS RAVEL VERED ITLE	ABBREVI MIC MIC MOT MOD ORG ORC ORG ORC ORG ORC R PH PRE R R R R R R R R R R R R R R R R R R	ATIONS ACEOUS TIED I-PLASTIC NOCE XANIC SSURE-MORA SSURE-MANUA NOUAL X	SAT SD SD SI SI SM SM SM SM SM SM SM SM SM SM SM SM SM	SAMPLE SATURAT SAND SILTY SLUTY SLUTY WAIGHT (WEIGHT (WEIGHT (YELLOW	SOIL DESCRIPTION - RANGE OF PROPORTION "TRACE" - 0-3% "UTTE" - 5-12% SOUE - 12-30X SOUE - 12-30X CONSISTENCY EVEL LS LOOSE ST FIRM OF HAMMER OP COMPACT ST FIRM OF HAMMER DN DERSE ST FIRM OF HAMMER N DERSE ST FIRM OF HAMMER N DERSE ST FIRM
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.	но.	SAMPL HAXM. B PER 6 (FORCE	ES LOWS REC/AT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
	SAND AND GRAVEL UNIT 51'-58' Dense, gray, coarse to fine SAND, little to some fine to	14	31	5 6 8 1	5 3 4	-	Very stiff, gray, SILT to CLAYEY SILT, some f-m gravel, gravel sub-rounded, (ML-CL)
62	medium gravel. (SM) 58-71' Very stiff, gray, SILT to CLAYEY SILT, some fine to medium gravel, trace fine sand. (ML) 71'-92' Dense to very dense, gray, fine to medium GRAVEL, some clayey silt, trace coarse to fine sand, to gray,	22		14 14	5 3 ₁₈ " 4 6		Very stiff, gray, SILT to CLAYEY SILT, some f—m gravel, gravel sub—rounded, moist (ML—CL)
64 	fine to coarse, SAND, little fine gravel. (GM, GM-SM)	23	- 33		5 8 15 8 21		Very stiff, gray, SILT to CLAYEY SILT, some f-m gravel, gravel sub-rounded, moist slow to med. dilatancy (ML-CL) (drilling is difficult) increase of Gravel 65.75'-66'
66		32		2	5 9 23 8		Hard Gray Silt to Clayey Silt some(+) fm Gravel trace(+) f Sand Gravelly Silt slow to med. dilatancy
68 69		38			B 7 2 [*] 21 5		Hard, gray, SILT to CLAYEY SILT, some fm gravel, trace f sand, slow to med. dilatancy (ML (may be 2" of slop in sampler)
70		30			4 11 19 26	t.	Distinct Change @71' Gray, fm GRAVEL, trace clayey silt, little cf sand Gravel is sub-angular to angular shale (mostly Black petroliferous shale - natural oily odor

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	FIELD BORING LOG												
DEP	TH HOLE92' JOB	NO. 023	-934	<u>0</u> PI	ROJECT_CHA	FFEE_I	LANDFILL_WELL_INST&_DECOMMBORING NOMW-81						
DEP	TH SOIL DRILL <u>92</u> GA I TH ROCK CORE N/A WEAT	NSP	<u>GC</u> RAIN	DI	RILLING MET	100 <u>4.</u> SJB SI	25"_ID_HSASHEET7_OF_8 ERVICES_INCSUBSACS_						
NO.	DIST. <u>N/A</u> US. <u>N/A</u> TEMF	45_	F		RILL RIG <u>_CN</u>	IE_550	IX DRILLER D.M. DATUM N/A						
DEPT	TH WL. N/A HRS.	PROD	<u>N/A</u>	W	T. SAMPLER	HAMME	TR_140_LB. DROP 30" (AUTO) STARTED 0920/12-30-02						
TIME	WLHRS.	DELAYE	D <u>. N7</u>	<u>A_</u> W1	r. Casing H		DROP COMPLETED 1530/12-31-02						
SA	MPLE TYPES		ABE	IREVI	ATIONS		SOIL DESCRIPTION - RANGE OF PROPORTION						
A.S. C.S. D.D.	AUGER SAMPLE BL CHUNK SAMPLE BR DRIVE OPEN C	BLACK BROWN COARSE	M Nic Not	ME	DIUM ACEOUS TTLED	SA SAT	TRACE − 0-5X SAMPLE − 5-12X SATURATED SOUE" - 12-30X SAND SAND						
D.S. P.S. R.Ç.	DENISON SAMPLE CA PITCHER SAMPLE CL ROCK CORE CLY RICKTED THE	CASING CLAY CLAYEY	NP ORG			9 9 9							
T.O. T.P. W.S.	THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL WASH SAMPLE LYD	FRAGMENTS GRAVEL LAYERED	RES	PRE	SSURE-MANUAL	WL WH WR	IKACE. LS LOOSE S SOFT WATER LEVEL. LS LOOSE S SOFT WEIGHT OF HAMMER CP COMPACT FN FIRM WEIGHT OF ROOS DN DENSE ST STIFF						
	U		RX	ROC	*	Y	YELLOW V VERY H HARD						
ELEV. DEP TH	DESCRIPTION	BLOWS	1			REC/AT	DEPTH SAMPLE DESCRIPTION AND BORING NOTES						
-					(FORCE)	- <u> </u>	Very dense, gray, fm GRAVEL,						
	SAND AND						some clayey silt, trace, cf sand, moist						
	GRAVEL UNIT				29		(GM)						
73		65	-	37		4"							
	51'-58' Dense, gray, coarse to fine SAND.				3/		very little recovery						
	little to some fine to medium orayel (SM)				34	ļ							
-74	58'-71' Very stiff,					.							
	SILT, some fine to						trace clayey silt, wet						
	fine sand. (ML)				20		(SM-GM)						
- 75	very dense, gray,	134	Ē	38	19	13"							
	fine to medium GRAVEL, some clayey	134			15		bottom 0.2' of spoon: cf SAND;						
-	silt, trace coarse to fine sand, to gray,				17		- appears stratified wet (SP)						
. 76	fine to coarse, SAND, little fine gravel.			_									
	(GM, GM-SM)						M. dense, gray, fm GRAVEL, some,						
•					11								
77				70	9	11"							
		18		39	9								
.			-		12		-						
	N		1	1			77.8'-78': layer of Gray Silt and vf Sand (ML) med. guick dilatancy wet						
<i>^</i>			-										
			4		5		-						
_			1		l ă								
79		30	1	40	22	2"							
		1	1		26								
]				79.2'-80': Gray f SAND some silt						
80		\vdash	-1		-		wet (SM)						
			1				M. dense, gray, fm GRAVEL, little clayey silt,						
			1		3								
81		24	-14	1		13"							
			Ε		1/								
			1		בס		81.5'-81.8': f SAND, trace Silt (SP-SM)						
82		╞──┼		+	<u> </u>		quick dilatancy wet Very Dense Gray fm GRAVEL and fc sand.						
			Ξ		1=		trace clayey silt wet (GM)						
]		22		V. Dense						
83	i	53	- <u> </u> ₄	2	27	14"							
			1				· · · · · · · · · · · · · · · · · · ·						
]				- Clayey Silt appears to act as a cementing agent						
54			1										
					Golder Asa	ociates							

	EPTH HOLE	B NO. 0	23-934	F	ROJECT_CH		NG LOG
	EPTH SOIL DRILL <u>92</u> GA EPTH ROCK CORE <u>N/A</u> WE. D. DIST. <u>N/A</u> US. <u>N/A</u> TEM	INSP ATHER_L IP4	<u>GC</u> .T_RAIN 5_F	Di (Di Di	RILLING ME RILLING CO. RILL RIG <u> </u>	THOD	4.25"_ID_HSA SHEET 8_OF_8 _SERVICESINC. SURFACE EL.1495.6 50X DRILLER D.M. DATUM N/A
	ME WL. <u>N/A</u> HRS	S. PROD. S. DELAY	red_ <u>N/</u>	w ′A_w 	T. SAMPLER T. CASING	R HAMN	MER_ <u>140_LB.</u> DROP_ <u>30"_(AUTO)</u> _STARTED_ <u>0920/12-30-02</u> ER_N/ADROP_N/ACOMPLETED_ <u>1530/12-31-</u>
	SAMPLE ITPES A.S. AUGER SAMPLE BR D.O. DRIVE OPEN C D.S. OPINSWIPLE CA P.S. PITCHER SAMPLE CA P.S. PITCHER SAMPLE CA R.C. ROCK CORE CLY S.T. SLOTTED TUBE THIN-WALLED, OPEN FRAG W.S. WASH SAMPLE LTO U	BLACK BROWN COARSE CASING CLAYE FINE FRAGMENTS GRAVEL LAYERED LITTLE	ABE MIC MOT NP ORG PH RES RES RES		ATIONS DIUM ACEOUS TTLED NOCE SSURE-HYDRAULII SSURE-HYDRAULII IOU AL X	йХЯя́яЯ₽¥¥¥у-	SOIL DESCRIPTION - RANGE OF PROPORTION AT SATURATED 'ITTLE' - 5-12x SATURATED 'SOUL' - 5-12x SATURATED 'SOUL' - 5-12x SATURATED 'SOUL' - 12-30X SATURATED 'SOUL' - 12-30X SATURAT
ELEV DEP T	A DESCRIPTION	BLOW FT.	s/	NO. 1	SAMPLES HAMM. BLOW PER 6 IN. (FORCE)	S REC/A	AT DEPTH SAMPLE DESCRIPTION AND BORING NOTES
	SAND AND GRAVEL UNIT 51'-58' Dense, gray, coarse to fine SAND, little to some fine to medium gravel. (SM) 58'-71' Very stiff,	41		43	19 19 22 23	14"	Dense, gray, fm GRAVEL and fc SAND, trace(-) clayey silt, wet Gravel mostly sub-angular to sub-rounded
- - - - - - - - - - - - - - - - - - -	gray, SILT to CLAYEY SILT, some fine to medium gravel, trace fine sand. (ML) 71'-92' Dense to very dense, gray, fine to medium GRAVEL, some clayey silt, trace coarse to fine sand, to gray, fine to coarse, SAND, little fine gravel.	31		44	17 19 12 11	16"	same as above to 87' 87'-87.5': Gray fc SAND, little(-) f Gravel wet (SP) 87.5'-88': interbedded SILT and v fine SAND lenses wet (ML-SM) quick dilatancy
- 89 - 89 - 90		32	4	-5	12 16 16 20	3"	Dense, fm GRAVEL and cf SAND, little silt to clayey silt, wet (GM-SM) very little recovery
91		23	46	5	6 6 17 16	16*	M. dense, cf SAND, little fm gravel, trace clayey silt, (SM-SP) 91'-92': fairly clean f SAND, wet (SP)
	END OF BORING						
		<u></u>	<u> </u>	_ _ Go	older Assoc	iatos	

Job No.: 023-9340 GA Insp.: GOC	Project: Cha Drilling Meth	ffee Landfill Well Inst. od: 4.25" I.D. H.S.A.	Well No.: MW-81 Ground Elev.: 1495.6	Sheet Water I	1 of 1 Depth: N/A	
Weather: P. CLOUDY	Drilling Com	pany: SJB Services	Riser Elev.: 1498.34	Date: 1	2/30-12/31/02	
Temp: 24° F	Drill Rig: CM	E 550X	Time Started: 0920	Time Completed: 1530		
Anodized Alumir 8 Inch Diameter Protective Casin	um Locking	Vent Hole M	onitoring Point (well sticku	ip=2.74')		
		Drain Hole	Grour	nd Surfac	Ce	
Concrete Surfact 36 Inch Diamete	e Seal		~4.0 Feet thick	_		
Schedule 40 PV0 2" Riser Pipe	C					
			71 Feet thick			
Bentonite/Cemen	t Grout ——					
Fine Grained Cho	ker Sand		0.5 Foot thick	-		
Bentonite Seal			4.2 Feet thick			
Fine Grained Cho	ker Sand		0.8 Foot thick	-	5	
			2.34 Feet			
2-Inch Diameter S PVC Continuous V .006 Slot Screen	Schedule 40 Wire Wrap		Screened Interval: 9.8	5 Feet		
Morie # 00 Sand						
	End Cap		0.5 Feet			
		~8-Inch " Borehole	U.5 Feet			
otal depth of soil boring:	93' b.g.s.	Thickness of sar	ndpack: 12.5'	Well Botto	om: 92.5' b.g.s.	
Golder Associates Inc.	СЦАЕ		MW/ 91 Manitaring Wall Data			
bullalo, N.Y.			Sand a	Ind Gravel Unit		
Job No. 023-0340		EE, NEW YORK	Drawn by: AJN	Checked by: NKW	Date: 7/25/2003	
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a series and the

FIELD BORING LOG

DEP	TH HOLE JOB N	10. <u>033</u> -	934	<u>7</u> р	ROJI		NY/Ch	offee D	Design-CQA/NY BORING NO. <u>MW-828</u>			
DEP	TH SOIL DRILL <u>20 </u>	SP. <u>G.CO</u> IER <u>OVE</u>	RCA:	ي DI STDI	RILLI RILLI	ING METHO	orth C)imensi	ons, IncSURFACE EL1478.4			
NO.	DIST. N/A US. N/A TEMP.	45°F	NI /A	D	RILL	RIG Die	drich	0-50	DRILLER S. Fuller DATUM SITE			
DEP	TH WL. <u>50.9</u> HRS. WI 0930/10-14-03 HRS.	PROD.	N/A N//	w ^_w	T.S T.C	AMPLER H	IAMME MMER.	R <u>140-</u> N/A	<u>-LB.</u> DROP <u>30</u> STARTED <u>1400/11-6-03</u> DROP <u>N/A</u> COMPLETED <u>1600/11-6-03</u>			
S/	SAMPLE I TPES ABBREVIA HUNS SUIL DESCRIPTION * RANGE OF PROPORTION A.S. AUGR SAMPLE BL BLACK M. MEDIUM											
	S, AUGER SAMPLE BL B S, CHUNK SAMPLE BR B L, DRIVE OPEN C C L, DENISON SAMPLE CA C	ILACK IROWN COARSE CASING	MIC MOT NP		DIUM CACEO NTTLED	US	SAT SD SI	SAMPLE SATURAT SAND SILT	ED 5000000000000000000000000000000000000			
P.S R.C S.1	ROCK CORE CLY C SLOTTED TUBE F SLOTTED TUBE F SLOTTED TUBE F	LAY LAYEY INE BACHENTS	OG ORG PH	OF OF PR	ANGE GANIC ESSUR		SIY SM TR	SOME TRACE				
T.P W.S	L THIN-WALLED, PISTON GL C L THIN-WALLED, PISTON GL C LYD L LYD L U L	AVEL	R RES RX	RE RE	D SIDUAL	-	WR WR Y	WEIGHT (WEIGHT (YELLOW	DF HAMMER DP COMPACT FM FIRM DF RODS DN DENSE ST STIFF V VERY N HARD			
[I		1	Τ		SAMPLES		1				
DEPTH	DESCRIPTION	FT.		NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES			
						1_2			SA-1 Very soft, brown, with some orange-yellow and gray mottling, CLAYEY SILT, trace (-) fine gravel, no			
F		3		1	DO	1-2	$\frac{8"}{24"}$	-	structure, moist to wet. (CL-ML)			
Ē,	Very soft to firm, brown to					1-4	27					
E	gray-brown to gray, CLAYEY SILT to SILTY CLAY to SILT,				\square				SA-2 Compact, brown with gray and black mottling, c-f SAND, little fine gravel, trace (+) claver slit moist			
Ē	trace fine gravel, thinly laminated, slow dilatancy,	14	-	2	DO	5-7	1 <u>/</u> 24"	-	(SM)			
Ē	occassional fine sand partings. (CL-ML)			1		7-8			Potentially fill material.			
₽⁴	Compact, brown, coarse to fine SAND @ 2' to 6'.											
Ē	Compact, brown-gray to gray,	11	1 -	3	DO	3–5	1 <u>4"</u> 24"	_	SA- 3 Compact, brown with red-brown mottling, c-r SAND, some (-) fine gravel, little clayey silt, moist. (SM)			
Ē	gravel @ 7' to 8' and 17' to 18'.					6-5			Potentially fill material, bottom 2" of sample appears			
E 6	(SM-ML)				-				SA-4 6'-'7' Firm, gray-brown with red-yellow mottling, faint			
Ê		16			~~	4-6	1 <u>9"</u>		thin laminations, SILT and CLAY, trace (+) fine gravel, moist to wet (CI-MI)			
Ξ		10		4	00	10-13	27		7'-8' Compact, brown-gray, SILT, some fine sand,			
- 8				-					little (-) fine gravel, occasional thin silt and sand lens (SM-ML)			
Ē						3-6	21"		SA-5 Firm, gray-brown to orange-red, gray mottling,			
Ē		13		5	DO	7-9	24"		thinly laminated, moist. (CL-ML)			
E-10							i					
E						4-8	<u>20</u> "		SILT and CLAY, trace (-), f(+)m(-) gravel, thinly			
Ē		21		6	DO	13-15	24"	-	laminated, moist. (CL-ML)			
E 12												
Ē						5–10	21"		sand, occasional medium gravel, slow dilatancy,			
Ē	3	25		7	то	15-18	24"	-	thinly laminated, gravel subangular (some shale,			
Ē						<u></u>						
Ē			-				20"		SA-& Firm, gray, CLAYEY SILT to SILT, trace (-) fine gravel/coarse sand, slow dilantancy, thinly laminated			
È.		21	1	8	DO	6-8	2 <u>0</u> 24"	-	(less distinct), moist, occasional very fine sand			
E.			-			13-18						
Ē			-						SA-9 16'-17' Stiff, gray, CLAYEY SILT to SILT, trace fine gravel, thinly laminated, moist to wet. (CL-ML)			
É		32		9	DO	714	2 <u>3"</u> 24"	_	17'-18' Compact, gray, SILT, with occasional fine			
E			1			18–17			sand lenses, 0.1' thick quick dilatancy layer present, wet. (ML)			
- 18 F			1		T				SA-10 Firm, gray, CLAYEY SILT, little(-) fine gravel, thinly			
E		22	1	10	DO	4-9	2 <u>3</u> " 24"	_	occasional fine sand partings. (CL-ML)			
E]	-		13–15	- 1					
– 20 E	END OF BORING				-†							
E			Ē						Groundwater monitoring well installed in borehole. See well installation log for MW-82B.			
E			1									
F			4					-				
E			3									
E]					1				
L I		1 1	- 1				1					

Golder Associates

MONITORING WELL INSTALLATION LOG

JOB NO.	023-9340PROJECT	WMNY/WELL INSTALLATION/NY WELL NO	MW-82B SHEET 1 of 1
GA INSP.	GOC DRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELE	V. 1479.10 FT. WATER DEPTH 17.61 FT. BTOR
WEATHER	OVERCAST DRILLING COMPANY	EARTH DIMENSIONS COLLAR ELE	V. 1481.43 FT. DATE/TIME 12/02/03 1600
темр 45		1 D-50 DRILLER S. FULLER STARTED	0800/11-7-03 COMPLETED 1200/11-7-03
	(COOPDINATES N7864.69. E		TIME / DATE TIME / DATE
		MATERIALS INVENTORY	
	uc 2.0 in dia 14.0	If WELL SCREEN 2.0 in dia 7.0 If B	ENTONITE SEAL MEDIUM BENTONITE CHIPS
CASING TY	SCH. 40 PVC	SCREEN TYPE CONTINUOUS WRAP PVC IN	ISTALLATION METHOD POUR THROUGH AUGERS
	FLUSH THREADED	SLOT SIZE 0.006" FI	J TER PACK OTY 3 BAGS
		CENTRALIZERS NOT USED FI	UTER PACK TYPE QUARTZ SAND
CROUT TYP	E CEMENT/BENTONITE	DRILLING MUD TYPE NOT USED	STALLATION METHOD POUR THROUGH AUGERS
	· · ·		
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
-		SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW
Ē			STEM AUGER TO 19.5 FT. BELOW
F		HOLES ALUMINUM	GROUND SURFACE (BGS). SAMPLED
- 1479.10	GROUND SURFACE	- CASING	TO 20.0 FT BGS. SAND POURED
F 0:0			THROUGH AUGERS 18.5'-19.5' FT
E	CLAY HEL UNIT		BGS. WELL MATERIALS PLACED IN
Ē	0-20'		BOREHOLE USING 7 FT. OF WELL
E F	Very soft to firm, brown to	CEMENT/ BENTONITE	SCREEN, END CAP, 15 FT. OF WELL
Ē	to SILTY CLAY to SILT, troce fine		RISER AND SLIP TOP CAP FOR
-	dilatancy, accassional fine sand		E UVERALL LENGTH OF 22.0 FT. WELL
	Compact, brown, coorse to fine	9.0 -	MATERIALS PLACED TO 18.5 FT. BGS
È i	SAND 🛛 2' to 6'. Compact, brown—gray to gray,	9.5 - 27ø SCH. 40 PVC RISER	WITH 2.3 FT. STICKUP, SAND
-	SILT, troce fine sond, little fine arave! @ 7'-8' and 17' to 18'.		POURED THROUGH AUGERS 9.5 -
	(SM-ML)		NUCERS AT 0.5 TO FT
-			AUGERS AT U.S - 1.0 FT.
			STINCREMENTS. CHOKER SAND
		D.006" SLOT	PLACED 9.0 - 9.3 FT BGS.
-			BENTONTE CHIP SEAL PLACED 0.0
Ę			PLACED 55 - 60 ET BCS
- 20.0	FOR @ 20.0'	20.0 -	CEMENT /BENTONITE GROUT ADDED
20.0			40 - 55 FT BGS REMAINING
F		*	ALIGERS REMOVED 6-INCH
E			DIAMETER ANODIZED ALUMINUM
-		- -	FLCASING PLACED IN 3-FT. DIAMETER
Ē			BY 4 FT. DEEP CONCRETE PAD.
-			DRAINHOLES DRILLEO INTO
Ē			PROTECTIVE CASING.
Ē			NYSDEC ON-SITE DURING
Ε Ι			INSTALLATION AND CONCURRED WITH
			THE LOCATION OF THE SCREENED
;			INTERVAL.
Ē			-
F			E
Ē			F
-			
Ę I			WELL DEVELOPMENT NOTES
εl			DATE DEVELOPED: 12-10-03 TO
Ę			12-11.03
E		4	E DEVELOPMENT METHOD:
<u> </u>	ł		STAINLESS STEEL BAILER
El			E
:	- F		VOLUME PURGED: 3.15 GALS.
E	Ē		FOR FURTHER DETAILS SEE
F			ACCOMPANYING WELL DEVELOPMENT
E			FIELD RECORD.
E	i i i i i i i i i i i i i i i i i i i		ξ
E	-	l	<u> </u>

Western Expansion Area Logs



Soil Investigations and Natural Resource Assessments Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

> #15 1454.06 #16 SURF. ELEV. 1454,26

- MONITORING WELLS HOLE NO. 15-88 & 16-83
- PROJECT Monitoring well installation 2A790 E883 CLIENT Adjacent parcel to CID, Inc. Hand Road

LOCATION 19 feet E and 33 feet S of NW property corner

CID LANDFILL INC.

_ COMPLETED _<u>5/23/88</u>

Town of Sardinia

_	DATE STARTED	5/20/88

DEPTH feet	SAMPLE	0	BLO SAM	WS OI APLER	N N	DESCRIPTION & CLASSIFICATION	WEL 15-	L 88	WATER TABLE & REMARKS	WELI 16-
	1	1	3	3 8	- 6	Extremely moist dark brown silt loam (SANDY-SILT) topsoil with lit- tle very fine size sand, loose with abundant fine size roots 1.0			Topsoil to 1.0 feet over coarse silty lake sedi- ment to 1.5 feet over silty lake	
			9	LO 1	-19	brown silt loam (SANDY-SILT) with 1 to 3% mostly fine size gravel, trace very fine size sand, loose,			sediment to 2.0 feet over clayey lake sediment to	
5		4	4	6 6	10	 Weak blocky soil structure 1.5 Moist distinctly mottled light brown silt loam (CLAYEY-SILT) with 3 to 5% mostly shale gravel, firm, 	er pipe		silty lake sedi- ment to 8.0 feet over coarse silty	r pipe
	4	3	3	4 7	7	<pre>\\ \weak blocky soil structure \\ grades downward to 2.0 \\ Extremely moist distinctly mottled \\ olive brown silty clay loam (CLAYEY)</pre>	PVC rise	out	lake sediment to 10.0 feet over silty lake sedi- ment to 12.0 feet	VC rise
10	5	3	7	9	16	SILT), very stiff, weak blocky soil structure with nearly vertical gray desiccation cracks	iameter	onite gr	over clayey lake sediment to 14.5 feet over water sorted and depo-	ameter F
	6	2	2	5	7	Extremely moist distinctly mottled brown silt loam (CLAYEY-SILT), stiff, weak thinly laminated with nearly vertical gray desiccation	inside d	ent-bent	sited coarse silt with trace gravel, little sand to 17.7 feet over	nside di
	7	4	10	9	19	<pre>/ 'cracks / ' cracks / '</pre>	2) inch	Cen	water sorted and deposited sand and gravel to 21.0 feet over water) inch i
	8	3	2	1 4	6	<pre>1 to 3% mostly fine size subangular 1 gravel, firm, weak thinly laminated 1 with occasional nearly vertical 1 grav desiccation cracks</pre>) OWT		sorted and depo- sited sand with little silt to 22.0 feet over	Two (2
	9	2	7	1	18	Extremely moist to wet brown silt loam (SANDY-SILT) with 1 to 3% most	-			
	10	10	9	,	16	very fine size graver, little very fine size sand, compact, has a tendency to liquify when disturbed, weak thinly bedded 10.0			Continued on	
20_				16		See peyt sheet			sheet 2B.	<u> </u>

.

N = NUMBER OF BLOWS TO DRIVE _____ "SPOON _____ WITH _____ ILO ID. WT. FALLING ______ OF BLOW.



Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL HOLE NO. 15-88 & 16-88 continued

1454.06 #15 #16 SURF. ELEV. 1454.26

PROJECT Monitoring well installation 2A790 E883 CLIENT Adjacent parcel to CID, Inc. Hand Rd. CID LANDFILL INC. Town of Sardinia

LOCATION 19 feet E and 33 feet S of NW property corner

DATE STARTED 5/20/88 COMPLETED 5/23/88

PEPTH eet	SAMPLE NO.	BLOWS ON SAMPLER 0 6 12 18 24 N	DESCRIPTION & CLASSIFICATION	WELL 15	WATER TABLE & REMARKS	WELL 16
	11	3	Extremely moist faintly mottled brown silt loam (CLAYEY-SILT) with 1 to 3% mostly subangular gravel, firm, weak thinly laminated clear transition to12.0		(1) Bentonite pel- let seal (20.0 to 22.5 foot depth). 22.5	(2) (1
25	13	12 29 17 22 8 22 9 17 8 17	Extremely moist faintly mottled gray- ish brown silty clay loam (CLAYEY- SILT) with 1 to 3% mostly very fine size gravel, very stiff, weak thinly laminated with very thin coarse silt lenses	' VC riser pipe nite grout	(2) Two inch in- side diameter PVC riser pipe	slotted(#10) reen
	14	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Extremely moist to wet brown silt Extremely moist to wet brown silt loam (SANDY-SILT) with 5 to 15% most- ly subrounded gravel, little very fine size sand, loose, thinly bedded clear transition to17.7 Wet distinctly mottled brownish	de diameter P Cement-bentor	(3) Bentonite pel- let seal. 28.0	2 inch 5 PVC sci #7 ci74
30	16	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	gray very gravelly loamy sand (SAND) with 40 to 60% mostly subangular to subrounded gravel, fine to coarse size sand, compact in place, loose when disturbed, stratified, noticed rust color stain between 17.7 to	2) inch insi	30.0 loamy glacial to 24.5 feet 31.8 water sorted	till over and de-
35	18	6 13 18 31 9 19 42 23 24	18.3 foot depth, no odor L grades downward to 21.0 Wet faintly mottled grayish brown sandy loam (SILTY-SAND) with very fine to fine size sand, little silt, compact in place, readily liquifies, when disturbed, bedded 22.0	rted reen Two (33.8 25.0 feet over 34.0 glacial till feet over wate ed and deposit and gravel to feet over wat	el to r loam to 27.(r sort- ed sand 28.0 er sort
	19 20	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Extremely moist gray gravelly silt loam (SANDY-SILT) with 15 to 25% mostly subangular gravel, little very fine size sand, compact, mas- sive soil structure grades downward to 24.5	<pre>2 inch slot (#10) PVC sci #2 size sand</pre>	ed and deposi sand and grav little silt to feet over wate ed and deposi 39.0	ted el witł o 31.0 er sort ted
40[21	See next sheet.		40.0 Continued on s	sheet 2

N = NUMBER OF BLOWS TO DRIVE _____ " SPOON _____ WITH _____ Ib. WT. FALLING ______ " PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

SHEET _____ OF _____2B



Soil Investigations and Natural Resource Assessments Roycroft Campus. 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL #15-88 SURF. ELEV. 1454.06 HOLENO. 15-88 continued LOCATION 19 feet E and 33 feet S of Monitoring well installation PROJECT NW property corner Adjacent parcel to CID, Inc., Hand Rd. 2A790 E883 5/20/88 COMPLETED 5/23/88 CID LANDFILL INC. DATE STARTED Town of Sardinia BLOWS ON SAMPLER SAMPLE NO. WATER TABLE & REMARKS DESCRIPTION & CLASSIFICATION DEPTH :2 12 21 feet 3 Wet gray alternating loamy sand (SAND) coarse silt with little 11 to some sand to 32.0 with very fine to fine size sand, and 5 12 gravelly loamy sand (SAND) with 15 feet over silty glacial 7 to 40% mostly subangular to subroundtill to 34.0 feet over 12 ed gravel, fine to coarse size sand, 12 6 water sorted and deposi compact in place, loose when disturbed sand to 36.0 feet ov 29 ed, stratified water sorted and deposi 17 25.0 - - - - grades downward to - - - -22 ed sand and gravel to Extremely moist gray gravelly silt 8 end of boring. loam (SANDY-SILT) with 15 to 25% most-25 9 ly subangular gravel, little very 8 fine size sand, compact, massive soil 14 structure 14 7 27.0 - - - - clear transition to - - -15 28 Wet gray very gravelly loamy sand 13 (SAND) with 40 to 60% mostly subangu-118 lar to subrounded gravel, fine to 15 16 coarse size sand, compact in place, 20 43 loose when disturbed, stratified 28.0 - - - - grades downward to - - -30 Wet gray very gravelly sandy loam 16115 (SILTY-SAND) with 40 to 60% mostly 21 46 subangular to subrounded gravel, very lac fine to coarse size sand, little silt, dense in place, loose when disturbed, 6 13 stratified 31 31.0 - - - - grades downward to - - - -18 Extremely moist gray silt loam (SANDY-39 18 9 SILT) with 1 to 3% mostly fine size subrounded gravel, little to some very 35 19 42 fine size sand, dense, thinly bedded 32.0 - - - - grades downward to - - - -19 8 Extremely moist gray silt loam (CLAYEY-16 SILT) with 5 to 15% mostly subangular 37 gravel, hard, massive soil structure 134.0 - - - clear transition to - - - -7 20 8 27 Continued on sheet 2B. 9 See next sheet. 1 121 40 N = NUMBER OF BLOWS TO DRIVE _____ SPOON _____ WITH _____ ID. WT. FALLING ______ O_ " PER BLOW. SHEET 2A OF 2B mn LOGGED BY Dale M. Gramza/Geologist

	H	d.	Soil Investigations and N Roycroft Campus, 31 S. Grove	Vatural Resour	ce Assessments ora, NY 14052 • (716) 655-1717
	MONITO HOLE NO.	RING WELL 15-88 continue	ed		#15 #16 SURF. ELEV. <u>1454.06</u> #16
	PROJECT	Monitoring we	11 installation	LOCATION 19	feet E and 33 feet S of
	E883 CLIENT	CID LANDFILL	INC.	DATE STARTED	<u>5/20/88</u> COMPLETED <u>5/23/88</u>
	lui l Bl	Town of Sardi	nia		
	DEPTH HUND DEPTH	MPLER	DESCRIPTION & CLASSIFICATION		WATER TABLE & REMARKS
	11 3				
		7 12			
	126				
		17 ²⁹ 22			
	13 8 25 9	17			
		8 17			
	14 7		Wet gray loamy sand (SANI) with	
		13 28	fine to medium size sand, in place, loose when dist	, dense turbed	
	1516 20	43			
•.	30	23		36	5.0
,		25 46	/ grades downward t /	:0	
		25 /			
	13		Wet gray very gravelly lo	amy sand	
		39 /	angular to subrounded gra	vel, fine	
· . 	35 19	42 /	place, loose when disturb	ed, stra-	
	19.8	24			
	16	21 37	/	4().0
	20 7	28	Boring completed at 40.0	feet.	Water level at 13.1 feet below ground surface at
	40	<u>19</u> 27 21			ing to 40.0 feet the previous friday.
	40]			<u>_</u> <u>_</u>	ous triday.



Soil and Hydrogeologic Investigations • Wetland Delineations 1091 Jamison Road • Elma, NY 14059 (716) 655-1717 • FAX (716) 655-2915

	2A79	ad					HOLE N	IO. <u>MW 16S-01</u> SURF. ELEVATION <u>1453.50</u>
	PROJ	ЕСТ	MW]	[nsta	llatior	n- Cł	naffee Lai	ndfillLOCATION
			Town	of S	ardin	ia, Ei	rie County	y. New York
	CLIE	NT	МсМа	hon &	Man	n Co	nsulting Er	ngineers DATE STARTED 04/16/01_COMPLETED 04/15/01_
	DEPT IN FI	Ή Γ	BLC SAN	WS O IPLEF	N R			
	SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION WELL WATER TABLE AND REMARKS (1) 4"x 5" steel protective
	1	1	1	_2	8	3		Extremely moist dark brown (SANDY-SILT) topsoil with little sand, very loose, common fine size roots, granular soil structure, (ML). 0.9
	_2	8		_12_		23		Extremely moist faintly mottled brown (SANDY-SILT) with little sand, loose, weak blocky soil structure, (ML). grades downward to 2.0 (4) #4000 SAND PACK
5	3		5	7	10	12		Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% fine size gravel, little clay, very stiff and stiff, with nearly vertical gray
	4		_4	4	1	8		desiccation cracks, (ML-CL). grades downward to 6.0 Extremely moist distinctly mottled olive
10 —	5		1	- 2		3	9 9 9 9 9 9 9 9 9 9 9	brown (SILT) with 3 to 5% fine size gravel, trace sand and clay, loose becoming very loose below 8.0 feet, weak thinly bedded, (ML). Weak thinly bedded, (ML). Sand to 0.9 feet over coarse silty slack water sediment with little sand to 2.0 feet over silty
	 	2	2	7	12	9		grades downward to 11.0 Extremely moist distinctly mottled olive gray (CLAYEY-SILT) with 3 to 5% fine size gravel, little clay, very stiff, weak thinly laminated with nearly vertical gray designation gracks (MI=CL)
15—				9	12	,,		Boring completed at 14.0 feet. H4.0 ← 13.5' H4.0 ← 14.0' No water at completion.
				•				
20								

N=NUMBER OF BLOWS TO DRIVE 2 "SPOON 12 "WITH 140 Ib. WT. FALLING 30 "PER BLOW LOGGED BY Donald W. Owens, Senior Soil Scientist (byy) SHEET 1 OF 1



Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL HOLE NO. 17-88

SURF. ELEV. 1459.66

PROJECT 2A79n E883 CLIENT

Adjacent parcel to CID, Inc. Hand Rd.

LOCATION 17 feet south of edge of pavemen Hand Road

CID LANDFILL INC.

Monitoring well installation

5/24/88 COMPLETED 5/25/88 DATE STARTED

_	·			T	own	0	f Sardinia			
-	DEPTH	SAMPLE NO.		SAMPI			DESCRIPTION & CLASSIFICATION	WE	LL	WATER TABLE & REMARKS
-						9	Extremely moist dark brown silt loam (SANDY-SILT) topsoil with little very fine size sand, loose 0.5 Moist to extremely moist distinctly mottled brown silty clay loam (CLAYET SILT) with 1 to 3% gravel, stiff, weak blocky soil structure with near- ly vertical gray desiccation cracks grades downward to 2.0 Extremely moist faintly mottled dark brown silty clay loam (CLAYEY-SILT) with 1 to 3% mostly fine size gravel stiff, weak blocky soil structure with occasional nearly vertical gray desiccation cracks clear transition to 3.0 Extremely moist to wet distinctly mottled brown silt loam (SANDY-SILT) with 3 to 5% gravel, some very fine to fine size sand, compact, loose when disturbed, weakly bedded here grades downward to 3.5 Extremely moist faintly mottled gray ish brown silty clay loam (CLAYEY- SILT), stiff, weak thinly laminated	wo (2) inch inside diameter PVC riser pipe	Cement-bentonite grout	Topsoil to 0.5 feet over clayey lake sediment to 3.0 feet over water sorted and deposited coarse silt with some sand to 3.5 feet over clayey lake sediment to 6.0 feet over water sorted and de- posited sand with some silt to 6.5 fee over silty lake sedi ment to 15.0 feet over water sorted and deposited sand and gravel with little to some silt to 16.0 feet over coarse sil ty lake sediment to 18.0 feet over silty lake sediment to 28. feet over clayey lake sediment to 28.5 feet over coarse silty lake sediment
·. -	19	- 8 - 9	2	6 5 13 5 10		11	with occasional nearly vertical gray desiccation cracks L clear transition to 4.0 Extremely moist distinctly mottled olive brown silty clay (CLAYEY-SILT) with 1 to 3% mostly fine size gravel, sti thinly laminated with nearly vertical gray desiccation cracks and occasion al very thin coarse silt lenses 6.0	h ff,		with little sand to 29.5 feet over water sorted and deposited sand and gravel with little to some silt to 37.0 feet over water sorted and de- posited sand and gra vel to end of boring
	2			7 9 ER OF	13 14 BLO	16 WS	See next sheet.	Ib. W	r. fali	Continued on sheet 12
	տու լ	OGG	ED BY	Da	le M	1.	Gramza/Geologist	SHEET	1	OF <u>2A</u>



Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL HOLE NO. <u>17-88 continued</u>

SURF. ELEV. 1459.66

 PROJECT
 Monitoring well installation
 LOCATION 17 feet south of edge of pavemen

 2A79n
 Adjacent parcel to CID, Inc. Hand Rd.
 Hand Road

 E883
 CID LANDFILL INC.
 DATE STARTED 5/24/88
 COMPLETED 5/25/88

 Town of Sardinia
 Complete Starting
 Complete Started
 Complete Started

-	DEPTH feet	SAMPLE NO.	0/5	BLC SA			•	DESCRIPTION & CLASSIFICATION	WE	LL	WATER TABLE & REMARKS
		1	1	3	6	- - 7	9	Wet faintly mottled brown sandy loar (SILTY-SAND) with very fine to fine size sand, some silt, loose and com- pact, tends to liquify when disturb ed, bedded 6.5	l		
-	5	3	5	5	7		12	<pre>/ Clear transition to / Extremely moist faintly mottled / brown silt loam (CLAYEY-SILT) with / l to 3% mostly fine size gravel, / stiff, weak thinly laminated / grades downward to 8.0</pre>	riser pipe		
· . 		4	2	4	6	8	10	<pre>/ Extremely moist faintly mottled / olive brown silty clay loam (CLAYEY- SILT) with 1 to 3% mostly fine size gravel, very stiff, weak thinly laminated with occasional very thin</pre>	rieter PVC	onite grout	
	10	5	4	7	9		16	coarse silt lenses 	inside di	ament-bent	
			2	5	8	10	13	fine size gravel, stiff, thinly lami nated with very thin coarse silt lenses $$ clear transition to $-\frac{15.0}{-}$	(2) inch	Ŭ	
- · .		8	2	_5	6	10	11	<pre>/ Extremely moist to wet gray gravelly sandy loam (SILTY-SAND) with 15 to 30% mostly subangular gravel with very fine to coarse size sand, lit- the to some silt commact strati-</pre>	OWT		
-		9	6	_5 	13	 12	18	fied, noticed one (1) wet silt loam (SANDY-SILT) layer between 15.5 to 15.7 foot depth grades downward to ^{16.0}			
	, <u>, , ,</u>	10	5	7	10	13	16	Extremely moist to wet gray silt loam (SANDY-SILT) with 1 to3% gra- vel, little very fine size sand, compact, thinly bedded 18.0			
` =	20		<u> </u>		9	14		See next sheet.			Continued on sheet 2.
	N	= 1	NUM	BER	OF I	BLO	ws	TO DRIVE " SPOON " WITH	ib. WT	. FALL	.ing <u>30</u> " per blow.

SHEET <u>1A</u> OF <u>2A</u>



HOLE NO. 17-88 continued

DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

SURF. ELEV. 1459.66

Monitoring well installation PROJECT 2A79n E883 CLIENT

MONITORING WELL

Adjacent parcel to CID, Inc. Hand Rd.

LOCATION 17 feet south of edge of pavement Hand Road

CID LANDFILL INC.

5/24/88 COMPLETED 5/25/88 DATE STARTED

Town	of	Sardir	<u>lia</u>

		·								1	
		щ		SAN	WS O	N F		r 			
	DEPTH	N N	07	5/1	12/11	Λ.	DESCRIPTION & CLASSIFICATION	WE	يليلا	WATER	TABLE & REMARKS
	feet	ŝ	V	<u>/.:</u>]	<u>//</u>	24				<u> </u>	
		11	3				Extremely moist faintly mottled			1	
				7		<u>_</u> 1,-	gray silt loam (CLAYEY-SILT) with			1	
					10	ייך	1 to 3% mostly fine size gravel,			}	
			11		1	3	very stiff, thinly laminated ac a				
		112	12				- $ -$	8.			
-		126	+-+	7		-	'Extremely moist faintly mottled	्त			
			++	- .	1 2	-119	, Exclusive moist lainery motified	1.	님		
			┼─┼				/ Olive gray silt toal (CLAIDI-SIDI)	er	d		
			++		_ [1	<u>b</u>	/ with 3 to 5% mostly line size gra-	ъ.	18		<u>.</u>
		13	4				/ vel, very stiff, thinly laminated	н	ω		
	25	ļ	1	ᅶᄮ		-122	$/$ = grades downward to - $-\frac{28.0}{2}$	S	Ľ.		
					11		Extromoly moist faintly mottled	Ď,	l g		
					1	3	/ clive grou silty clay loom (CLAVEY	Ч	Ĕ		
		14	4				(CILIT) up a tiff thinly longinated	, ř	l ja		
				8		1.0	/ SILT), Very Still, thinty failurated	Ĕ	1]	
	·			-	10	740	2° clear transition to - 2°	i.	t i		,
	· · ·				1	6	Extremely moist to wet faintly moth	σ	l e		
		10	8	_			tled olive grav silt loam (SANDY-	de	မီ	[
		<u> </u>	14	24			STLT) with 5 to 15% mostly subangut	С	_		
		-	┼╌┼		20	-153	lar to subrounded gravel little	Ë.	ļ		
	20		╁─┼	-+	2.9		tai to subrounded graver, firete	~		30.5	
	30				-14	퀴	very line size said, very dense,	Ŋ			•
		110	129			+	weakly stratified 29.5	÷.	_		
			┼─┼	3/[-{78	the second second second los		l . ö		
			+		41		Wet gray very gravelly sandy loan	2	je n		Water level at 7.4
			╞─┼		4	<u>6</u>	(SILTY-SAND) with 30 to 60% mostly	Q	G E		feet below ground
		417	159				subangular to sugrounded gravel,	2	친구		surface at 9:00 ar
			\downarrow	71		-1117	very fine to coarse size sand, lit-	-	La la		5/25/88 with auges
					46		tle to some silt, very dense,	•	<u>ا للم ا</u>	33.7	at 30.0 foot depth
					4	3	loose when disturbed, stratified,				-
		18	3d				occasional wet brown very fine			34.8	Water level at 9.3
•	35			39			sandy loam (SILTY-SAND) lenses 1/4 to		-	5.00	feet below ground
					46	0.	1 inch thick				surface with auge
					4	7	$-$ grades downward to $\frac{34.0}{-}$	S 8	q	1	at 40 0 foot dept
		10	11				Wet grav very gravelly sandy loam	머님	l E		before well insta
				75/	1	1	(STUTY-SAND) with 40 to 60% mostly	ч С м	N N		Jation
			┼─┼	<u>,</u>	0		(SIMI-SAWD) with 40 to out mostly	ΩĔ.	e Ze		lation.
		+	++			-1-	Subaigulat to Subfounded graver,	ŭ,	L . T	ļ	
		20	28	-+		-1-	ve 26 5 to 27 0 fact doubtes	0 N			
		20	124	57			at 36.5 to 37.0 foot depth, very	<u>ي</u>	¥		
			+-+	<u> - 1</u> -	21	- 54	I fine to coarse size sand, little to	¥q.		20.0	
	4.0	.	+	-+	210	6	some silt, very dense, stratified	<u> </u>	J	39.8	Continued on sheet
. =	40	1			2	<u></u>	<u> </u>			<u> </u>	
							See next sheet.				
	N	I	NUM	BER	OF E	LOW	S TO DRIVE " SPOON12 " WITH140	lb. W	T. FAL	LING	<u>30</u> " PER BLOW.
		- 1			J. U						
	min L(DGG	ED B	Y <u>1</u>	Dale	<u>M</u> .	Gramza/Geologist St	HEET	2	0	<u>2A</u>



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MONITORING WELL HOLENO. <u>17-88 conti</u>nued

SURF. ELEV. 1459.66

PROJECT 2A79n	Monitoring well installation Adjacent parcel to CID, Inc. Hand Rd.	LOCATION <u>17 feet south of edge of pave</u> Hand Road						
E883 CLIENT	CID LANDFILL INC.	DATE STARTED 5/24/88 COMPLETED 5/25/88						
	Town of Sardinia							

	рертн	MPLE NO.			ON ER	DESCRIPTION & CLASSIFICATION	WEI	L	WATER TABLE & REMARKS
	feet	3 11 	3 3 7 3	7	13				
· · · · · · · · · · · · · · · · · · ·	25	13		7 12 1 11	16 16 22 13	See previous sheet.	er PVC riser pipe	onite grout	
	30	15	8 2 2 2 26 3	4 29 7	16 16 53 49 78	37.0	inch inside diamet	e Cement bent	<u>30.5</u>
- - -	35	17	7 59 7 3 30 3 30 3	1 1 46 9 46	46 	Wet gray very gravelly sandy loam (SILTY-SAND) with 40 to 60% mostly angular to subrounded gravel, very fine to coarse size sand, very dense in place, loose when dis-	PVC 1wo (2)	Rentanit Bentanit Dellet s	33.7 34.8 Water level at 9.3 fe below ground surface
-	40	19) 11 7 28 28 2	5/0 3 31	54	turbed, stratified 40.0 Boring completed at 40.0 feet.	#10 slotted sc	#2 size s	40.0 feet, before wel installation. 39.8 40.0
	N	=	NUMBE	ER OF	BLOW	S TO DRIVE " SPOON 12 " WITH I	1b. W1	. FAL	LING <u>30</u> " PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

SHEET ______ OF _____ ZA___

FIELD BORING LOG

DEPT	H HOLE JOB	NO. <u>033</u> -	9347		SOJE	CT. WMM	IY/Cho	offee D	esign-CQA/NY	BORING NO. MW-18BR
DEPT	H SOIL DRILL <u>26'</u> GA IN	NSP. <u>G.CO</u>				NG METHO	D <u>4</u> arth D	-1/4" imensio	ID Hollow Stem Augers	SHEET 1 of 2
	H ROCK CORE <u>NZA</u> WEAT	58F		UF DF	KILLI XILLI	RIG_Die	drich [)-50	DRILLER S. Fuller	DATUM SITE
DEPT	H WL. <u>N/A</u> HRS.	PROD.	N/A	w1	r. s	AMPLER H	АММЕ	<u>140-</u>	-LB. DROP 30"	STARTED 1000/11-5-03
TIME	WL HRS.	DELAYED	<u>N/A</u>	∖ w1	r. c	ASING HA	MMER_	N/A		_ COMPLETED 1215/11-5-03
SA	MPLE TYPES		ABB	REM	ATIC	ONS			SOIL DESCRIPTION - RA	NGE OF PROPORTION
A.S.	AUGER SAMPLE BL	BLACK	M	ME	DIUM		SA_	SAMPLE	"TRACE" - ("UTTLE" -	0-5x 5-12x
C.S. D.O. D.S.	CHUNK SAMPLE BR DRIVE OPEN C DENISON SAMPLE CA	COARSE CASING	NIC NDT NP			STIC	SD SD SI	SATURAT SAND SILT	ED SOME" - 1 ANO" - 3	12-30% 50~50%
R.C. S.T.	ROCK CORÉ CLY SLOTTED TUBE F THIN-WALLED, OPEN FRAG	CLAYEY FINE FRAGMENTS	ORG PH PM	OR PR	GANIC ESSUR	É-HYDRAUUC E-MANUAL	SMIR	SOME TRACE	CONSISTE EVEL LS LOOSE	ENCY s soft
T.P. W.S.	THIN-WALLED, PISTON GL WASH SAMPLE LYD U	GRAVEL LAYERED LITTLE	R RES RX	RE	SIDUAL CK		WH WR Y	WEIGHT O WEIGHT O YELLOW	F HAMMER CP COMPACT F RODS DN DENSE V VERY	FM FIRM ST STIFF H HARD
[1		1	I	1		SAMPI FS		1		
ELEV. DEPTH	DESCRIPTION	BLOWS/ FT.		ND.	TYPE	HAMM, BLOWS	REC/ATT	DEPTH	SAMPLE DESCRIPTION	AND BORING NOTES
E						(FORCE)		\succ	Augered with Standard Sampling	j 0' to 18' bgs.
Ē	CLAY TILL UNIT		\sum					ſ _		
Ē	0-26'									
2	Firm, olive brown to dark gray,				\sim			-		
E	CLAYEY SILT to SILT, trace coarse sand, trace fine to									
F	coarse gravel, thinly laminated, slow dilatancy, occassional								SA 1 Firm olive brown CLAVE	V SILT come mattled
E, I	sand or silt partings. (CL-ML)	10		Ι.	50	5-9	1 <u>8"</u>		gray-brown, yellow-brown	, moist,
F 1	GRAVEL at 19.0' to 19.1' and	10		1'		9-14	24		with occasional fm gravel	subrounded
Ē	at 23.3' to 23.5'. (SP-GP)								faintly laminated, fairly co	nsistent (ML-GL)
Ē										· · · ·
<u>–</u> 6			2	\sim			r	-		
Ē						\sim				
E				$ \land$			\sim			
E a								\geq		
Ē				1		3-5			SA-2 Firm, brown, SILT trace, v slow to moderate dilatanc	rf sand, wet
E		12	-	2	DO	7-13	2 <u>4</u> 24"	-	9.8'-10' Slight color chang	e to gray-brown CLAYEY
Ē				1		, 15			SILT, faintly laminated, me (ML-CL)	oist, occasional m-c sand.
E 10		\mathbb{N}						\geq		
E			\sum	L			\checkmark		·	
E					\sim				· · · · · · · · · · · · · · · · · · ·	
- 12					\square		L	-		
Ē			\mathbf{r}							
Ê					-				SA-3 Firm gray CLAYEY SILL	T alternating with occasional
E.,		17		1	5	3-7	<u>18</u> "		thin lenses of fine sand o	r silt (wet),
[' *				Ĭ	00	10-13	24		slow dilatancy, thinly lam	inated, moist to wet. (CL-ML)
Ē										
E			\sim					\sim		
- 16					/		ſ	-		
F						\sim				
ĘΙ				r			\sim			
E 18		\square	<u> </u>		-	-		\vdash		
Ę			3			4-5	20"		slow dilatancy, thinly lan	ninated (CL-ML)
F		15		4	DO	9-14	24"	-	19.0'-19.1' Gray, c-f SAN	ND and f GRAVEL (wet), little,
F _						5 17			ciayey silt, occasional f. occasional wet silt lense	gravel subrounded, es (thin). (SP-GP)
\mathbf{E}^{20}			:					· · ·	SA-5 Firm, brown-gray, CLAY	(EY SILT to SILT,
Εİ		13		_		1-4	2 <u>0"</u> 24"	_	thinly laminated, slow d	ilatancy, moist to wet. (CL-ML)
E I				ו א	50	9-11				
22				\vdash	\vdash					
E										
Εl								-	Continued on next page.	
E										

FIELD BORING LOG

DEPTH	1 HOLE	JOB NO	033	9347	PR	OJE	CTWMN	Y/Cho	ffee D	BORING NO. MW-18BR
DEPTH	I SOIL DRILL	GA INSP	<u>G.CO</u>	ABES	DR		NG METHO	0 <u>4</u> wth Di	-1/4	ID Hollow Stem Augers SHEET 2 of 2
DEPT	1 ROCK CORE <u>N/A</u>	WEATHE	R <u>CLU</u> 585	UDY		ILL(8		rich D	~50	DRILER S. Fuller DATIM SITE
NO. D	NSTUSNZA_ NZA		00 1		_ UR w/т	ILL S/		AMARES	140-	-18. DROP 30" STARTED 1000/11-5-03
	N/A	HRS DE		N/A	wT	. <i></i>			N/A	DROP N/A COMPLETED 1215/11-5-03
IIME										
SAI	MPLE TYPES			ABBR	EVI/	A TIC	NS			SOIL DESCRIPTION - RANGE OF PROPORTION
AS	AUGER SAMPLE		CIK	MIC	MED		s	SA SAT	SAMPLE	"TRACE" – 0–55% "LITLE" – 5–12% TED "SOME" – 12–30%
0.0. 0.5.	DRIVE OPEN DENISON SAMPLE	C COA CA CAS	RSE	MOT NP	NON	TLED	STIC	50 51 51	SAND SILT SILTY	"AND" - 30-50%
R.C. 5.T.	ROCK CORE SLOTTED TUBE		YEY	ORG PH	ORG	SSURE		SH N	SOME TRACE WATER LE	CONSISTENCT IFVFT LS LOOSE S SOFT
1.0. T.P. W.S.	THIN-WALLED, OPEN THIN-WALLED, PISTON WASH SAMPLE	GL GRA	VEL	RES	RED	DUAL		*	WEIGHT O	OF HAMMER OF COMPACT FM FIRM OF RODS DN DENSE ST STIFF V VRY H HARD
			ue							
ELEV.	DESCRIPTION		BLOWS/				SAMPLES	DEC (ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
DEPTH			F1.		NO,	TYPE	PER 6 IN. (FORCE)	KEC/AII		
E 22				3			e 7			think taminated occasional c. sand or f. gravel.
E			20		6	DO	5~/	<u>20"</u>	_	(CL-ML)
El				3			13-16	24"		23.3'-23.5' Gray c+f SAND, little f. gravel (wet) (SP)
- 24								<u> </u>		gravel subangular to subrounded.
Ē				1			3_10	20"		thinly laminated, slow-moderate dilatancy (CL-ML)
5			22		7	DO		24"	-	occasional thin, v fine sand lens (SM)
							12-18			gravel subrounded
F 26			—					1		
Ε	END OF DOR	ING		3						Groundwater monitoring well installed in borehole. See well
F									-	- installation log for MW-18BR.
Ε.										
28									-	
F				5						
E I										
E 30									-	
F										
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- 32									-	
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F 44			1	=	1	1			1	
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F									·	
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MONITORING WELL INSTALLATION LOG

JOB NO.	023-9340 PROJECT	WMNY/WELL INSTALLATION/NY	WELL NOMW-18BR1 of 1
GA INSP	GOC DRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUGERS	GROUND ELEV. 1461.37 WATER DEPTH 5.06 FT. BTOR
		EARTH DIMENSIONS	COLLAR FLEY 1463.48 DATE /THE 11-10-03/0720
WEATHER _	DRILLING COMPANY_		UAIE/ IMEUAIE/ IME 1600 /11_5 02
TEMP. 58	P DRILL RIG DIE TRICH	D=30 DRILLER S. FULLER	STARTED
LOCATION /	COORDINATESN9966.71, E	5964.00	
· ·		MATERIALS INVENTOR	Y
	0 20 t 230		5.0 If BENTONITE SEAL MEDIUM BENTONITE CHIPS
WELL CASIN			P DVC
CASING TYP	E SCH. 40 PVC	SCREEN TYPEON TINUOUS WRA	INSTALLATION METHOD
JOINT TYPE	FLUSH THREADED	SLOT SIZE0.006"	FILTER PACK QTY2.5 BAGS
GROUT QUA	NTITY	CENTRALIZERS NOT USED	FILTER PACK TYPE QUARTZ SAND
CPOUT TYP	E CEMENT /BENTONITE	DRILLING MUD TYPE NOT USED	INSTALLATION METHOD POUR THROUGH AUGERS
		ONLENG MOD IN E	
			INSTALLATION NOTES
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SKEICH	
È		SLI	P CAP
È .			6" & ANODIZED STEM AUGER TO 25.5 FT. BELOW
F			ALUMINUM - GROUND SURFACE (BGS) SAMPLED
t		HOLES	
- 1461.37	GROUND SURFACE		A XAXY
± 0.0		: x>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	THROUGH AUGERS 25.0'-25.5' FT
Ł	ULAT HLL UNH		3' CONRETE BGS. WELL MATERIALS PLACED IN
F	0-26'	:	E BOREHOLE LISING 5 ET OF WELL
t.	Firm, olive brown to dark grav		
F	CLAYEY SILT to SILT, trace		LI SUREEN, END CAP, 23 FT. OF WELL
F	coarse sand, trace fine to coarse gravel, thinly laminated		CEMENT/ RISER AND SLIP TOP CAP FOR
F	slow dilatancy, occassional sand		GROUT
F	or silt partings. (CL-ML) Coarse to fine SAND and fine		8" BOREHOLE - MATERIALS PLACED TO 25.0 FT BOS
E .	GRAVEL at 19.0' to 19.1' and at		
Ł	23.3' to 23.5'. (SP-GP)		HWITH Z.Z FT. STICKUP. SAND
<u>t</u>			SCH. 40 FOURED THROUGH AUGERS 18.0 -
t		: , N N ^{₽∨⊂}	25.0 FT. BGS WHILE REMOVING
F			AUGERS AT 0.5 - 1.0 FT
E			
F		BENTONITE	CHURCH SAND LINUKEMENTS. CHUKER SAND
t	1		PLACED 17.5 - 18.0 FT BGS.
Ł	1		BENTONITE CHIP SEAL PLACED 12.8
F			- 17.5 FT BGS CHOKER SAND
È			FILTER SAND
E		20.0 -	- PLACED 12,3 - 12,8 F1. 865.
ţ		: ビオニ酸湯	CEMENT/BENTONITE GROUT ADDED
Ł			WRAP PVC - 4.0 - 12.3 FT. BGS. REMAINING
F			0.006" SLOT - AUGERS REMOVED. 6-INCH
¢.		다. [Main 1997] - 1997	
£		24.56 - 25.0	
<u> </u>		- 25.5	CASING PLACED IN 3-FT. DIAMETER
26.0	EOB @ 26.0'	-	BY 4 FT. DEEP CONCRETE PAD.
F	•	-	- DRAINHOLES DRILLED INTO
F		-	
F.		-	
F		-	F
F		-	El
F		*	E
F	• • •	-	E
F		-	
F .		-	F
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۲,		-	
F		-	F WELL DEVELOPMENT NOTES
F	1	-	DATE DEVELOPED:11-7-03 THROUGH
F		-	12-10-03
F		-	
F		-	
ţ	1	-	STAINLESS STEEL BAILER
ŧ		[FI
F		-	VOLUME DUDGED, D.85 CALS
È.		-	VULUME PURGED: 9.03 GALS.
È	1	-	FOR FURTHER DETAILS SEE
ţ	1	-	ACCOMPANYING WELL DEVELOPMENT
ţ			FIELD RECORD.
F		-]	
ţ		-	F1
t		<u> </u>	Fl



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MONITORING WELL HOLE NO. <u>30-88</u>

SURF. ELEV.

PROJECT	Monitoring well installation	LOCATION ALC	ng western	boundary	of
2A79o	Adjacent parcel to CID, Inc.	adj	acent parc	el	
E883 CLIENT	CID LANDFILL INC.	DATE STARTED	6/15/88	COMPLETED	6/16/88
	Town of Sardinia				

			л – –	DESCRIPTION & CLASSIFICATION	WE	ELL	WATER TABLE & REMARKS					
	feet	SAN	zļ	6	×12	1/18	24	N				
-		1	1	2					Moist dark brown silt loam (SANDY-			Topsoil to 0.4 feet
		Γ			4				SILT) topsoil with little very find	3		over coarse silty lake
		Γ	Τ			5		9	size sand, loose, abundant fine			sediment to 1.5 feet
		-	Τ				10		size roots 0.	1		over clayey lake sedi-
			2	3	_				Moist distinctly mottled brown sil	9		ment to 12.0 feet over
-					4			[₁ _	Loam (SANDY-SILT) with little very			coarse silty lake sde:
						6		10	tine size sand, loose, weak blocky			ment with little very
							7		Soll structure with hearly vertica.	υ		fine size sand to 15.
			3	3					gray desiccation cracks	, d		feet over coarse silty
-		5			4			10				lake sediment with
		L				6			Moist faintly mottled brown silty	er		trace to some very fu
		L	_	_			7		15% monthy subargular gravel stif	l is		size sand to 28.0 feet
•		4	1	4					weak blocky soil structure with ver		rt	over water sorted and
		L	_		5			13	thin coarse silt lenses and occa-	ľŽ	ដ្ឋ	deposited sand with
ан С			\downarrow	-		8			sional extremely moist brown silt			Little silt to 29.0
		-	┯╋	_+			12		loam (SANDY-SILT) lenses 1/16 to	E	ite	reet over water sorre
		ļ	5	5	_				1/8 inch thick below 2.0 foot dept	, e	ц И И	and deposited coarse
		-	+	+	9	1.0		24	and nearly vertical gray desiccation		ut n	some sand to 30 5 fee
			+	+		12	10		\ cracks	g [pe	over water sorted and
-		101-	+	$\frac{1}{2}$			10		- grades downward to ⁸ .	de	4	deposited coarse silt
•		님	4	3	0				Extremely moist faintly mottled	Si	l la	and gravel with little
			╉		-2	15		24	brown silty clay loam (CLAYEY-SILT) .F. (l m	sand to 31.5 feet ove:
		-	+	-+		17	17		with 3 to 5% mostly fine size sub-	ਸ਼		water sorted and depo-
		- T-	7	1					Sangular gravel, very stiff, weak	L G		sited coarse silt with
-			4	-	٥			2.1	> thinly laminated 12.0			little sand to 34.5
			\uparrow			12		24	$$ grades downward to - $-\frac{12}{2}$	2		feet over water sorte
			T		_		14		Extremely moist faintly mottled		1	and deposited sand and
		1	3	4					brown silt loam (SANDY-SILT) with	1 Å		gravel to 40.5 feet o
•		15	1		11			24	1 to 3% mostly fine size subangula	1 .		water sorted and depo
						13		24	gravel, little very fine size sand	/		sited sand to 42.5 fe
							14		compact, thinly bedded with occa-			over water sorted and
		9		3					sional sandy loam (SILIY-SAND)			deposited sand and gr
					8			10	lenses 15.5	4		vel with little silt
_						11			Extremely moist faintly mottled			end of boring.
							12		gray silt loam (SILT) with 3 to 5%			
		1	0	6			·		mostly fine size subangular gravel	1		
					8			20	trace to little very fine size sand	1,		
		L	\downarrow			12			compact, thinty bedded			Continued on sheet 2.
:		20		1			12			<u> </u>		

 N = NUMBER OF BLOWS TO DRIVE
 2
 "SPOON
 12
 "WITH
 140
 Ib. WT. FALLING
 30
 " PER BLOW.

 mnLOGGED BY
 Dale M. Gramza/Geologist
 SHEET
 1
 OF
 3



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MONITORING WELL HOLENO. <u>30-88 conti</u>nued

SURF. ELEV. _1471_21_

PROJECT	Monitoring well installation Adjacent parcel to CID Inc.	LOCATION <u>Alo</u> adja	ng western acent parce	boundary (of
E883 CLIENT	<u>CID LANDFILL INC.</u>	DATE STARTED	6/15/88	COMPLETED	6/16/8

		_					_		1		
		Щ		BL	OWS						
	DEPTH	M S		15/	112	111/	1.	DESCRIPTION & CLASSIFICATION	WE	LL	WATER TABLE & REMARKS
	feet	SA	V	6/1	2/11	3 24	4	·	<u> </u>		
		11	5					Extremely moist faintly mottled gra	¥		water sorted and
				6			h .	silt loam (SILT) with 3 to 5% mostl	4		deposited sand to
			Τ		8		μ4	fine size subangular gravel, trace			42.5 feet over
						111		to little very fine size sand, com-			water sorted and
		112	2 3	1	1		1	pact, thinly bedded			deposited sand
-		1.		6	1	1		r grades downward to $ \frac{2}{2}$	8		and gravel with
			+	\uparrow^{\vee}	8	1	14	(Wet gray silt loam (SANDY-SILT) wit	l if	l H	little silt to
			+	+		a	\vdash	/ little to some very fine size sand.	ΤĽ.	5	end of boring.
		17		+	-		†	(compact tends to liquify when dis-	E E	55	
		1	74	6		+	-	turbod thinly bedded	its	ø	•••
-		+		<u>+ 0</u>	1.		14	curbed, childry bedded 28.0	H H	H.	
				+	10			/ / Estremely maint distinctly mattled	18	1 8	
		-			+	┼┷┶		/ Extremely noist distinctly notted	р _р	b l	
		μ	44	<u> </u>				/ Drown Sandy Ioan (Silli-SAND) with	L H	8	
		—		15		-	16	/ very fine to fine size sand, little	GT	1 1	
-	· · · · · · · · · · · · · · · · · · ·	<u> </u>	+	 	┼┷┵	20		/ Silt, COMDACT, LOOSE When disturbed	l A	L L	
		\vdash				<u>μυ</u>	V/5	' bedded 29.0	Ji	ļ ģ	
		15	5 7	<u> </u>				clear transition to		Ŭ	
			<u> </u>	11	+		28	Extremely moist gray silt loam	ğ		
			<u> </u>	ļ	17			(SANDY-SILT) with 3 to 5% mostly su	₿- <u>[</u> 2		
	30			ļ	<u> </u>	119		angular gravel, little to some very	.H		30.0
		16	56	ļ	<u> </u>			fine size sand, compact, thinly bed	‡		· · · ·
			<u> </u>	21			51	ded = clear transition to = -30.5	ŭ	b t	
				ļ	30			Extromoly moist gray gravelly silt	н. н	<u>ה</u> מ	
				1		9		Lorm (SANDY-SILT) with 15 to 309	5	t t	
		117	<u>73</u>					mostly subargular gravel little		1 9 5	
				10			24	mostry subangular graver, fittle	3		33.1
					14		27	Very fine size said, very delise,	H H		
				<u> </u>		51		Loose when disturbed, stratified			34.0
		18	330)				Extremley moist gray silt loam	6		
	35		Т	28			51	(SANDY-STLT) with 1 to 3% mostly fi	ne∓		
					26		54	size subangular gravel. little very		g	
					1	16		fine size sand compact thinly bed	1 §	sa	
		10	15					ded 34.5	I Ä	0	
			T	10			24	Wet distinctly mettled dark brown	, N	I Z	
			—		14		24	Wet distinctly notted date brown	1 TX	တ်	
-				1-		15		10 to 60% mostly sold (SAND) with	T H	2	
		20	111	1	1				ō	#	
		40		21	1			rounded graver, very rine to coarse	ຼີ		
			+	144	24		45	size sand, very dense in place, loc	se I		
	40		+		1-	24		when disturbed, stratified 36.0	_ ∼ _		Continued on sheet 3.
:	40	<u> </u>	1					See next sheet.	1	<u>i</u>	
	-										
	N	- I	NUM	1BEF	ROF	BL	ows	TO DRIVE SPOON WITH 140	lb. W	T. FAL	LING <u>30</u> " PER BLOW.
.*										_	
	mn LO	GG	ED E	ΒY	Da	le	М.	<u>Gramza/Geologist</u>	SHEET		

MULTORING MELL MOLEN 10-88 continued PROJECT Monitoring well installation Installation Installation 2019 CID LANDFILL INC. DATE STARTED 6/15/88 COMPLETED 6/15/88 Tom of Sardinia DESCREPTION & CLASSFICATION WELL WILL WATER TABLE & REMARKS 1 1 10 POLY POLY POLY LY 1 1 10 POLY POLY				\prec	Z					<i>Soil In</i> Roycroft	<i>vestigal</i> Campus	t ions and 31 S. Gr	d Natur ove St.	• East A	o urce A Aurora,	Asse NY 1	s sment 4052	:s ∙ (716	5) 655-	1717
PROJECT Monitoring well installation 20190 Adjacent parcel to CID. Inc. CIED LANDETLL INC. COMPOSED CIED LANDETLL INC. Town of Sardinia Deprind Feet 214 41 1 200 19 10 10 10 10 10 10 10 10 10 10 10 10 10			MC HC	NITC	DRIN	ig V 30-	VEI 88	L <u>conti</u> nu	led								su	JRF. EL	EV. <u>1</u>	471.21
2/3/20 Additecting Dates to CLD_INC.			PR	OJECT	1	<u>10n</u>	it	oring we	<u>ll in</u>	stalla	tion	· .	_ LO0	CATION	Along	j we	stern	bour	ndary	of
Town of Sardinia DEFIN general BLOWS ON (1/1/1/1/1/1) feet 21 4 1 11 20 11 22 3 111 12 22 4 111 12 22 5 111 12 22 6 111 12 23 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			EX CLI	383 ENT	<u>د</u>			NDFILL	INC.		Inc.		- DA	TE START	aojac ED	enr 6/19	<u>parc</u> 5/88		PLETED	6/16/
DEPTH Feet WELL WATER TABLE & REMARKS 21 4 Wet gray very gravelly loamy sand (SAND) with 40 to 60% mostly suban- gular to subrounded gravel, occasion al cobble, very fine to coarse size sand, compact to dense in place, loose when disturbed, stratified 40.5 %, K To be subrounded gravel, occasion al cobble, very fine loamy sand (SAND compact in place, tends to liquify when disturbed, beddd clear transition to - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -						low	n c	of Sardi	nia											
21 4 11 20 9 11 223 11 1223 11 1223 11 1223 11 123 40.5 18 33 45 40.5 18 23 18 23 18 23 18 23 18 23 18 23 18 23 18 23 18 23 18 23 18 23 18 23 19 44.0 111 1000000000000000000000000000000000000		DEPTH feet	SAMPLE NO.	0 6			N		DE	SCRIPTIO	N & CLASS	SIFICATION			WE	LL	WATEF	TABLE	& REMA	RKS
15 33 loose when disturbed, stratified 40.5 % E 10 45 18 33 Wet gray very fine loamy sand (SAND), compact in place, tends to liquify 11 123 45			21	4	L 9	11	20		Wet gr (SAND) gular al cot sand,	cay ve: with to sub ble, v compace	ry gra 40 to bround very f ct to o	velly] 60% mc ed grav ine to dense i	bamy s ostly s rel, od coarse n plae	sand suban- ccasion e size ce,	lotted (#10 screen	ize sand		·		
42.5 Clear transition to Wet gray very gravelly sandy loam (SILIT-SAND). with 40 to 60% mostly subangular to subrounded gravel, very fine to coarse size sand, lit- tle silt, dense in place, loose when disturbed, stratified 44.0 Boring completed at 44.0 feet.		45			5 18	23	33		loose Wet gr	when o	distur ry fin place,	bed, st e loamy tends	ratif: sand to lie	ied 40.5 (SAND quify	· 2" s PVC	#5 s	44.0			
very fine to coarse size sand, lit- tle silt, dense in place, loose when disturbed, stratified 44.0 Boring completed at 44.0 feet.	·	<u> 4</u> 2							when o Wet gr (SILTY subance	- clea ay vei -SAND	er training of the second second second second second second second second second second second second second s to submit to s	edded nsition velly s 40 to rounded	to - andy 1 60% m orave	_ 42.5 loam ostly	×					
50 Boring completed at 44.0 feet.									very f tle si listur	ine to lt, de bed, s	o coar: ense iu strati:	se size n place fied	sand,	, lit- se when 44.0	n I					
		50						ł	oring	(comp.	Leted a	at 44.0	reet	•						
		55																		
																·				
60 60		60																		



Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

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MONITORING WELL HOLE NO. <u>32-88</u>

SURF. ELEV. 1470.40

PROJECT 2A790	Monitoring well installation Adjacent parcel to CID, Inc.	LOCATION Within MW cluster 30-88 & 31-88 along western boundary of adjacent parc
E883 CLIENT	CID LANDFILL INC.	DATE STARTED <u>6/16/88</u> COMPLETED <u>6/16/8</u>
	Town of Sardinia	

		Щ.		BL(SA	MPL	ER		WELL.	WATER TABLE & REMARKS
	DEPTH	MAN	7	6	12/	18	N	DESCRIPTION & CLASSIFICATION	
_		1	2	3			9	Moist brown silt loam (SANDY-SILT) topsoil with little very fine size	Topsoil to 0.5 fee over coarse silty
					6	7		sand, loose with fine size roots 0.5 (1) (2)) little sand to 1.5
-	·	2	4	5			11	Moist distinctly mottled brown silt loam (SANDY-SILT) with little very	lake sediment to
					6	7		soil structure	4.5
_								Moist distinctly mottled brown silty clay loam (CLAYEY-SILT) with 1 to 3	
		 						mostly fine size subangular gravel, stiff, weak blocky soil structure,	6.0
_		3	5	8				tion cracks	2
	,				13	19	21	Moist faintly mottled brown silt	
_	10	4	6	13	15		28	<pre>mostly subangular gravel, stiff, weak # # # # # # # # # # # # # # # # # # #</pre>	1 0 1
						17		Moist faintly mottled brown silty	= 11.0
_								clay loam (CLAYEY-SILT), very stiff, weak thinly laminated 10.5	
								Moist gray silty clay loam (CLAYEY- SILT), very stiff, weak thinly lami-	
	15	-						nated 11.0	
								Boring completed at 11.0 feet.	No water at completion.
									(1) Two (2) inch inside diameter PVC riser pipe.
	<u>.</u>								(2) Cement-bentonite gr
									(3) Bentonite pellet se
	20	Ŀ							
	N	1 =	1UM	BER	OF	BLO	ows	5 TO DRIVE " SPOON " WITH Ib. WT. F	ALLING " PER BLOW.
	mn LO	GGE	ED E	١Y	<u>Da</u>	le	<u>M.</u>	Gramza/GeologistSHEET	<u>1</u> OF <u>1</u>



Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL HOLE NO. <u>50-88</u>

SURF. ELEV. 1459.85

PROJECT	Monitoring well installation	LOCATION 285	feet WNW	of gully, along we
2A790	Adjacent parcel to CID Inc.	em	boundary	line, approximatel
E883 CLIENT	CID LANDFILL INC.	DATE STARTED	6/7/88	COMPLETED6/8/88

		PLE		BL S/	OWS			5.077 T	T	
	DEPTH feet	SAM	0/6	6	2 12	18/2	4 14	DESCRIPTION & CLASSIFICATION WELLI		ER TABLE & REMARKS
-		1	2		Ĺ	Ĺ	Ĺ	Moist faintly mottled dark brown	<u> </u>	Topsoil to 0.6 fe
				2	ļ	[4	silt loam (SANDY-SILT) topsoil with		over water sorted
•			<u> </u>		2	<u> </u>	Ļ	little very fine size sand, loose,		and deposited coa
			-		ļ	<u>10</u>	<u> </u>	with numerous fine to coarse size		silt with little
-		+2	+7-	12	+		<u> </u>	Moist faintly mottled brown loam		some sand to 3.0
			+	12	111	├ ──・	23	(SANDY-SILT) with 5 to 15% mostly	H H	sorted and deposi
		-				8		fine size subangular gravel, little	<u>e</u>	ed coarse silt an
		3	3					to some very fine size sand, loose,	5	gravel with littl
	5			4			٩	weak thinly bedded with occasional	μ	sand and some cla
					5		Ľ	, \ thin very fine to fine size sand ≥	ы Б	to 4.0 feet over
		L				5		lenses inch thick 3.0 H	L L	water sorted and
·		4	3		<u> </u>		· · ·	V clear transition to = 0	Å	posited coarse si
		┝		2	2		5	Moist to extremely moist distinctly	1 L	and gravel with s
		1			2	2		(SAND-STLT-CLAY) with 15 to 25%	E	over water sorted
		5	2			-		mostly subangular gravel little	UG CG	and deposited coa
		F		2				very fine size sand, some clay.		silt with little
					2		4	compact, weak blocky soil structure		sand to 9.0 feet
_	10					2		1		over water sorted
		6	3					Extremely moist faintly mottled	111 0	and deposited san
			$\left \right $	3			9	dark brown gravelly silt loam (SANDY-		- and gravel with
		├			6			SILT) with 15 to 30% mostly subangu- N	a le	Little to some si
	÷	7	Δ			-9	-	lar gravel, some very fine to medium	۲ ۳	clayov lake sedi-
-		./		14				size sand, loose, weakly stratified, 🛓	et on	ment to 12.5 feet
				-	20		34	with occasional thin seams that have		over water sorted
						11		\ \a high sand content 8.0	2 4 ₁₄ .0) and deposited san
		8	7					Future la maint frightly matthe	14.5	and gravel with
	15			5			a	brown silt losm (SANDY-SILT) with		little to some si
					4		-1	1 3 to 5% mostly fine size subangular		to 15.0 feet over
		-				5		\ \ gravel, little very fine size sabangaran		water sorted and
		9	3			-+		\stiff, thinly bedded	g	deposited sand and
				- 4	-	-	4	1 clear transition to $ \frac{9 \cdot 0}{1 + 0}$	au l	gravel with little
-					-4	Δ	-	Wet faintly mottled brown gravelly	υ	over water sorted
		10	3					sandy loam (SILTY-SAND) with 20 to	л. Г.	and deposited coa
				3				40% mostly subangular to subrounded	S	silt and gravel w
					3		6	gravel, very fine to coarse size sand,	₩ ₩	
·	20					8		little to some silt, loose, stratified		Continued on shee
Ĩ								See next sheet.		
	N÷	= N	IUME	BER	OF	BLC	ws	D DRIVE SPOON WITH Ib. WT. I	FALLING	<u>30</u> " PER BLOW.
	mn LO(GGE	DB	Ý.	Da.	le	М.	ramza/Geologist	<u> 1 (</u>	OF <u>2A</u>



DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL HOLE NO. <u>50-88 continued</u>

SURF. ELEV. __1459.85__

PROJECT	Monitoring well installation	LOCATION 285 feet WNW of gully along wes
2A790	Adjacent parcel to CID Inc.	ern boundary line, approximately
E883 CLIENT	CID LANDFILL INC.	DATE STARTED COMPLETED

_	DEPTH	MPLE		BLC SAI			_					DI	ESC	RIPT		& CLA	SSIFI	CATIO	N				WE	ELL	L	WAT	ER T	ABLE	S REN	ARKS		
	feet	SAN		6 12	·"/13	21																	,	-				= <u></u>	 pc	and	to 1	
		냳	42	5	-+		-ľ/,	,		E b	≤xt orc	owr	eme n s	≥⊥y sil	mo tv	ist cla	ra: v lo	inti Sam	y m (CL	AYEY	Lea (-S]	LT)		ee	g			fee	e s	ver	sil	ty.
		<u> </u>	+-		2	4	۱ ۱	$\langle \cdot \rangle$		w	wit	th	3	to	- <u>7</u> 5%	mo	stl	y fi	ne	size	ອ່ຣເ	, b-		SCI	gu			lał	e s	edi	nent	ţĊ
						5	<u>'</u> [<u>```</u>		a	ang	gu]	lar	: g	rav	el,	st	iff,	wea	ak t	thir	ly	07	g	()			23.	0 f	leet	ovei	2
_		1	2 4				_/	1,1		1	Lan	nir	nat	ed	wi	th	ver	y th	nin (coar	rse	sil	14		ΪŻ			CO2	irse	: Sl.	Lty imeni	- +
			_	8			7	1	۱,	1	Ler	nse 	эs,	n	otı ~ (Ced	th: rv_0	IN N CANT	very	gra ons	lve. bot	LTÀ Moo		9	ທ ດ			24	.e .0 f	eet	ove	
			+	+		10	-[]]	i ì	Ì,	S ∖1	3ar 11	nay n	4 1 7 + 7	10a	1.2	fo	nt (lent	יד יוי ה	ens	Dei		<u>,</u> ч, ч,	N	#			sil	.ty	lake	e sec	di-
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		25		6		17	,11	h l		E	Ext	tre	eme	ely.	mo	ist	di	stir	nctly	y mc	ott]	Led						ove	r c	laye	ey la	ake
					11		<u>'</u> '	li '	۱. ۱.	d	lar	rk	br	:ow	n v	ery	gra	avel	ly	sand	ly]	Loar		1)				sec	lime	ent 1	to er	nd
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				┼─┤	10	12	-	li –	١	g	gra	ave	el]	Ly	san	dy .	loar	m (S	ILT	Y-SA	AND))		f.	4							
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_	·	11	7 5	1, 1			-	1	!]	Ĺ				- c	lea	r t	ran	siti	ion	to -	'	<u>22.0</u>	1	110			(1)	Ber	1tor	nite	pel	let
			+	113	22	3	5		!!	Ε	Zxt	tre	eme	ely	mo	ist	to	wet	hi	ghly	y ma	ot-			2		,	sea	al.	1200	F	
			+			26			!!	t	tle	ed	da	irk	br	own	gra	avel	Lly	silt	t 10	Dam		2	Í							
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		40	-+	+	ΤQ	20									Se	e n	ext	she	et.							40.	.0					
		N =	NUI	MBER	OF	BLOW	NS T						2		." SI	200r	I	12	" v	WITH.	14	0	Ib. W	VT.	FALI	LING		30		PER	BLOW.	

SHEET _____ OF ____2A.



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MONITORING WELL HOLE NO. <u>50-88 continued</u>

SURF. ELEV. 1459.85

PROJECT	Monitoring well installation	LOCATION 285 feet WNW of gully, along we
2A790	Adjacent parcel to CID Inc.	<u>ern boundary line</u> , approximatel
E883 CLIENT	CID LANDFILL INC.	DATE STARTED6/7/88 COMPLETED6/8/88

	DEPTH	MPLE 40.		BL S/					DESCRIPTION & CLASSIFICATION		WELI	പ	WATER	TABLE & R	EMARKS
	feet	IS A	Z			2	4 N				- 1 -1-		 		
		11	2	L		 	ļ		Extremely moist to wet gray	silt	te				
				2	-		4		loam (SILT) with 1 to 3% mos	tly	ot				
			_		2	<u> </u>			fine size subangular gravel,	COM-	S	g			
				ļ	_	15	ļ		pact, has a tendency to liqu		2	sar			
-		12	4		┢	–			when disturbed, thinly bedde	^u 24.0	##G	e)			
				10	0	┢──	17		, = = = grades downward to		ЧK	iz			
		⊢	+	┼──	+-	10	1-	11	Extremely moist gray silt lo	am	ч S	S			
		13	3	-	┼──	۴Ŭ	1-	f	(CLAYEY-SILT) with 1 to 3% m	ostly	2"	#2	24.5		• •
	25	F		6	<u> </u>		1 -		fine size subangular gravel,	very				· (1)	Bentonite
-	fa	1	—		11		μ.		stiff becoming stiff below 2	6.0	(1)			(1)	pellet sea
						11			foot depth		(-)		26.0		F
		14	4						_						
				5			12		grades downward to -	_ <u>2</u> 8.0					
		ļ	\bot		7		<u> </u>		grades dominate to						
		-	<u> </u>			9									
		15	3	<u> </u>		 	_		Extremely moist gray slity c	Lay					
			–	15	10		15		Toam (CLAYEY-SILT) WITH I to	30 773-					
	20				110	112	2		wel stiff thinly laminated	with					
-		16	14		┢──	113	<u>'</u>	``\	very thin coarse silt lenses	WICH		-			
		F	1-	9	1					29.5					
		—		<u> </u>	16		25		\sim clear transition to		-				
			1			19					et				
		17	5								fe				
-				13	ļ		25				0				
		L	ļ		22		–								
				ļ	<u> </u>	26					0				
		<u>µ8</u>	6	-					Extremely moist brownish gray	y ·	ц Ц				
•	35	-		<u> </u> /-	12		17		silty clay (CLAYEY-SILT), ve	ry	ng D				
		-	1		μæ	14			stiff, thinly laminated with		L L				
		h 9	5			1	+		very thin coarse silt lenses	'	2				
		<u> </u>	ľ	9	1	1			noticed one (1) ½ inch extre	mely	Ŀ.				
				<u> </u>	16		25		moist gray fine loamy sand (SAND)	L.				
						18			tens below 35.5 toot depth						
		20	8							10.0					
			<u> </u>	11	┢	ļ	20			40.0				•	
			<u> </u>		18			/	Baring completed at 40.0 fee	+					
· •,	40		<u> </u>	<u> </u>		20			BOLLIG CONDICIED AL 40.0 LEE	L.					
. • •	N	- 1	NUM	IBEF	R OF	8L	ows	TO DRIVE	SPOON WITH	_140	Ib. WT.	FALI	ING _	30	" PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

SHEET ______ OF ______A.__



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	2A79	ad					HOLE NO	D. <u>MW K-S-01</u> SURF. ELEVATION <u>1496.60</u>
	PROJE	ЕСТ	MW In:	stallat	ion -	Chaff	ee Landfill	LOCATION See map
			Town	of Sa	rdinia.	Erie	County, Ne	ew York
	CLIEN	IT M	cMaho	n & M	ann C	onsult	ing Engine	ers, P.C DATE STARTED 04/18/01 COMPLETED 04/18/01
	DEPT	н	BLO	WS ON	4			
	IN FT	•	SAM	PLER				
	SN	0/	6/	12/	18/			DESCRIPTION AND CLASSIFICATION WELL WATER TABLE AND REMARKS
		6	12	18	24	N		
				-				Augered to 30.0 feet with 4 1/4" I.D.
		[hollow stem augers without split spoon 이 이 CASING
		<u> </u>						sampling.
	<u> </u>							
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<u> </u>								

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140 Ib. WT. FALLING 30 * PER BLOW LOGGED BY Donald W. Owens, Senior Soil Scientist (byy) SHEET 1 OF 3



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	2A79a	be					HOLE N	D. MWK-S-01
	PROJE	ст	MW In	stalla	tion –	Chaf	fee Landfi	LOCATION See map
			Town	of Sa	rdinia	. Erie	County, N	ew York
	CLIEN	IT M	cMaho	on & M	lann C	onsul	ting Engine	PERS. P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01
		Ŀ	ם ופ		N.			
	INFT		SAM	IPLER	•			
	- ENI		6/	12/	18/	1	1	
		6	12	12/	24	N	LITH	DESCRIPTION AND CLASSIFICATION WELL WATER TABLE AND REMARKS
								Augered to 30.0 feet with 4 1/4" ID
	<u> </u>							hollow stem augers without split spoon
]		sampling.
					<u> </u>	-		
				<u> </u>		1		
05								
25]		
ж.,								
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				•				
30—							°	
	1	8						Extremely moist olive gray / 笛 / 笛
			12	15		27		some clay, very stiff, weak thinly
				19	16			laminated with very thin coarse silt
	2	3						Vienses, (CL).
			6			14	0,	
				8			, , , , , , , , , , , , , , , , , , ,	trace clay compact, thinly bedded
					11		<u>•</u>	
	_3	6				_		grades downward to 33.0
35			_12_	10		22		Extremely moist olive gray
				0	12			(CLAYEY-SILT) with 3 to 5% gravel,
	4	5						with very thin coarse silt lenses, $(1,1) \leftarrow 36.5$
			7			16		(ML-CL).
				9				grades downward to 34.0 या दिने
. 1								Extremely moist olive gray (SILT),
	5	6						trace clay, compact, thinly bedded [] ひ [言:]
÷			10			25		
				-13	17			

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140 Ib. WT. FALLING 30 * PER BLOW LOGGED BY Donald W. Owens, Senior Soil Scientist (byy). SHEET 2 OF 3 .



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	2A79a	ъđ					HOLE NO	0. <u>MW.K-S-01</u> SURF. ELEVATION <u>1496.60</u>
	PROJE	CT	MW In	stallat	tion -	Chaff	ee Landfill	LOCATION <u>See map</u>
			Town	of Sa	rdinia	Erie	County, Ne	lew York
	CLIEN	ит м	cMaho	n & M	ann C	onsult	ing Engine	COMPLETED 04/18/01 COMPLETED 04/18/01
	NEPTI	н	BI O	WS 01	4			
	IN FT		SAM	PLER				
	SN	0/	6/	12/	18/		ПТН	DESCRIPTION AND CLASSIFICATION WELL WATER TABLE AND REMARKS
		6	12	18	24	N		
	6	6						Extremely moist olive gray (SILT),
			13			26		trace clay, compact, thinly bedded
				13				42.0 + 41.5
					15_			
								Bornig completed at 42.0 reet.
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	2A79a	ъd					HOLE N	0. <u>MW K-I-01</u> SURF. ELEVATION <u>1496.70</u>
	PROJE	СТ	MW_In	stallat	ion –	Chaff	ee Landfi	LOCATION <u>See map</u>
			Town	of Sa	rdinia.	Erie	County, N	ew York
	CLIEN	IT M	cMaho	in & Mi	ann Co	onsult	ing Engine	eers, P.C DATE STARTED 04/17/01 COMPLETED 04/18/01
	-				r			
	IN FT	1	SAM	PLER	l			
					10/	r — —		
	SN	6	12	127	187 24	N	LITH	DESCRIPTION AND CLASSIFICATION WELL WATER TABLE AND REMARKS
			12					
								Augered to 49.0 feet with 4 1/4 1.0.
								sampling.
			r					
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	2A79a	ad					HOLE NO.	MW K-I-01_			SURF.ELEVATION 1496.70
	PROJE	CT	MW_Ins	stallat	ion –	Chaff	ee Landfill	-	LOCATION	<u>See map</u>	-
			Town	of Sa	rdinia,	Erie	County, New	York			
	CLIEN	IT M	cMaho	n & M	ann C	onsult	ing Enginee	<u>rs. P.C.</u> DATE ST	ARTED 04/1	7/01	COMPLETED <u>04/18/01</u>
	DEPTI IN FT	4	BLO SAM	WS ON PLER	ł						
	SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFIC	CATION	WELL	WATER TABLE AND REMARKS
								Augered to 49.0 feet with 4 1	/4" I.D.		
								hollow stem augers without spi sampling.	lit spoon		
25—											
· . · · ·											
											8E7
										SER	
30—											NA CONTRACTOR
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25		-									
32—											
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										-	
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N=NUMBER OF BLOWS TO DRIVE 2. "SPOON 12. "WITH 140. ID. WT. FALLING 30. PER BLOW LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy). SHEET 2 OF 3



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F	PROJE	ЕСТ	MW In	stalla	tion –	Chaf	fee Landfill	LOCATION <u>See map</u>	
			Town	of Sa	rdinia	Erie	County, New	York	
C	CLIEN	NT M	cMaho	n & M	lann C	onsul	ting Engineer	<u>s, P.C.</u> DATE STARTED <u>04/17/01</u> COMPLETE	0 04/18/01
C I	DEPTI N F T	H	BLO Sam	WS ON	4				
	SN	0/ 6	6/ 12	12 / 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION WELL WAT	ER TABLE AND REMARKS
								Augered to 49.0 feet with 4 1/4" I.D.	
-								sampling.	
ł									
									#4000 SAND PACK
$\left \right $									
E									.5' L O'
╀									BENTONITE PELLETS
~		 							
$\left \right $.0'
Ĺ									1.5
$\left \right $								49.0	
\vdash		31						Extremely moist distinctly mottled olive	c'
			48			98	0000	brown very gravelly (SILTY-SAND)	.0
				50				gravel and cobbles, very fine to very	
-					_44_			coarse size sand, little silt, very	
							0000		
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	3	16		•		2	0000		
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\vdash				25	23	¢ D	0000	60.0 [···································	5'
۴	I_			I_	<u></u>	F	<u> </u>	Boring completed at 60.0 feet.	

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DEPTH	HOLE	8 NO. <u>053</u> -	9443	_ PR(OJE	CT_WMNY	/ Wes	tern E	Expansion Well Installation BORING NO. <u>MW-L(S)</u>
DEPTH	SOIL DRILL 25.5' GA	INSPR	JM	_DRI	ШI	NG METHO	D <u>4</u> Farth	-1/4 Dimer	D Hollow Stern Augers SHEET 1011
DEPTH	I ROCK CORE <u>N/A</u> WE	ATHER <u>SUN</u> AD 75° to	<u>INT</u> 85° F			NG CO PIC C	ME-5	50	DRILLER S. Currie DATUM SITE
NO. D	151. <u>1175</u> US. <u>1175</u> IEM 1 WI HRS	S PROD.	N/A	_ WT.	S/	MPLER H	AMMER	₹ <u>140</u>	b. DROP 30" STARTED 1040/5-29-05
TIME	WL,HR	5. DELAYED	<u>N/A</u>	_wt.	C	ASING HAI	IMER_	<u>N/A</u>	ADROPN/ACOMPLETED 1135/6-29-05
									SOUL DESCRIPTION - RANGE OF PROPORTION
SA	APLE TYPES		ABBF	RENIA	AIIC	NS			
	AUGER SAMPLE BL CHUNK SAMPLE BR DRIVE OPEN C	BLACK BROWN COARSE	HIC NOT	MEDH MICA MOT		\$	SAT SD	SATURAT	VTED 50ME - 12-30% AND - 30-50%
0.S. P.S. R.C.	DENISON SAMPLE CA PITCHER SAMPLE CL ROCK CORE CLY	CASING CLAY CLAYEY	NP OG ORG	ORAL ORG	-PLA NGE ANIC		29 29 29	SILTY SOME	CONSISTENCY
ST. T.O. T.P.	SLOTTED TUBE F THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL	FINE FRACMENTS GRAVEL	PM R		SSUR		E∰3	WATER LI WEIGHT (LEVEL LS LOOSE S SOFT OF HAMMER OP COMPACT FM FIRM OF RODS DN DENSE ST STIFF
W.S.	WASH SAMPLE LYD U	LATERED	RX	ROC	K		Ÿ	YELLOW	V VERY H HARD
E EV.	DERODINTION	BLOWS/	,			SAMPLES		DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
DEPTH	DESCRIPTION	FT.		NO.	TYPE	FORCE)	REC/ATT		
-									0.0-15.0 ft. Augered with no sampling.
E			K-					r -	
ΕI	MW-L (I).						Y		
F _2					\backslash			-	
E						\times			
F							1	-	
Εİ	^						\land		
			\mathbb{Z}					$ \begin{bmatrix} - \\ - \end{bmatrix} $	
E ₄	<u> </u>		=						
E'									SA-1 15.0-17.0 ft. Firm, dark brown to gray-brown, CLAYEY
ΕI		8		1	DO	2-4-	22"	-	SILT to SILTY CLAY, little fine to medium gravel,
E						4-6	24"		(ML-CL)
E ₁₇									High amount of clay.
E						2-4-	18"		SA-2 17.0-19.0 ft. Firm to soft, onve green to brown, CLAYEY SILT, slightly laminated, very moist. (ML)
E		8		2	DO	<u> </u>	24	-	Large piece of sub-rounded gravel/rock @17.5 ft. bgs.
F						4-5			Firm, olive gray SILTY wet zone from 17.5-17.7 ft. bgs.
F19			-					-	SA-3 19.0-21.0 ft. Same as above; olive brown mottling
Ē			=	-		1-3-	23	_	throughout; little fine to medium sub-rounded gravel;
Ē		8	-	3	DO	5-7	24		slightly laminated. (ML)
E 21			_						
F ² '			-				24"		SA-4 21.0-23.0 ft. Same as above; little fine sub-rounded
E		10	-	4	DO	4-4	24	-	present; slight liquefaction. (ML)
E		10	-			6–10			Gray to dark gray, sandy silt lens from 22.3 to 22.4
-23							+		ft. bgs.
F						36-	24"		(ML)
F		24		5	DO	18–33	24	-	24.2-25.0 ft. Loose, brown to dark brown, SILTY
Ē_	Color change; lithology change		1 -						Zones of mottled red-brown sandy silt and fine to
E ²⁵			-						medium brown sand. (SM)
E	25.5 FT. END OF BOREHO	LE						-	
E									
E			-					-	-
ΕI			1 3						
E			1 -					-	
F									
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JOB NO.	053-9443 PROJECT WMNY/WES	STERN EXPANSION WELL INSTALLATION/NYWELL NO.	MW-L (S) SHEET 1 of 1
GA INSP.	RJMDRILLING METHOD	1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV.	1464.59 Ft. WATER DEPTHDRY
WEATHER	P. SUNNY DRILLING COMPANY	EARTH DIMENSIONS COLLAR ELEV.	1466.64 Ft. DATE/TIME 7-7-05/705
TEMP. 75	-85" F DRILL RIG CME-55	DRILLER S. CURRIE STARTED 12	05/6-29-05 COMPLETED 1345/6-29-05
LOCATION /	COORDINATESN9937.06. E	5216.97	
		MATERIALS INVENTORY	
WELL CASIN	IG <u>2.0</u> In. dla. <u>17.5</u>		TONITE SEAL MEDIUM BENTONITE CHIPS
CASING TYP	E SCH. 40 PVC	SCREEN TYPE CONTINUOUS WRAP PVC INST	ALLATION METHOD POUR THROUGH AUGERS
JOINT TYPE	FLUSH THREADED	SLOT SIZEO.006"FILTE	R PACK QTY 2.5 BAGS
GROUT QUA		CENTRALIZERS NOT USED FILTE	R PACK TYPE #00-SIZE QUARTZ SAND
GROUT TYP	E CEMENT/BENTONITE	DRILLING MUD TYPE NOT USED INST.	ALLATION METHOD POUR THROUGH AUGERS
		WELL SKETCH	INSTALLATION NOTES
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION		
E		-212 -212	STEM AUCEP TO 25.5 ET BELOW
-			CROLIND SUPFACE (BCS) SAMPLED
E		HOLES PROTECTIVE	IS O TO 25 O ET PCS SAND
- 1464.59	GROUND SURFACE		DOUBED THROUGH ALICERS
E 0.0		3'# CONRETE	25.5-25.0 ET BCS WELL
Ę			MATERIALS PLACED IN RODELIOLE
	0–25'		LISING 10 FT OF WELL SCREEN FUD
E	SEE SOIL BORING LOG FOR		CAP 17 05 FT OF WELL DICEP AND
			SUP TOP CAP FOR OVERALL LENGTH
E I		au	OF 27.05 ET. WELL MATERIALS
5			PLACED TO 25.0 FT. BGS WITH 2.05
- 10.0		BENTONITE CHOKER SAND	FT STICKUP SAND POURED
-			THROUGH AUGERS $25.0 - 13.0$ FT.
		125 - 125 -	BGS WHILE REMOVING AUGERS AT
			0.5 - 1.0 ET INCREMENTS
- 15.0		15.0 - 8" BOREHOLE	CHOKER SAND PLACED $130 - 125$
			ET BOS BENTONITE CHIP SEAL
E I			PLACED 125 - 85 FT BGS
E		WRAP PVC	CHOKER SAND PLACED $85 - 80$
E 20.0			FT BGS_CEMENT/BENTONITE
			GROUT ADDED 8.0 - 4.0 FT. BGS.
			REMAINING AUGERS REMOVED.
			6-INCH DIAMETER ANODIZED
- 25.0			ALUMINUM CASING PLACED IN 3-FT.
25.5	EOB @ 25.5'		DIAMETER BY 4 FT. DEEP CONCRETE
			PAD. DRAINHOLES DRILLED INTO
-		Ē	PROTECTIVE CASING.
-		· F	NYSDEC CONCURRED WITH THE
E		l E	LOCATION OF THE SCREENED
		Ė	INTERVAL.
E	Ē	l E	
F	t i i i i i i i i i i i i i i i i i i i	l E	
E	Ē	ļ Ē	
; I	F	l E	
E			
F	F	Ē	WELL DEVELOPMENT NOTES
E	Ē		DATE DEVELOPED: TO
E	Ē	E E	
	F		DEVELOPMENT METHOD:
E	Ē	F E	STAINLESS STEEL BAILER
‡	ŧ	l E	
E	E	F F	VOLUME PURGED: GALS.
: [Ę	E E	FOR FURTHER DETAILS SEE
E I	E	E E	ACCOMPANYING WELL DEVELOPMENT
t	F	E E	FIELD RECORD.
E I	Ē	F	
:	F		

DEPTH	HOLE JOB	NO. 053-	-9443	<u>5</u> PF	ROJE	CT WMN	/West	ern Ex	pansion Well Installation BORING NO. <u>MW-L(</u>
	I SOIL DRILL <u>40.5´</u> GA	INSPR	JM NNY	DF	SILL I SILL I	NG METHO NG CO	DD <u>4</u> Earth	Dimer	nsions, IncSURFACE EL. 1464.1
NO. D	IST. <u>N/A</u> US. <u>N/A</u> TEM	P. 96' F		DF	RILL	RIG	CME-5	50	DRILLER A. Morris DATUM SITE
DEPTH	HWL. 30.15' HRS	. PROD	<u>N/A</u>	_w1	r. s	AMPLER H	IAMME	R <u>140</u>	bDROP30 [~] STARTED_ <u>1325/6-27-04</u>
ΠΜΕ	WL. <u>1135</u> HRS	. DELAYEI) <u>N//</u>	1. WI	r. c	ASING HA	MMER_	<u>- 17 -</u>	
SA	IPLE TYPES		ABB	REV	ATIO	ONS			SOIL DESCRIPTION - RANGE OF PROPORTION
AS CS	AUGER SAMPLE BL CHUNK SAMPLE BR	BLACK BROWN	M MIC		DIUN	JS	SA	SAMPLE	- TRACE - 0-53 1,1112 - 5-123 TED 500K - 12-303 900K - 12-303
D.O. D.S. P.S.	DRIVE OPEN C DENISON SAMPLE CA PITCHER SAMPLE CL	CASING CASING CLAY	NP OG ORG		N-PL	STIC	57 51 51 51	SILT SILTY SOME	CONSISTENCY
S.T. I.O. I.P.	SLOTTED TUBE F THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL	FINE FRAGMENTS GRAVEL	PH PN R	PR PR	ESSUR ESSUR D	E-HYDRAULIC E-MANUAL		TRACE WATER LI WEIGHT C	LEVEL LS LOOSE S SOFT OF HAMMER OF COMPACT FM FINAL
Ŵ.S.	WASH SAMPLE LYD	LAYERED	RES RX	RE	SIDUAL		Y	YELLOW	OF RODS DN DENSE SI SIMP V VERY H HARD
ELEV.	DESCRIPTION	BLOWS,	/			SAMPLES		DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
DEPTH		P 1.		NO.	TYPE	PER 6 N. (FORCE)	REC/ATT		SA-1 0.0-2.0 ft. Firm, brown to light brown, CLAYEY SIL
E				1.		2-3-			slightly moist, plant roots throughout.
E		6		1	DO	3-4	2 <u>4</u> 24	-	TOPSOIL
E,	CLAY TILL UNIT		-	1					
E	0-31.7'		-	1	;		24"		SA-2 2.0-2.6 ft. Stiff, It. gray to olive brown, CLAYEY SII little coarse sub-rounded gravel, slightly moist to m
E	Firm to stiff, light brown-da	^{rk} 14	-	2	DO	5-7-	24 24	-	Zone of dark brown to red-brown fine sand to 2.8 ft
E	gray-gray, CLAYEY SILT to	0				7-7			2.8-4.0 ft. Stiff, dark brown to gray-brown, CLAYE SILT little coarse gravel, slightly moist to moist, (M
F 4	SILTY CLAY, slightly mois	t			-				SA3 4.0-6.0 ft. Firm to stiff, brown to dark brown, CLAY
F	prominantely laminated,	16		7	-	47	24		SILT, little coarse gravel, occasional black shale
E	slight liquefaction, little to	10		Ĭ	00	9-9	24		4.7-5.5 ft. Loose, dark brown fine to medium SANE
E ₆	some, fine to coarse, sub-rounded to rounded			1					little fine to medium gravel, little medium sand. (SP
Ē	gravel, occasional			1		4-6-	24"		medium gravel, little silt, little tan, very fine sand, m
F	occasional olive brown 14 4 D0 8-9 24 7	Thin layer of very moist, loose, brown, CLAYEY SI							
ΕI	mottling, occasional thin sil	lt		1		0-9			from 6.7-6.9 ft. bgs. (ML)
E 8	Zones of loose, dark brown	יייין ה		1					SA-5 8.0-10.0 ft. Firm to soft, brown, CLAYEY SILT to
ΕI	to red brown, fine to mediu	m 18	2	5	DO	5-8-	1 <u>8</u> " 24"	-	 SILTY CLAY, occasional angular shale fragments, slight liquefaction, slightly laminated, moist to very
E	SAND @ 2.6' to 2.8', 4.7' to 5.5' (SM)			Ĭ		10-12	24		moist. (ML-CL)
E10	Zones of compact,			1					Small cooble @9.8 π. bgs. SA-6 10.0-12.0 ft. Same as above. Occasional
E	tan-brown to gray-black, verv moist to wet SILT and			1		47	24"		desiccation cracks; occasional medium sub-rounde
Ē	fine SAND @26.0' to 26.4'	17		6	DO	10-13	24*	-	gravel, moist to very moist. (ML-CL)
E12	(SM)			-					
E'_	12.0 ft bgs-Color change.			1			205		SILTY CLAY, very moist. Slightly laminated.
E		11	-	7	DO	3-5-	24	-	(ML-CL)
E						6-9			
E ¹⁴									SA-8 14.0-16.0 ft. Same as above. Moist to very moist.
ΕI		ß	2		-	3-3-	20	-	Slightly wet from 14.6-15.2 ft.bgs. (MC-CL)
ΕI		0		°	00	5-8	27		
E16				-	-				SA-9 16.0 to 18.0 ft. Firm, olive-gray to brown, CLAYEY
E						3-5-	24"		SILT, little medium gravel, olive-brown mottling
Εl		12		9	DO	7–10	24	-	Slightly wet from 17.3 to 18.0 ft. bgs. (ML)
E18							-		CL 10 10 010 20 0.4 Some on shour Little firs to
E''						7 7	0		SA-10 18.0 to 20.0 π. Same as above. Little fine to medium gravel, slightly laminated. (ML)
Εİ		8	-	10	DO	2-3-	24	-	- Wet zones at 18.4-18.5 ft., 19.2-19.4 ft. and
E						0-0			19.8-20.0 π.
E ²⁰ ∣	20.0 ft. bgs-Color change.		=				1		SA-11 20.0-22.0 ft. Firm to stiff, gray to dark gray,
E		10	-	,,		2 4	24	_	laminated, very moist to slightly wet. (ML)
E		10			00	6-8	24"		
F22							<u> </u>		SA-12 22.0-24.0 ft. Firm to stiff. grav to dark grav.
E						3-5-	24"		CLAYEY SILT, little to some fine to medium
F		11		12	DO	6_0	24"	-	gravel, very moist to wet. (ML)
E 24						0-9			Continued on next page.
1 47									

DEPTH DEPTH	HOLE <u>42</u> 'JO SOIL DRILL <u>40.5</u> 'GA	B NO.	053- R.	9443 JM	PF DF	ROJE	CT WMNY	/West D4	ern Ex 1/4"	pansion ID Hollo	Well Installation BORING NO. MW-L(I) w Stem Augers SHEET 2 of 2
DEPTH	ROCK CORE N/A WE		2 <u>SUN</u> 96° F	INY			NG CO	Earth ME-5	Dimer 50	nsions, li DR	ILLER A. MOTTIS DATUM SITE
DEPT	IST. <u>1778</u> US. <u>1778</u> IE I W. <u>30.15'</u> HR	S. PR	OD	N/A		. S.	AMPLER H	AMMER	₹ <u>140</u>	<u>lb.</u> DR	OP
TIME	ML1135HR	s. Del	LAYED	<u>N/A</u>	<u>w</u>	r. C	ASING HAN	IMER_	N/A	DR	OP N/A COMPLETED 1200/6-28-05
SAN	IPLE TYPES			ABBI	REM	ATIC)NS			SOIL	DESCRIPTION - RANGE OF PROPORTION
45	AUGER SAMPLE BL CHUNK SAMPLE BR CHUNK SAMPLE C	BLACI BROW	K N	MIC MIC			JS	SA SAT SD	SAMPLE SATURAT SAND	Ð	"TRACE" - 0-53 "LITTLE" - 5-123 "SOME" - 12-305 "AND" - 30-803
0.0. D.S. P.S. R.C.	DENISON SAMPLE CA MICHER SAMPLE CL ROCK CORE CLY		NG EY	1 C C C C C C C C C C C C C C C C C C C		N-PLA ANGE GANC	STIC		SILT SILTY SOME TRACE		CONSISTENCY
S.T. T.O. T.P. W.S.	SLOTTED LUBE FRAM THIN-WALLED, OPEN FRAM THIN-WALLED, PISTON GL WASH SAMPLE LYD	FRAG	MENTS Agl Red	PN RES	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		E-MANUAL	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	WATER U WEIGHT O WEIGHT O	evel Df hammer Df roos	LS LOOSE S SOFT 3 CP COMPACT FM FIRM DN DENSE ST STIFF V VERY H HARD
	U		Ľ	<u></u>							
elev. Depth	DESCRIPTION	E	BLOWS/ FT.		NO.	TYPE	HAMM BLOWS PER 6 NL (FORCE)	REC/ATT	DEPTH	CA 17	SAMPLE DESCRIPTION AND BORING NOTES
E			•	-			3-6-			5A-15	gravel, very moist. (ML)
E	25.0 ft. bgs-Color/lithology		6	-	13	DO	21-20	2 <u>4</u> 24	-		25.1-26.0 ft. Loose, dark brown to brown, SILTY SAND, moist to very moist, (SP)
E26	change.			-						CA 14	26.0.26.4.ft. Compact tap.br. to grav.bl. SILT and
ĔĨŀ				-			6-7-	20 "		5A-14	f-SAND, very moist to wet. (SM)
F	change.		14	-	14	DO	7-10	24"		İ	26.4-28.0 ft. Stiff, ol. br. to gray, CLAYEY SILT. SI. liquefaction, Med. clay content, Laminations. (ML-CL)
Engl				-							Zone of cp., sandy silt @ 26.1-26.3 ft bgs.
Ē ²⁰				=			2.7	19"		SA-15	28.0-30.0 ft. Firm to stiff, gray, SIL I Y CLAY, little rounded to sub-rounded coarse gravel, slight
ΕI			10	-	15	DO	2-3- 7-10	24"	-		olive-brown mottling, very moist. Laminations
Ē				=			/=10				present. (CL)
E ³⁰		ľ		=						SA-16	30.0-32.0 ft. Same as above; occasional
E			13	-	16	DO	3-6-	2 <u>4</u> 24"	-		coarse gravel; wet. (CL)
E			10				7–10				Layer of silt and fine gravel from 31.7-31.9 ft. bgs.
E ³²	31.7 ft. bgs. Lithology chang	₽. -		-		_				SA-17	32.0-34.0 ft. Loose, gray-brown, sub-angular to
ΕI	SAND & CRAVE	-	17	-	17	DO	11-18-	12"	-		sub-rounded, fine to coarse GRAVEL, some slit, wet. (GM)
E	UNIT		71	-			29-22	27			Few fractured rock fragments near bottom.
-34	71 7 40 0'									SA-18	34.0-35.7 ft. Compact, gray, coarse GRAVEL and
E	Compact to loose very mo	ist to	26		4.0		12-13-	<u>12</u>	_		medium SAND, some silt, saturated. (GM)
ΕI	saturated, fine to coarse	cilt	20		10	00	13-20	24			to coarse sand, some fine gravel. (CL)
-36	occasional thin sandy silt									SA-19	36.0-37.7 ft. Stiff to firm, olive brown to gray-brown,
È I	zones, occasional fractured rock fragments. (SM-GM)						7-9-	<u>22</u> "			CLAYEY SILT, tr. to little c. gravel, slight laminations,
E	Compact, brown, very mois SILT and fine SAND, some	t, fine	22		19	DO	13–17	24"	_		37.7-38.0 ft. Compact, brown, SILT and f. SAND,
E38	gravel, some fine to mediu	n								SA-20	some f. gravel, some fm. sand, v. moist. (SM) 38.0-40.0 ft. Loose, brown, coarse SAND and fine
Ē	Zone of soft to stiff, olive br	own					3-10-	20"			to coarse GRAVEL, saturated. (GW)
E	to gray brown, very moist to slightly wet CLAYEY SILT	0	24		20	DO	14-20	24*	-		
E ₄₀	35.7' to 37.7' (ML).	Ļ								SA-21	40.0.42.0.ft Loose brown fine GRAVEL and
Ē							7 10	107		5A-21	coarse SAND, saturated. (GW)
F			27		21	DO	15-20	24"	-		
E							13-20				······································
E 🗧 🗌	42.0 FT. END OF BOREHO	LE		-							
E I				-					-		
E											
Εİ											
Εİ									-		
E											
É I		F									
E									-		
E											
r i									L		······································

	053-9443 PRO ECT WMNY/WES	TERN EXPANSION WELL INSTALLATION /NYWELL NO.	MW-L (I) SHEET 1 of 2
		1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV.	1464.18 Ft. WATER DEPTH 28.44 FT. BGS
		EARTH DIMENSIONS COLLAR ELEV.	1466.61 Ft. DATE/TIME 7-7-05/707
WEATHER	F DRUL BIG CME-550	D DRILLER A. MORRIS STARTED 12	50/6-28-05 COMPLETED 1010/6-29-05
EMP	(000000000 TES N9938.04. E	5211.36	TIME / DATE TIME / DATE
LOCATION /	COURDINATES	MATERIALS INVENTORY	
	20 1 325		TONITE SEAL MEDIUM BENTONITE CHIPS
WELL CASIN	- SCH 40 PVC	SCREEN TYPE CONTINUOUS WRAP PVC INST.	ALLATION METHOD POUR THROUGH AUGERS
CASING TYP	FLUSH THREADED	SI OT SIZE 0.01"FILTE	R PACK OTY. 3.0 BAGS
JUNI ITPE		CENTRALIZERS NOT USEDFILTE	R PACK TYPE #00N-SIZE QUARTZ SAND
		DRILLING MUD TYPE NOT USEDINST.	ALLATION METHOD POUR THROUGH AUGERS
GROUT INP			
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
E		SUP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW
F			STEM AUGER TO 40.5 FT. BELOW
E		HOLES ALUMINUM	GROUND SURFACE (BGS). SAMPLED
1464.18	GROUND SURFACE	CASING	0 TO 42.0 FT BGS. SAND POURED
= 0.0			THROUGH AUGERS 40.5-40.0 FT
E	CLAY TILL UNIT		BGS. WELL MATERIALS PLACED IN
F	0_31.7'		BOREHOLE USING 10 FT. OF WELL
E	Firm to stiff light brown-dark		SCREEN, END CAP, 32.43 FT. OF
;	brown to alive gray to dark		WELL RISER AND SLIP TOP CAP FOR
Ē	SILTY CLAY, slightly moist to		OVERALL LENGTH OF 42.43 FT.
E	prominantely laminated, slight		WELL MATERIALS PLACED TO 40.0
E 10.0	to coarse, sub-rounded to		FT. BGS WITH 2.43 FT. STICKUP.
	desiccation craks, occasional		SAND POURED THROUGH AUGERS
E	blive brown mottling, occasional thin slit and sand lenses.		40.0 - 28.0 FT. BGS WHILE
-	(ML-CL) Zones of loose, dark brown to		REMOVING AUGERS AT 0.5 - 1.0 FT.
E 15.0	red brown, fine to medium	PVC RISER	INCREMENTS. CHOKER SAND
- 10.0	5.5' (SM)		PLACED 28.0 - 27.5 FT BGS.
E	to gray-black, very moist to		BENTONITE CHIP SEAL PLACED 27.5
È i	wet SILT and fine SAND 6726.0" to 26.4" (SM)		- 22.5 FT. BGS. CHOKER SAND
E 20.0			PLACED 22.5 - 22.0 F1. BGS.
1 20.0			CEMENT/BENTONITE GROUT ADDED
E			22.0 - 4.0 FT. BGS. REMAINING
E	SAND & GRAVEL		AUGERS REMOVED. 6-INCH
E	UNIT	BENTONITE CHOKER SAND	DIAMETER ANODIZED ALUMINUM
È			CASING PLACED IN 3-F1. DIAMETER
-	31.7-42.0'	77.5 - 17.7	DRAINHOLES DRILLED INTO
Ē	Compact to loose, very moist		DRAINHOLES DRILLED INTO
- 30.0	GRAVEL and SAND, some slit.	30.0 - 8"# BOREHOLE	NYSDEC ON-SITE DURING
E	zones, occasional fractured		INSTALLATION AND CONCURRED WITH
-	Compact, brown, very molet,		THE LOCATION OF THE SCREENED
Ę	SILT and fine SAND, some		
E	medium sand © 37.7 to 38.0 (SM).		
E	Zone of soft to stiff, give		
E	moist to slightly wet CLAYEY		
F	SILI @ 35.7 to 37.7 (ML).	FILTER SAND	
- 40.0			WELL DEVELOPMENT NOTES
È i		420 -	DATE DEVELOPED: 7/15 TO 7/25/05
-	EOB • 42.0'		
E			DEVELOPMENT METHOD:
F			STAINLESS STEEL BAILER
E			
F			VOLUME PURGED: 77 GALS.
E			FOR FURTHER DETAILS SEE
F			ACCOMPANYING WELL DEVELOPMENT
F			FIELD RECORD.
F			
E			
C			

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DEPT	H HOLE	JOB NO.	053-	9443	PF	ROJE	CT WMNY	/Well	Installa	ation - Western Expansion BORING NO. <u>MW-M(S)</u>			
DEPT	DEPTH SOIL DRILL <u>22.0</u> GA INSP. <u>RVM</u> DRILLING ME IHOD <u>-1777 AB Notion Contracting Sources</u> Sole I												
NO. I	DIST. <u>N/A</u> US. <u>N/A</u>	TEMP.	70*	F		RILL	RIGC	ME-5	50 DRILLER A. Morris DATUM SITE				
DEPT	H WL. 16.1'	HRS. PR	0D	N/A	_w1	r. s.	AMPLER H	AMMEI	R <u>140</u>	<u>ib.</u> DROP <u>30</u> [*] STARTED <u>0800/7-7-05</u>			
TIME	WL. 0945/7-7-05	HRS. DE	LAYED.	<u>N/A</u>	₩	r. c.	ASING HAI	MMER_	N/A	DROP COMPLE IED			
SA	MPLE TYPES			ABB	REVI	ATIC	NS			SOIL DESCRIPTION - RANGE OF PROPORTION			
<u>٨</u>	AUGER SAUPLE	BL BLAI BR BRO	CK WN	MIC		MEDIUM SA Micaceous sat				"TRACE" – 0 – 5% JTILE" – 5–12% SATURATED SQUE, – 12–30%			
0.0 0.5 0.5	DRIVE OPEN DENISON SAMPLE PITCHER SAMPLE	CA CAS	RSE NG	NOT NP OG	3555	N-PLA	STIC	20 20 20	SAND SILT SILTY	CONSISTENCY			
R.G. S.T. T.O.	ROCK CORE SLOTTED TUBE THIN-WALLED, OPEN	CLY CLA F FINE FRAG FRA	GMENTS	PH PH PM		ESSUR	E-HYDRAULIC E-MANUAL		TRACE WATER L	EVEL LS LOOSE S SOFT OF HAMMER CP COMPACT FM FIRM			
T.P. W.S.	THEN-WALLED, MISTON WASH SAMPLE	រី១ ភ្លើ		RES RX	RE	SIDUAL CK		WR Y	WEIGHT O	öf rödis din denise st stiff V very H Hardd			
			BLOWS/	,			SAMPLES		DEDTU	SAMPLE DESCRIPTION AND BORING NOTES			
DEPTH	DESCRIPTION		г т.		NO.	TYPE	HAMM BLOWS PER 6 IN. (FORCE)	REC/ATT					
E	SEE SOIL BORING LO	G FOR	\mathbf{i}							0.0-12.0 ft. Augered with no sampling.			
E I	MW-M (I).			K =					/ -				
E													
Ē2									-				
E				-			\checkmark		_				
Ē				-			\sim						
E4				-		ĺ			-				
F					ſ			\square					
F				1 -					∖ -				
Ē.	<u> </u>			-									
F^{12}				-						SA-1 12.0-14.0 ft. Stiff to firm, olive-gray, CLAYEY SIL1, trace very fine gravet, very weakly laminated, very			
E			10	-	1	DO	3-4-	24"		moist with occasional thin, slightly wet zones. (ML)			
E				-	1		6–10	24*					
E14									·	SA-2 14.0-16.0 ft. Very stiff to stiff, olive-gray, CLAYEY			
E				=	1		3-6-	<u>20</u> *		SILT, occasional sub-rounded coarse stone, very			
Ē			15		2	DO	9–12	24		Very thin medium to coarse sand lens @14.6 ft. bgs.			
É ₁₆					 			ļ					
E				=			6 4	18"		fine gravel, wet. (SM)			
E			14		3	DO	10-11	24	-	17.4-18.0 ft. Loose, silty, GRAVELLY SAND, wet.			
E							10-11			Small cobble @17.6 ft. bgs. (GP)			
E ¹⁸				-		-		· · · ·		SA-4 18.0-20.0 ft. Loose, GRAVELLY SAND, little silt,			
E			10			-	3-6-	$\frac{9^{*}}{24^{*}}$	-	rounded to sub-rounded gravel, wet. (GP-GM)			
F			19		4	00	13–16	27					
E ₂₀					<u> </u>					SA-5 20.0-20.9 ft. Loose, very fine to coarse GRAVELLY			
F				=			4-8-	19"		SAND, trace silt, sub-angular to rounded gravel, wet.			
F			18		5	DO	10-10	24*	-	(GP-GM) 20.8 ft. Loose, SILTY GRAVELLY SAND, wet. (GP)			
E_								_		20.9-21.1 ft. Loose, dark gray to olive gray, SILT, wet.			
F^{22}										21.1-22.0 ft. Stiff to very stiff, CLAYEY SILT, trace coarse sand, very moist. (ML)			
E	22.5 FT. END OF BORE	HOLE		-					-	22.0-22.5 ft. Augered with no sampling.			
E													
F				-				1	-				
E				=									
E				-									
E				=					-				
E													
E									-				
E													
E				-					-				
É				-					-				
F													
F													



DEPTH	HOLE JOB	NO. 053-	-9443		OJE	CT_WMNY	/West	ern Exp	pansion Well InstallationBORING NOMW-M(I)		
DEPTH	DEPTH SOIL DRILL 40.5 GA INSP. RJM DRILLING METHOD 4-1/4 ID Hollow Stem Augers SHEET 1 of 2										
DEPTH	I ROCK CORE N/A WEA	THER SU	NNY	_DR		NG CO	Earth	Dimer	SURFACE EL. 1459.09		
NO. D	IST. <u>N/A</u> US. <u>N/A</u> TEM	P. <u>89'</u> F		DR	ULL.	RIGC	ME-5	50	DRILLERA. MorrisDATUMSITE		
DEPTH	H WL. 25.79' HRS	. PROD	N/A	_wT	Γ. S	AMPLER H	AMME	۲ <u>140</u>	<u></u>		
ТІМЕ	WL. <u>0752/7-7-05</u> HRS	. DELAYEI	<u>5_N//</u>	<u>\</u> wτ	Г. С.	ASING HA	MMER_	<u>N/A</u>	DROPCOMPLETED_1140/7=6=05		
			400		. 110				SOIL DESCRIPTION - RANGE OF PROPORTION		
SAI	APLE TYPES		ABB	REVI	AIIC	JN 5					
A.S.	AUGER SAMPLE BL CHUNK SAMPLE BR	BLACK	MIC			JS	SA	SAMPLE SATURAT	ED 5-123 SOME - 12-303 ANO - 30-607		
0.0. 0.5. P.5.	DRIVE OPEN CA Denison Sample CA Pitcher Sample QL	CASING	NP	NŬ OR/	N-PLA	STIC	al. a	SUTY	CONSISTENCY		
R.G. S.T.	ROCK CORE CLY SLOTTED TUBE F	CLAYEY FINE FRAGMENTS	orig Ph Ph	PRE	SSUR	E-HYDRAULIC E-MANUAL		TRACE			
TP.	THIN-WALLED, PISTON QL WASH SAMPLE LYD	GRAVEL LAYERED	RES				WH WH	WEDGHT (WEDGHT (YFLLOW)	OF HAMMER OF COMPACT FM FIGH OF RODS DN DENSE ST STIFF V VERY H HARD		
			-								
ELEV.	DESCRIPTION	BLOWS				SAMPLES	<u> </u>	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES		
DEPTH		+1.		NO.	TYPE	(FORCE)	REC/ATT		SA-1 0.0.1.2.ft Stiff to very stiff dark brown to tan-brown		
F	CLAY THE UNIT			1					SANDY SILT, moist, TOPSOIL.		
ΕI	0.00.5'	6	1 -	1	DO	2-3-	24"	-	1.2-2.0 ft. Stiff, tan-brown, SANDY SILT, slight		
E	0-29.5					3-6	24*		red-brown mottling, trace medium gravel, moist.		
	Firm to stiff to very stiff, dar	к О	-						(ML) Plant roots at top.		
F2	dark gray-olive brown SII T	γ [-						SA-2 2.0-2.4 ft. Same as above.		
E	CI AY to CLAYEY SILT, mo	oist	:			7-7-	24*		2.4-4.0 ft. Very stiff, olive brown, SILTY CLAF, olive		
Ê I	to very moist, weakly to	14	-	2	DO	7 10	24*	-	gray to tan-prown motiling, trace medium gravel,		
F	moderately laminated, sligh	t to		3		7-12			Some desiccation cracks with plant roots.		
F4	moderate liquefaction, trace	to	+]					SA-3 4.0-5.6 ft. Same as above; laminations present.		
E	little, fine to coarse sand, lit	tie		1		0_7	24"		5.6-6.0 ft. Compact, SILTY SAND, some rounded		
ΕI	fine to coarse, sub-rounded	to	-	3	DO	2-7-	24	-	- medium to coarse gravel, very moist. (SM)		
F	rounded gravel, occasional		-	1		7–14					
⊧_	(CL -ML)	303.	-								
ΕÞΙ	Zones of loose to compact,								SA-4 6.0-8.0 ft. Very stiff, olive-brown, SILTY CLAY, little		
E I	dark brown to olive gray,		:			4-5-	24	ĺ	medium to fine gravel, moist to very moist. (CL)		
	SANDY SILT @ 12.6-13.0',	13	-	4	DO	814	24"		- Tan to red-brown stanning/discoloration surrounding		
F	14.7-15.5' and 25.6-28.0' (S	SM)	-			0-14			glavei.		
F 8	Zones of loose, wet, f. to c.		+		-		+		SA-5 8.0-9.1 ft. As above; trace fine to medium gravel;		
E	GRAVEL @ 17.5-16.6 and		-			5-6	20*		laminations present.		
E	19.4-20.0 (SM)	14		5	DO	8-9	22"	-	 9.1-10.0 ft. Stiff, dark gray, CLAYEY SILT, trace 		
F [9.1 ft. bgs Color change.	17				8-9	27		sub-rounded fine gravel, weakly laminated, very moist.		
E10			-						Occasional desiccation cracks. (ML)		
E'			:						SA-6 10.0-12.0 ft. Firm to stiff, dark gray, CLATET SILT,		
F				1	-	1-2-	22*	_	weakly laminated, very most to wet. (WL)		
F		၁		6	00	3-4	24"				
E				1					12.0-12.6 ft. Firm/soft, CLAYEY SILT to SILTY CLAY,		
F 12			-	-					SA-7 very moist. (ML-CL)		
F				3		1-4-	24*]	12.6-13.0 ft. Loose, SANDY SILT, some sub-rounded		
E		9		7	DO		24*	-	- medium gravel, very moist. (SM)		
E I		_	:	1		5-6	1		13.0-14.0 ft. Firm, olbrown, CLAYEY SILI, tr. C		
14			+]		······	+		gravel, mod. laminated, v. si. liquetaction, v. molst.(ML		
F · ·]					14.7-15.5 ft. Loose, dark brown. SANDY SILT. little		
E		0			0	1-2-	21	-	fine gravel, very moist to wet. (SM)		
E I		9	:	°	00	7–8	27		15.5-16.0 ft. Loose, dark brown, CLAYEY SILT, little		
F									course gravel. (ML)		
E16	16.0 ft. bgs Lithology chan	ge.		1					SA-9 16.0-17.5 ft. Thin layer of wet, fine to coarse, SILTY		
E			:	1		4-10-	17"		SAND little fine gravel wet (CL-SM)		
F		26	-	9	DO	16.00	24	-	17.5-18.0 ft. Loose, fine to coarse rounded to		
F]		10-22			sub-rounded SILTY GRAVEL, trace silt, wet. (GM)		
E18		<u> </u>	-				1		SA-10 18.0-18.6 ft. Loose, silty f. to c. GRAVEL, wet. (GM)		
E			:	1		0_17_	21"		18.6-19.4 ft. Loose, SILTY SAND, little fine to		
E I		26	-	10	po	9-13-	24"	-	 coarse gravel, wet. (SM) 		
F		20	:] .	-	13–19			19.4-20.0 ft. Loose, fine to coarse GRAVEL, trace		
Ean				1	<u> </u>				to little silt, wet. (GM)		
E ²⁰	20.0 ft. bgs Lithology chan	ge.		1					SA-11 20.0-22.0 II. Compact, olive-gray, CLAYEY SILT,		
E I		00	:	1		7–10–	1 <u>8</u> "		Some fractured black shale fragments. (ML)		
F		20	1 -	11	DO	10-19	24"		Como indete do bidon cinaro indigritantes (mey		
E				1		10-10					
E22					<u> </u>			1	SA-12 22.0-23.5 ft. Compact, olive-brown, CLAYEY SILT,		
E			:	1		4 40	24"		little rounded, medium gravel, trace fine sand,		
F		22	-	12	DO	4-10-	24		weakly laminated, very moist. (ML)		
F				1		12–16	27		23.5-24.0 ft. Compact, olbrown, SILT AND		
F 24			-	1				L	SAND, sl. laminated, sl. liquefaction, v. moist. (SM)		

Golder Associates

Continued on next page.

DEPT	DEPTH HOLE											
DEPT	H SOIL DRILL <u>40.5'</u> GA	A INSP	. <u></u> R.	JM	_DR	SILLI	NG METHO	D_4	-1/4 ⁻	ID Hollow	Stem Augers	SHEET 2 01 2
DEPT	H ROCK CORE N/A WE	EATHE	R <u>SUN</u>	INY			NG CO	ME-5	50	Isions, Inc.	ED A. Morris	DATIN SITE
NO. E	DIST. <u>N/A</u> US. <u>N/A</u> TE	MP	09 1	N/A	UH ערו	rs.			2 140	Ib. DROF	5 30"	STARTED_1220/7-5-05
	н wnн wn_0752/7-7-05 нг	RS. DE	LAYED	N/A	w1	r. C	ASING HAN	MMER_	N/A	DROF	<u> </u>	COMPLETED 1140/7-8-05
SA	MPLE TYPES			ABBI	REM	ATIC	ONS			SOIL D	ESCRIPTION - RA	NGE OF PROPORTION
AS CS	A.S. AUGER SAMPLE BL BL C.S. CHUNK SAMPLE BR BL						IS	SAT	SAMPLE SATURATI	Ð	SOME -	12% 2-30% 0-50%
0.0. D.S. P.S.	DRIVE OPEN C DENISON SAMPLE CA PITCHER SAMPLE CA.				202	ANGE	STIC	an an an an an an an an an an an an an a	SILT		CONSIST	ENCY
R.G. S.T. T.O.	ROCK CORE CLY SLOTTED TUBE F THEN-WALLED, OPEN FRA		ney Sments		SEE!	ESSUR	e-Hydraulic E-Manual		TRACE WATER LI	EVEL	LS LOOSE OP COMPACT	S SOFT FM FIRM
T.P. W.S.	THEN-WALLED, PISTON GL WASH SAMPLE LYD U		NED E	RES RX	200	SIDUAL CK		¥.	WEIGHT O	OF RODS	DN DENSE V VERY	ST STIFF H HARD
					1		SAMPLES			ľ –		
ELEV. DEPTH	DESCRIPTION		BLOWS/ FT.		NO.	TYPE	HAMM. BLOWS	REC/ATT	DEPTH	S	SAMPLE DESCRIPTION /	ND BORING NOTES
-				-			(FURGE)	<u> </u>		SA-13	24.0-25.6 ft. Compact	, olive-brown, CLAYEY SILT,
Ē			10	-	47	-	5-7-	03*			trace very fine sand, tr	ace rounded fine gravel,
E			10		13	00	11–15	24			25.6-26.0 ft. Compact	, SANDY SILT, little very
E				-							fine sand, trace very fi	ne gravel, wet. (SM)
E ²⁶				-						SA-14	some clay.trace to little	e medium to coarse gravel,
E			24	_	14	DO	7–11–	24	_		weakly laminated, ven	/ moist. (SM)
F			24	-			13–31	24			Thin silty sand lens @	27.3 ft. bgs.
E ₂₈										54-15	28 0-29.5 ft. Compac	to dense, CLAYEY SILT, little
E				-			7-12-	21"		0.1 10	fine sand, weakly lami	nated, very moist. (ML)
-			27	-	15	DO	15 20	24	-		29.5-30.0 ft. Loose, C	RAVELLY fine SAND, trace
E I	29.5 ft. bosl. ithology cha			-			15-20				28.9-29.0 ft. Lens of S	ANDY SILT, slightly lam.
E30	29.5 h. bgsEnablogy cab	inge.				-				SA-16	30.0-30.8 ft. Loose, G	RAVEL and SILT, wet to
E							4-17-	<u>16</u> "			saturated. Occasional	large rock/stone. (GM)
F	SAND & GRAV	EL	47		16	DO	30-27	24"	_		30.8-32.0 ft. Loose, S saturated, (GM)	ILTY GRAVEL, WELLO
Ē	UNIT			-			00 27				Rounded, hard, red-bl	ack granite rock @ 31.3 ft.
E ³²				-						SA-17	32.0-34.0 ft. Loose to	very loose, SAND and fine
F	29.5-40.5		24	-			11–15–	1 <u>5</u> "	_		Occasional large rock/	stone. (GM)
E	saturated, GRAVEL and S	AND	34	=	' '	00	19-30	24*				
Eza	to SILTY GRAVEL, little to			-	L					C4 19	04.0.00 0 ft Come or	abovo Inorogoing gravel
5 7	some silt, occasional large rockstone, (SW-GW)			-						SA-10	content.	above, increasing graver
E	Compact to loose, saturate	ed,	23	-	18	DO	2-4-	$\frac{17}{24}$	- 1	-		
E	fine to medium SAND, trac little silt, little course grave	ce to		-			19-23				<u> </u>	
E 36	from 36.8-38.0' and 38.5-4	0.5'.			<u> </u>					SA-19	36.0-36.8 ft. Same as	above; wet.
-	(SW)			-			16-16-	16"			36.8-38.0 ft. Compac	to loose, olive-brown, fine to
FI			47	-	19	DO	31	24*		 	sub-rounded coarse o	ravel, saturated. (SW)
E				-			01 00					
E ³⁸											38.0-38.5 ft. Augered	with no sampling.
Εl								10.	-	SA-20	38.5-40.5 ft. Compac	t to loose, olive-brown, fine to
E			49	-	20	DO	30-27-	24"			medium SAND, trace	to little silt, little rounded to
E40				-			22-22		-		sub-rounded coarse g	ravel, saturated.
Ē											Occasional large rook	
Ē	40.5 FT. END OF BOREHO	DLE		-					-			
E				-						<u> </u>		
Εl		-										
È				-								
F				-					-	1		
E				=								
Εl				=								
E									-		<u> </u>	
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È				-					-			
E				=						<u> </u>		
F I								L	L			

.108 NO (053-9443 PROJECT WMNY/W	ESTERN EXPANSION WELL INSTALLATION WELL NO.	MW-M (I) SHEET 1 of 1									
GA INSP.	RJM DRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV.	1459.09 Ft. WATER DEPTH 14.37 FT. BGS									
WEATHER _	OVERCASTDRILLING COMPANY	EARTH DIMENSIONS COLLAR ELEV.	1461.28 Ft. DATE/TIME 7-7-05/752									
TEMP. 70-	-75° F DRILL RIG CME-55	DRILLER A. MORRIS STARTED 114	45/7-6-05 COMPLETED 1525/7-6-05 THE / DATE THE / DATE									
LOCATION /	COORDINATES <u>N9948.24, E</u>											
		MATERIALS INVENTORY										
WELL CASIN	IG <u>2.0</u> in dia <u>32.3</u> 	I.T. WELL SCREENIN. diaIO I.T. BENI	ALLATION METHOD POUR THROUGH AUGERS									
CASING TYP	FLUSH THREADED	SIGT SIZE 0.01" FILTE	R PACK OTY. 3.0 BAGS									
CROUT OUA		CENTRALIZERS NOT USED	R PACK TYPE #00N-SIZE QUARTZ SAND									
GROUT TYP	GROUT TYPE CEMENT/BENTONITE DRILLING MUD TYPE NOT USED INSTALLATION METHOD POUR THROUGH AUGERS											
		WELL SKETCH	INSTALLATION NOTES									
ELEV./DEPTH	SUL/ROCK DESURIPTION		AUGERED WITH 4 1/4 I.D. HOLLOW									
			STEM AUGER TO 40.5 FT. BELOW									
-		DRAIN - 6" # ANODIZED	GROUND SURFACE (BGS). SAMPLED									
1459.09	GROUND SURFACE	PROTECTIVE	0 TO 40.5 FT BGS. SAND POURED									
0.0			THROUGH AUGERS 40.5-40.0 FT									
Ē	CLAY TILL UNIT		BGS. WELL MATERIALS PLACED IN									
-	0-29.5'		BOREHOLE USING 10 FT. OF WELL									
-	Firm to stiff to very stiff,		WELL DISER AND SUP TOP CAP FOR									
	to dark gralive br., SILTY		OVERALL LENGTH OF 42.19 FT.									
	to v. moist, weakly to		WELL MATERIALS PLACED TO 40.0									
E .	to moderate liquefaction,		FT. BGS WITH 2.19 FT. STICKUP.									
- 10.0 E	little f. to c., sub-rounded to	GROUT GROUT	SAND POURED THROUGH AUGERS									
-	thin silt, sand and sandy silt		28.0 - 40.0 FT. BGS WHILE									
E	Zones of loose to compact, dark brown to olive grav.		REMOVING AUGERS AT 0.5 - 1.0 FT.									
E - 15.0	SANDY SILTO 12.6-13.0, 14.7-15.5' and 25.6-28.0'	PVC RISER	INCREMENTS. CHOKER SAND									
	(SM) Zones of loose wat f to C		PENTONITE CHIP SEAL PLACED 27.5									
	GRAVEL @ 17.5-18.6' and		- 22.5 FT. BGS. CHOKER SAND									
E	19.4-20.0 (SM)		PLACED 22.5 - 22.0 FT. BGS.									
20.0			CEMENT/BENTONITE GROUT ADDED									
Ę		22.0	22.0 - 4.0 FT. BGS. REMAINING									
E	SAND & CRAVEL		AUGERS REMOVED. 6-INCH									
E		BENTONITE CHOKER SAND	DIAMETER ANODIZED ALUMINUM									
E		SEAL	CASING PLACED IN 3-FT. DIAMETER									
E .	29.5-40.5		DRAINHOLES DRILLED INTO									
Ę	Compact to very loose, wet to saturated, GRAVEL and SAND		PROTECTIVE CASING									
30.0	to SILTY GRAVEL, little to some slit, occasional large rockstone.	30.0 - S BOREHOLE	NYSDEC CONCURRED WITH THE									
	(SW-GW) Compact to loose, saturated.		LOCATION OF THE SCREENED									
	fine to medium SAND, trace to little slit, little course gravel		INTERVAL.									
	from 36.8—38.0° and 38.5—40.5'. (SW)											
F . I												
40.0			WELL DEVELOPMENT NOTES									
-	EOB 🛛 40.5'		DATE DEVELOPED: 7/15 TO 7/29/05									
-												
		<u> </u>	DEVELOPMENT METHOD:									
E		il E	STAINLESS STEEL BAILER									
		4										
			VOLUME PURGED: 54 GALS.									
È			ACCOMPANYING WELL DEVELOPMENT									
E		i F	FIELD RECORD.									
		E E										
-												

DEPT DEPT DEPT NO. 1 DEPT TIME	DEPTH HOLE 26.0° JOB NO. 053-9443 PROJECT WMNY/Well Installation - Western Expansion BORING NO. MW-N(S) DEPTH SOIL DRILL 25.5° GA INSP. RJM DRILLING METHOD 4-1/4° ID Hollow Stem Augers SHEET 1 of 1 DEPTH ROCK CORE N/A WEATHER SUNNY DRILLING CO. Earth Dimensions, Inc. SURFACE EL. 1474.25 NO. DIST. N/A US. N/A TEMP. 75°-90° F DRILL RIG CME-550 DRILLER A. Morris DATUM SITE DEPTH WL. HRS. PROD. N/A WT. SAMPLER HAMMER 140 Ib. DROP 30° STARTED 0920/7-11-05 TIME WL. HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 1125/7-11-05											
SA As. CS. D.S. P.S. R.G. T.D. T.D. WS.	MPLE TYPES Auger Sample Br CHUNK SAMPLE BR DRVK OPAL DRVK OPAL	BLACK BROWN COARSE CLAY Y CLAY Y CLAY AG PRECAMENTS D LAYPED LAYPED	ABBRE	AEDRUM AECACEO ACTILED HON-PL DRANGE DRGANGE PRESSUR RESSUR RESSUR RESSUR RESSUR	ONS us Astic E-HYDRAULIC E-MANJAL	₼₼ ₼₼ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽ ₽	SAMPLE SATURAT SAND SILT SOME TRACE WATER LI WEIGHT (WEIGHT (WEIGHT (WEIGHT (SOIL DESCRIPTION - RANGE OF PROPORTION				
ELEV. DEPTH	DESCRIPTION	BLOWS	/). Туре	SAMPLES	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES				
2	SEE SOIL BORING LOG F MW-N(I).	or	minhim		(runce)		-	0.0-12.0 ft. Augered with no sampling.				
4	i						-					
-12		14		DO	3-6- 8-13	24" 24"		SA-1 12.0-14.0 ft. Firm, dark gray, CLAYEY SILT to SILTY CLAY, trace medium to coarse sub-rounded gravel, occasional thin silt and sand lenses, slight liquefaction, weakly laminated, very moist. (ML-CL)				
		16	- 2	DO	4—7— 9—10	2 <u>3</u> * 24*		SA-2 14.0-14.3 ft. Firm to stiff, dark gray, SILTY CLAY, very moist. (CL) 14.3-16.0 ft. Firm, olive brown, CLAYEY SILT, trace medium to coarse angular to sub-rounded gravel, occasional thin silt lenses, very moist. (ML)				
		14		DO	2-6- 8-10	2 <u>3</u> " 24"	-	SA-3 16.0-18.0 ft. Firm, CLAYEY SILT, trace angular medium gravel, some fractured shale fragments, occasional thin silt and fine sand lenses, slight liquefaction, weakly laminated, very moist. (ML)				
		17	4	DO	3–7– 10–14	24" 24"	-	SA-4 18.0-20.0 ft. Firm to stiff, olive brown, CLAYEY SILT, trace medium to coarse gravel, weakly laminated, very moist. Gravel content increases toward bottom. (ML)				
-20		16	- 5	DO	3-6- 10-12	22" 24"	-	SA-5 20.0-22.0 ft. Firm to stiff, olive brown to olive gray, CLAYEY SILT, trace sub-rounded coarse gravel, olive brown mottling, weakly laminated, very moist. Thin SANDY SILT lens @21.0 ft. bgs. (ML)				
		16	- 6	DO	6-7- 9-13	24" 24"	_	SA-6 22.0-24.0 ft. Firm to stiff, olive gray to dark gray, CLAYEY SILT to SILTY CLAY, trace sub-angular to sub-rounded coarse gravel, slight liquefaction, weakly laminated, very moist. (ML-CL)				
-24		13		DO	3-6- 7-12	24" 24"		SA-7 24.0-26.0 ft. Firm to stiff, olive gray to dark gray, CLAYEY SILT, slight liquefaction, weakly to moderately laminated, very moist to wet. (ML)				
-26	26.0 FT. END OF COREH	DLE										

	053-9443 PROJECT WMNY/WES	STERN EXPANSION WELL INSTALLATION /NYWELL NO	MW-N (S) SHEET1 of 1									
GA INSP.	RJMDRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV.	1474.25 Ft. WATER DEPTHDRY									
WEATHER _	SUNNYDRILLING COMPANY	EARTH DIMENSIONS COLLAR ELEV.	1476.39 Ft. DATE/TIME 7-11-05/1210									
TEMP. 70	-90° F DRILL RIG CME-55	0DRILLER _A. MORRISSTARTED12	15/7-11-05 COMPLETED 1410/7-11-05									
LOCATION ,	/ COORDINATESN9932.47. E	6168.01										
	MATERIALS INVENTORY											
WELL CASIN	WELL CASING In. dia I.T. JUL SCREEN I.T. WELL SCREEN I.T. BENTONITE SEAL MEDIUM BENTONITE CHIPS											
CASING TYP	CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS											
JOINT TYPE	FLUSH THREADED	SLOT SIZEFILTE	R PACK QTY STRUS									
GROUT QUA		CENTRAUZERS NOT USED FILTE	R PACK TYPE #00-SIZE GOARTZ SARD									
GROUT TYP	E CEMENT/BENTONITE	DRILLING MUD TYPE NOT USED INSTA	ALLATION METHOD F									
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES									
-		SUP_CAP	AUGERED WITH 4 1/4 I.D. HOLLOW									
Ę			STEM AUGER TO 25.5 FT. BELOW									
E		DRAIN TI ALUMINUM	GROUND SURFACE (BGS). SAMPLED									
1474.25	GROUND SURFACE		12.0 TO 26.0 FT BGS. SAND									
- 0.0			POURED THROUGH AUGERS									
Ē	CLAY IILL UNIT		25.5-20.0 FT BGS. WELL									
-	0-25'		MATERIALS PLACED IN BOREHOLE									
E .	SEE SOIL BORING LOG FOR		USING 10 FT. OF WELL SCREEN, END									
E	MW-N (I).		CAP, 17.14 FI. OF WELL RISER AND									
<u>-</u>		2*0 SCH. 40	OF 27.14 ET WELL MATERIALS									
E			PLACED TO 25.0 ET BGS WITH 2.14									
E 10.0		BENTONITE CHOKER SAND	FT STICKUP SAND POURED									
F			THROUGH AUGERS 25.0 - 13.0 FT.									
F		12.5	BGS WHILE REMOVING AUGERS AT									
E			0.5 - 1.0 FT. INCREMENTS.									
- 15.0			CHOKER SAND PLACED 13.0 - 12.5									
Ē			FT BGS. BENTONITE CHIP SEAL									
Ē			PLACED 12.5 - 8.5 FT. BGS.									
			CHOKER SAND PLACED 8.5 - 8.0									
E 20.0			FT. BGS. CEMENT/BENTONITE									
-			GROUT ADDED 8.0 - 4.0 FT. BGS.									
F			REMAINING AUGERS REMOVED.									
25.0		3 872 = 3	6-INCH DIAMETER ANODIZED									
	FOR @ 26.0'		ALUMINUM CASING PLACED IN 3-FT.									
E			DIAMETER BY 4 FT. DEEP CONCRETE									
Ē			PAD. DRAINHOLES DRILLED INTO									
-		÷ E	NYSDEC CONCURPED WITH THE									
		i E	LOCATION OF THE SCREENED									
E I			INTERVAL.									
E I		ŧ Ē										
-		į E										
E I		() E										
E		E E										
E		F. F.	WELL DEVELOPMENT NOTES									
E		L E	DATE DEVELOPED:									
		į Ę										
		E E	DEVELOPMENT METHOD:									
	-		STAINLESS STEEL BAILER									
<u> </u>		l È										
	Ē	Į Ę	VOLUME PURGED: GALS.									
	t t t t t t t t t t t t t t t t t t t	ļ Ē	FOR FURTHER DETAILS SEE									
	Ē	l É	ACCOMPANTING WELL DEVELOPMENT									
-		Fi Fi	HELD RECORD.									
-	Ē	E E										
-												

DEPT	h hole <u>46</u> , job	NO. 053-	-9443	5 pr	ROJE	CT WMN	r/ Wes	stern E	xpansio	n Well Installation BORING NO. <u>MW-N(1)</u>			
DEPT	H SOIL DRILL GA I	NSP. <u>R</u>	JM	DF	RILLI	NG METHO	DD <u>4</u>	-1/4	ID Holl	ow Stem Augers SHEET 1 of 2			
DEPT	H ROCK CORE <u>N/A</u> WEA	THER <u>SUN</u>	<u>INY</u>	DF	DRILLING COLOTIN UIMENSIONS, INCSURFACE EL. 1473.95 DRILL RIGCME-550DRILLERA. MorrisDATUMSITE								
NO.	DIST. <u>NZA</u> US. <u>NZA</u> IEMI U WI 37.11' HRS		N/A	ייט w1	VT. SAMPLER HAMMER 140 b. DROP 30" STARTED 1265/7-7-05								
TIME	WL. 0730/7-11-05 HRS	DELAYED	<u>N/A</u>	<u>∑</u> w1	г. С.	ASING HA	MMER_	N/A	DI	ROP N/A COMPLETED 1210/7-8-05			
SA	MPLE TYPES		ABB	REVI	ATIC	DNS			SO	L DESCRIPTION - RANGE OF PROPORITION			
AS. CS	AUGER SAMPLE BL CHURK SAMPLE BR DRIVE OPEN C	BLACK BROWN COARSE			DIUM ACEOL	JS	SA SAT SD	SAMPLE SATURATI SAND	Ð	"LITTLE" 5-123 "SOME" 12-303 "AND" 30-503			
D.S. P.S.	DENISON SAMPLE CA PITCHER SAMPLE CL BOOK CORF CLY	CASING CLAY CLAYEY	NP OG ORG	NO OR	N-PLA ANGE GANIC	STIC	SI SIY SM	SILT SILTY SOME		CONSISTENCY			
S.T. T.O. T.P.	SLOTTED TUBE F THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL	FINE FRAGMENTS GRAVEL	PH PM R	PR	essur Essur D	e-Hydraulic E-Manual		TRACE WATER LI WEIGHT C	evel. F hammer	LS LOOSE S SOFT OP COMPACT PM FIRM			
Ŵ.S.	WASH SAMPLE LYD	LAYERED	res RX	RO	SEDUAL CK		Y	YELLOW	r ROUS	V VERY H HARD			
EEV		BLOWS	/			SAMPLES		DEDTU		SAMPLE DESCRIPTION AND BORING NOTES			
DEPTH	DESCRIPTION	FT.		NO.	TYPE	HAMM BLOWS PER IN. (FORCE)	REC/ATT						
=			-						SA-1	0.0-0.8 ft. Stiff, dark brown, SILT, moist. (FILL)			
Ē		12		1	DO	2-4-	24"	_		CLAYEY SILT, some fine sand, trace fine to coarse			
E						8–12	24*			sub-rounded gravel, tan mottling, moist. (ML-CL)			
<u></u> <u></u>									SA-2	Plant roots near top. 2.0-2.4 ft. Same as above: very stiff to stiff.			
E	2.4 ft, bgs Color change.					8-10-	24"			2.4-4.0 ft. Firm, dark gray, CLAYEY SILT, trace			
F		22	-	2	DO	12_12	24*	-		medium to coarse gravel, occasional black shale			
Ē,	CLAY TILL UNIT					12-12				Traghtents, weaky laninated, hoist to very most (we)			
E 4	0-34.3'		-					_	SA-3	4.0-5.4 ft. Firm to stiff, dark gray, CLAYEY SILT, tr.			
Ε	Soft to firm to stiff, light	35		3	БО	4-5-	21 24	_		deposit of "salt and pepper" sand layer near 4.4 ft. bgs.			
E	brown-brown to olive gray to	v 33		Ĩ		30-14	24			5.4-6.0 ft. Firm, gray, SILT, very moist to wet. Some			
E ₆	SILT to SILTY CLAY, moist	to	<u> </u>						54-4	fractured shale fragments at 5.3 to 5.4 ft. bgs.(ML)			
E	very moist, weakly to		-			3-4-	23"		37-4	thin silt lenses, slight liquefaction, weakly laminated,			
ΕI	moderately laminated, signi moderate liquefaction, trace	to 8		4	DO	J	24*	-		very moist. (ML)			
E	little, medium to coarse sand	Ι,	-			4-0							
E 8	little fine to coarse, sub-rounded to rounded grat	vel	-				1		SA-5	8.0-10.0 ft. Firm to stiff, dark gray, SILTY CLAY,			
F	occasional thin silt and sand		-	_		4-6-	<u>20</u> "			trace sub-rounded medium to coarse gravel,			
E	lenses. (ML-CL) Zone of red brown to brown	14	-	5	00	8–10	24-			laminated, very moist. (CL)			
E ₁₀	SANDY SILT @ 30.7' to 30.9	ə' 📜 🚽							CA 6	40.0.42.0.4. Firm dark annu ta alius annu SILTV			
E	(SM)		=				0.0		SA-0	CLAY to CLAYEY SILT, trace coarse gravel,			
ΕI	brown, GRAVELLY SILTY	⁴⁷⁶ 9	-	6	DO	23 69	22	-		occasional large sub-rounded dropstone,			
E	SAND @30.9' to 32.0' (SM)		=			0 0				moderately laminated, very moist. (CL-ML)			
F12			-						SA-7	12.0-14.0 ft. Soft to firm, CLAYEY SILT to SILTY			
E						4-6-	24"			CLAY, trace medium gravel, occasional thin silt			
E		12		7	DO	6-9	24			Tenses, weakly latinhated, very most (we be)			
E14							ļ		<u>.</u>				
E'									SA-8	SILTY CLAY, laminations present, very moist. (CL)			
E		11	-	8	DO	3-4-	2 <u>4</u> 24"	-		Thin fine sand lens @14.4 ft. bgs.			
E						7-9				Thin silt lens @15.3 ft. bgs.			
F16									SA-9	16.0-16.9 ft. Same as above.			
Ē						3-5-	24"			16.9-18.0 ft. Firm, olive-brown, CLAYEY SILT, little			
Ē	16.9 ft. bgs Color change.	12		9	DO	7-10	24*	_		Silt and sand lenses @16.9 ft., 17.3 ft. and 17.5 ft. bgs.			
E10			-										
Ē						. .			SA-10	18.0 to 20.0 ft. Firm to stiff, CLAYEY SIL1, little rounded medium to coarse gravel, weakly to			
E		14		10	ро	5-6-	22	-		moderately laminated, moist to very moist. (ML)			
E		• •]			8–13				Course gravel increases towards bottom of interval.			
E20									SA-11	20.0-22.0 ft. Firm to stiff, olive-gray to dark gray,			
E		4-				2-4-	23"			CLAYEY SILT, little medium to coarse			
ΕI		17		11	DO	 1316	24			sub-rounded gravel, very weakly laminated, very moist to moist. (CL)			
E													
F ²²			-		-1				SA-12	22.0-24.0 ft. Stiff to firm, olive gray to dark gray,			
E		14		12	DO	5-6-	24	_		to sub-rounded gravel, very slight liquefaction,			
E		'-		-		8-9	24			weakly laminated, very moist. (ML-CL)			
F 24			-						Continue	ed on next page.			

DEPTH	HOLE 46' JOB N	0 <u>. 053</u> -	9443	E PF	SOJE	CT WMN	/ Wes	itern E	xpansion \	Well Installation BORING NO. <u>MW-N(I)</u>		
DEPTH SOIL DRILL 46' GA INSP. RJM DRILLING METHOD 4-1/4" ID Hollow Stem Augers SHEET 2 of 2												
DEPTH	DEPTH ROCK CORE N/A WEATHER SUNNY DRILLING CO. Earth Dimensions, Inc. SURFACE EL. 1473.95											
NO. D	IST. N/A US. N/A TEMP	80° F		DF	SILL	RIGC	ME-5	50	DRILI	ER A. Morris DATUM SIL		
DEPTH	HWLHRS. F	ROD.	<u>N/A</u>	W1	r. s	AMPLER H	IAMME	₹ <u>140</u>	Ib. DRO	STARTED_1255/7-7-05		
TIME	TIME WL. UTOUT -11-UD HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 1210/7-8-05											
	SAMPLE TYPES ABBREVIATIONS SOIL DESCRIPTION - RANGE OF PROPORTION											
SAM	AFLE IIFES									"TRACE" 05% "LITLE" 5-12%		
	ALGER SAMPLE BL BU GRUNK SAMPLE BR BU DRIVE OPEN G. G	ACCENT NARSE	MIC MOT		ACEO	US	SAT SD	SATURAT	Ð	SOME - 12-30% AND - 30-50%		
D.S. P.S.	DENISON SAMPLE CA C. PITCHER SAMPLE CL CL ROTK CORE CLY C	AY AY	NG ORG	N R R	ANGE GANIC	US IIC	Siy Siy	SILTY SOME		CONSISTENCY		
ST. T.O.	SLOTTED TUBE F FI THIN-WALLED, OPEN FRAG FT THIN-WALLED, DESTINA GL GL	NE LAGMENTS LAVEL	PH PM R	PR PR	essur Essur D	E-HYDRAULIC E-MANUAL	뛗	WATER LI WEIGHT C	evel)F hammer	LS LOOSE S SOFT OP COMPACT FM FIRM		
w.s.	WASH SAMPLE LYD U	NYERED TILE	RES RX	RERO	SIDUAI	-	YWR	YELLOW	F RODS	DN DENSE SI SIIFF V VERY H HARD		
			,	Γ		SAMPLES						
ELEV.	DESCRIPTION	BLOWS/		NO.	TYPE	HAMM. BLOWS	REC/ATT	DEPTH		SAMPLE DESCRIPTION AND BORING NOTES		
-			-			(FOR(22)	-		SA-13	24.0-26.0 ft. Firm, olive gray to dark gray,		
ΕI						3-3-				CLAYEY SILT, trace medium gravel, weakly		
F		8	-	13	DO	5-8	24			laminated, very slight liquefaction, very moist.		
ΕI			-				2.			(WE-CE)		
F ²⁶			-						SA-14	26.0-28.0 ft. Soft to firm, olive gray to dark gray,		
E				1		3-4-	24			CLAYEY SILT, trace medium gravel, weakly		
F		10	-	14	DO	6-9	24	-		raminated, very signt inqueraction, very moist. (CL)		
E						0-5						
F ²⁸			-						SA-15	28.0-30.0 ft. Soft to firm, CLAYEY SILT, trace fine		
E I			=			2-5-	<u>20</u> *			to medium sub-rounded gravel, weakly laminated,		
		14	-	15	DO	9-12	24-	_		Little clay content.		
E												
F30			-				1		SA-16	30.0-30.7 ft. Same as above.		
E		-	=			3–7–	22"			30.7-30.9 ft. Red brown to brown, SANDY SILT.		
F	30.7 ft. bgs Color/lithology	23	-	16	DO	16-16	24	_		GRAVELLY SILTY SAND, occasional black shale		
E	ond igo.		=			10 10				fragments, very moist to wet. (SM)		
F 35	32.0 ft bas - Lithology change.	1	-						SA-17	32.0-34.0 ft. Firm, dark gray to olive gray,		
E			-			3-8-	22"			CLAYEY SILT, little sub-rounded fine to medium		
F		17	-	17	DO	9-16	24			gravel, weakly laminated, very moist to signify		
E_			=							Little to some clay content.		
F ³⁴ ↓		-	-						SA-18	34.0-34.3 ft. Same as above.		
E	34.3 ft. bgs Lithology change	-	=			5-23	1 9 "			34.3-36.0 ft. Loose to compact, GRAVELLY		
E		11		18	DO	48-45	24"		<u> </u>	Angular to sub-rounded gravel and rock/shale		
E	SAND & GRAVEL		=							fragments.		
F ³⁶	UNIT		-	-					SA19	36.0-36.5 ft. Loose to compact, GRAVELLY SAND,		
E						44-66-	<u>19</u> "			very moist. Large dolomite fragments. (SW-GW)		
Εl	34.3-46'	109	-	19	DO	43-40	24"	_		36.7-38.0 ft. Loose, SANDY GRAVEL, little silt, v.f.		
E_	Compact to very loose, very		-							to c. angular to sub-angular gravel, occasional		
E ³⁸	to GRAVELLY SAND, trace to		-							cobbles, v. moist. (GP)		
E	little silt, occasional thin sandy	<u> </u>				1025	1 <u>5</u>		SA-20	38.0-40.0 ft. Loose, very gravelly, SAND, trace silt,		
E	silt zones, occasional fractured	51		20	DO	26-26	24"			and black shale fragments, wet. (SW-GW)		
	cobbles. (SW-GW)											
E40	Loose, wet, very gravelly								SA-21	40.0-42.0 ft. Very loose to loose, very GRAVELLY		
F	SAND, trace silt, some fractured red sandstone and	10				16-23-	<u>16</u> "	_		SAND, line to coarse sub-rounded gravel, occasional rounded cobble, slight liquefaction, wet		
E	black shale fragments @ 38.0	40	11	21	DO	23-23	24	_		(SW-GW)		
⊧	to 40.0' and 44.0' to 46.0' (SW)											
E42	to 43.9' (SM)		-						SA-22	42.0-44.0 ft. Loose, GRAVELLY SAND, trace silt,		
F		10	-			8–18–	11			wet. (SW-GW)		
E		40		22	υO	28-42	24"			Sandy silt zone from 43.7-43.9 ft. bqs., then		
F										fractured black shale to 44.0 ft. bgs.		
E44			-				[]		SA-23	44.0-46.0 ft. Loose, very GRAVELLY SAND, trace		
F		110	_			8-55-	11"			siit, occasional large rock tragments, wet. (SW-GW)		
E		110	Ī	23	00	63–67	24"					
Engl												
E⁴⁰∣	46.0 FT. END OF BOREHOLE		1	T								
Εŀ			=					_				
E			-									
E												



DEPT	н Hole 20'	JOB NO	053–	9443	_ PF	ROJE	CT WMN	/West	em Exj	pansion Well InstallationBORING NOMW-O(S)		
DEPT	H SOIL DRILL <u>20.5'</u>	GA INSP.			_DF	ЯШ	NG METHO	D_4	-1/4" Dimer	ID Hollow Stern Augers SHEET 1 of 1		
DEPT	H ROCK CORE <u>N/A</u>	WEATHER	0" to	92° F		SII I KITTI)ietrich	D50	DRILLER A. Morris DATUM SITE		
DEPT	H WL. 19.3' H	HRS. PRO	OD	N/A		r. s.	AMPLER H	AMME	<u>140</u>	Ib. DROP STARTED		
TIME	WL. 705	HRS. DEL	AYED.	N/A	∠ W1	r. c	ASING HA	MMER_	N/A	DROP <u>N/A</u> COMPLETED <u>1350/6-24-05</u>		
	SAMPLE TYPES ABBREVIATIONS SOIL DESCRIPTION - RANGE OF PROPORTION											
	AUGER SAMPLE B	L BLAC	ĸ	M	ME	DIUM		SA_	SAMPLE	"TRACE" - 0-53 "UTILE" - 5-123		
C.S. D.O. D.S.	CHUNK SAMPLE B DRIVE OPEN C DENISON SAMPLE C	R BROM COAR A CASIN	N 92 10	MIC MOT NP			IS ISTIC	50 50 50	SAND SAND SILT	AND - 30-50%		
RG ST.	RICHER SAMPLE G ROCK CORE G SLOTTED TUBE F THIN-WALLED, OPEN F	LY CLAYE FINE RAG FRAGA	ey Ments	ORG PH PW		GANIC ESSUR ESSUR	E-HYDRAULIC E-MANUAL	SHI R	SOME TRACE WATER LI			
T.P. W.S	THIN-WAILED, PISTON G WASH SAMPLE L	L GRAVI Yd Layer J Little		R RES RX	888 8	CK SIDUAL		WH WR Y	WEIGHT O WEIGHT O YELLOW	OF HAMMER OP COMPACT FM FIRM OF RODS DN DENSE ST STIFF V VERY H HARD		
							SAMPLES		_			
ELEV. DEPTH	DESCRIPTION	B	FT.		NO.	TYPE	HAMM. BLOWS	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES		
E	SEE SOIL BORING LOG	FOR	$\overline{}$	=			(1		0.0-10.0 ft. Augered with no sampling.		
E	MW-O(I).								ſ _			
E								ſ				
Ē2							\times		_			
F				-		\sim						
F					ſ			\square	_			
Ē	~											
E ¹⁰					-					SA-1 10.0-12.0 ft. Firm to soft, olive brown to gray, CLAYEY		
E			20	1 1	1	DO	9-9-	24"		 SIL1, little to some sub-rounded to sub-angular line to coarse gravel, moist to very moist. (CL) 		
Ē				11			11-14	24				
E12		-								SA-2 12.0-14.0 ft. Compact, gray-brown, CLAYEY SILT,		
E				-			4-5-	24"		little angular to sub-angular gravel/rock fragments,		
F			10	_	2	DO	5_7	24		very moist. (CL-ML)		
Ē.							0-7					
E ¹⁴				11						SA-3 14.0-16.0 ft. Same as above, with occasional		
E			۵	-	3	DO	4-4	22"		sub-rounded medium to coarse gravel, very moist to slightly wet, Slight liguefaction when disturbed. (ML)		
E			5	111	-		5-5					
<u>–</u> 16		-		-		-		-		SA-4 16.0-18.0 ft. Same as above, very moist to slightly		
E				-			3-4-	24*		wet, slight liquefaction when disturbed. (ML)		
F			9		4	DO	5-6	24"				
E.				-								
E ¹⁸				-						SA-5 18.0-20.0 ft. Same as above.		
E			10	-	5	ро	2-4-	21	_	-		
Ē			10	1	Ū		6-6	24				
- 20		-								20.0-20.5 ft. Augered with no sampling.		
Ē	20.5 FT. END OF BORE	HOLE										
E									-			
E									_			
E				-								
E				-					_			
E				-								
F				1					-			
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107.110	153-9443 PRO FOT WMNY/WES	TERN EXPANSION WELL INSTALLATION NYWELL NO.	MW-0 (S) SHEET 1 of 1								
	RJM DRILLING METHOD 4	1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV.	1478.34 Ft. WATER DEPTH 19.3 FT. BGS								
GA INSP.		EARTH DIMENSIONS COLLAR ELEV.	1480.61 Ft. DATE/TIME 8-27-05/0745								
WEATHER	F DRILLING COMPANY	DENTER A. MORRIS STARTED 90	5/8-27-05 COMPLETED 1035/6-27-05								
TEMP. 00		4803.29	THE / DATE THE / DATE								
LOCATION /		MATERIALS INVENTORY									
	MATERIALS INVENTIORIT										
WELL CASIN	G <u>2.0</u> Hi. dki. <u>17.0</u> - SCH 40 PVC	CONTINUOUS WRAP PVC INST	ALLATION METHOD POUR THROUGH AUGERS								
CASING TYP		SUREEN TIPE	BACK OTY. 3 BAGS								
JOINT TYPE			PACK TYPE #00-SIZE QUARTZ SAND								
GROUT QUA			ALLATION METHOD POUR THROUGH AUGERS								
GROUT TYP		DRILLING MUD TYPE THE THE THE THE									
	· · · · · · · · · · · · · · · · · · ·										
FLEV /DEPTH	SOIL /ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES								
-		- SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW								
-			STEM AUGER TO 20.5 FT. BELOW								
Ē		DRAIN 6" # ANODIZED- ALUMINUM E	GROUND SURFACE (BGS). SAMPLED								
1470 74		HOLES PROTECTIVE CASING	10.0 TO 20.0 FT BGS. SAND								
- 14/6.34	GROUND SURFACE	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	POURED THROUGH AUGERS								
÷			25.5'-20.0' FT BGS. WELL								
E		: XXXXXXXXXXX	MATERIALS PLACED IN BOREHOLE								
;	0-20	CEMENT/	USING 5 FT. OF WELL SCREEN, END								
E	SEE SOIL BORING LOG FOR MW-0 (1)		CAP, 17.27 FT. OF WELL RISER AND								
¢			SUP TOP CAP FOR OVERALL LENGTH								
Ē		PVC RISER	OF 22.27 FT. WELL MATERIALS								
E			PLACED TO 20.0 FT. BGS WITH 2.27								
- 10.0		BENTONITE	FT STICKUP SAND POURED								
E		CHOKER SAND	THROUGH AUGERS 20.0 - 13.0 FT.								
-		12.5 - 13.2 - 8 BOREHOLE	BCS WHILE REMOVING AUGERS AT								
E											
- 15.0		16.0 - 3 - 3 - 5	CHOKER SAND BLACED 130 - 125								
E			TT BOS BENTONITE CHIP SEAL								
E		0.006" SLOT	PLACED 125 85 ET DOS								
F			PLACED 12.5 $=$ 8.5 FT. BOS.								
E 20.0			CHOKER SAND FLACED 8.3 - 8.0								
-	EOB @ 20.5'		PIL BGS. CEMENT/BENTONILE								
Ē		il E	GROUT ADDED 8.0 - 4.0 FT. BGS.								
ŧ –		:	REMAINING AUGERS REMOVED.								
E		É E	ALLMANINA CASING DIACED IN 3 ET								
;			ALUMINUM CASING PLACED IN 3-FT.								
E			DIAMETER BY 4 FT. DEEP CONCRETE								
;			PAD. DRAINHOLES DRILLED IN TO								
E		:	PROTECTIVE CASING.								
ŧ		il E	NISDEC UN-SITE DURING								
E		4 4	THE LOCATION AND CONCURRED WITH								
È I		i i i i i i i i i i i i i i i i i i i	THE LOCATION OF THE SCREENED								
E		;									
F		Ë									
E											
¢		E E									
E		<u> </u>									
E			WELL DEVELOPMENT NOTES								
E		i E	DATE DEVELOPED: 7/15 TO 7/21/05								
E		:									
E		l E	DEVELOPMENT METHOD:								
E		4 4	STAINLESS STEEL BAILER								
F		E E									
E		;	VOLUME PURGED: 2.4 GALS.								
¢		E E	FOR FURTHER DETAILS SEE								
E			ACCOMPANYING WELL DEVELOPMENT								
:		j E	FIELD RECORD.								
E											
E											

DEPT	HOLE JOB N	053-	9443	_ PF	ROJE	CT_WMNY	/ Wes	tern E	xpansion Well Installation BORING NO. <u>MW-O(1)</u>
DEPT	I SOIL DRILL 52.7 GA INS	P. <u>R</u>	<u>JM</u>	_ DF	SILLI	NG METHO	0 <u>4</u>	-1/4"	ID Hollow Stem Augers SHEET 1 of 5
DEPTI	I ROCK CORE N/A WEATH	ER <u>SUN</u>	<u>INY</u> 75° F			NG CO.		Dimer HD5	O DRILLER A. MORTIS DATIM SITE
NO. D	IST. <u>N/A</u> US. <u>N/A</u> IEMP J. W. 44.0' HRS F		N/A	_ UF W1	all C. S.	AMPLER H	AMME	R 140	b. DROP 30" STARTED 0845/5-23-05
TIME	W0700HRS. D	ELAYED	N/A	_w	г. С.	ASING HAI	MMER_	N/A	DROP N/A COMPLETED 1515/6-23-05
							-		CON DESCRIPTION - RANGE OF PROPORTION
SAI	APLE TYPES		ABBI	REVI	AIIC	DNS			
	ALGER SAMPLE BL BL CHUNK SAMPLE BR BI DRIVE OPEN C. C	ACK COWN ARSE	MIC MICACEC			JS	SAT	SAMPLE SATURAT SAND	ED 504E - 12-30x AND - 30-50x
DS. P.S. RC	DENISON SALEPLE CA C. PTICHER SAMPLE CL CL ROCK CORE CLY CL	AY AY AYEY		0000	ANGE		ST SP	SULTY SOME	CONSISTENCY
51. 10. 12.	SLOTTED TUBE FRAG FT THIN-WALLED, OPEN FRAG FT THIN-WALLED, PISTON GL G	ACHENTS LAVEL	PM R PFS	ER RE	ESSUR D SIDUAI	E-MANUAL		WATER LI WEIGHT C	EVEL LS LOOSE S SOFT OF HAMMER OP COMPACT FM FRM OF ROOS DN DENSE ST STIFF
WLS.		TLE	RX	RÖ	CK		Ŷ	YELLOW	V VERY H HAND
ELEV.	DESCRIPTION	BLOWS/	'			SAMPLES		DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
DEPTH		FT.		NO.	TYPE	(FORCE)	REC/ATT		SA-1 0.0.2.0.ft Compact tan-brown to brown, CLAYEY
E			-			7.4-			SILT, little to some clay, moist to slightly moist. (ML)
E		10	-	1	DO	5-4-	22"	-	Granular structure.
E	0-32.0 Stiff to firm brown-dark					6-10	24		Some plant roots and desiccation cracks.
F2	brown to mottled brown-gray								SA-2 2.0-4.0 ft. Stiff, brown, CLAY, little sand, little silt,
E	to gray, CLAYEY SILT to		=			14—13	24"	_	moist. (CL) Weakly laminated from 3.0-3.5 ft, bgs.
E	to very moist, slightly to	30	-	2		17–16	24		
E4	thinly laminated, slight		-						SA-3 40-60 ft Firm dark brown to brown, CLAYEY SILT
ΈΙ	coarse, sub-rounded to		=			6-7-	24"		to SILTY CLAY, little fine sub-rounded gravel, very
E I	rounded gravel, little to	14		3	DO	7 11	24	-	moist. (ML-CL)
E I	some fine to medium sand, occasional desiccation		-			/=//			
F6	cracks, occasional fractured		-		†				SA-4 6.0-8.0 ft. As above; little fine sand, occasional
Ē	shale fragments, occasional thin silt and sand lenses		=			11-9-	<u>10"</u>	_	sub-rounded rock/stone, moist. (ML-CL)
E	(ML-CL)	26	-	4	DO	17-24	24		
È,	Intervals of loose,		-				ļ		CA E 9.0.9.5 th Eim brown SILTY CLAY moist
E	GRAVEL and med. to c.		-			8-13-	4.0*		8.5-10.0 ft. Firm, gray, CLAY, occasional silt lens,
E I	SAND from 26.0' to 30.0'	26	_	5	DO	13-18	24*	-	moist. (CL)
E	(GW-GM) Intervals of firm, gray to		-						
F10	mottled gray, moist to		-				-		SA-6 10.0-12.0 ft. Firm, tan-brown to gray, mottled,
E	slightly wet SANDY SILT, little fine gravel, with	47	-			4-6-	2 <u>4</u> *		SILTY CLAY, little fine sand, little coarse
E	occasional thin silt lenses	117	-	6		11 —17	24"		
E12	from 12.5'-26.0' (SM).		-	<u> </u>					CA-7 120125# Same as above
E'2		-	-				24=		12.5-14.0 ft. Firm, mottled brown-gray, SANDY SILT,
E I	12.5 ft bgs-Color change.	17	-	7	DO	8-8-	24	-	occasional brown silt lens, moist to very moist. (ML)
F						9-9			
F14				-	<u> </u>				SA-8 14.0-16.0 ft. Same as above; occasional rounded
Ē		10	-	_		11-11-	20	_	coarse gravel. (ML)
E		19	-	8	DO	8-11	24		
E16									SA-0 16.0 to 18.0 ft Firm gray SANDY SILT moist to very
E'Ŭ							40"		moist. (ML)
E		11	-	9	DO	4-4-	1 <u>8</u> 24"	-	
F			1 3			7–8			
F18					r—				SA-10 18.0 to 20.0 ft. Same as above. Sample slightly wet
Ē		40				2-5-	1 <u>8</u>	_	at 18.0-18.5 ft. bgs. (ML)
E		12		10	DO	7–7	24-		
E2n									SA_11 20.0-21.0 ft As above wet to very moist zone at
Ē		[=			1 5	20-		20.5 ft. bgs.
ΕI		11	-	11	DO	1-5-	24	-	21.0-22.0 ft. SILTY CLAY transition with little
Ê		[=			6-9			
F22				-			<u> </u>		SA-12 22.0-24.0 ft. Firm to soft, gray, SANDY SILT. (ML)
F		10		12	00	4-4-	20*	_	Thinly laminated at 23.5 ft. bgs.
E			=	12	50	6-8	24"		
F 24							L		Continued on next page.

DEPTH	DEPTH HOLE JOB NO. 053-9443 PROJECT WMNY/ Western Expansion Well Installation BORING NO. MW-O(1)											
DEPTI	DEPTH SOIL DRILL <u>52.7</u> GA INSP. <u>RJM</u> DRILLING METHOD <u>4-1/4" ID Hollow Stem Augers</u> SHEET <u>2 of 3</u>											
DEPT	HROCK CORE <u>N/A</u> WEA	עדוובת 111ER - 20	-75° F	_DF	리니니 기미	NG CO	IETRIC	H D-5		LLER A. MOTTIS DATUM SITE		
DEPT	H WI. 44.0' HRS	. PROD	N/A		T. S	AMPLER H		R_140	Jb. DR	OP 30" STARTED 0845/8-23-05		
TIME	TIME WLO700HRS. DELAYED_N/A_WT. CASING HAMMER_N/ADROPN/ACOMPLETED 1515/8-23-05											
										DESCRIPTION BANCE OF PROPORTION		
SA	APLE TYPES		ABB	REV	IA 110	ONS			SUL	TRACE 54		
AS. CS.	AUGER SAMPLE BL Chunk Sample BR Drive Open C	BLACK BROWN COARSE	MIC NOT			JS	SAT SD	SAMPLE SATURATI SAND	Ð	"SOME" - 12-30% "SOME" - 12-30% "AND" - 30-50%		
D.S. P.S. R.C.	DENISON SAMPLE CA PITCHER SAMPLE CL ROCK CORE CLY	CLAY CLAY CLAYEY	NP OG ORG	2052	N-PLI Igange Iganic	STIC	នត៍តា	SILTY SOME		CONSISTENCY		
S.T. T.O. T.P.	SLOTTED TUBE F THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL	FRAGMENTS GRAVEL	PW R	EE 21	ESSUR	E-HITUKAUUC E-MANUAL	E S S	WATER LI WEIGHT C	EVEL X HAMMER	LS LOOSE S SOFT OP COMPACT FIL FIRM DN DENSE ST STEPF		
WLS.	WASH SAMPLE LTD U		8	RC	CK CK	•	Ŷ	YELLOW		V VERV H HARD		
ELEV.	DESCRIPTION	BLOWS	1			SAMPLES		DEPTH		SAMPLE DESCRIPTION AND BORING NOTES		
DEPTH		FT.		NO.	TYPE	(FORGE)	REC/ATT		CA 17	OLO OF O F. Firm to and prov. CAMDY SILT thinks		
ΕI				1					5A-13	laminated, very moist.		
E		12	-	13	DO	4-4-	22"	-		25.0-26.0 ft. As above, some clay, with occasional		
E				-		8-9	24			sub-angular to sub-rounded gravel and dark gray		
E 26				-					SA-14	26.0-28.0 ft. Loose, brown-gray, GRAVEL, little silt,		
ΕI				1		6-10-	13"			little medium to coarse sand, wet. (GW)		
Εl		20		14	DO	10-15	24	-				
E_												
F^{20}									SA-15	28.0-29.5 ft. Loose, brown-gray, GRAVEL and		
ΕI		35		15	DO	12-15-	1 <u>1</u> 24"	-		fractured sandstone pieces, moist to v. moist. (GW)		
È						20-21	-			29.5-30.0 ft. Loose, brown-gray, medium SAND,		
F30					-				54-16	30.0-31.0 ft. Loose dark brown SILT some clay.		
E I				1		17	22"		0/ 10	little rounded to sub-angular gravel, moist. (SC)		
F		67	-	16	DO	20 33	24"	-		31.0-32.0 ft. Loose, brown-gray, SANDY GRAVEL,		
ΕI						29-33				Ittle sit, little fractured shale fragments, moist. (GW)		
E ³²	32.0 ft, bgs-Lithology change.	-+					1		SA-17	32.0-34.0 ft. Same as above; moist. (SW-GM)		
F	SAND & CRAVE	L _ E O		1.7		25-34	<u>18</u> "	_	·			
F	UNIT	- 50		"	00	24-34	24-					
E34]	ļ				CA 19	Come of all maint (CIM CIM)		
Ē	32.0-52.0'			1			478		5A-10	Same as above; moist. (Sw-Gw)		
E	Compact to loose, moist to	110) -	18	DO	30-80-	24	-				
Εl	GRAVEL, SILTY GRAVEL			1		00 00						
F ³⁶	and SAND, little to some silt occasional thin sandy silt	,							SA-19	36.0-38.0 ft. Loose, dark brown to brown, fine to		
E	zones, occasional fractured	4-	1	1		8-8-	1 <u>9</u>			medium SAND, little to some fine to medium gravel,		
E	 shale fragments. (GP-GM) Intervals of compact, grav to 	17	3	19	DO	9–13	24"			Mottled brown silt lens at 37.5 ft. bgs.		
E38	dark gray, wet to saturated			1					C4 00	20.0.40.0.4 Lagon brown to dark brown SAND		
E	SILT and fine to medium SAND from 42.0' to 43.0' an	d		1					5A-20	and GRAVEL, very moist to moist.		
E	50.0' to 52.0' (SM).	22	1 -	20	DO	9-10-	24"					
FI	brown-gray, moist, fine to	,		1		12–12						
F 40-	f to m group from 36 0' to	•	-	-					SA-21	40.0-42.0 ft. Loose, tan-brown, subrounded to		
E	38.0' (SP).			1		7-12-	12			rounded SILTY GRAVEL, wet.		
E		25		21	DO	13-21	24	_		Large sandstone cobble in end of spoon shoe.		
En 1												
E+2									SA-22	42.0-43.0 ft. Firm, gray, SAND and SILT, some clay,		
Εİ		17	-	22	DO	4-10-	$\frac{13}{24}$	-		43.0-44.0 ft. Compact, gray, SILT and sub-rounded		
E		''				7-9	-'			to sub-angular coarse GRAVEL, wet. (GP)		
E44			+						SA-23	44.0-46.0 ft. Loose, brown to dark brown, SAND		
E						4-4-	24"			and GRAVEL, saturated. (GM)		
E		11		23	DO	 7_9	24*	-				
E, I						,-0						
E40			-						SA-24	46.0-46.5 ft. Augered without sampling.		
E		23	-	24	DO	9-8-	18 [•]	_		GRAVEL, some silt, occasional angular weathered		
E						15-18	24			shale fragments, saturated. (GM)		
F 48			1 -						[

DEPTH	DEPTH HOLE 54"JOB NO. 053-9443 PROJECT_WMNY/ Western Expansion Well Installation BORING NO. MW-O(I) DEPTH SOIL DRILL 52.7" GA INSPRJM DRILLING METHOD4-1/4" ID Hollow Stem Augers											
DEPTH	ROCK CORE N/A WE	THER SUN			งเม	NG CO.	Earth	Dimer	SURFACE EL. 1478.34			
NO. D	IST. <u>N/A</u> US. <u>N/A</u> TEM	P65'-7	<u>/5' F</u> N/A	DF w7	NLL r s			R 140	DRILLER A. MOITHS DATUM <u>STIC</u> Jb. DROP <u>30</u> STARTED 0845/6-23-05			
TIME	WL. 0700 HRS	5. DELAYED	N/A	_wı	r. C	ASING HAI	MMER_	N/A	DROP N/A COMPLETED 1515/6-23-05			
541			ABB	RFM	ATIO	ONS		-	SOIL DESCRIPTION - RANGE OF PROPORTION			
	AUGER SAMPLE BL	BLACK	N			-	ŞĄ,	SAMPLE	*TRACE* - 0-5% "UTTLE - 5-12% FD - 5-12%			
D.C. D.S. P.S.	DRIVE SAMPLE C DRIVE OPEN C DENISON SAMPLE CA PITCHER SAMPLE QL	COARSE CASING CLAY	NP NP OG	NOTILED NON-PLASTIC ORANGE			a 20.	SAND SALT SALTY				
RC ST. T.O. T.P	ROCK CORE CLY SLOTTED TUBE F THIN-WALLED, OPEN FRAG THIN-WALLED, PISTIN QL	CLAYEY FINE FRAGMENTS GRAVEL	org PH PM		GANIC Essur Essur D	E-HYDRAULIC E-MANUAL	가 같이 가	SOME TRACE WATER LI WEIGHT O	EVEL LOOSE \$ SOFT F HAMMER OF COMPACT FM FIRM			
ŴŚ	WASH SAMPLE LYD	LAYERED	RES RX	RE	SIDUAL CK	•	Y	WEIGHT O	JF RODS DN DENSE ST STIFF V VERY H HARD			
ELEV.	DESCRIPTION	BLOWS/			TVOC	SAMPLES	REC /ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES			
-						(FORCE)			SA-25 48.0-50.0 ft. Same as above; saturated.			
E		11		25	00	6-9-	16"	_				
ΕI			-	20	00	3535	24					
50									SA-26 50.0-52.0 ft. Compact, dark gray, fine to medium			
È		4.5				8-8-	<u>13</u> "		SAND and SILT, saturated. (SM) Silt lenses at 50.8 ft, and 51.8 ft, bos.			
F		15	-	26	DO	7–11	24"					
E 52	52.0 ft. bas - Lithology chapter	_ +							SA-27 52.0-54.0 ft. IMPERVIOUS SILT LAYER.			
E	52.0 ft. bgs - Eithology change					5-10-	<u>19</u> "		Stiff, gray, CLAYEY SILT, little fine sub-rounded			
E I		28		27	DO	18–25	24-	-	gravel, weakly laminated, very moist. (ML)			
₽ 54 -	·											
Ē	54.0 FT. END OF BOREHOLE											
Ē												
ΕI			-									
E			-									
E			-					-				
È												
F			-									
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JOB NO.	053-9443 PROJECT WMNY/WE	STERN EXPANSION WELL INSTA	LLATION/NYWELL NO	MW-0 (I) SHEET 1 of 1
GA INGD	RJM DRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUC	ERS GROUND ELEV	1478.34 Ft. WATER DEPTH 44.0 FT. BGS
		EARTH DIMENSIONS		1480.52 Ft. DATE/TIME 6-24-05/0700
WEATHER	-85° F DRILLING COMPANY	D-50 DOULTO A. MO	RRIS STARTED 7	10/6-24-05 COMPLETED 1100/6-24-05
TEMP			STARTED	TIME / DATE TIME / DATE
LOCATION /	COORDINATESN9552.64. E			
		MATERIALS INV		MEDINA DENTONITE OURS
WELL CASIN	G <u>2.0</u> in. dia. <u>44</u>		. dla. <u>10</u> I.f. BEA	ITONITE SEAL MEDIUM BENTUNITE CHIPS
CASING TYP	E SCH. 40 PVC	SCREEN TYPECONTINU	JOUS WRAP PVC INS	TALLATION METHOD POUR THROUGH AUGERS
JOINT TYPE	FLUSH THREADED	SLOT SIZE0.01"	FIL1	ER PACK QTY Z.5 BAGS
GROUT QUA	NTITY	CENTRALIZERS NOT USED	คเา	TER PACK TYPE #00N-SIZE QUARTZ SAND
CROUT TYP	CEMENT/BENTONITE	DRILLING MUD TYPE NOT U	SEDINS	TALLATION METHOD POUR THROUGH AUGERS
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SK	ETCH	INSTALLATION NOTES
-		-	SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW
F			1 =318	STEM AUGER TO 52.7 FT. BELOW
E			6"	GROUND SURFACE (BGS), SAMPLED
£		HOLES	PROTECTIVE	O TO 54 O ET BOS SAND POURED
-1478.34	GROUND SURFACE			TUPOLICIL AUCEDE ED 7 51 6 ET
E				DOD WELL LATERIAL C DI ACED IL
Ł	CLAY THE UNIT			BUS. WELL MATERIALS PLACED IN
F		XXXXXXX		BOREHOLE USING 10 FT. OF WELL
E En	0-32.0		N	SCREEN, END CAP, 43.68 FT. OF
E 5.0	Stiff to firm, prown-dark brown to mottled brown-gray		N	WELL RISER AND SLIP TOP CAP FOR
¢	to groy, CLAYEY SILT to SILTY CLAY, alightly moint to verv		2	OVERALL LENGTH OF 53.68 FT.
F	moist, slightly to thinly	FI NI	1	WELL MATERIALS PLACED TO 51.6
E	little fine to course,	El N K	CEMENT/	FT. BGS WITH 2.18 FT. STICKUP.
E 10.0	sub-rounded to rounded gravel, little to some fine to		GROUT	SAND POURED THROUGH AUGERS
F	medium sand, occasional desiccation cracks, occasional		3	51.6 - 39.5 FT. BGS WHILE
E I	fractured shale fragments,	E N K	N	PENOMING AUGERS AT 0.5 - 1.0 FT
E	lenses. (ML-CL)		2"4 SCH 40	INCREMENTS CHOKER SAND
- 15.0	intervals of loose, brown—gray, a moist to wet, GRAVEL and		PVC RISER	DI ACED 70 E 70 0 ET DOS
E	med. to c. SAND from 26.0' to		N	PLACED 39.5 - 39.0 FT BGS.
E I	Intervals of firm, gray to		N I	BENTONITE CHIP SEAL PLACED 39.0
₽ I	mottled groy, moist to slightly wat SANDY SILT, little fine		3	- 36.0 FT. BGS. CHOKER SAND
E	gravel, with occasional thin all lenses from 12.5'-26.0' (SM).		N	PLACED 36.0 – 35.0 FT. BGS.
= 2 0.0			N I	CEMENT/BENTONITE GROUT ADDED
F I		EI NE	3	35.0 - 4.0 FT. BGS. REMAINING
E I			N	AUGERS REMOVED. 6-INCH
ŧ			N	DIAMETER ANODIZED ALUMINUM
25.0			3	CASING PLACED IN 3-FT. DIAMETER
E			N	BY 4 FT. DEEP CONCRETE PAD.
F			N	DRAINHOLES DRILLED INTO
E I	SAND & GRAVEL			PROTECTIVE CASING.
E 30.0			8"# BOREHOLE	NYSDEC ON-SITE DURING
-	0111		N	INSTALLATION AND CONCURRED WITH
E	32 0-52 0'		3	THE LOCATION OF THE SCREENED
E	Compart to loose moint to		N I	INTERVAL
- 35.0	saturated, fine to coarse	35.0		INTERVAL.
E I	SAND, little to some silt.	36.0 - 25	۳. En en en en en en en en en en en en en en	
E l	 occasional thin sandy slit zones, occasional fractured 		CHOKER SAND	
F	shale frogments. (GPGM)			
	to dark gray, wet to	30.5 - 252		
E 40.0	nedium SAND from 42.0° to			WELL DEVELOPMENT NOTES
È	43.0° and 50.0° to 52.0°			DATE DEVELOPED: 7/15 TO 7/25/05
E I	Zone of loose, dark brown			
	to brown-groy, moist, fine to medium SAND, little to		2 CONTINUOUS	DEVELOPMENT METHOD:
E 45.0	some f. to m. gravel, from 36.0' to 38.0' (SP).		0.01" SLOT	STAINLESS STEEL BAILER
E I		- <u> </u> = :	<u>(</u>]	
t	ŀ			VOLUME PURGED: 68.25 GALS.
E I	Ē	<u> </u> + =ŀ		FOR FURTHER DETAILS SEE
50.0			TILIER SAND	ACCOMPANYING WELL DEVELOPMENT
F I	ļ		9 1	FIELD RECORD
E I	Ē	827	:'	
<u> </u>		54.0 - Liži		
F I	FOR @ 54.0'	1	1	

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JOB NO. 053-9443 PROJECT WINY/WESTERN EXPANSION WELL INSTALLATION/NYWELL N	10NW-P (S)_SHEET1 of 1										
GA INSP. RJM DRILLING METHOD 4 1/4" I.D. HOLLOW STEM AUGERS GROUNI	D ELEV. 1465.59 Ft. WATER DEPTH 15.98 FT BGS										
WEATHER OVERCAST DRILLING COMPANY EARTH DIMENSIONS COLLAR	RELEV. 1468.24 Ft. DATE/TIME 7-5-05/920										
TEMP 75-85' F DRILL RIG CME-550 DRILLER B. BARTRON STARTE	D 1000/7-5-05 COMPLETED 1130/7-5-05										
LOCATION / COOPDINATES N9940.36, E5453.08	TIME / DATE TIME / DATE										
MATERIALS INVENTORY											
WELL CASING IN. dia 18.5 1.1. WELL SCREEN IN. dia 10 1.1. BENTONITE SEALMEDIUM BENTONITE CHIPS											
CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS											
NINT TYPE FLUSH THREADED SLOT SIZE 0.006" FILTER PACK OTY 2.5 BAGS											
	FILTER PACK TYPE #00-SIZE QUARTZ SAND										
	INSTALLATION METHOD POUR THROUGH AUGERS										
ELEV./DEPTH SOIL/ROCK DESCRIPTION WELL SKETCH	INSTALLATION NOTES										
SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW										
	STEM AUGER TO 27.0 FT. BELOW										
	GROUND SURFACE (BGS). SAMPLED										
F1465.59 GROUND SURFACE F	16.0 TO 26.0 FT BGS. SAND										
	POURED THROUGH AUGERS										
E ICLAY TILL UNITEI KXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	NRETE 27.0'-26.0' FT BGS. WELL										
$\mathbf{F} = \begin{bmatrix} 0-26' \end{bmatrix} \mathbf{F} = \begin{bmatrix} 0+26' \end{bmatrix} \mathbf{F}$	MATERIALS PLACED IN BOREHOLE										
	USING 10 FT. OF WELL SCREEN, END										
E MW-P (I). E BENTONITE GROUT	CAP, 18.65 FT. OF WELL RISER AND										
	SLIP TOP CAP FOR OVERALL LENGTH										
	OF 28.65 FT. WELL MATERIALS										
	PLACED TO 26.0 FT. BGS WITH 2.65										
E IO.O	FT. STICKUP. SAND POURED										
SEAL CHOKER'S	THROUGH AUGERS 26.0 - 14.0 FT.										
	BGS WHILE REMOVING AUGERS AT										
	IOLE 0.5 - 1.0 FT. INCREMENTS.										
	CHOKER SAND PLACED 14.0 - 13.5										
	FT BGS. BENTONITE CHIP SEAL										
	PLACED 13.5 - 9.5 FT. BGS.										
	OT CHOKER SAND PLACED 9.5 - 9.0										
	FT. BGS. CEMENT/BENTONITE										
	GROUT ADDED 9.0 - 4.0 FT. BGS.										
	REMAINING AUGERS REMOVED.										
	6-INCH DIAMETER ANODIZED										
	ALUMINUM CASING PLACED IN 3-FT.										
	DIAMETER BY 4 FT. DEEP CONCRETE										
	PAD. DRAINHOLES DRILLED INTO										
	PROTECTIVE CASING.										
E 50.0	NYSDEC CONCURRED WITH THE										
	PLACEMENT OF THE SCREENED										
E I EI	INTERVAL.										
E I EI											
;; ; ;											
E E											
ŧ t											
E I El	WELL DEVELOPMENT NOTES										
ŧ \$	DATE DEVELOPED: 7/12 TO 7/25/05										
E I El											
¢ ¢	DEVELOPMENT METHOD:										
E I El	STAINLESS STEEL BAILER										
ŧ 											
E El	VOLUME PURGED: 110 GALS.										
; <u></u>	FOR FURTHER DETAILS SEE										
E I E	ACCOMPANYING WELL DEVELOPMENT										
ŧ \$	FIELD RECORD.										
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DFPT	DEPTH HOLE											
DEPT	H SOIL DRILL <u>54.1'</u> GA	INSP	RJM	DR	Ш	NG METHO	D_4	-1/4	D Hollow Stem Augers SHEET.	1 of 3		
DEPT	H ROCK CORE <u>N/A</u> WE	THER SL	INNY	DR	ILU	NG CO	Earth	Dimer	ilons, incSURFA	CE EL. 1466.28		
NO. E	DIST. <u>N/A</u> US. <u>N/A</u> TEM	IP. <u>80-</u>	-90° F	DR	llL.	RIGC	ME-3	50	DRILLERB. Bortron_DATUM	 		
DEPT	H WL. <u>27.1</u> HRS	S. PROD.	<u>N/A</u>	WT	. s.	AMPLER H	AMME	ע <u>+ו</u> ב. ∧/∆	DROP N/A COMPL	ETED 1015/7-1-05		
TIME	TIME WL. 1030/7-1-05 HRS. DELAYED NZA WT. CASING HAMMER UZA DROP 17/7 COMPLETED 1019/7-1-00											
SA	SAMPLE TYPES ABBREVIATIONS SOIL DESCRIPTION - RANGE OF PROPORTION											
		BLACK	м	MET	MOM		SA	SAMPLE	"TRACE" - 0-5% "LITTLE" - 5-12%			
63 0.0	CHUNK SAMPLE BR DRIVE OPEN C	COARSE CASING	MOT	NO. NO.		IS STIC	SAT SD SI	SATURAT SAND SELT	AND - 30-50%			
P.S. R.C.	PITCHER SAMPLE CL ROOK CORE CLY	CLAY CLAYEY FINE	OG ORG	OR/ OR(PRE	ANCE JANIC SSUR	HYDRAULIC	SIY SM TR	SILTY SOME TRACE	CONSISTENCY	-		
	THIN-WALLED, OPEN FRAG THIN-WALLED, PISTON GL	GRAVEL	S PM R RFS		SSUR) BOLIAL	E-MANUAL		WATER LU WEIGHT O	EL LS LOOSE S SUT Hammer op compact fm firm Rods dn dense st stje	í F		
W.S.		UTTLE	RX	ROC	×		Ϋ́	YELLOW	V VERY H HAR			
ELEV.		BLOW	s/			SAMPLES		DEDTU	SAMPLE DESCRIPTION AND BORI	NG NOTES		
DEPTH	DESCRIPTION	FT		NO.	TYPE	HANNE BLOWS (FORCE)	REC/ATT	DEFIN				
E				-					SA-1 0.0-2.0 ft. Stiff, light tan to light br	own, mottled gray,		
F		1/	1 .	1 , E	no	3-6-	17"	_	(CL)	, si. moist to dry.		
E			•	-		8-10	24*		Slight desiccation.			
F _				-					TOPSOIL			
F [∠] ∣									SA-2 2.0-4.0 ft. Stift, dark brown to bro CLAYEY SILT occasional thin silt	t lenses, slight		
E		14	, -	2,	DO	6-7-	20	-	lamination, little clay content, mois	st. (SM-CL)		
F			י	1	55	9-9	27		Loose, dark brown, SANDY SILT	from 2.3-2.5 ft. bgs.		
E₄							<u> </u>		A _ 3 _ 4 0-6 0 ft Stiff light brown to aliv	e-brown CLAYFY		
F						F 40	23"		SILT, trace to little fine gravel, trac	ce fine sand, weakly		
E		24	1 -	3	DO	5-10-	24"	-	laminated, slightly desiccated, mo	vist. (SL)		
E		1	•			14-16			Fractured shale fragments @ 4.6	ft. bgs.		
F 6				<u>i</u> -	_				SA-A 60-72 ft Same as above.			
Ē						0 10	24"		7.2-8.0 ft. Compact to loose, dar	k brown, SANDY		
F		2	} -	4	DO	9-12-	24	-	SILT, trace to little gravel, weakly	stratified, very moist.		
E	7.2 ft. bgs - Lithology change.			-		17-14						
F 8									SA-5 8.0-9.5 ft. Stiff to firm, It. brown to	o olive-brown,		
E						7-11-	19"		CLAYEY SILT, little sub-rounded	c. gravel, sl.		
E		24	1 -	5	DO	13-11	24	-	laminated, slight liquefaction, v. m	noist to wet. (ML)		
	9.5 ft. bas Color change.	·							9.5-10.0 ft. Firm, dk gray to gray,	SILTY CLAY, v.		
E10				+			-		moist. (CL)			
E		- .		-		2-3-	16"		SA-6 10.0-12.0 ft. Firm, dark gray, SIL	TY CLAY,		
F	CLAT HLL UNH	8		6	DO	5-7	24"	-	occasional silt lenses, distinct lam	ination, very slight		
E	0-38.5'			-								
F ¹²	Firm to stiff, dark-light bro	wn		-					SA-7 12.0-14.0 ft. Same as above. No	gravel.		
E	CLAYEY SILT to SILTY			-		3-3-	24"					
F	CLAY, moist to slightly we	et, 8		7	DO	5-7	24"	_				
E	slightly to weakly laminate	ed,		-								
E ¹⁴	some f. to c., sub-rounded	i to		-					SA-8 14.0-14.7 ft. Same as above.	SANDY SILT little		
E	rounded gravel, occasiona			1 _ I		4-7-	23		medium gravel, wet. (SM)	SAND TOLLI, Male		
E	desiccation cracks, slight	ol. 13 in	ן י	8	סט	6-7	24		15.6-16.0 ft. Firm, olive brown, C	LAYEY SILT, some		
E10	silt and sand lenses.	"." <u></u>							fractured shale fragments, very m	Dist to moist. (SM)		
E'°	occasional fractured shale	e							medium to coarse sand, very mo	ist to slightly wet.		
E	fragments. (ML-CL)	20) -	-	DO	5-8-	24	-	Thin fine gravel and sand layer @) 16.3 ft. bgs.		
E I	Intervais of compact to loose, dk. br. to orav-br.			ן יין	50	12-17	24		(ML-CL)			
E18	SANDY SILT to SILTY		·	1					SA-10 180 to 200 ft Compact/stiff (CLAYEY SILT to		
E	SAND, from 7.2.' to 8.0',	y.				37. 34	=*		SILTY CLAY (as above); fractu	red rock fragments in		
E	24.0' to 26.0' and 31.2' to	′' 68	3 -	10	DO	37-36-	24	-	spoon. (ML-CL)			
E	32,0' (SM).				-	32-26						
F20	Zone of loose, wet, coarse	e,			_				SA-11 20.0-21.8 ft. Stiff, olive-gray, C	LAYEY SILT,		
E	SAND @ 22.0 to 23.0 (S					8	24"		occasional thin sandy silt lense	s, moist to very		
E		16	\$ -	11	DO	0-0-	24		moist. (SM)			
E						8-13			21.8-22.0 π. Loose to compac wet.(ML-SM)	I, SILTE SAIND,		
E22	21.8 ft. bgs - Lithology change	.]—		+					SA-12 22.0-23.0 ft. Loose, coarse, S	AND, wet. (SP)		
F						WH-2-	16*		23.0-23.5 ft. Loose, sub-round	ded to rounded course		
E		6		12	DO		24		gravel, little silt. (SM)			
F ~						4-5			SILT. verv moist. (SW)	DOWN, OLATET		
<u>r 24</u>				1			I	· · · · · · · · · · · · · · · · · · ·				

Golder Associates

Continued on next page.

DEPT	HOLE56'	JOB NO	053-	9443	PR	OJE	CT WMNY	/ Wes	tern E	xpansion	Well InstallationBORING NORW-P(I)			
DEPT	SOIL DRILL 54.1'	GA INSP	P. <u>R.</u>				NG METHO	D <u>4</u> Forth	Dimer	ID Hollov sions, In	W Stem Augers SHEET 2013			
	I ROCK CORE <u>N/A</u>	MEAIHE	80-9	0° F				ME-5	50	DRI	LLER B. Bartron DATUM SITE			
DEPTI	H WL. <u>27.1</u>	IRS. PI	ROD.	N/A_		. s	AMPLER H	AMME	<u>140</u>	<u>Ib.</u> DR	OP STARTED0900/6-30-05			
ТМЕ	WL. <u>1030/7-1-05</u>	IRS. D	ELAYED	N/A	⊾w 1	: с	ASING HAN	IMER_	<u>N/A</u>	DR	OP N/A COMPLE TED 1015/7-1-05			
SA	APLE TYPES			ABB	REVI	ATIC	INS			SOIL	DESCRIPTION - RANGE OF PROPORTION			
AS.	AUGER SAMPLE	LBL	KCK,	M					SAMPLE	ED	"TRACE" - 0-53 111112 - 5-128 "SOME - 12-308			
C.S. D.O. D.S.	CHUNK SAMPLE 5 DRIVE OPEN 6 DENISON SAMPLE 6 DITISHER SAMPLE 6		WRSE SNG		NOR		STIC	50 50 51	SAND SILT SILTY	CONSISTENCY				
RC S.T. T.O.	ROCK CORE C SLOTTED TUBE F THIN-WALLED, OPEN	EY OL RAG FR	YEY GMENTS	ÖRG PH PM	SEE!	SANIC SSUR	-HYDRAULIC	3 문북권	SOME TRACE WATER LI	EVEL F HANNER	LS LOOSE S SOFT CP COMPACT FM FIRM			
T.P. W.S.	THIN-WALLED, PISTON L WASH SAMPLE			RES RX	RECO			Ŷ	WEIGHT O	OF RODS	DN DENSE ST STIFF V VERY H HARD			
			RI OWS /				SAMPLES		DED TH	<u> </u>				
DEPTH	DESCRIPTION		FT.		NO.	TYPE	HAMM BLOWS PER 6 IN. (FORCE)	REC/ATT						
E										SA-13	saturated; liquefaction present. (SM)			
E			33	-	13	DO	WH-15-	<u>16</u>	-					
F				-			18-20	24						
F26				-						SA-14	26.0-28.0 ft. Stiff to firm, olive-gray, CLAYEY SILT,			
E			20	-	14	00	6-11-	20"	-		very moist. (ML)			
F			28	=	14		17–19	24						
F28			<u> </u>	-				<u> </u>		SA-15	28.0-30.0 ft. Firm to stiff, olive-gray, CLAYEY SILT,			
F							57-	<u>18</u> "			trace to little fine sub-rounded gravel, slight olive			
F			23	-	15	DO	16-22	24"	-	-	brown mottling, moist. (ML)			
E _{zo}				-										
E				=				20*		SA-16	30.0-31.2 ft. Same as above. 31.2-32.0 ft. Compact to loose, medium to course			
E I			57	-	16	DO	7-22-	24*	-		gravelly SILTY SAND, some fractured shale			
F	31.2 ft. bgs Lithology cha	nge.					35-29				fragments, very moist to wet. (ML-CL)			
F 32				-						SA-17	32.0-34.0 ft. Firm to stiff, olive-gray, CLAYEY			
F			20	-	17	20	14-14-	22	-		Layer of fractured shale fragments @34.2 ft. bgs.			
E			30		ľ.	00	16-20	24						
E34										SA-18	34.0-36.0 ft. Same as above; little to some clay,			
E							9-14	24"			trace to little medium to coarse gravel.			
E			29	-	18	DO	15–18	24*	-					
Eze					_					CA 10	26.0.28.0.8. Stiff plive area CLAVEY SILT trace			
E								20"		SA-19	fine to coarse gravel, very moist. (SM)			
E			30	-	19	DO	10-14	24"	-					
E							16-21	1						
E ³⁸										SA-20	38.0-38.5 ft. Same as above.			
E	38.5 ft. bgs Lithology char	nge.	103	=	200	50	2238	17			(SW)			
E	SAND & GRA	/EL	105		20	00	65-36	24			Pocket of silty, m. to c. sand from 38.3-38.6 ft. bgs.			
E40	UNIT				-					SA-21	40.0-42.0 ft. Same as above. Wet. (SW)			
E	705 541			=			23-35-	17"						
Ē	Compact to loose, very n	noist to	/6	=	21	DO	41-30	24	-	·				
EAD	wet, fine to coarse GRAV	ΈL,		-						C1 00				
È [™]	SAND and SILLY SAND, silt, occasional fractured	some		=			16 10	15"		5A-22	42.0-42.5 IL. Gravelly SILT/SAND/CLAY, (SW) 42.5-44.0 ft. Gravelly SILT/SAND/CLAY, little to			
E	fragments. (SM-GM)	vet.	39	-	22	DO	16-18-	24	-		some clay content, olive-brown to gray, wet. (SM)			
E	GRAVELLY-SILT/SAND/	CLAY		=	1		21-19							
E ⁴⁴	@ 42.0' to 45.6' (SM). Occasional pocket of stiff	, olive								SA-23	44.0-45.6 ft. Same as above.			
E	brown, very moist CLAYE	Υ	65	-	2.3	DO	18-27-	$\frac{21"}{24"}$	-	<u> </u>	fractured shale fragments, wet. (SM)			
E	JILI (IML).			-	1	-	38-29	27						
E46			<u> </u>					<u>+</u>		<u>SA-24</u>	46.0-47.1 ft. Same as above. Wet.			
E				=			21-23-	21"			47.1-47.6 ft. Loose, SILTY m. to c. SAND.			
E			5/		24	DO	34-38	24"	-	}	47.0-40.0 IL LOUSE, GRAVEIN SILTT SAND. (SM)			
F 48				-	1					Continue	d on next page.			

DEPT	DEPTH HOLE											
DEPT	H SOIL DRILL 54.1	GA INS	P. <u>R.</u>	<u>M</u>	_ DF	SILL)	NG METHO	D4	-1/4"	ID Hollow	V Stem Augers SHEET 3 of 3	
DEPT	DEPTH ROCK CORE N/A WEATHER SUNNY DRILLING CO. Lartn Dimensions, inc. SURFACE EL. 1400.20											
NO. I	NO. DIST. 1477 US. 1477 IEMP. 00 00 000/8-30-05											
TIME	TIME W											
L				100		A T1/				SOIL	DESCRIPTION - RANGE OF PROPORTION	
SA												
AS 65	Aliger Sample Chunk Sample Drive Open	BER BER	ACK OWN ARSE	MIC MOT		ACEO	IS STIC		SATURAT SAMD	ED	SOME - 12-303 AND - 30-503	
D.S. P.S. R.G.	DENISON SAMPLE PITCHER SAMPLE ROCK CORE			Ser	2668	ANCE GANC	E-HYDRAULIC	SIY SIY	SELTY SOME TRACE		CONSISTENCY	
51. T.O. T.P.	SLOTTED TUBE. THIN-WALLED, OPEN THIN-WALLED, PISTON WASH SALED, FISTON	FRAG FR GL GR	AGMENTS AVEL YERED	PN R RES	PR	ESSUR D SIDUAL	E-MANUAL		WATER LI WEIGHT (WEIGHT (evel. JF Hanimer JF Rods	LS LOUBPACE S SUFT CP COMPACE FM FIRM DN DENSE ST STIPF	
		<u>0 </u>	TLE	RX	RO	ax 		Y	VELLOW			
ELEV.	DESCRIPTION		BLOWS/			— —	SAMPLES		DEPTH		SAMPLE DESCRIPTION AND BORING NOTES	
DEPTH			F 1.		NO.	TYPE	(FORCE)	REC/AT		SA-25	48.0-50.0 ft. Same as above; wet.	
E							22-23-					
ΕI			48	-	25	DO	25_27	15	-	┨────		
ΕI					-		20-27	24		<u> </u>		
E ⁵⁰										SA-26	50.0-52.0 ft. Loose, SILTY SAND, and coarse	
E			51	-	26	DO	17-24-	17	-			
E			04				28-32	27				
E52				-	1	<u> </u>		<u> </u>		SA-27	52.0-54.1 ft. Loose, SILTY fine to mediumSAND	
E							16-20-	15"			and GRAVEL, occasional pocket of stiff,olive-brown,	
E			43	-	27	DO	23-25	24"	-	 	clayey silt, very moist, little subrounded gravel. (GM)	
E					1		20 20					
E ⁵⁴	54.1 ft. bgs - Lithology cha	nge	+							SA-28	54.1-56.0 ft. CLAYEY SILT, trace to little medium to	
E			24		28	00	7–9–	21	-		coarse, sub-rounded gravel. (ML)	
E			24				15-18					
E56												
Ē	56.0 FT. END OF CORE	EHOLE]							
F									-			
E					-					<u> </u>		
F						1						
E									_	<u> </u>		
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	053-9443 BRO FOT WMNY /WES	TERN EXPANSION WELL INSTALLAT	ON/NYWELL NO.	MW-P (I) SHEET 1 of 1								
		1/4" I.D. HOLLOW STEM AUGERS	GROUND FLEV.	1466.28 Ft. WATER DEPTH 21.7 FT. BGS								
GA INSP.		FARTH DIMENSIONS		1468.91 Ft. DATE / TIME 7-1-05/1030								
WEATHER	DRILLING COMPANY	50 B BARTRO		05/7-1-05 CONRIETED 1415/7-1-05								
TEMP. 80		DRILLER D. DAILING	STARIED	TIME / DATE COMPLETED TIME / DATE								
LOCATION /	COORDINATESN9942.01. E											
		MATERIALS INVENT	15	MEDIUM BENTONITE CHIPS								
WELL CASIN	G <u>2.0</u> in. dia. <u>40.5</u>		1.1. BEN	IONITE SEAL DUR_THROUGH AUGERS								
CASING TYP	CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS											
JOINT TYPE	JOINT TYPEFLUSH_THREADEDSLOT SIZEO.01"FILTER PACK QTYFOAUS											
GROUT QUA	NTITY	CENTRALIZERS NUT USED	FIL 10	ER PACK TYPE BOUR THROUGH AUGERS								
GROUT TYP	E CEMENT/BENTONITE	DRILLING MUD TYPE NUT USED	INST	ALLATION METHOD' OUT THIRDOUT TO BELLO								
	•											
		WELL SKETC	н	INSTALLATION NOTES								
ELEV./DEPTH	SOIL/ROCK DESCRIPTION			ALCERED WITH A 1/4 LD HOLLOW								
Ē				STEM ALICER TO 541 ET BELOW								
2			.62 8 ¢ ANODIZED	COULND SUPFACE (PCS) SAMPLED								
E		HOLES	PROTECTIVE	GROUND SURFACE (BGS). SAMPLED								
- 1466.28	GROUND SURFACE			TIROUOU AUCERS 541' 530' ET								
E ^{0.0}		-		DOS WELL MATERIALS DIACED IN								
E				DODEHOLE USING 15 ET OF WELL								
Ē	0-38.5'			BUREHULE USING 13 FI. UT WELL								
E	Firm to stiff, dark—light brown to olive gray to dark gray,			SUREEN, END CAP, 40.02 FI. OF								
E	CLAYEY ŠILT to SILTY CLÁY, moist to slightly wet, slightly			WELL RISER AND SLIP TOP CAP FOR								
E	to weakly laminated, slight liquefaction, trace to some f.			UVERALL LENGTH OF 35.62 FI.								
F	to c., sub-rounded to rounded		CEMENT/	WELL MATERIALS PLACED TO 53.0								
E 10.0	cracks, slight ol. br. mottling.		BENTONITE	FT. BGS WITH 2.62 FT. STICKUP.								
È	lenses, occasional fractured		GROUT	SAND POURED THROUGH AUGERS								
Ē	shale frogments. (MLCL) Intervals of compact to loose.		1	53.0 - 35.0 FT. BGS WHILE								
;	dk. br. to gray-br., SANDY SUIT to SUITY SAND, from 7.2."		-	REMOVING AUGERS AT 0.5 - 1.0 FT.								
E 20.0	to 8.0', 14.7' to 15.6', 21.8'		PVC RISER	INCREMENTS. CHOKER SAND								
= 20.0	to 22.0, 24.0 to 26.0 and 31.2 to 32.0 (SM).			PLACED 35.0 - 34.5 FT BGS.								
È	Zone of loose, wet, course SAND @ 22.0' to 23.0' (SP)			BENTONITE CHIP SEAL PLACED 34.5								
ŧ				- 29.5 FT. BGS. CHOKER SAND								
È 300				PLACED 29.5 - 29.0 FT. BGS.								
- 50.0				CEMENT/BENTONITE GROUT ADDED								
E		BENTONITE	CHOKER SAND	29.0 – 4.0 FT. BGS. REMAINING								
E				AUGERS REMOVED. 6-INCH								
E		348 - 544		DIAMETER ANODIZED ALUMINUM								
5	SAND & GRAVEL			CASING PLACED IN 3-FT. DIAMETER								
E	UNIT		ł	BY 4 FT. DEEP CONCRETE PAD.								
¢ l		38.0 - 5	Ē	DRAINHOLES DRILLED INTO								
E	38.5–54.1'			PROTECTIVE CASING.								
↓	Compact to loose, very moist to wet, fine to coarse GRAVEL		Ē	NYSDEC ON-SITE DURING								
E	SAND and SILTY SAND, some silt, occasional fractured shale		ŧ	INSTALLATION AND CONCURRED WITH								
F	fragments. (SM-GM)		È	THE LOCATION OF THE SCREENED								
E	GRAVELLY-SILT/SAND/CLAY @		ļ	INTERVAL.								
E	42.0° to 45.6° (SM). Decasional pocket of stiff.		2"# CONTINUOUS									
Ē	olive brown, very moist CLAYEY		WRAP PVC									
E												
= = = = =												
E 50.0		이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이 이	Ē	WELL DEVELOPMENT NOTES								
F			-FILTER SAND	DATE DEVELOPED: 7/12 TO 7/25/05								
E		889 = 1	ŧ									
E			F	DEVELOPMENT METHOD:								
F		- <u>-</u>	‡	STAINLESS STEEL BAILER								
Ē	EOB @ 56.0'		l l l l l l l l l l l l l l l l l l l									
E			ļ	VOLUME PURGED: 108 GALS.								
F co o			Į	FOR FURTHER DETAILS SEE								
E 60.0			ŀ	ACCOMPANYING WELL DEVELOPMENT								
F			l l l l l l l l l l l l l l l l l l l	FIELD RECORD.								
E			F									
F												

Soil Borrow Area

DEPT	H HOLE	JOB NO	093-	8916	<u>9</u> PI	ROJ		/West	Borro	DW Area Wells / NY BORING NOBA-1
DEPT	H SOIL DRILL <u>JU</u> H ROCK CORE <u>N/A</u>	.GA INSI .WEATHE	P. <u> </u>	AR	DI DI	RILL RILL	ING METHO ING CO	<u></u> 00 NOTH	INAGLE	E DRILLING SURFACE EL. 1464.18
NO.	DIST. <u>15</u> US. <u>N/A</u>	TEMP	40° F		DI	RILL	RIG	ME-8	50	DRILLER T. MANGEFRIDADATUM SITE
DEPT	нw∟ w N∕A	.HRS. PI .HRS. Di	ROD. <u></u> ELAYED	<u>N/A</u> N//	w w	т. S T. C	AMPLER H	AMMER	R <u>140</u> N/A	A DROP <u>N/A</u> COMPLETED <u>1130/11-3-09</u>
SA	MPLE TYPES	-	~	ABB	REV	IA D' TNUM	UNS	54	SAMPLE	
C.S. D.O. D.S.	CHURK SAMPLE CHURK SAMPLE DRIVE OPEN DENISON SAMPLE	186 CA	OWN Arse Sing	NOT	REE		US ASTIC	SAT SD SI	SATURAT SAND SILT	(TED "SOME" - 12-303 AND" - 30-50%
P.S. R.C. S.T. T.O.	PITCHER SAMPLE ROCK CORE SLOTTED TUBE THIN-WALLED, OPEN		AYEY E Agments	ORG PH PN	5522	GANC ESSU ESSU	E-HYDRAULIC		SOME TRACE WATER L	CONSISTENCY
Ť.P. W.S.	THIN-WALLED, PISTON WASH SAMPLE	6 68 170 147	AVEL AERED TLE			SIDUA KCK	L	WH WR Y	MEIGHT C	OF HAMMER OF COMPACT FUE VICE OF ROOS ON DENSE ST STIFF V VERY H HARD
ELEV.	DESCRIPTION		BLOWS/				SAMPLES		DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
DEPTH			FT.		NO.	TYPE	(FORCE)	REC/ATT		SA-1 0.0-1.25 ft Firm dark brown SILTY CLAY topsoil
E			4.0	-			2-3-			some organic matter, trace fine sand, very moist.
Ē			10		1	DO	7-11	1 <u>6</u> 24*	-	 1.25-2.0 ft. Compact, olive brown SILT, little to trace plant matter, little fine sand, trace fine gravel, moist.
E ₂	CLAY TILL U	NIT			1					(CL-ML)
Ē	0—18.7 °			-			7-14-	20"		plant matter, trace coarse gravel, moist. (ML)
E			28	-	2	DO	14-17	24*	-	
E4					1					C1 7 (0.004 Compart house to pattled area brown
Ë				-			5-5-	14"		CLAYEY SILT, trace fine sand, trace gravel, moist.
F			10	-	3	DO	5-5	24*	-	(ML)
Ē				-						
E°				-				22-		SA-4 6.0-8.0 ft. Compact, brown CLAYEY SILT, little fine sand, trace coarse gravel, moist, (ML)
E			23		4	DO	6-9-	24"	-	
Ē,				-			14-15			
F 8				-	-		4 7			SA-5 8.0-10.0 ft. Compact, brown CLAYEY SILT to
E			15	-	5	DO	8-10	1 <u>4</u> 24		moist. (ML-CL)
E				-						
E ¹⁰										SA-6 10.0-12.0 ft. Stiff, brown CLAYEY SILT to SILTY
E			16	-	6	DO	3-6-	1 <u>8</u> 24		moist. (ML-CL)
E				-			10-11			
E ¹²										SA-7 12.0-14.0 ft. Dense, gray-brown to mottled orange,
E			43		7	DO	11-15-	24"	_	trace fine sand, moist. (ML)
F				=			28-33	24		
E14										SA-8 14.0-16.0 ft. Compact, gray to bray-brown CLAYEY
E			15	-			3-6-	<u>22</u> "		SILT, trace to little fine to coarse gravel, trace fine sand, moist. (ML)
E			15	-	0	00	9–10	24		
- 16										SA-9 16.0-18.0 ft. Dense, gray, CLAYEY SILT, trace fine to
Ē			10				10-12-	<u>24</u> •		coarse gravel, trace fine sand, moist. Thin layer of
ΕI			40	111	9	DO	28-31	24"		
- 18							<u> </u>			SA-10 18.0-18.7 ft. Very loose, orange-brown SILT, some
Ē				-			3-2-	<u>18</u> "	_	fine sand, moist; then 0.3 ft compact, gray-brown
E	SAND & GRAY	VEL	4	111	10	00	2–1	24"		19.0-20.0 ft. Very loose, brown fine to medium
E20						_				sand, trace clay, saturated. (ML-SM) SA-11 20.0-21.1 ft. Very loose, brown fine to medium
E	18.7-28.0		1	-			WH-WH-	<u>16</u>		SAND, trace clay, saturated.
E			1	1	11	DO	11	24*		SAND, trace clay, wet. (SM)
E 22		ŀ								SA-12 22.0-22.8 ft Loose, brown coarse SAND and fine
E							37-	16"		GRAVEL, wet.
E			14		12	DO	7-4	24"	-	22.8-24.0 ft. Compact, brown medium to coarse SAND and fine to coarse GRAVEL, little to some
F 24				-			•			clay, wet to saturated. (GW)

Continued on next page.

DEPTI DEPTI DEPTI NO. [DEPTH HOLE 30' JOB NO. 093-89169 PROJECT WMNY/West Borrow Area Wells / NY BORING NO. MW-BA-1 DEPTH SOIL DRILL 30' GA INSP. AJN DRILLING METHOD 4-1/4" ID Hollow Stem Augers SHEET 2 of 2 DEPTH ROCK CORE N/A WEATHER CLEAR DRILLING METHOD 4-1/4" ID Hollow Stem Augers SHEET 2 of 2 DEPTH ROCK CORE N/A WEATHER CLEAR DRILLING CO. NOTHNAGLE DRILLING SURFACE EL. 1464.18 NO. DIST. 15 US. N/A TEMP. 40' F DRILL ROL DRILLER T. MANGEFRIDADATUM SITE											
DEPT TIME	DEPTH WL. N/A HRS. PROD. N/A WT. SAMPLER HAMMER 140 Ib. DROP 30 STARTED UM49/11-2-UM TIME WL. N/A HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 1130/11-3-09											
SA ASS DOS P.S.C. ST.O. T.P. WS	SAMPLE TYPES AS. AVER SAMPLE BL BL C.S. OVERN SAMPLE BR BR D.O. DRIVE OFFICE D.S. DR		NCK OMIN ARSE SING AY NYEY E AGMENTS AVEL YERED TLE	ABBREVIATION: MIC MEDIUM MOT MOTHED STR MOT MOTHED STR MOTHED		DNS us Istic E-Hydraulic E-Hydraulic L	⋨⋨⋳⋼⋩⋳⊭≢≩⋦⋋	SAMPLE SATURATI SAND SILT SILT SOME TRACE WEIGHT C WEIGHT C YELLOW	SOIL DE:	SCRIPTION - RA	ANGE OF PROPORTION 9-132 35-307 55-507 ENCY FM ARM ST STIFF H HARD	I
ELEV. DEPTH	DESCRIPTION		BLOWS/ FT.		NO. TYPE	SAMPLES	REC/ATT	DEPTH	SAI	MPLE DESCRIPTION	and boring notes	
-24			9		13 D0	4-4- 5-4	1 <u>8</u> ° 24°		SA-13 24 we SA 25 co SA-14 26	.0-24.9 ft. Loose, b et; 24.9-25.2 ft. com ND, trace coarse s .2-26.0 ft. Loose, br arse sand, trace silt 0-28.0 ft. Compact	prown fine GRAVEL, some s ppact, brown SILTY fine and, wet. rown medium SAND, little t, very moist to wet. (GM-SI t, brown, medium SAND, so	silt,
28			19		14 DO	7-8 11-13	1 <u>4</u> * 24*	-		arse sand, trace silt	very moist. (SP)	6
	CLAY TILL U	JNIT	38		15 DO	318 2016	10" 24"	_	5A-15 28. fine 29. trac	e to medium sand, r 2-30.0 ft. Compact ce clay, very moist.	, gray, CLATET SILT, trad moist. t, brown, SILTY GRAVEL, (ML-GW)	0
	30.0 FT. END OF B	DREHOLE							(Composit between 1	e Geotechnical Lab 8.7 and 28.0 ft. bgs	oratory Sample Collected .)	

Golder Associates

IOP NO	093-89169 PRO FCT WMNY/WE	ST BORROW AREA WELLS/NYWELL NO	MW-BA-1 SHEET 1 of 1
		4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEN	1456.40 WATER DEPTH N/A
		NOTHNAGLE DRILLING RISER ELEV.	1457.65 DATE/TIME N/A
WEATHER	F DBIL DIC CME-85	0 DRILLER T. MANGEFRIDA STARTED	1200 / 11-3-09 COMPLETED 1100 / 11-4-09
	(COORDINATES N938980.00.	E1171539.30	THME / DATE THME / DATE
LOCATION /		MATERIALS INVENTORY	
	20 to dia 2085	If well soperal 2.0 in dia 10 if BE	NTONITE SEAL 3/8" BENTONITE CHIPS
WELL CASIN	ы; <u>2000</u> іл. ана. <u>20.00</u> ы. SCH 40 РVC	CONTINUOUS WRAP PVC INC	TALLATION METHOD POUR THROUGH AUGERS
CASING TYP			TER BACK OTY 2.5 BAGS
JOINT TYPE			TER PACK TYPE #00N QUARTZ SAND
GROUT QUA		CENTRALIZERS NOT USED	
GROUT TYP		DRILLING MOD TYPEING	
ELEV. /DEPTH	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
		- SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW
Ē		=7.38	STEM AUGER TO 30.0 FT. BELOW
F		DRAIN 6" # ANODIZED	GROUND SURFACE (BGS). SAMPLED
E 1456 40		PROTECTIVE	0.0-30.0 FT BGS. SAND POURED
- 0.0			THROUGH AUGERS 30.0-29.5 FT
E		Source T	BGS. WELL MATERIALS PLACED IN
F			BOREHOLE USING 10 FT. OF WELL
E		4.0	SCREEN, END CAP, 20.85 FT. OF
F 5.0		BENTONITE	WELL RISER AND SLIP TOP CAP FOR
E		GROUT	OVERALL LENGTH OF 30.85 FT. WELL
F	CLAY TILL UNIT	- 2°¢ SCH. 40 PVC RISER	MATERIALS PLACED TO 29.5 FT. BGS
F	0–18.7'		WITH 1.35 FT. STICKUP. SAND
- 10.0		SEAL	POURED THROUGH AUGERS 29.5 -
F		^{11.5} 1ī.7 -	17.3 FT. BGS WHILE REMOVING
Ē			AUGERS AT 0.5-1.0 FT.
F		CHOKER SAND	INCREMENTS. CHOKER SAND PLACED
- 15.0			- 17.3-16.5 FT BGS. BENTONITE CHIP
F I		16.5 -	SEAL PLACED 16.5-11.7 FT. BGS.
Ē			CHOKER SAND PLACED 11.7-11.5 FT.
E			BGS. CEMENT/BENTONITE GROUT
20.0			ADDED 11.5-0.0 FT. BGS.
-	SAND & CRAVEL		REMAINING AUGERS REMOVED.
-		FILTER SAND	- 6-INCH DIAMETER ANODIZED
F			ALUMINUM CASING PLACED IN 3-FT.
25.0	18.7-28.0		DIAMETER BY 4 FT. DEEP CONCRETE
F		WRAP PVC	PAD. DRAINHOLES DRILLED INTO
F			PROTECTIVE CASING
⊧	CLAY TILL UNIT		NYSDEC CONCURRED WITH THE
- 30.0			FLOCATION OF THE SCREENED
F	30' BORING		
F		-	
F			E
E I		-	
_ t	ļ	-	E
E	ĺ	-	FI
<u> </u>			[
E		-	WELL DEVELOPMENT NOTES
F	ļ		DATE DEVELOPED: 11/0 11/2000
E		-	FILLE DEVELOPED. 11/9-11/2009
‡	ļ		
E		-	E STAINLESS STEEL BAILER
	- F		
E I	je se se se se se se se se se se se se se	-	
E			VOLUME PURGED: 78 GALS.
E !	-	-	F
E I		1	÷
F	F	-	E
E I			⊧ ⊢
F I			<u>F1</u>

DEPT	DEPTH HOLE JOB NO. 093-89169 PROJECT WMNY/West Borrow Area Wells / NY BORING NO. WW-BA-2										
DEPT	DEPTH SOIL DRILL <u>30</u> GA INSP. <u>AJN</u> DRILLING METHOD <u>4-1/4" ID Hollow Stem Augers</u> SHEET <u>1 of 2</u>										
DEPT	DEPTH ROCK CORE N/A WEATHER CLOUDY DRILLING CO. NOTHINAGLE DRILLING SURFACE EL.										
NO. D	N/A <u>איז אוגא.</u> אוא N/A	HRS. PROD	. <u>N</u>		T. S	AMPLER H	AMME	<u>₹ 140</u>	Ib. DRC	0P 30" STARTED 0930/11-4-09	
	TIME W. N/AHRS. DELAYED_N/A WT. CASING HAMMER_N/A DROPN/ACOMPLETED 1030/11-5-09										
SAI	MPLE TYPES			ABBREV)NS		CANOL F	SOIL	"TRACE" = 0-5% "TITLE" = 5-12%	
A.S. C.S. D.O.	AUGER SAMPLE CHUNK SAMPLE DRIVE OPEN	BL BLACK BR BROWN C COARSE				15	SAT SD	SATURATI	Ð	"SOME" - 12-303 "AND" - 30-503	
DS PS RC	DENISON SAMPLE PITCHER SAMPLE ROCK CORE	CA CASING CLAY CLAY CLAYEY					S S S	SULTY SOME		CONSISTENCY	
ST. T.O. T.P.	SLOTTED TUBE THIN-WALLED, OPEN THIN-WALLED, PISTON	FRAG FRAGMED GL GRAVEL				E-MANUAL		WATER LI WEIGHT O	evel F hammer F ROOS	LS LOOSE S SOFT Op compact fu firm DN dense St Stiff	
W.S.			Ř	X RC	CK .		Ÿ.	YELLOW		V VERT IN INNE	
ELEV.	DESCRIPTION	BLC)WS/	NO.	TYPE	SAMPLES	REC/ATT	DEPTH		SAMPLE DESCRIPTION AND BORING NOTES	
-			-	-		(FORCE)	+ -		SA-1 (0.0-0.5 ft. Compact, dark brown CLAYEY SILT	
E				=		3-6-	24"			opsoil, some plant matter, trace fine sand, trace fine	
F			2	-11	DO	6-8	24			0.5-2.0 ft. Compact, It brown, mottled gray CLAYEY	
E,	CLAY TILL U	NIT 📃		-						SILT, trace to little f. gravel, trace f. sand, moist. (ML)	
E ²	0-16.9			-					SA-2	2.0-4.0 ft. Stiff, light brown, mottled gray, CLATET	
E	•	1	5	- 2	DO	8-7-	<u>8</u> 24	-		gravel, trace fine sand, moist. (ML-CL)	
E I			5		100	8–7					
E ₄									SA-3	4.0-6.0 ft. Compact, light brown-gray CLAYEY SILT,	
EI				-		6-8-	22			ittle fine to coarse gravel, trace fine sand, moist. (ML)	
È		1	8	- 3	DO	10-14	24	-	· · · · ·		
F				1		10-14					
Ē6					1				SA-4	6.0-8.0 ft. Dense, light brown-gray CLAYEY SILT, little	
E				-		14-18-	<u>20</u> *			fine to coarse gravel, trace fine sand, moist. (ML)	
F		4	10	4	DO	22-28	24"]		
E_ I											
E 8									SA-5	8.0-10.0 ft. Compact, light brown-gray CLAYEY	
E		1	15	- 5	DO	014	2 <u>2</u>	-		moist. (ML)	
F				Ē		914	24				
E ₁₀					-				SA-6	10.0-10.9 ft. Compact, light brown-gray CLAYEY	
E				-	DO	4-11-	23"			SILT, little fine to coarse gravel, trace fine sand, moist.	
E		2	22	- 6			24		- 	10.9-12.0 ft. Firm, gray CLAYEY SILT to SILTY	
F				-						(ML-CL)	
E12							+	1	SA-7	12.0-14.0 ft. Stiff, gray SILTY CLAY, moderately	
E		36 7 D0 12-17- 19-28		24*			plastic, trace tine gravel, moist. (CL)				
E				19-28	24						
E11				<u> </u>					C1 0	14.0.15.5.ft Stiff grav SILTY CLAY moderately	
F '*				1					JA-0	plastic, trace fine gravel, moist.	
E			21	- 8	DO	4-7-	24	-	L	15.5-16.0 ft. Dense, brown, CLAYEY SILT, little fine	
E			-		1	14-19				to coarse gravel, slightly moist. (ML-CL)	
- 16							-		SA-9	16.0-16.9 ft. Dense, brown SILT and very fine SAND,	
E				1		15-21-	18"			little clay, moist.	
F	SAND & GRA	VEI 4	16	- 9	DO	25_30	24	-	1	coarse SAND, trace to little clay, very moist. (SM-GW	
E.				=		20-30					
E ¹⁸		·			Τ				SA-10	18.0-20.0 ft. Loose to compact, brown to gray fine to coarse GRAVEL little to some fine sand trace to	
E	16.9-30.0		30	1.0		16–15–	12"	-		little clay, saturated. (GW)	
F				1		15-15	24				
E20									SA-11	20.0-22.0 ft. Loose to compact, brown to gray fine	
Ĕ				=		25. 22	12	1		to coarse GRAVEL, little to some fine sand, trace	
F		4	12		DO	25-22-	24	-		to little clay, saturated. (GW)	
F				E		20-14		1			
F 22		-			╀				SA-12	22.0-22.8 ft. As above.	
Ē						12-14-	18			22.8-24.0 ft. Compact, gray CLAYEY SILT, trace	
F		2	26	- 12		12-15	24"	-		(GW-ML)	
F 24											
										Continued on next page.	

Golder Associates

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DEPT DEPT DEPT NO. 1 DEPT	DEPTH HOLE 30' JOB NO. 093-89169 PROJECT WMNY/West Borrow Area Wells / NY BORING NO. MW-BA-2 DEPTH SOIL DRILL 30' GA INSP. AJN DRILLING METHOD 4-1/4" ID Hollow Stem Augers SHEET 2 of 2 DEPTH ROCK CORE N/A WEATHER CLOUDY DRILLING CO. NOTHNAGLE DRILLING SURFACE EL. NO. DIST. 15 US. N/A TEMP. 42' F DRILL RIG CME-850 DRILLER T. MANGEFRIDA DATUM SITE DEPTH N/A HRS. PROD. N/A WT. SAMPLER HAMMER 140 lb. DROP 30" STARTED 0830/11-4-09									
ТІМЕ	TIME WLN/AHRS. DELAYED_N/A WT. CASING HAMMERN/ADROPN/ACOMPLETED 1030/11-5-09									
SA CSS CSS CSS RCT. SCT. T.P. WS	MPLE TYPES AUGER SAMPLE OHNIK SAMPLE DRIVE OPEN DENSON SAMPLE PROCK CORE ROCK CORE STOTTED EDE STOTTED EDE THAN-WALLED, PISTON WASH SAMPLE	BL BL BR BR CCA CL FR FR LYD LÅ L L	BLACK BROWN COARSE CASHIG CASHIG CASHIG PLACED DLAYERD LAYERD LITTLE		EVIAT MEDIA MICACE MOTILE NORANG ORGESS PRESS RED RESS RESS RESS RESS RESS RESS R	IONS DL LASTIC CC HYDRAULIC RE-HYDRAULIC RE-MANUAL AL	⋏⋝⋦⋻⋼⋽⋽⋶⋇ ⋠ ⋇⋎	SAMPLE SATURATI SALT SILT SULT SOME TRACE WATER LI WEIGHT (YELLOW	SOIL DESCRIPTION - RANGE OF PROPORTION "TRUE" - 0-3% TITLE - 12-32% SOUL - 12-32% CONSISTENCY EVEL LS LOOSE SUFFICE OF HANNER OF OWNER ST STEP OF ROOS UN DECE ST STEP V DECE H HAND	
ELEV. DEPTH	DESCRIPTION		BLOWS/ FT.		NO. TYP	SAMPLES HAMIL BLOWS	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES	
24	SAND & GRA UNIT	VEL	26		13 D0	12-13- 13-18	<u>14</u> 24	-	SA-13 24.0-24.8 ft. Very stiff, gray SILTY CLAY, some fine sand, very moist. 24.8-26.0 ft. Loose, brown-gray coarse GRAVEL, some fine gravel, some coarse sand, trace to little silt, saturated. (CL-GW)	
	16.9-30.0'		38		14 D0	21-22- 16-18	16" 24"		SA-14 26.0-28.0 ft. Dense, dark gray to black, medium to coarse SAND, little silty clay, moist, grading to fine to coarse GRAVEL, well sorted, broken angular rock fragments, very moist. (SM-GW)	
			39		15 D	12–15– 24–30	18 24		SA-15 28.0-30.0 ft. Loose, dark gray to black, fine to coarse GRAVEL, well sorted, broken angular rock fragments, very moist. (SM-GW)	
	30.0 FT. END OF BO	REHOLE							(Composite Geotechnical Laboratory Sample Collected between 18.0 and 30.0 ft. bgs.)	

109 NO	093-89169 PRO FCT WMNY/WE	ST BORROW AREA WELLS/NY WELL NO	MW-BA-2 SHEET 1 of 1
	AJN DRILLING METHOD	4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELE	V. 1454.84 WATER DEPTH
WEATHER		NOTHNAGLE DRILLING RISER ELEV.	
TEMP 40	* F DBILL BIG CME-85	0 DRILLER T. MANGEFRIDA STARTED	1100 / 11-5-09 COMPLETED 1430 / 11-5-09
	/ COOPDINATES N938960.83	E1171294.50	TIME / DATE TIME / DATE
Look now /		MATERIALS INVENTORY	
	ic 2.0 in dia 20.7		NTONITE SEAL 3/8" BENTONITE CHIPS
CASING TYP	SCH. 40 PVC	SCREEN TYPE CONTINUOUS WRAP PVC IN	STALLATION METHOD POUR THROUGH AUGERS
WINT TYPE	FLUSH THREADED	SLOT SIZE 0.010"FI	LTER PACK QTY 2.5 BAGS
GROUT OUA		CENTRALIZERS NOT USED	TER PACK TYPE #OON QUARTZ SAND
GROUT TYP	E CEMENT/BENTONITE	DRILLING MUD TYPE NOT USED IN	STALLATION METHOD TREMIE
elev./depth	SOIL/ROCK DESCRIPTION	WELL SKETCH	INSTALLATION NOTES
-		SLIP CAP	AUGERED WITH 4 1/4 I.D. HOLLOW
Ē			STEM AUGER TO 30.0 FT. BELOW
			GROUND SURFACE (BGS). SAMPLED
1454.84	GROUND SURFACE	CASING	0.0-30.0 FT BGS. SAND POURED
e 0.0			THROUGH AUGERS 30.0-28.5 FT
E		PAD So CONCRET	BGS. WELL MATERIALS PLACED IN
¢			BOREHOLE USING 10 FT. OF WELL
E 5.0		CEMENT/	SCREEN, END CAP, 20.7 FT. OF
ŧ		GROUT	WELL RISER AND SLIP TOP CAP FOR
E	CLAY THE UNIT	- 2"ø SCH. 40	OVERALL LENGTH OF 30.7 FT. WELL
F	0-16.9*	- PVC RISER	MATERIALS PLACED TO 28.5 FT. BGS
E 10.0	0=10.0	BENTONITE	WITH 1.35 FT. STICKUP. SAND
-		- SEAL 11.0 -	POURED THROUGH AUGERS 28.5 -
E		11.7 -	15.8 FT. BGS WHILE REMOVING
E		CHOKER SAND	AUGERS AT 0.5-1.0 FT.
E 15.0		15.2 -	INCREMENTS. CHOKER SAND PLACED
E		15.8 -	15.8-15.2 FT BGS. BENTONITE CHIP
E			SEAL PLACED 15.2-11.7 FT. BGS.
E I		18.5 - 8"¢ BOREHOLE	CHOKER SAND PLACED 11.7-11.0 FT.
20.0			BGS. CEMENT/BENTONITE GROUT
E	SAND & CRAVEL		ADDED 11.0-0.0 FT. BGS. 6-INCH
£	SAND & GRAVEL	FILTER SAND	E DIAMETER ANODIZED ALUMINUM
E		- 「「「「「「「」」「「」」	CASING PLACED IN 3-FT. DIAMETER
- 25.0	16.9-30.0		DRAINHOLES DRILLED INTO
E I			PROTECTIVE CASING
E I			ENYSDEC CONCURRED WITH THE
⊧			LICCATION OF THE SCREENED
- 30.0		30.0	
¢	IND OF BURING		
E		-	F
F			
F			F
-F			
E	-		-
E			E
F I	l l l l l l l l l l l l l l l l l l l	1	WELL DEVELOPMENT NOTES
Εl			DATE DEVELOPED: 11/10-11/2009
F	ļ	1	E
E I			DEVELOPMENT METHOD:
F	ļ	1	STAINLESS STEEL BAILER
E			F F
F	e e e e e e e e e e e e e e e e e e e	1	VOLUME PURGED: 59.7 GALS.
E I			-
E			
Ę	F		<u>-</u>
E l	È	1	F
E I	-		-
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Area 7/8 Development Logs

A790 ROJE CLIEN DEPTI	sh ICT I IT GE	MMNY Town El Cor BLO SAM	Chaffi of Sa sultar WS ON PLER	ee Lan Indinia Ints Ind	ndfill Erie	40LE NO - Southern County, N	Definition and Provide of Sector Convestigations • Wellah Definition Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSEI-19</u> <u>Expansion</u> LOCATION (DATE STARTED <u>04/1</u>	Vorth East 6/19	ing: 1	SURF 3393 17148 COMF	75 F. ELEVATION <u>1449.7</u> 77.7 PVC Riser: 1451.92 81.0 PLETED <u>04/17/19</u>
SN	0/	6/	12/	18/	N	LITH	DESCRIPTION AND CLASSIFICATION		WELL	1	WATER TABLE AND REMARKS
REC	Q	14	10	24	1007 1000			1 =	3	11 =	
1	1	1.0				0_00_0	Extremely moist brown (CLAYEY-SILT)	1	1	-11	(1) 4-inch locking steel
16		3			8	5 - 5 -	topsoil with little organic matter and			1	protective casing 2.4 feet above
-			_5_	-			; clay, trace sand, very soft, granular) soil structure (ML-CL).				feet above ground surface
0	2	1.1		5			clear transition to 0.3	1		11	MARCHER IN MCCONCLOSURE C
22	1-3-	2				5 5 5		=		NO	
66			6		9		Moist to extremely moist gray (STLTY-CLAY) with 3 to 7% gravel			皆	
-	_	-	-0-	7			trace sand, firm to stiff, weakly thinly	1 4		聖	
3	2		-		161	0 0 0 0	laminated with very thin coarse silt	11		NO	
24		4		1.1.1	10	0 0 0	lenses, (CL).	1	Er.	E.	
	1.1	1	6		10	4 - 4 -			Ris	PH-	
		-	1. an 1.	8		<u></u>		11	NC	副	
4	3		r t.			5-08-0		=	IT P	(B)	
24	11111	5	1.1		22		clear transition to 7.3		E.		
_	1		17	-		0 0 0	Moist faintly mottled to distinctly	1	6 40		
1.1	-	-		19			mottled, light brown to orangish brown,	11	dul	11	
5	3	-	-				(SANDY-SILT) with some mostly very	=	che	=	
23	-	1	10		19	0 0 0 0 - 0 - 0	tine size sand with an occasional (STLTY-CLAY) lense compact think	1.4.1	1 S	(2)	+ 9.0'
-	1	-	12	17		0 <u>0</u> 0 <u>0</u>	\ bedded, (ML) with an occasional thin	57	-ind	1	← 9.5
8	0			1	1	0000	(CL) interbed.	51	5	51	(2) #00 size choke sand
19	0	10		-	1	0 0	grades downward to 9.4	1		KE1	986 A 28 A 29 A 29 A 20 A 20 A 20 A 20 A 20 A 20
			22		41	0000	Extremely moist brown (SILTY-SAND)	2		1	(3) Bentonite Seal (chips)
				14		00000	with 3 to 7% gravel, little silt, compact,	12	1	NZ	
7	10		-			0.000	thinly bedded, (SM).	1		1	+ 12.5'
20		22		1	47	0.0	grades downward to 10.0	-		2	← 13.0'
11-11	-		25	-		0000	Moist brown (SILTY-SAND) with 20 to	1			
-	-			16		0000	30% gravel, trace to little silt, dense,	1		1.5	1 being
8	10	1		-	1.1.1	0000	stratified, (SM).	13		ck.	1.6.6
17	-	10			23	0000	grades downward to 14.0	1.2	-	1 pa	← 15.0'
-	-	-	13			0.000	Extremely moist brown gravelly	150		and	(4) 2" schedule 40 PVC 0 010
-		-	-	12		Solo a	(SILTY-SAND) with 30 to 50% gravel,	1.2		e s	slot continuous wrap screen
9	- 11	10		-		0000	(SM), (GM),	12		nor	and Service and a mark and and
- 11	-	12	10	-	26	0000	grades downward to 16.0	1	-	ze	Water at approximately 15.5 fee
	-		14	10		0000		12	2	NS	below ground surface upon
10	0		1	10		0 0	20 to 40% gravel, trace to little silt.	1		00	completion.
9	3	11	1		1	0000	compact, stratified, (SM).	1		10	
-		1	13		24	0000		193		e	
-		1	1	1 10	1	0.0	and an electricity of the and	1		143	

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140_ ID. WT. FALLING 30. * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 1 OF 2

2A790 PROJE CLIEF DEPT IN F1	ch ECT AT GI	WMNY Town EI Cor BLO SAM	Chaffs of Sa asultan WS ON PLER	ee Lar rdinia ts Inc	ndfill Erie	So 1 ((7 HOLE NO. <u>- Southern</u> County, NY	il and Hydrogeologic Investigations • Wetlan 091 Jamison Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSE1-19</u> Expansion LOCATION M LOCATION M LOCATION M LOCATION M LOCATION M	nd Delineatio SUR Jorthing: 9393 Easting: 117143 5/19 COM	ns F. ELEVATION <u>1449.7</u> 77.7 PVC Riser: 1451.92 31.0 PLETED <u>04/17/19</u>
SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
11	14			-	-	0000		24 32	(E) 2" ashedula 40 BVC 0.010
9	14	14	- P		20	000	(SILTY-SAND) with 30 to 50% gravel	۲ ۲. هور ۲. ۲.	slot continuous wrap screen
			22		30	0.000	trace to little silt, dense, stratified,	Jack	CALL STREAM OF MALE FALLS
			100	26		0000	(SM), (GM).	bd p	
12	8	1.000		1441		0.00.0		Sal	
20		12		-	28	0000		orie	
-		12	16	-		0000	23.8	E.	
_		-	-	22		0_0.0	Moist to extremely moist grav	siz	
13	12	-		-			(SANDY-SILT) with 3 to 7% gravel,	NO	
20	-	14	-		30		trace to little sand, compact, weakly		← 25.0'
_		-	16	1000			thinly bedded, (ML).		
-	-			20		· · · · · · · ·	grades downward to 25.0		¹ ← 26.0'
	-		-	-			Wet gray (SAND) mostly very fine to		Note: Advanced here hele with 6
	-		-	-			fine size, trace silt, dense, thinly		5/8" ID x 10" OD hollow stem
-	-	-	-				bedded, (SP).		auger casing with continuous spli
-							26.0		spoon sampling to 26.0 feet.
			-				Boring completed at 26.0 feet.		Installed 2-inch PVC monitoring
									regulations.
	1								
									Cement Bentonite Grout
									7 8 callons water
				1.1					94 lb portland cement
				1					4 Ib Bentonite
1		-							
	1		-						
1.1.1.	-								
	-	-	-						
-	-		-	-					
-	-	-		-					
-	-	-							
-	-	-		-					
-	-	-							
-		-	-						
	-	-	_						
-	-	-	-						
-	-	-							
-	-	-	-	-					

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140_ ID. WT. FALLING 30_ * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)_ SHEET 2 OF 2

	A79cl ROJE CLIEN DEPTH	h CTY TGE	I CON EL CON BLOV SAM	Chaffy of Sa sultar wS ON PLER	ee La Irdinia Ints Inc	ndfill , Erie c, P.C	So 10 HOLE NO. - Southern County, NY	il and Hydrogeologic Investigations • Wetlan 91 Jamison Road • Elma, NY 14059 16) 655-1717 • EAX (716) 655-2915 <u>MWSE2-19</u> Expansion DATE STARTED <u>04/1</u>	Nor Ea	thing: sting: 9_	SURF 9390 117113/ COM	778 F. ELEVATION <u>1449.9</u> <u>38.2 PVC Riser: 1452.25</u> 6.7 PLETED <u>04/18/19</u>
	SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION		WEL	1	WATER TABLE AND REMARKS
f	1	2							1			(1) d-lock locking steel
t	23		4		-			Extremely moist brown (SANDY-SILT)	1	"	14	protective casing 2.6 feet above
ľ		1.7	1211	6		10	<u> </u>	matter, very loose, granular soil	-	"	11	ground surface, PVC sitckup 2.3
Ī		1.14	1.4		7	1.1	6 0 0 0	structure, (ML).			1	feet above ground surface
ſ	2	9	2.4	1				clear transition to 0.2	1	4		Makes Advanced have have with the
Ī	20		6			17		Moist gray (SILTY-CLAY) with 3 to 7%	-	11	0/1	Note: Advanced Dore hole with 6
Ī				11			0 00 0	gravel, trace sand, stiff, weakly thinly	1		5	auger casing with continuous soli
ſ					17			laminated with very thin coarse silt	1	4	No.	spoon sampling to 26.0 feet.
	3	11					0 0 . o	lenses, (CL).	1	"	0/	Installed a 2-inch monitoring wel
ſ	14		5			12	o . ab	clear transition to 3.4	1	i la	N.	in completed bore hole according
l				7	1	14	1	Moist brown (CLAYEY-SILT) with 3 to	1	Ris	E	to NYS DEC regulations.
		110.0	1		17			7% gravel, little to some clay, trace	1	NC I	副	
4	15	201		1		0000	sand, very stiff, weakly thinly	-	1 L	B		
	20	13			25	0.000	liaminated with very thin coarse silt		E E			
	25		1.000	12	11.72		6.000	li lenses, (ML-CL).	1	4	14	
					12		0000	grades downward to 4.0	1	dule	1	6
	5	13	-				0000	Moist grayish brown (SAND) with 3 to	1	che	1	
	17	-	14		-	- 31	0.000	7% gravel, mostly fine to medium size	4	- R	0	+ 9.0'
	-	1	-	17	-		0000	arades devenuerd to 60	5	incl	1	÷ + 9.5°
+			_		11		0.00	grades downward to 0.0	1	1 4	1	
	6	19					0.00	Moist brown very gravelly	P	1	2	(2) #UU size choke sand
	15	-	0	-		- 20	0.00	Concasional cobble, trace to little sill	1	2	E	(3) Bentonité seal (chips)
	-	-		9	-		20.0	' compact to dense, stratified, (SM).	1	1	51	
	-	10	-	_	8		0.00	grades downward to 10.0	P	1	21	10.51
	1	10	14			1	0:00:	Molet brown yory groupily (SAND) with	3	5.8	8	← 12.5
		1	14	17		31	0.0.0	40 to 60% gravel, occasional cobble.		3	140	1 ← 13.0 [°]
				1/	17	1	0.00.	trace silt, compact, stratified, (SW).	10		161	
1	9	E	-		1"	1	0.00	grades downward to 11.7	3		1	
	6	0	B	-	1	1	20.0	Extremely moist to wet brown oravelly		3	act	- 15.0'
I				7		13	0.0	(SAND) with 30 to 50% gravel, trace	1		d pi	Cample II takes with 2-loch
					8	1	0:00	silt, compact to dense, stratified,		1	San	sooon due to low recovery.
	Q	10				1	0.0.0	(SW).	1	54 6	<u>a</u>	
	12	100	17			21	0:00!	grades downward to 14.0		1	OE	(4) 2-inch 0.010 slot continuous
	1.000			14		1 31	0.0.0	Wet brown very gravelly (SAND) with		4)	size	wrap screen
Î				1	12	1	0.00	40 to 60% gravel, trace silt, compact	1	-	N	Water of provident-to IC 0 feet
	10	5					8.00	to dense, stratified, (SW).		4.2	₩00	below ground surface upon
	13	1	12			20	0.0	grades downward to 19.0			12	completion.
		1	1.00	17	1.1	20	0000			S.	1.3	
			1		1.0		0.000	See next sheet		£4	1.23	4

ID. WT. FALLING 30 * PER BLOW N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12. * WITH 140. SHEET 1 OF 2 LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

2A79 PROJ CLIE DEPT IN F	NT G	WMNY Lown El Con BLO SAM	Chaffi of Sa nsultar WS ON IPLER	ee Lar Indinia	ndfill Erie	So 10 HOLE NO <u>- Southern</u> County, N	oil and Hydrogeologic Investigations • Wetlan 191 Jamison Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSE2-19</u> ExpansionLOCATION to DATE STARTED <u>04/1</u>	nd Dei Northir Eastir 17/19	lineatio SUR ng: <u>9390</u> ng: 117113 COM	115 F.ELEVATION <u>1449.9</u> 038.2 PVC Riser: 1452.25 16.7 IPLETED <u>04/18/19</u>
SN	0/	6/	12/	18/	N	LITH	DESCRIPTION AND CLASSIFICATION	W	IELL	WATER TABLE AND REMARKS
REC	6	12	18	24		V. all			1	
11	24	-	-		- 0-1	0000	Wet brown very gravelly		1	(5) 2-inch 0.010 slot continuous
16	-	13			24	0.00.0	(SILTY-SAND) with 40 to 60% gravel,	1	×	wrap screen
-	-	-	U	17	1		<pre>trace to little silt, compact, stratified, (SM).</pre>	1.5.4	d pa	
10	1.0	-		_13			grades downward to 21.0		5) sańc	
9	1 80	8			14	5 6 0			e je	
		1	12		20	2 0 0	(SILTY-CLAY) with 3 to 7% gravel.	1.	ÔË,	
		1	10	12			trace sand, very stiff, thinly laminated	1.5	size	
13	12						with very thin coarse silt lenses, (CL).	~ 0	NO	
2		17	1		30	5_5_0				+ 25.0'
-		126	13	1	30		26.0	12.5	23.2	
_		1.77	1	15	1	Te TTe T		2.4	en en	+ 26.0'
_		-	1.000	1.1		1	Boring completed at 26.0 feet.			
-	-	1								
-	-	-	-	-						
-	-	-	-							
-		-	-							
-	-	-								
-	-									
		1			1					
	3				1					
		1								
		1								
	1		-	-						
1.00	-	-		-						
		1.1	-							
-			-	-						
-		-	-							
-		-	-	-						
-	-	-	-	1.1						
-	-	1								
1.00	-									
-		-								
-		1.	1							
			1122		1					
				1	1					
			1		1					

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12_ * WITH 140_ Ib. WT. FALLING 30_ * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)_ SHEET 2 OF 2

2) PI C	A79cl ROJE LIEN EPTH N FT	h CT I T GI	MMNY Town EI Cor BLOU SAM	Chaff of Sa sultar NS ON PLER	ee La ardinia hts Ind	ndfill Erie	So 10 HOLE NO Southern County, N	il and Hydrogeologic Investigations • Wetlan 191 Jamison Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSE3-19</u> Expansion LOCATION M C DATE STARTED 04/1	ld Di North East 8/19	eline ing: 1 ing: 1	ation SURF 93891 17060 COMF	75 F. ELEVATION 1 <u>457.2</u> 87.3 PVC Riser: 1459.29 83.1 PLETED <u>04/22/19</u>
F	SN	0/	6/	12/	18/	N	LITH	DESCRIPTION AND CLASSIFICATION		WELL	-	WATER TABLE AND REMARKS
F	REC	6	12	18	24					3	1 =	
-	1	1		_			9.99	Moist to extremely moist gray	1		=1	(1) 4-inch locking steel
F	21		_5	~		11	0	(SILTY-SAND) fill with little silt, trace			1	protective casing 2.25 feet
-				6	10		0.00.0	structure, (SM).				stickup 2.1 feet above ground
t	2	5			-10	(2, 2)	0.40.4	0.2	14		14	surface
T	22		6			14	a 6 a 6	Moist to extremely moist brown	1		1	Note: Advanced have hele with a
L			1	8		14	A	(SILTY-SAND) with 3 to 7% gravel,	-		1	5/8" ID x 10" OD hollow stem
L				1	10		9.9	little to some silt, trace organic			18	auger casing with continuous spli
-	3	8		-	-		0000	in matter, compact, weakly blocky soil	14		124	spoon sampling to 30.0 feet.
+	23	_	6	1.00	-	11	0000	U orades downward to 20	1		11	in completed bore hole according
ŀ	-			_5_		- 1	0.00		-		Z	to NYS DEC regulations.
ŀ		-	-	1	6	1.1	0.000	Moist Drown (SILIY-SAND) with 5 to		2	LN.	
F	4	5	6	1	1		0000	stratified, (SM).	14	lise	至	
t	10		->	6		11	0000	grades downward to 4.0	1	IC F	Z/	
t	-		10.000		8	101	0.0.0	Moist to extremely moist brown	1	T PI	EN.	
	5	2	10.0				0000	(SILTY-SAND) with 10 to 20% gravel,		J.		
	17		3	1.1		6	0.00	little to some silt, compact, stratified,	14	40	14	
Ļ			-	3			0 0	(SM).	1	dule	1	
ł					2		0000	grades downward to 8.0	-	che	"	
F	6	3					0000	Extremely moist brown gravelly	1	h S		
ŀ	10	-	6	7		13	0.00	little silt, loose to compact, stratified.	1	inc	1	
ŀ		-			5		0.0	(SM).	1	4	1	t 12 0'
t	7	4	1	1.1.1			00000		1.1		(3)	6 12.0 6 12 5'
t	11		5	1	1.00	11	00000		2:		1	(2) #00 size choke sand
ſ		1 - 1	100	6	1.1		0000		1		1	(3) Bentonite seal (chins)
					7		0.0.		KU		(E)	(a) periorite sedi (onips)
F	8	8	-	-	1.1		0000		1		1	
+	4	-	9		-	20	0000		M		M	a sala
+	-	-	-	11			0000	grades downward to 16.0	1.4		8	+ 15.5'
ŀ					9		0000	Wet light brown gravelly	1243			+ 16.0'
ŀ	12	4	2		-	1	0 00	(SILTY-SAND) with 20 to 40% gravel,	11			(4) #00N size morie sand pack
ł	14		3	12	-	15	0000	little silt, loose to compact, stratified,			1	
t	10	1000	1	12	14		0000	(SM).	1.		4)	← (8.0'
	10	4	1			1	0 00 0		3.	10.0		(5) 2-inch 0.010 slot continuous
İ	16		4			7	0000			(2)	12	wrap screen
	5			3	1.		0000				1	11 11 11 11 11 11 12 13
		1.	1		0		0.00		1.88		1.35	

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140_ ID. WT. FALLING 30_ * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

SHEET 1 OF 2

2A79c PROJE CLIEN DEPTH IN FT	ih ICT I IT GI H	WMNY Lown El Cor BLO SAM	Chaff of Sa nsultar WS ON PLER	ee Lau Indinia	ndfill Erie	Sou 10 HOLE NO. - Southern County, NY	il and Hydrogeologic Investigations • Wetlan 191 Jamison Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSE3-19</u> Expansion LOCATION N C DATE STARTED <u>04/18</u>	nd De Northi Easti 8/19	ng: 9 ng: 1	ation SURF 9389 1706 COM	75 F. ELEVATION <u>1457.2</u> 87.3 PVC Riser: 1459.29 63.1 PLETED <u>04/22/19</u>
SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION		WELL		WATER TABLE AND REMARKS
11	6					00000	Wet light brown gravelly				Water at approximately 16.0 feet
11		4	2		7	0000	(SILTY-SAND) with 20 to 40% gravel,	110	leen.	19. N 1. H	below ground surface upon completion.
			_3	2		0000	(SM).	1.0	SCI		southis non-
12	2	-				0.000	10-50 A		wrap		
16	-	4	-	1	7	0.0.0			SNO	č,	
-		-	3	-		00000			tinut	ed p	
13	ß			2		0000		1.16	con	san	
8	0	8			14	0000			slot	orie.	
1		14/22	6	_	14	0000	grades downward to 26.0	1.5	010	e m	
-	1.52	-	-	7		8.9.		13	0.0	Siz .	
14	12		-	-		4	mosity fine to coarse size sand, trace	1.1	-inc	DO	
16		9	9		18	.9	silt, compact, stratified, (SW).	1.1	ŝ	1	Sec.
1		_		11		b p	grades downward to 28.0	1.1	_	1.	← 28.0'
15	2		-				Wet brown (SILTY-SAND) with 5 to	2.2	133	2.11	
7		3	-	-	8	0 . 0 . 0	(SM).	N.	1.15	1.25	
-		-	5	8		· · · · ·	30.0	1.18	1.19	14	- 30 D'
							Boring completed at 30.0 feet.				4 50.0
1	-	-	_	_							
	-	-		-							
	-		-	-							
			1								
-	1										
-	-	-		-							
-	-	-	-	-							
-		-									
-			-								
-											
-	-	-	-	-							
-	-	-									
-		-		1							
	1				1						
		-									

N=NUMBER OF BLOWS TO DRIVE 2_ "SPOON 12 "WITH 140_Ib.WT. FALLING 30 "PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 2 OF 2

2A79c PROJE CLIEN DEPTH	h CT N T GE	IMNY I Town EI Con BLOV	Chaffr of Sa sultan	ee Lar rdinia nts Inc	ndfill Erie	So 1(HOLE NO. - Southern County, N)	il and Hydrogeologic Investigations • Wetlan 091 Jamison Road • Elma, NY 14059 16) 655-1717 • FAX (716) 655-2915 <u>MWSE4-19</u> ExpansionLOCATIONL LOCATIONL DATE STARTEDQ4/2	North East 22/19	ng: 9 ng: 1	SURF 3917 17029 COMF	75 5. ELEVATION <u>1448.6</u> <u>1.9 PVC Riser: 1450.59</u> 96.2 PLETED <u>04/22/19</u>
IN FT	0/	SAM	PLER	18/		LITU				-	
REC	6	12	18	24	N	LITH	DESCRIPTION AND CLASSIFICATION	1	S	[MATEN TABLE AND REMAINS
1	4					0.000	Moist to extremely moist brown				(1) 4-inch locking steel
15		5			12	0000	(SILTY-SAND) fill with 5 to 15% gravel,				protective casing 2.2 feet above
			7	P		00000	Ittle sand, trace organic matter, loose, massive soil structure. (ML).			1	feet above ground surface
2	5			0		0000	0.3	14	5		(a) Descel Destable Crowt
13		5		1.114	11	0000	Extremely moist brown gravelly	1	Rise	11	(2) Cement Bentonite Brout
		11.	6	-		0000	(SILTY-SAND) with 20 to 40% gravel,	-11	PVC	1	Victor.
3	0			6		0.000	(SM), (cose to compact, stratified,	4.4	FJT	3	+ 4.0'
10	0	4			9	0.000	1	1	40	2	F 4.5
			4	- 5	0	0000	grades downward to B.O.		Jule	1	(3) #00 size choke sand
-				6		Corol		1	chec	13	(4) Rentonite chips (chips)
4	5		-			0000	Wet brown gravely (SILTY-SAND) with 20 to 40% gravel, little silt, loose to	1	h Sc	1	(-) Delitorine chips (chips)
9		5	6		11	0000	compact, stratified, (SM).	21	-inc	1	+ 7.5'
			м_	6		0000			2	(3)	+ 8.0'
5	2			-		0000		12			712
6	-	2			5	0.0.0		24		12	
	-		3	1		0.00				1	~ 10 D'
6	6			4		0000		1		14	÷ 10.0
8	1111	7	1.1		12	0000		111		1 0 0	Note: Advanced bore hole with 6
		-	5			0000					5/8" ID x 10" OD hollow stem auger casing with continuous spi
7	7	-		3		0.00			uaa.	ack	spoon sampling to 20.5 feet.
9		2			F	0.000	grades downward to 13.0	24	SCI	d pi	Installed a 2-inch monitoring we
	1.0		3		0	1000	Wet gray (SAND) with mostly fine to	1.8	wrap	Sal	to NYS DEC regulations.
				3		0.00	medium size sand, trace silt, loose,		SNC	lorie	Water at approximately 13.0 feet
8	6				1.3	0.0.0	grades downward to 14.0	1.2	tinuc	Ze II	below ground surface upon
13		5	5		10	0.00.	Wet grav very gravelly (SAND) with 40		CON	N'si	completion.
				5		0:00	to 60% gravel, occasional cobble,	18.3	slot	00#	
9	10		1			0.0.0	trace silt, loose to compact, stratified,		010		
10	1	12		1	29	0.00	(34), (64).	1.14	0.0	1	
-	-		17	-	117	6:00:		13	-incl	1	
10	11		-	9		0.0.0			2-		
15	1	12			30	0.00		1		13	
-	1.4		18		1 30	6.00		1.53		1.23	
-	-				-			(b) 100		1.1	

N=NUMBER OF BLOWS TO DRIVE 2_ * SPOON 12 * WITH 140. Ib. WT. FALLING 30. * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

SHEET 1 OF 2

2A79cH PROJEC CLIENT DEPTH IN FT	r GE	MMNY Town El Cor BLOI SAM	Chaffr of Sa sultar ws ON PLER	ee Lar rdinia ots Inc	ndfill Erie	Si HOLE NC - Southerr County, N	oil and Hydrogeologic Investigations • Wellan 091 Jamison Road • Elma, NY 14059 716) 655-1717 • FAX (716) 655-2915 MWSE4-19 NEXPANSIONLOCATION & Y DATE STARTED 04/2	nd Delineation SURF Northing: 93917 Easting: 11702 2/19COM	75 F. ELEVATION <u>1448.6</u> 1 <u>19 PVC Riser: 1450.59</u> 96.2 PLETED <u>04/22/19</u>
SN	0/ 6	6/ 12	12/	18/	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
						0.87.0	Wet gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, loose to compact, stratified, (SW), (GW). 20.5 Boring completed at 20.5 feet.		← 20.5' (5) #00N size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2. * SPOON 12. * WITH 140 Ib. WT. FALLING 30. * PER BLOW LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns) SHEET 2 OF 2