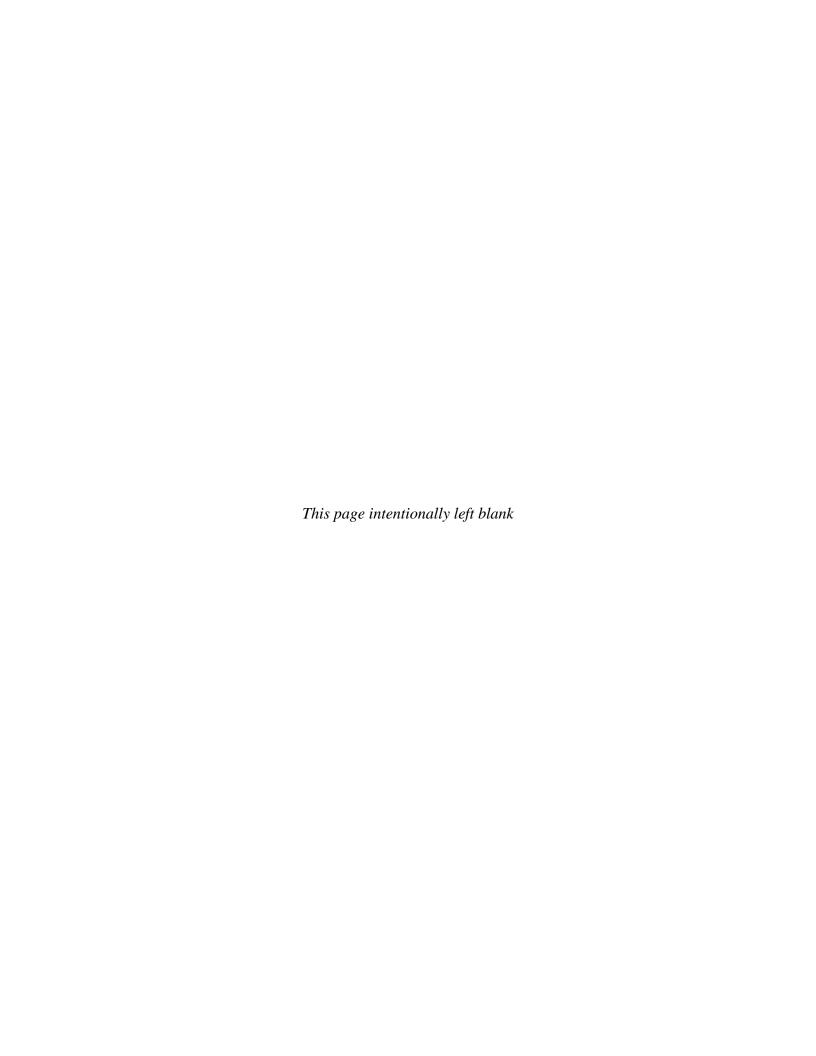
Attachment A Topographic Survey





THE TOPOGRAPHICAL SURVEY SHOWN HERON ARE AN INTERPRETATION OF PHOTOGRAMETRY AND FIELD RUN SURVEYS COMPLETED ON JAN. 30, 2019, THE UNDERSIGNED WAS IN RESPONSIBLE CHARGE OF THE PREPARATION OF THIS MAP AND THE SURVEYING WORK REFLECTED IN IT. THIS MAP WAS DEVELOPED IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN COMAR REGULATIONS 09.13.06.



ERIC V COOPER DATE: 4-11-2019 PROFESSIONAL LAND SURVEYOR MD.#21311 (expiration date JUNE 25, 2020)



O ELECT POLE

WOODS * LIGHT POLE MANHOLE → GUY WIRE

□ INLET MHYDRANT

O POND OMISC FEATURE

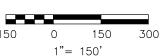
FENCE • BOLLARD

-GAS LINE - TRAFFIC SIGN HAND BOX——GUARDRAIL

- LFG PIPING TRANSFORMER



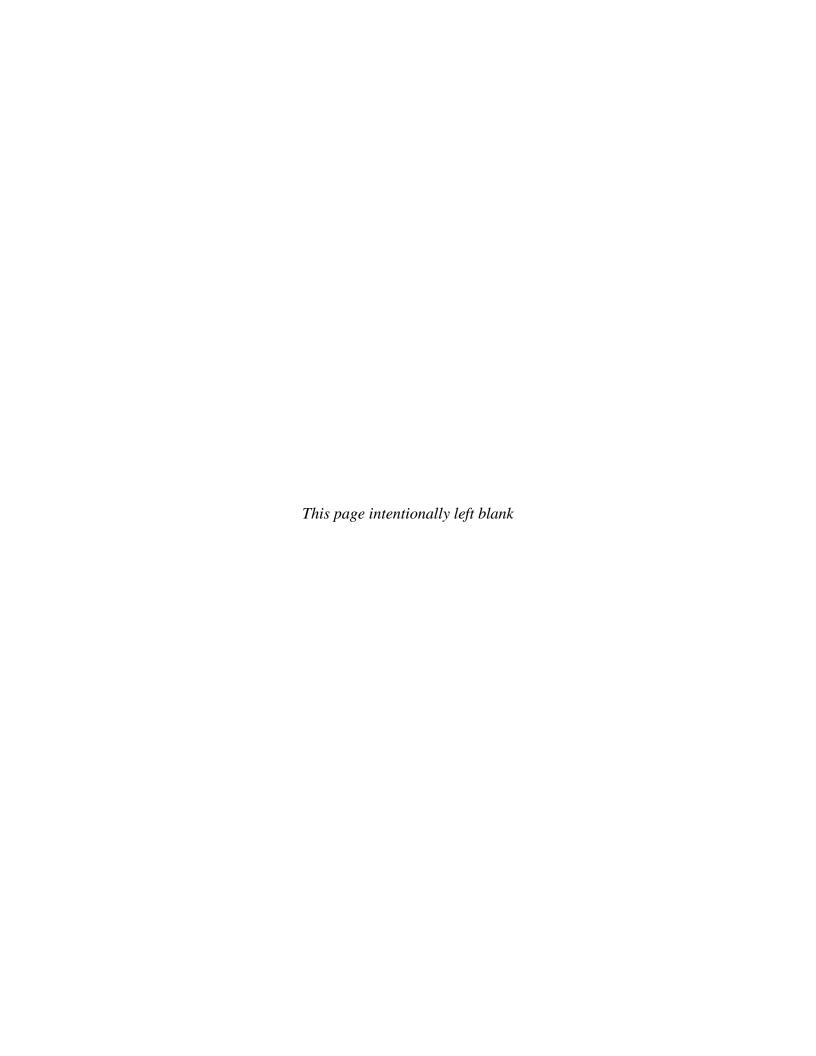
Engineers • Planners • Surveyors • Construction Managers 10150 York Road, Suite 200 Hunt Valley, Maryland 21030 410.494.9093 Tel / 410.667.0925 Fax www.WallaceMontgomery.com A Limited Liability Partnership TOPOGRAPHIC SURVEY GUDE LANDFILL



4h Election District	Montgomery County,MD
Sheet 1 of 1	Project No. 218007.0001
Drawn By: DBM	Checked By: EVC
Scale 1"=150'	Date January 30. 2019



Attachment B Utility Locating Report



EA Engineering, Science, and Technology, Inc., PBC Attn: Mark Gutberlet 225 Schilling Circle, Suite 400 Hunt Valley, Maryland 21031

November 21, 2018

Re: Report of Findings - Gude Landfill

Dear Mr. Gutberlet,

Master Locators, Inc. (ML) is pleased to provide this report regarding the geophysical investigation performed at 600 East Gude Drive in Rockville, MD. The scope of work included scanning for and marking out utilities/unknowns within approximately 30 acres of the Gude Landfill property. Approximate scope of work boundaries are included in Attachment 1: Report Figures, Site Photos at the end of this report.

METHODOLOGY

Underground utility data is considered Quality Level B (QLB) as defined in ASCE 38-02: Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data and is intended to show the approximate horizontal locations of existing underground utilities as marked by ML during a geophysical investigation performed within the scope of work boundaries.

ML utilized Electromagnetic (EM) and Ground Penetrating Radar (GPR) technology to perform the subsurface investigation with the following equipment.

- RD 8000 Digital Locator manufactured by Radiodetection
- A6 Tracer manufactured by Aquatronics (Spit-Box)
- Noggin SmartCart with 250MHz GPR antenna manufactured by Sensors and Software
- Carlson GPS unit

EM scanning was performed to trace all conductive utilities which were visually evident within or adjacent to the scan area. This included both active and inactive methods of locating with the RD 8000 Digital Locator. Active and inductive scans were performed on various frequencies ranging from 8 kHz to 200 kHz. Passive scans were performed on a 60 Hz frequency in a ten (10)-foot by ten (10)-foot grid over the accessible portions of the scan area.

Inductive EM scans were conducted using an A6 Tracer (Split-Box) at a frequency of 118 kHz and collected in a ten (10)-foot by ten (10)-foot grid over the accessible portions of the scan area. The A6 Tracer scans were performed to identify any potential metallic targets within the scan areas.

GPR scans were performed with a 250 MHz antenna. GPR data was collected in a five (5)-foot by five (5)-foot grid over the accessible portions of the scan area. During the scanning process, the GPR operator continuously monitored the imaging results displayed for indications of any anomalies associated with utilities or unknown targets. Any anomalies which were detected were investigated further to identify the target as a potential utility or unknown target.

The horizontal locations of utilities, utility structures, unknowns and site features (fence line, etc.) were collected using the Carlson GPS unit and included on the CAD mapping provided with this report.



RESULTS

Attachment 2: Utility Mapping contains the approximate locations of utilities and unknowns observed during the geophysical investigation. The geophysical investigation was performed within two (2) areas on landfill property. Area 1, measures approximately 28.3 acres and includes a gas utility right of way along the northwest perimeter of the landfill (gas line material unknown), the gazebo area near the model plane airport and current facility buildings all northeast of East Gude Drive. Area 2, measures approximately 1.1 acres and includes the roadway that led up the former incinerator known as Incinerator Lane.

Please note the following on the attached utility mapping:

- Utilities were marked in the field using the standard American Public Works Association (APWA) color code. Gas lines on *Attachment 2: Utility Mapping* are depicted in purple instead of yellow for better visibility when printed.
 - See Figures 2 and 3 for examples in Attachment 1: Report Figures, Site Photos.
- Utility types marked out and mapped for Areas 1 &2 include: communications; electric; gas; landfill gas, sanitary sewer; storm drainage; water and unknowns.
- To differentiate between natural gas lines and landfill gas lines, each has a dedicated line type on the attached mapping. -G-, underground gas lines are natural gas lines. -LFG-, underground landfill gas lines are associated with the landfill gas extraction lines within the landfill property boundary.
- When a feature is observed during grid scans using either GPR or EM and cannot be traced to an above ground structure it is labeled as an unknown.
- When utilities are depicted with a dash only line type (no letter identifier), field staff dotted this path in the field as the suspected path/continuation of the line based upon field observations.

 See Sheets 3 and 7 for examples of this.
- Features that have an "last locatable point" symbol (X) may continue, but due to possible site or equipment limitations, access issues, and/or unfavorable subsurface conditions this can't be determined.
- Those utilities that end with a "line continues" symbol (\sim) either intersect with the scope of work boundaries or possibly continue through an area that was inaccessible to field staff.
- The bolded lines depicted along the northern perimeter of the landfill in Area 1 were marked out by a representative from Williams as part of the one-call design ticket that was placed. Three (3) gas lines and one (1) electric line were marked by Williams using grade stakes. No other utility companies/representatives marked out utilities in response to the one-call design ticket placed.
- ML utility locators grid scanned the area containing the utilities marked out by Williams to determine if any
 other utilities were in this section of the scope of work. No other utilities were observed in this section using
 the methods described in this report. ML GPS technicians collected the horizontal locations of the grade
 stakes planted by the representative from Williams.
- Heavy vegetation prevented access to some sections of the scope of work. See Sheets 2, 3 and 4 for examples of this.

 See Figure 4 in Attachment 1: Report Figures, Site Photos for an example area.

MAP SHEET SUMMARY

Sheet

No. Description

1 Key Sheet

Project site (landfill and surrounding areas), Areas 1 & 2 scope of work boundaries, approximate landfill property line and remaining sheet locations.

2 Southwest corner of Area 1, north of East Gude Drive

Three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket), multiple utilities associated with site buildings including: communications; electric; natural gas; sanitary sewer; storm drainage; and water.

3 Section northeast of Sheet 2

Continuation of three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket), multiple utilities associated with site buildings including: electric; landfill gas, storm drainage; and water.

4 Section southeast of Sheet 2, northeast of East Gude Drive

Multiple utilities associated with site buildings on including: electric; natural gas; sanitary sewer; storm drainage; water and an unknown. Dense vegetation prevented the continuous detection of some utilities on this sheet.

5 Section southeast of Sheet 4, northeast of East Gude Drive

Suspected sanitary sewer line within scope of work boundary; dense vegetation prevented investigation in this area.

6 Section northeast of Sheet 3

Continuation of three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket), storm drainage and one (1) landfill gas line (mark out was limited for this line, both ends of the line have the last locatable point symbol).

7 Section northeast of Sheet 6

Continuation of three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket), continuation of storm drainage, and landfill gas lines. A portion of the landfill gas line is marked as "suspected location" (dashed line type without LFG) to where an above ground pipe structure was observed in the field.

8 Section northeast of Sheet 7

Continuation of three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket), two (2) storm drainage lines running below landfill roadways and water lines associated with water fountains. "X" indicates last locatable point, ML field staff did not observe a feature or signal beyond the location of "X" but the lines may continue.

9 Section northeast of Sheet 8

Continuation of three (3) natural gas lines and one (1) electric line marked out by Williams (one-call design ticket). These utility lines continue beyond scope of work.

10 North side of Area 2. Incinerator Road

Storm drainage lines, an unknown and approximate location of an observed stream running below the road. Base map contains a surface structure not observed during the field investigation. ML suspects that the structure is either buried or possibly mis-mapped; feature may be storm drainage manhole nearby mapped by ML.

11 South side of Area 2, Incinerator Road

Multiple utilities observed, features may be associated with existing or previous structures surrounding the scope of work and include electric, natural gas, storm drainage and unknowns. Unknowns may be associated with abandoned utilities.

CONCLUSIONS

Utilities observed and marked in the field were identified either by direct connection to utility structure at the surface or traced to a termination point at utility structure. Unknowns were marked out during the collection of grid scans within the scope of work. The unknowns were not identified because they could not be traced to a utility surface structure.

ML recommends non-destructive vacuum excavation to expose these utilities at their last locatable point to determine where they terminate and possible investigation of the unknowns to further attempt to identify their utility type and termination point.

As utility locations are approximate, if precise locations and depths of utilities are needed, ML can employee vacuum excavation to determine this information on the utilities depicted in the attached mapping.

Please reach out to us with any questions regarding the contents of this report.

Sincerely,

Crystal Gardener

Project Manager/Geologist

ATTACHMENTS

Attachment 1: Report Figures, Site Photos

Attachment 2: Utility Mapping

MULTIPLE GAS LINES THOUGHT TO BE LOGATED ALONG THIS MARKEN OF THE LANGE LANGE THOUGHT TO BE LOGATED ALONG THIS MARKEN OF THE LANGE LANGE THOUGHT TO BE LOGATED ALONG THIS MARKEN OF THE LANGE LANGE THE LANGE LANGE THE LANG

Attachment 1: Report Figures, Site Photos

Figure 1: Scope of work includes areas bound by the blue outlines, Area1 and Area 2. **Client Provided Information:** 100 foot ROW easement includes Williams Gas/Trans-continental Natural Gas Pipelines (near landfill side). 25-50 foot ROW easement contains Columbia Gas Pipeline and Fiber Optic Line (near community side).



Figure 2: Example of field mark out, picture depicts a section in Area 1 (near homeless shelter) where two (2) electric lines cross over a water and storm drainage lines.



Attachment 1: Report Figures, Site Photos

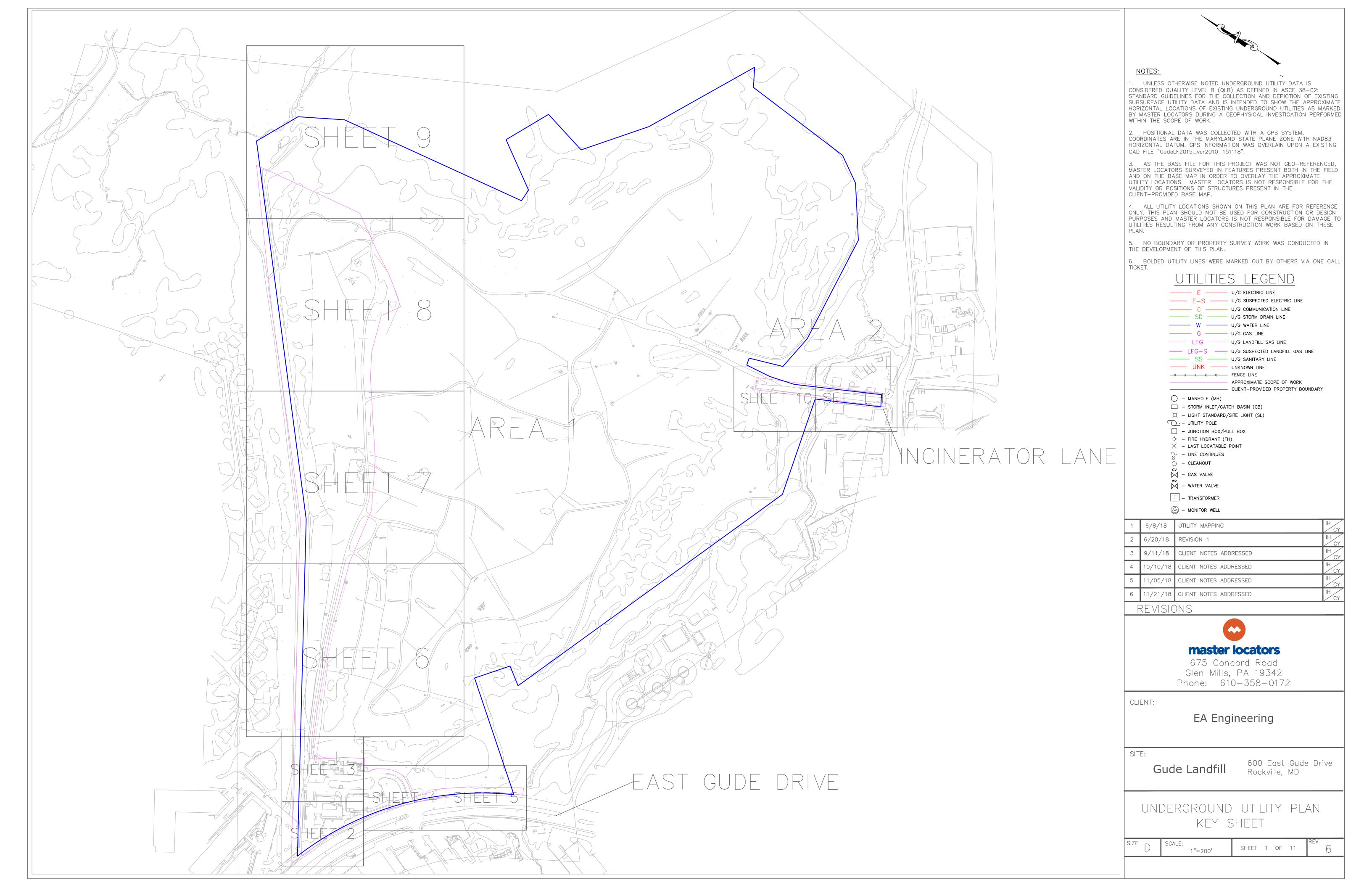
Figure 3: Example of field mark out, picture depicts a congested section in Area 1 (near homeless shelter) where three (3) electric, two (2) communication and one (1) water line converge.

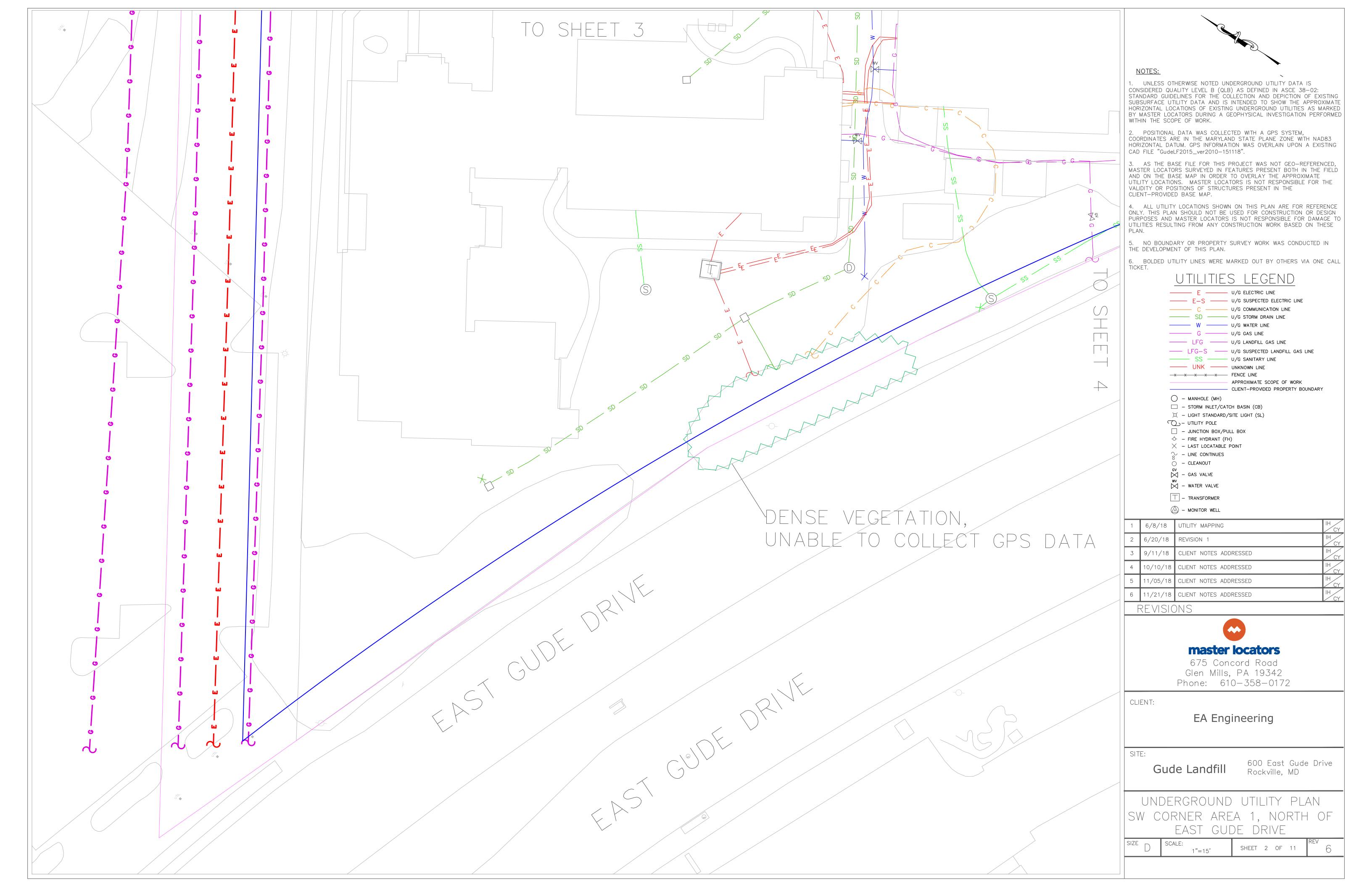
Attachment 1: Report Figures, Site Photos

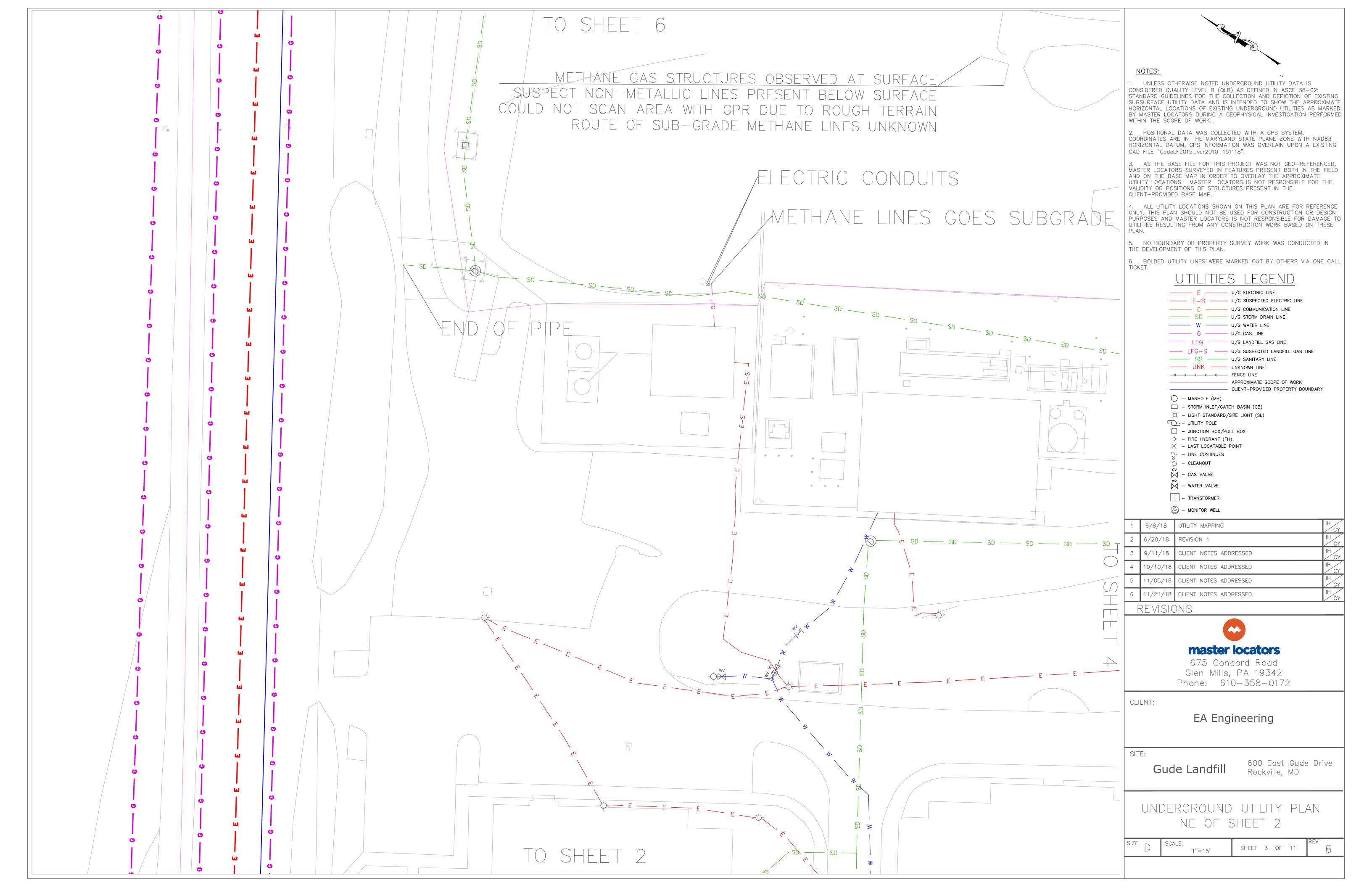


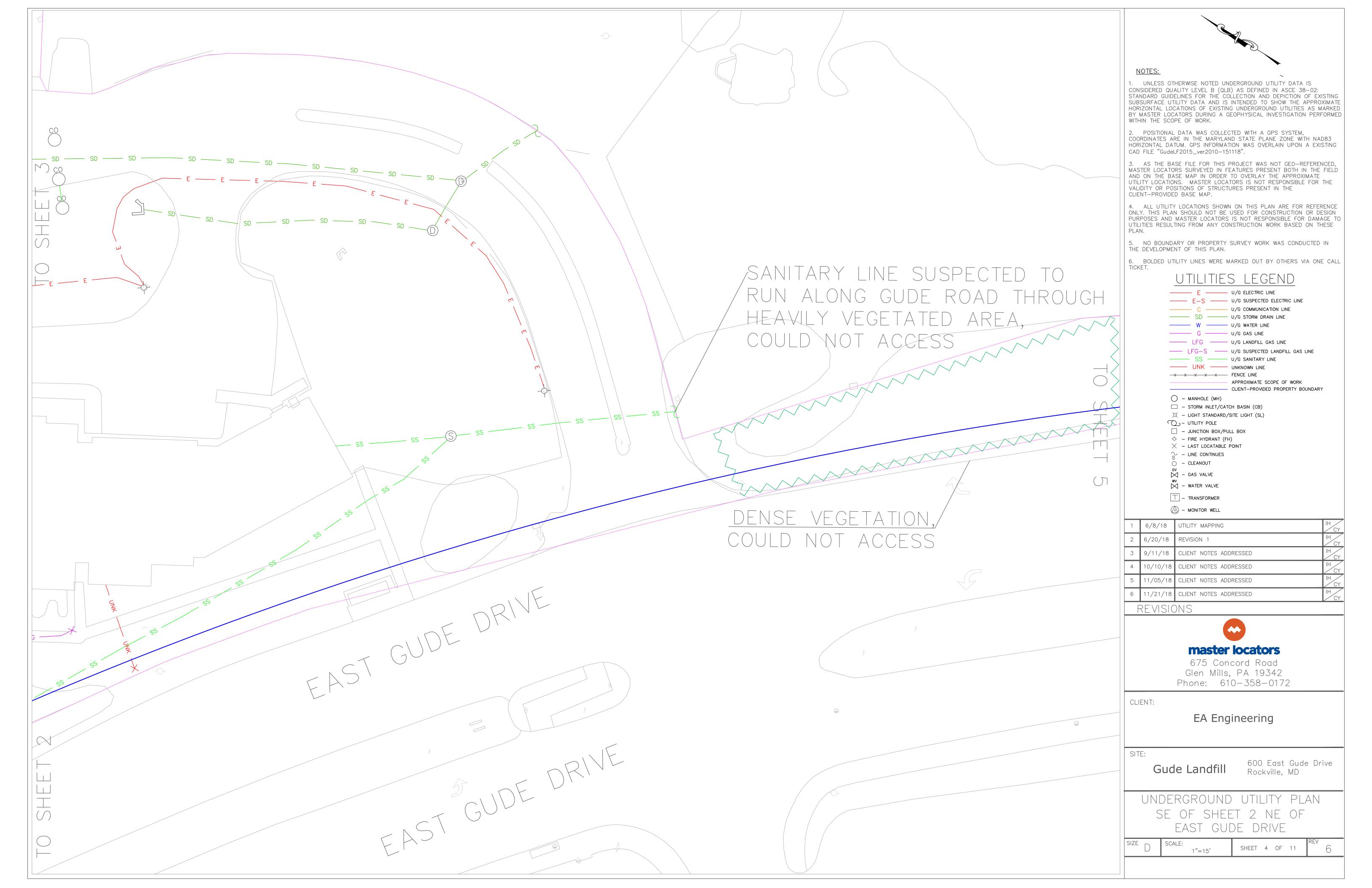
Figure 4: Section of Area 1 on Sheet 2 where the communication, electric and storm drainage intersect the area of heavy vegetation called out on the utility mapping.

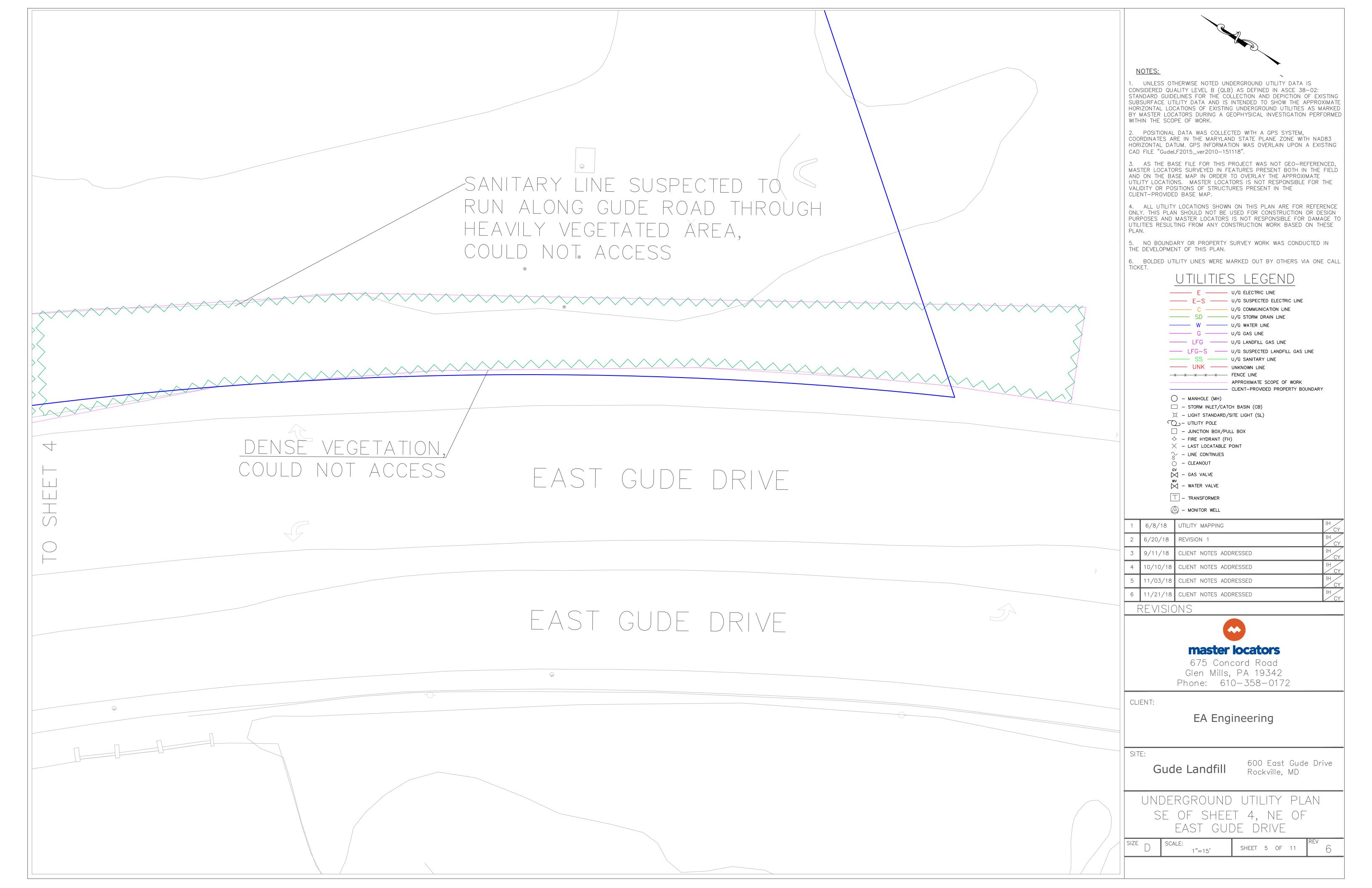
Attachment 2: Utility Mapping





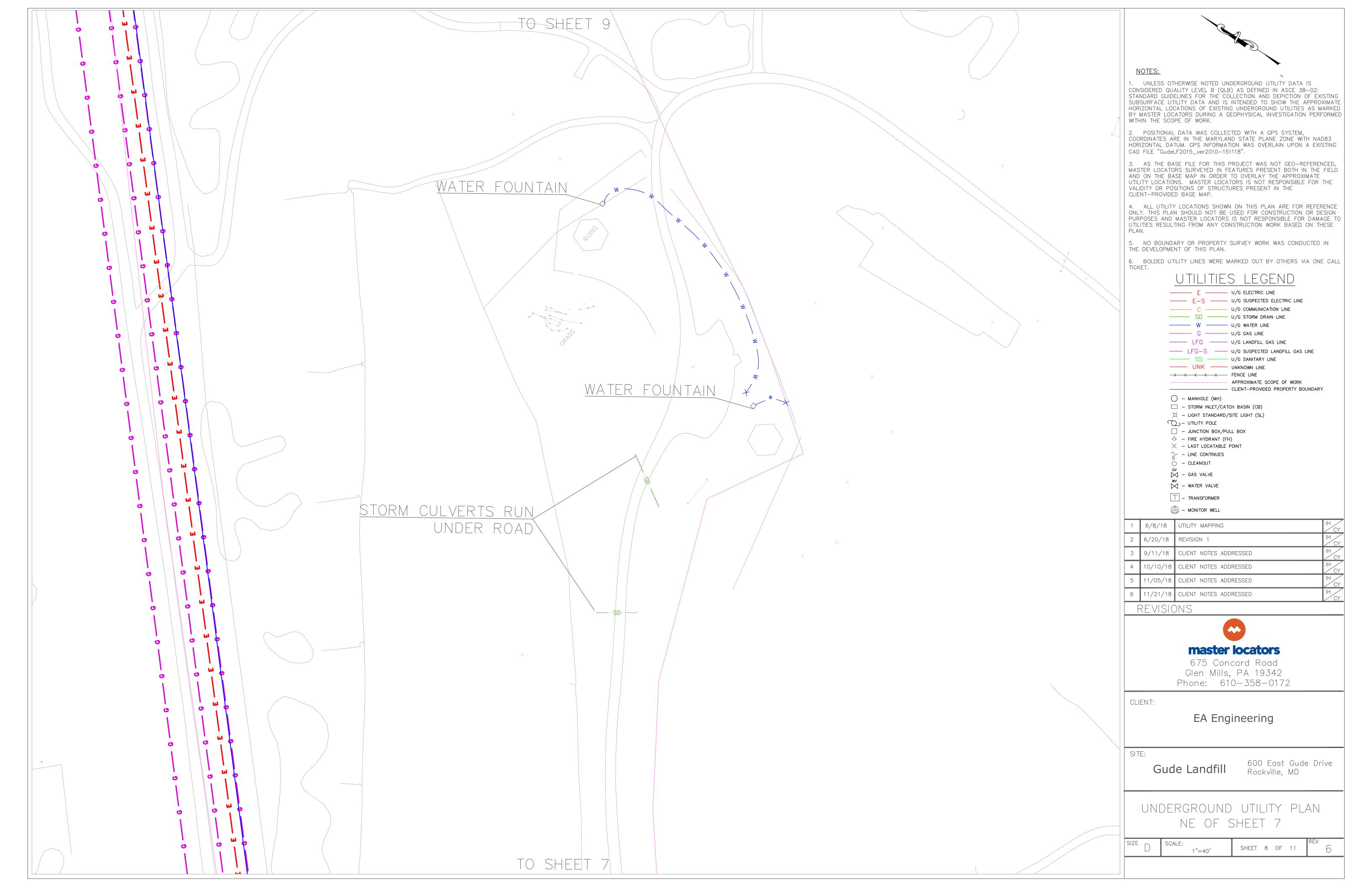




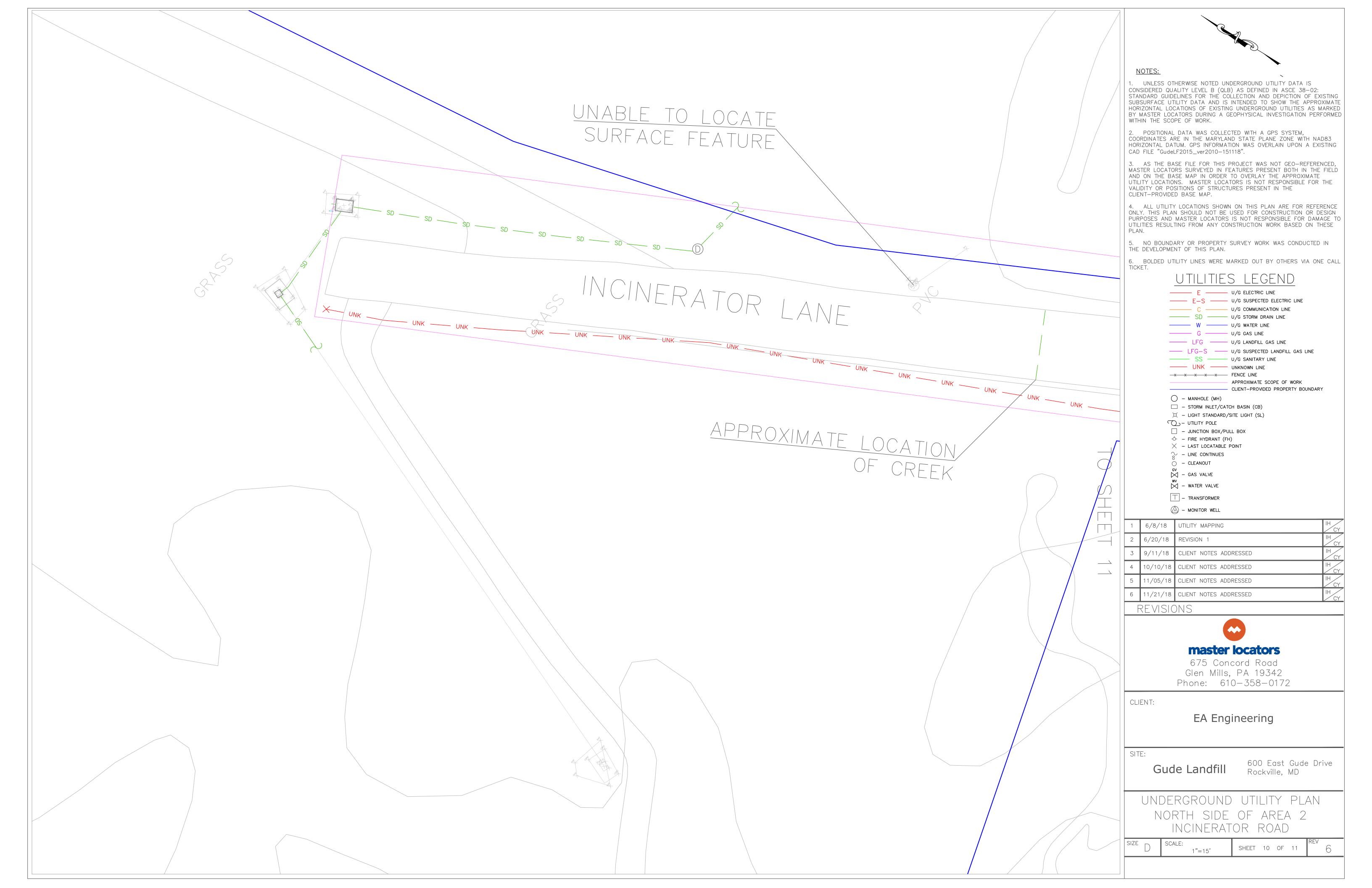








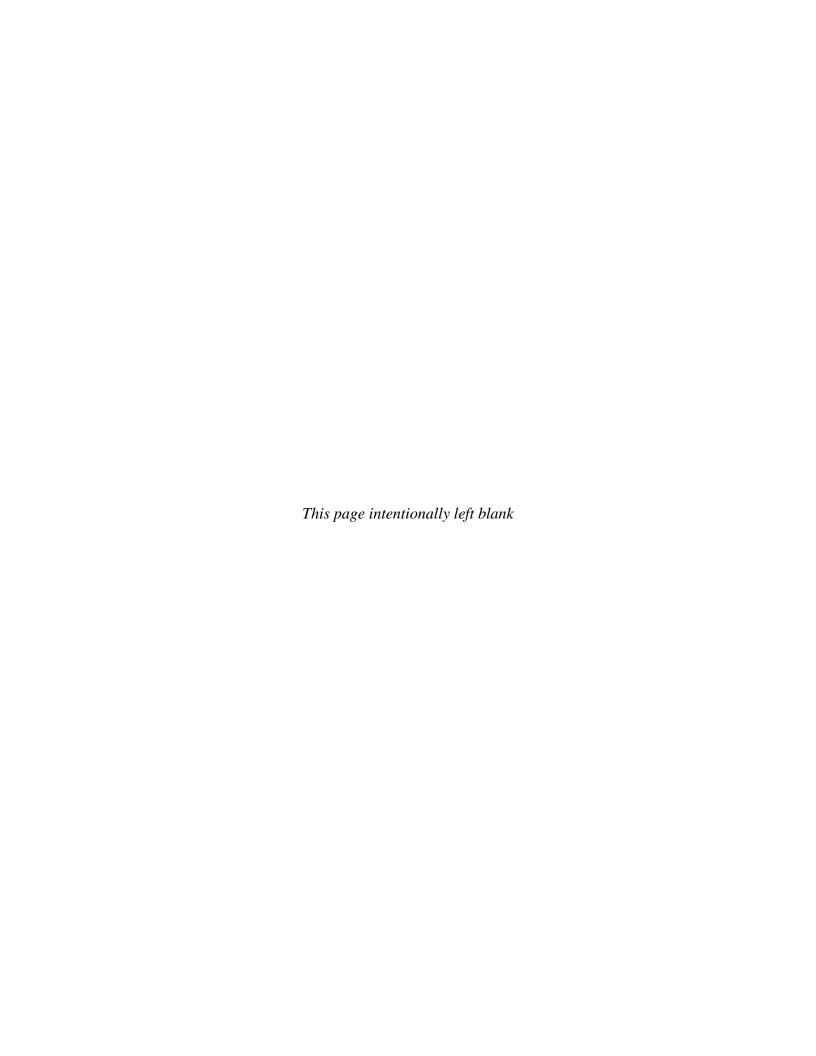








Attachment C Geotechnical Evaluation





THE ROBERT B. BALTER COMPANY®

September 10, 2018

Mr. Mark Gutberlet, PE Project Manager EA Engineering, Science, and Technology, Inc., PBC 225 Schilling Circle, Suite 400 Rockville, MD 20850

Geotechnical Evaluation RE:

> Gude Landfill Rockville, Maryland

RBB Project No. 16943-0

Dear Mr. Gutberlet:

The Robert B. Balter Company is pleased to submit this geotechnical evaluation report for the subject project. The purpose was to assess the existing soil cap condition and provide recommendation regarding soil reuse.

Project information provided to us by various parties helped form the basis for our recommendations. If any of the project information discussed in this report differs from the actual proposed construction, we should be contacted to re-evaluate the recommendations provided herein and provide revisions if necessary.

We have appreciated this opportunity to be of service. If you have any questions regarding this report, or if we can assist you in any way, please do not hesitate to call our office.

Sincerely,

THE ROBERT B. BALTER COMPANY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 2326/_, Expiration Date: 06/25

James M. Bailey, E.I.T. Geotechnical Engineer

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- Table 2 Environmental Screening Results
- Table 3 Laboratory Test Results
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- Plate 1 Site Vicinity Map
- Plate 2 Boring Location Plan

APPENDICES

- A Boring Logs
- B Laboratory Soils Test Results



1.0 INTRODUCTION

1.1 General

The proposed project will consist of a new toupee cap for the Gude Landfill, as well as an analysis of the stability of the site as it pertains to future developments, such as potential access roads, parking areas, and new facilities.

1.2 Authorization

The geotechnical evaluation was authorized by EA, based on our September 28, 2017 *Revised Proposal for Geotechnical Evaluation*.

1.3 Scope

The scope of the geotechnical evaluation included the following: site reconnaissance, subsurface sampling and testing, geotechnical laboratory testing, engineering evaluation and report preparation.

1.4 Summary of Recommendations

Cap Fill Soil The existing site cap fill soils are expected to be suitable for reuse.

Reuse However, laboratory testing indicated that site soils are presently in excess

of the optimum moisture content and may require drying before

placement. We would expect the moisture content of the existing fill soils

to change over time.

Topsoil The current site topsoil was only encountered sporadically, with most plant

covering growing in the fill soils rather than a distinct topsoil stratum. It is

unlikely to be cost-effective to salvage for reuse as topsoil

2.0 PROJECT DESCRIPTION

2.1 Site Conditions

The project is located at 600 East Gude Drive, Rockville, Maryland. The site is bordered to the northwest by Gude Trail, followed by a residential development, to the northeast by a heavily forested area, to the southeast by a mixed commercial/retail development, and to the southwest by East Gude Drive followed by mixed commercial/retail development. The site is currently occupied by the closed Gude MSW Landfill including a gas energy production facility and is currently being used as a radio-controlled (RC) model airplane recreational area. A Vicinity Map is shown on Plate 1, attached.



2.2 Project Information

The proposed project will consist of the reconstruction of the landfill cap. The purpose of this investigation was to determine the depth of the existing cap and to determine the potential for reuse of the existing cap soils.

2.3 Site Geology

According to the <u>National Geologic Map Database</u> provided by USGS, the subject site is underlain by the Wissahickon Formation. This formation is known to consist of Muscovite-chlorite-albite schist, muscovite-chlorite schist, chloritoid schist, and quartzite; intensely folded and cleaved.

3.0 EVALUATION PROGRAM

3.1 Subsurface Explorations

The subsurface exploration program for this study included a total of 128 new Test Pits, labeled TP-200 to TP-335, with the exclusions of TP-296, TP-297, TP-300, TP-306, TP-313, TP-316 and TP-328. These test locations were not performed due to time constraints. The locations for the test pits were selected by EA and located in the field by Balter using standard taping procedures and are assumed accurate to within 10-15 feet. Additionally, longitude and latitude coordinates were recorded by cell phone GPS for each test pit location and are assumed accurate to within 10 to 15 feet. Prior to the start of the test pit operations, the test pits were cleared for utilities by Miss Utility. The attached **Plate 2, Boring Location Plan,** indicates the approximate as-dug locations of the test pits.

The test were advanced to depths ranging from 1.5 feet to 8 feet below the existing ground surface using a Case 580 N backhoe. During the test operations, bulk samples of representative soils from the upper regions of the soils were recovered for laboratory evaluation. Following completion, the test pit locations were backfilled with landfill garbage at the bottom and soils on top lightly compacted with the backhoe bucket. After backfill, all test pits were strawed and seeded.

All test pits were screened for oxygen levels and combustible gases as per the site Health and Safety Plan.

The subsurface data obtained from the recent explorations are presented in log form in **Appendix A**.

The depths at which water was observed in the test were recorded upon completion. The method of classification used in preparing the strata descriptions is based on our interpretation of the Unified Soils Classification System (USCS).



Test pit logs show the estimated general soil classifications and the <u>assumed</u> boundaries between soil types. The actual boundaries in the field could vary significantly from those assumed for the logs. It is noted that the subsurface data shown on the figures are an integral portion of this report. Separation of the figures from the remainder of the report may lead to misinterpretation of the data by others.

3.2 Laboratory Testing Program

Selected samples were subjected to laboratory analyses to estimate their classifications according to the Unified Soils Classification System. This testing included moisture content determination, sieve gradation analyses, and Atterberg limits determinations. The bulk samples were subjected to evaluation of their compaction properties by AASHTO T-180 (Modified Proctor).

The results of our laboratory testing are presented in Appendix B and are summarized in **Table** 1 of Section 4.2 Subsurface Materials.

4.0 SUBSURFACE CONDITIONS

4.1 General

This section provides a description of the estimated subsurface conditions encountered at the borings at the time of drilling. Significant variations may occur outside specific test locations.

4.2 Subsurface Materials

4.2.1 Surficial Materials

Topsoil - Topsoil was only encountered in borings TP-201, TP-202, TP-203, TP-254, TP-255, TP-256, TP-257, TP-258, TP-259, and TP-263 to depths ranging between 1 inch and 4.0 inches. The term "topsoil," as used in this report refers to surface soils having an apparently significant organic content, based only on visual estimates in the field. It does not imply that the subject materials meet the requirements or specifications for topsoil set by any particular organization or agency. Plant growth was present across the landfill, however the growth appears to be within the fill soils rather than within a distinct topsoil layer.

4.2.2 Existing Cap Fill Soils

Fill soils associated with the existing landfill cap were found to generally consist of Sand and Silt mixtures (SM, ML) and Sand and Clay mixtures (SC), and Clays (CL) with significant amounts of gravel and significant amounts of cobbles and boulders encountered in some borings. Some borings encountered crushed stone (CR-6) layers within the soil cap. Existing cap fill soils extended to depths ranging between 1.5 feet and 8 feet. Test pits TP-279, TP-293, and TP-298 terminated in the existing cap soils (i.e. they were not fully penetrated). The existing cap fill depths for each test pit are presented on the following page in Table 1.



Table 1 – Existing Cap Fill Soil Depths

	1 abic 1	LAISU	mg Cap rm	Son De	Ptilis	
Test Pit	Cap Thickness (ft)	Test Pit	Cap Thickness (ft)	Test Pit	Cap Thickness (ft)	
TP-200	NA	TP-243	1.3	TP-286	3.0	
TP-201	NA	TP-244	1.0	TP-287	6.5	
TP-202	NA	TP-245	1.3	TP-288	2.3	
TP-203	NA	TP-246	3.8	TP-289	4.3	
TP-204	2.0	TP-247	3.3	TP-290	2.7	
TP-205	5.0	TP-248	1.5	TP-291	3.5	
TP-206	2.0	TP-249	3.0	TP-292	1.5	
TP-207	2.0	TP-250	1.8	TP-293	NP	
TP-208	5.0	TP-251	1.0	TP-294	4.0	
TP-209	0.9	TP-252	1.5	TP-295	5.0	
TP-210	2.5	TP-253	5.5	TP-298	NP	
TP-211	1.7	TP-254	3.9	TP-299	2.0	
TP-212	1.7	TP-255	3.3	TP-301	5.8	
TP-213	2.3	TP-256	4.8	TP-302	2.0	
TP-214	3.0	TP-257	1.9	TP-303	4.3	
TP-215	5.3	TP-258	4.0	TP-304	1.8	
TP-216	2.3	TP-259	6.0	TP-305	3.3	
TP-217	4.0	TP-260	4.0	TP-307	3.5	
TP-218	4.0	TP-261	6.0	TP-308	3.5	
TP-219	4.3	TP-262	2.0	TP-309	3.0	
TP-220	3.0	TP-263	6.0	TP-310	1.0	
TP-221	1.3	TP-264	3.0	TP-311	1.6	
TP-222	1.5	TP-265	3.0	TP-312	3.5	
TP-223	0.9	TP-266	2.3	TP-314	3.5	
TP-224	2.3	TP-267	2.0	TP-315	1.3	
TP-225	0.3	TP-268	3.0	TP-317	3.2	
TP-226	1.5	TP-269	2.5	TP-318	2.5	
TP-227	2.0	TP-270	3.0	TP-319	1.5	
TP-228	3.5	TP-271	2.0	TP-320	3.9	
TP-229	5.3	TP-272	3.5	TP-321	1.5	
TP-230	2.7	TP-273	6.5	TP-322	2.3	
TP-231	5.0	TP-274	4.0	TP-323	4.0	
TP-232	3.0	TP-275	3.5	TP-324	2.2	
TP-233	2.2	TP-276	3.0	TP-325	2.5	
TP-234	3.3	TP-277	1.8	TP-326	3.0	
TP-235	2.0	TP-278	2.8	TP-327	3.3	
TP-236	2.7	TP-279	NP	TP-329	2.3	
TP-237	3.5	TP-280	5.5	TP-330	6.0	
TP-238	1.7	TP-281	3.5	TP-331	3.5	
TP-239	3.8	TP-282	4.0	TP-332	3.5	
TP-240	2.3	TP-283	5.5	TP-333	2.0	
TP-241	3.0	TP-284	3.8	TP-334	5.5	
TP-242	3.0	TP-285	3.5	TP-335	2.3	

Notes: NA = Cap penetrated but no trash encountered; NP = Cap not penetrated

4.2.3 Landfill Trash

Landfill Trash was encountered beneath the existing cap soils in all locations with the exception of test pits TP-200, TP-201, TP-202, TP-203, TP-279, TP-293, and TP-298. The landfill trash generally consisted of various types of debris intermixed with varying amounts of soils. The depth to trash for each test pit are presented on the following page in Table 1.

4.2.4 Residual Soils

Residual soils were encountered beneath the existing cap fill soils in Test Pits TP-200 through TP-203. These soils generally consisted of clay and sand mixtures (USCS: CL) with varying amounts of gravel and extended to the depth of termination where encountered. No landfill trash was encountered in these test pits.

4.2.5 Environmental Screenings

No Combustible Gas or Oxygen readings exceeding the requirements in the Health and Safety Plan were noted during the investigation. All oxygen readings were noted as 20.9% with the exception of test pits performed during a period of precipitation in which slightly lower oxygen levels were noted. It is possible that the precipitation was the cause of the lower level of oxygen. The results of the screening for oxygen and LELs are presented below.

LEL (%) Test Pit Test Pit 02 (%) LEL (%) Test Pit 02(%) O2 (%) LEL (%) TP-200 20.9 0 TP-243 20.3 0 TP-286 20.9 0 TP-201 TP-244 TP-287 20.9 0 20.6 0 20.9 0 TP-202 TP-245 0 TP-288 20.9 0 20.9 20.9 0 TP-203 20.9 TP-246 TP-289 20.9 0 20.9 0 0 TP-204 20.9 0 TP-247 20.9 0 TP-290 20.9 0 TP-205 TP-248 TP-291 20.9 0 20.9 0 20.9 0 TP-206 20.9 0 TP-249 20.9 0 TP-292 20.9 0 TP-207 20.9 0 TP-250 20.6 0 TP-293 20.9 0 TP-208 0 TP-251 TP-294 0 20.9 20.9 0 20.9 TP-209 TP-295 20.9 0 TP-252 20.9 0 20.9 0 TP-210 TP-253 TP-298 20.9 0 20.9 0 20.9 0 TP-211 20.9 0 TP-254 20.9 0 TP-299 20.9 0 TP-212 TP-255 20.9 TP-301 20.9 0 20.9 0

Table 2 – Environmental Monitoring Results

Notes: $O_2 = Oxygen$; LEL = Lower Explosive limit

Table 2 – Environmental Monitoring Results (cont.)

	T abic 2	1211 \	in oninchi	ai wioiii	toring	itcsuits (cont.,	
TP-213	20.9	0	TP-256	20.9	0	TP-302	20.9	0
TP-214	20.9	0	TP-257	20.9	0	TP-303	20.9	0
TP-215	20.9	0	TP-258	20.9	0	TP-304	20.9	0
TP-216	20.9	0	TP-259	20.9	0	TP-305	20.9	0
TP-217	20.9	0	TP-260	20.9	0	TP-307	20.9	0
TP-218	20.9	0	TP-261	20.9	0	TP-308	20.9	0
TP-219	20.9	0	TP-262	20.9	0	TP-309	20.9	0
TP-220	20.9	0	TP-263	20.9	0	TP-310	20.9	0
TP-221	20.9	0	TP-264	20.9	0	TP-311	20.9	0
TP-222	20.9	0	TP-265	20.9	0	TP-312	20.9	0
TP-223	20.9	0	TP-266	20.9	0	TP-314	20.9	0
TP-224	20.9	0	TP-267	20.9	0	TP-315	20.9	0
TP-225	20.9	0	TP-268	20.9	0	TP-317	20.9	0
TP-226	20.9	0	TP-269	20.9	0	TP-318	20.9	0
TP-227	20.9	0	TP-270	20.9	0	TP-319	20.9	0
TP-228	20.9	0	TP-271	20.9	0	TP-320	20.9	0
TP-229	20.9	0	TP-272	20.9	0	TP-321	20.9	0
TP-230	20.9	0	TP-273	20.9	0	TP-322	20.9	0
TP-231	20.9	0	TP-274	20.9	0	TP-323	20.9	0
TP-232	20.9	0	TP-275	20.9	0	TP-324	20.9	0
TP-233	20.9	0	TP-276	20.9	0	TP-325	20.9	0
TP-234	20.6	0	TP-277	20.9	0	TP-326	20.9	0
TP-235	20.6	0	TP-278	20.9	0	TP-327	20.9	0
TP-236	20.6	0	TP-279	20.9	0	TP-329	20.9	0
TP-237	20.9	0	TP-280	20.9	0	TP-330	20.9	0
TP-238	20.9	0	TP-281	20.9	0	TP-331	20.9	0
TP-239	20.9	0	TP-282	20.9	0	TP-332	20.9	0
TP-240	20.9	0	TP-283	20.9	0	TP-333	20.9	0
TP-241	20.4	0	TP-284	20.9	0	TP-334	20.9	0
TP-242	20.3	0	TP-285	20.9	0	TP-335	20.9	0

Notes: O_2 = Oxygen; LEL = Lower Explosive limit

4.2.7 Ground Water Conditions

Static groundwater was not observed in any of the test pits. Subsurface water levels will fluctuate with changes in rainfall and runoff, construction and development activities, and other causes. Future groundwater levels across the site should be expected to vary from those noted during the recent exploration program.

4.2.8 Laboratory Test Results

The completed laboratory index tests performed on samples of the existing cap fill soils are summarized on the following Table 1 - Laboratory Test Results. The laboratory results are presented in graphic form in **Appendix B**.

Table 3 – Laboratory Test Results

D	Sample	USCS	In-Place		tterberg Limits	g	- #200 Sin	Modified Proctor (1)		
Boring	Depth (ft)	Class.	Moisture (%)	LL	PL	PI	Sieve (%)	MDD (pcf)	OMC (%)	
TP-208	0.0 - 2.0	SM	27.6	36	26	10	48	118.7	13.3	
TP-215	0.0 - 2.0	ML	29.8	36	25	11	62	115.0	14.4	
TP-228	0.0 - 2.0	ML	26.3	40	27	13	71	112.9	15.5	
TP-231	0.0 - 2.0	ML	28.9	34	24	10	62	118.2	13.6	
TP-241	0.0 - 2.0	ML	29.7	38	31	7	52	121.7	9.0	
TP-253	0.0 - 2.0	SM	24.1	35	29	6	41	119.4	12.4	
TP-258	0.0 - 2.0	ML	26.0	37	26	11	60	115.8	13.8	
TP-259	0.0 - 2.0	ML	31.0	49	37	12	54	108.4	17.8	
TP-263	0.0 - 2.0	SM	31.0	36	30	6	41	117.6	10.5	
TP-273	0.0 - 2.0	SM	24.3	30	24	6	49	121.7	12.0	

Notes: (1) Modified Proctor performed in accordance with AASHTO T-180; MDD = Maximum Dry Density, OMC = Optimum Moisture Content

5.0 EVALUATION AND RECOMMENDATIONS

5.1 Topsoil Reuse

Generally, topsoil was encountered sporadically, with most plant covering growing directly in the existing fill soils with no distinct topsoil stratum. As such, the existing topsoil is not expected to be suitable for reuse as topsoil, since it is likely not cost effective to collect. However, it could be mixed with the existing cap fill soils for reuse with them.

5.2 Cap Fill Soil Reuse

The site soils are suitable for reuse as controlled compacted fills. It should be noted that the fill materials may contain minor amounts of trash debris however these are not expected to affect the reusability of the soils. Fill placed at any location requiring stable support or minimal settlement shall be constructed as controlled compacted fill. Compacted fill should be placed in relatively horizontal 8-inch loose lifts. Each lift should be uniformly and evenly bladed and mixed during spreading to ensure uniformity of the material in each layer. Each layer should be compacted to a minimum of 95 percent of the Modified Proctor maximum dry density as determined by AASHTO T-180. The moisture content of the materials shall be maintained such that the required degree of compaction can be obtained.

If fills are to be placed on slopes, the original ground should be deeply scarified, or where slopes are steeper than 5 horizontal to 1 vertical, the slope should be stepped or benched, when considered necessary by the Geotechnical Engineer, in order that the placement of fill may be accomplished in horizontal lifts.

5.3 Compaction Moisture Contents

It was noted that the measured natural moisture contents were both higher than the optimum moisture values for most efficient compaction. As a result, drying of excessively wet soils by special manipulation (aerating, discing, etc.) will be required in order to achieve the specified degree of compaction. However it should also be noted that the investigation took place during a period of particularly active precipitation, and the moisture contents obtained may not be indicative of more typical site conditions.

Wet weather could exacerbate the potential compaction difficulties. Cement or lime modification, or mixing with drier or more granular soils, or other methods, could also be used to improve wet or unstable soils at the time of compaction. If earthwork operations are performed during the winter months, the contractor must not work with frozen soils.

5.4 Weather Conditions

Weather (rainfall and freezing) has a huge influence on site earthwork, foundations, and concrete placement. Average monthly weather data reported by the nearest National Oceanic and Atmospheric Administration (NOAA) station, located within Baltimore, provide an insight to the local temperature and precipitation conditions.

Table 4 – Baltimore City NOAA station

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Precipitation ¹ (in.)	2.84	2.32	3.56	2.99	3.89	3.43	3.85	3.74	3.98	3.16	3.02	3.03	39.81
Below Freezing Days	25	21	14	3	*	0	0	0	0	2	11	21	97

Source: National Oceanic and Atmospheric Administration, minimum 30-year reporting period

According to NOAA, the typical monthly precipitation for the reporting station averages from 2.32 inches in February to 3.98 inches in September. The number of days experiencing freezing temperatures varied from 2 days in October to 25 days in January.

¹Adjusted precipitation to reflect rainfall only (excludes frozen precipitation-pellets, sleet and hail).

^{*}Not reported

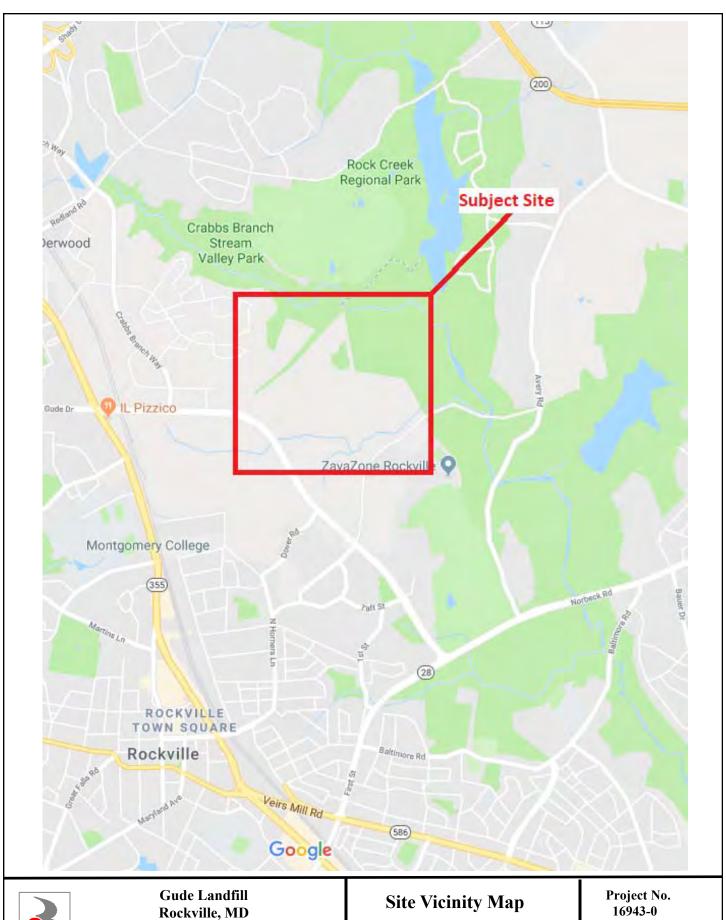
6.0 GEOTECHNICAL OBSERVATION AND TESTING

As variations in soil conditions can be expected to some degree on any project, it is strongly recommended that The Robert B. Balter Company, as project geotechnical engineer, provide full time, on-site observation and testing of all soil related aspects of construction. This is to assure compliance with design concepts and recommendations, and to verify that the subsurface conditions are consistent with those anticipated prior to construction.

7.0 GENERAL COMMENTS

The evaluations and recommendations contained in this report were based upon the finite data obtained from the borings which are presented within this report. Although we have described typical variations which may affect the project, there is the possibility that significant unanticipated conditions may be present outside the specific boring locations. The nature and extent of differing subsurface conditions, as well as their impact on the proposed construction, will most likely not be evident until the time of construction. If significant differences are discovered in the field during construction, it may be necessary for us to re-evaluate and revise the contents of this report.

Also, this report specifically excludes exploration, sampling, testing, evaluation and recommendations relating to the presence of hazardous materials or other environmental concerns which could affect future development of the site. The Robert B. Balter Company performs such services and would be pleased to provide a proposal to address your needs.

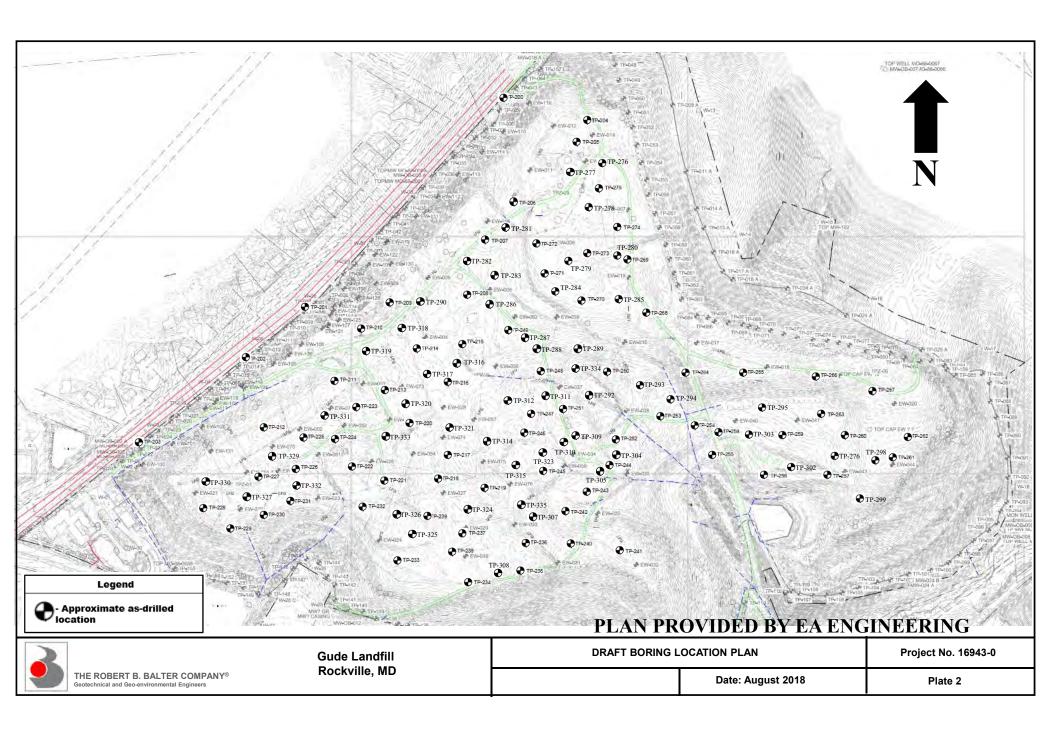




THE ROBERT B. BALTER COMPANY® Geotechnical and Geo-environmental Engineers

Site Vicinity Map	Project 16943

Scale: None **Date: Sept. 2018** PLATE 1



APPENDIX A TEST PIT LOGS

THE ROBERT B. BALTER COMPANY IDENTIFICATION OF SOIL SAMPLES

Soils are described in the boring logs according to the following criteria with the principal constituents written in capital letters. Other constituents are preceded by descriptive terminology that is used to denote the percentage of weight of each component. Soil descriptions are determined visually except where laboratory classification test data are available. Classifications are based on The Robert B. Balter Company's interpretation of ASTM D 2487-00.

		0.4 50/ F'	Well Graded		GW	GRAVEL
		0 to 5% Fines	Poorly Graded		GP	GRAVEL
			C:14 E:	Well Graded	GW-GM	GRAVEL with Silt
	EL	6 to 12% Fines	Silty Fines	Poorly Graded	GP-GM	GRAVEL with Silt
. 1 9	GRAVEL	0 to 12% rines	Clayer Fines	Well Graded	GW-GC	GRAVEL with Clay
COARSE GRAINED SOIL > 50% Retained on No. 200 Sieve	GR.		Clayey Fines	Poorly Graded	GP-GC	GRAVEL with Clay
D S	_		Silty Fines		GM	Silty GRAVEL
Z E. 3		13 to 50% Fines	Silty Clay Fines	3	GC-GM	Silty, Clayey GRAVEL
AI I on ∆			Clayey Fines		GC	Clayey GRAVEL
GR ned o		0 to 5% Fines	Well Graded		SW	SAND
SE etair		0 to 5% Times	Poorly Graded		SP	SAND
4 R , 6 Re			Silty Fines	Well Graded	SW-SM	SAND with Silt
3 0 /	Ω	6 to 12% Fines	Poorly Graded Clayey Fines Well Graded		SP-SM	SAND with Silt
) ^	SAND	6 to 12% Fines			SW-SC	SAND with Clay
	SQ.		Clayey Pines	Poorly Graded	SP-SC	SAND with Clay
			Silty Fines		SM	Silty SAND
		13 to 50% Fines	Silty, Clayey Fi	nes	SC-SM	Silty, Clayey SAND
			Clayey Fines		SC	Clayey SAND
, e		Low Plastic Fines, PI<4	Plots below "A"	' line	ML	SILT
OII Siev	SILT & CLAY (ILL<50)	Low Plastic Fines, 4≤PI≤7	Plots on or above	e "A" line	CL-ML	Silty CLAY
003 000	LT LA L<	Plastic Fines, PI>7	Plots on or above	ve "A" line	CL	Lean CLAY
VEI Io. 2		Significant Organics, PI<4	Plots below "A	' line	OL	Organic SILT
AIN ng N		Significant Organics, PI≥4	Plots on or above	e "A" line	OL	Organic CLAY
FINE GRAINED SOIL	- 	Elastic Fines	Plots below "A"	' line	MH	Elastic SILT
IE (SILT & CLAY (LL≥50)	Plastic Fines	Plots on or above	e "A" line	СН	Fat CLAY
FIN. 50%	道口出	Significant Organics	Plots below "A	' line	ОН	Organic SILT
, , ,		Significant Organics	Plots on or above	e "A" line	ОН	Organic CLAY
HIG ORGAN	HLY IC SOIL	Dark, highly organic, decomp	posed vegetative t	ssue	PT	PEAT

ADDITIONAL TERMINOLOGY:

Descriptive Components

Descriptive Terms	Proportions
Trace	1 - 5%
Little (Sand, Gravel)	6 - 14%
With (Sand, Gravel)	15 – 30%
With (Silt, Clay)	6 – 12%
Adjective Form (Sandy, Gravelly)	31 - 50%
Adjective Form (Silty, Clayey)	13 - 50%

Density or Consistency

SAND :	and GRAVEL	SILT a	nd CLAY
N-Value	Density	N-Value	Consistency
0-4	Very Loose	0-1	Very Soft
5-10	Loose	2-4	Soft
11-30	Medium Dense	5-8	Medium Stiff
31-50	Dense	9-15	Stiff
> 50	Very Dense	16-30	Very Stiff
		> 30	Hard

Fill materials are placed by man, and may be identified by unnatural artifacts, unnatural mixed grain sizes or layering, or trustworthy documentation of fill placement.

Possible Fill materials are difficult to distinguish from natural soils, exhibiting minor distinctions.

Decomposed Rock consists of residual soil with SPT N-values between 50 blows per foot and blows per 4 inches (50/4"). **Highly Weathered Rock** consists of residual soil with SPT N-values between 50/3" and 50/1".

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-200 PAGE 1 OF 1

	ww	w.balterco.com															
CLIEN	T EAE	ngineering, Inc.						PROJECT NAME Gude Landfill									
PROJ	ECT LOC	ATION Montgomery	Count					PROJECT I	NUMBER	16943-0 M	D						
DATE	STARTE	D 7/16/18	COI	MPLET	ED _	7/16/18		GROUND E	LEVATION	٧	TE	ST PIT SIZE	≣				
EXCA	VATION (CONTRACTOR The F	Robert	В. Ва	Iter C	company				WA	TER LEVE	LS	WATER	WATER			
EXCA	VATION I	METHOD						DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)			
LOGG	ED BY _	J. Bailey	CHE	ECKED	BY	K. Crist		7/16/18		0 ∑			NE				
NOTE	s																
O DEPTH O (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG		Make	Lista	O'lle CAN		RIAL DESC	CRIPTION						
 			SM	F	1.5			wn, Silty SAN									
2.5		Trash Not Encountered	CL		8.0	Moist,	Reddish	Brown, Sand		n of test pit	at 8.0 feet						

TEST PIT TP-201 PAGE 1 OF 1

CLIENT EA E	Engineering, Inc.					PROJECT NAME Gude Landfill									
PROJECT LO	CATION Montgomer	y Coun	ty, Ma	ryland		_ PROJECT	NUMBE	R 16943	3-0 M	ID					
DATE STARTE	ED 7/16/18	_ co	MPLE	TED _	7/16/18	_ GROUND E	LEVAT	TON		TE	ST PIT SIZ	E			
EXCAVATION	CONTRACTOR The	Rober	t B. Ba	alter Co	ompany			_ ELAP	WA	TER LEVE	LS HOLE	WATER	WATER		
EXCAVATION	METHOD					DATE	TIME	HOL	JRS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft		
LOGGED BY	J. Bailey	_ СН	ECKE	D BY	K. Crist	7/16/18		C) <u>Ā</u>			NE			
NOTES						_									
O DEPTH O (ft) SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG				MA	ATERIAL I	DESC	CRIPTION					
		CL	F	0.3	Topsoil Moist, Reddis	sh Brown, Sand	y CLAY	/ (Fill)							
2.5	Trash Not Encountered	CL		8.0	Moist, Reddis	sh Brown, Sand			st pit	t at 8.0 feet					

TEST PIT TP-202 PAGE 1 OF 1

	Engineering, Inc.														
PROJECT LO	CATION Montgomer	y Coun	ty, Mar	yland			PROJECT	NUMBER	16943-0 M	D					
DATE START	ED 7/16/18	_ co	MPLET	ΓED _7/1	16/18		GROUND ELEVATION TEST PIT SIZE WATER LEVELS								
EXCAVATION	I CONTRACTOR The	Rober	t B. Ba	Iter Com	npany			LS HOLE	WATER	WATER					
EXCAVATION	METHOD						DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (fi		
LOGGED BY	J. Bailey	_ CH	ECKED	BY <u>K</u>	. Crist		7/16/18		0 ∑			NE			
NOTES															
O DEPTH O (ft) SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG					MATI	ERIAL DESC	CRIPTION					
		CL	F	1.8		ight Bro	wn, Sandy C								
2.5		CL					vn, Sandy Cl								
7.5	Trash Not Encountered			8.0				Botto	om of test pit	at 8.0 feet					

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-203
PAGE 1 OF 1

	www.balterco.com	0-1000										
CLIENT EA	Engineering, Inc.					PROJECT I	NAME G	ıde Landfill				
PROJECT L	OCATION Montgomer	y Coun	ty, Mar	yland		PROJECT I	NUMBER	16943-0 M	D			
DATE STAR	TED <u>7/16/18</u>	_ co	MPLET	ΓED _7/	16/18	GROUND E	LEVATION				■	
	N CONTRACTOR The			Iter Cor	npany	DATE	TIME	WA' ELAPSED HOURS	TER LEVEI CASING	LS HOLE DEPTH (ft)	WATER	WATER
	N METHOD					7/16/18	IIIVIL	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	/ J. Bailey		ECKE) BY <u>K</u>	Crist	_ '''''		0 -			112	
NOTES												
O DEPTH O (ft) SAMPLE TYPE NI IMBER	REMARKS	U.S.C.S.	GRAPHIC LOG				MATE	RIAL DESC	CRIPTION			
0.0			F	0.1	Topsoil							
 		CL	F	2.0		ish Brown, Sand		ill)				
2.5	Trash Not Encountered	CL		8.0	Moist, Reddi	ish Brown, Sand		n of test pit	at 8.0 feet			



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TEST PIT TP-204

CLIENT EA Engineering, Inc.	www.bailerco.com							
DATE STARTED	CLIENT EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
DATE STARTED 7/17/18 COMPLETED 7/17/18 GROUND ELEVATION TEST PIT SIZE	PROJECT LOCATION Montgomery County, Maryland	PROJECT	NUMBER	16943-0 M	D			
EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.11148 Long: -77.13783 MATERIAL DESCRIPTION DEPTH (th) DEPTH	DATE STARTED _7/17/18 COMPLETED _7/17/18					ST PIT SIZ	E	
DATE TIME ELAPSE CASING DEPTH (ft) DEPTH (ft)		_		WA	TER LEVEL	_S		
NOTES Lat: 39.11148 Long: -77.13783 NE NE NOTES Lat: 39.11148 Long: -77.13783 NE NE NOTES Lat: 39.11148 Long: -77.13783 NE NE NE NOTES Lat: 39.11148 Long: -77.13783 NE NE NOTES Lat: 39.11148 Long: -77.13783 NE NE NE NE NE NE NE N		DATE	TIME	HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
NOTES Lat: 39.11148 Long: -77.13783		7/17/18		0 ∑				
HADO O.O SM SM F F A.S Trash 4.5		-						
Moist, Light Brown, Silty SAND SM F		-						
Moist, Light Brown, Silty SAND SM F SM F F T T T T T T T T T T T	SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATER	RIAL DES	CRIPTION				
	SM F F A4.0 Trash	Bottom	ı of test pi	t at 4.0 feet				



TEST PIT TP-205

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CLIENT EAE	nginee	ering, I	nc.				F	PROJECT N	NAME Gu	ude Landfill				
PROJECT LOC	OITA	M _Mo	ntgomer	y County, N	//aryland		F	PROJECT N	NUMBER	16943-0 M	D			
DATE STARTE	D _7/1	7/18		COMPL	_ETED _	7/17/18		GROUND E	LEVATION	N	TE	ST PIT SIZI	=	
EXCAVATION	CONTI	RACT	OR The	Robert B.	Balter Co	ompany				WA	TER LEVE	S	WATER	WATER
EXCAVATION	METH	OD _						DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGGED BY	J. Bail	ey		_ CHECK	KED BY _	K. Crist		7/17/18		0 ∑			NE	
NOTES Lat: 3	9.111 <i>′</i>	18 Lor	ng: -77.13	3796										
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC		Maint Link	4 Drawn	Cille CAND	,	MATEF	RIAL DESC	CRIPTION				
2.5	SM	F F F F F F F F F F F F F F F F F F F	5.0	Trash	t Brown,	Silty SAND								
		\bowtie	5.5											
								Bottom	of test pit	t at 5.5 feet				



TEST PIT TP-206 PAGE 1 OF 1

- 1	NT EAE											ude Landfill				
	JECT LOC											16943-0 M				
	STARTE								(GROUND E	LEVATIO	N			E	
	AVATION								[DATE	TIME	ELAPSED	TER LEVEL CASING	LS HOLE DEPTH (ft)	WATER	WATER
	AVATION								}	7/17/18	IIIVIE	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	GED BY _					CKED	BY <u>K.</u>	Crist		//1//10		0 4			INE	
NOTE	ES <u>Lat: 3</u>	9.110	53 Lon	g: - 77.	13894											
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Bro	own, Silt	ty SAND		MATER	RIAL DES	CRIPTION				
	_	SM	F	2.0												
2.5	_			3.0	Trash					5 "		t at 3.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																



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TEST PIT TP-207

	E1CO.C	0111											
nginee	ering, I	nc.					PROJECT I	NAME G	ude Landfill				
ATION	Mo_Mo	ntgomery	/ County	, Marylan	d		PROJECT I	NUMBER	16943-0 M	D			
D _7/1	7/18		СОМ	PLETED	7/17/18						ST PIT SIZE	=	
CONTI	RACTO	DR The	Robert I	B. Balter (Company				WA [*]	TER LEVEL	.S		
							DATE	TIME	HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
							7/17/18		0 ∑			NE	
U.S.C.S.	GRAPHIC LOG						MATER	RIAL DES	CRIPTION				
SM	XXX	2.0		ght Brown	n, Silty SA	ND							
	XXX	2.5					Rottom	of tost ni	t at 2.5 fact				
	METHO 9.1100 SONO SON	METHOD J. Bailey 9.11008 Lon SM F SM F F	ngineering, Inc. EATION Montgoment D 7/17/18 CONTRACTOR The METHOD J. Bailey 9.11008 Long: -77.13	ngineering, Inc. EATION Montgomery County D 7/17/18 COM CONTRACTOR The Robert I METHOD J. Bailey CHEC 9.11008 Long: -77.13921 SOUNG OF THE POOR TO THE POOR	MOIST MOIST MAIN MAIN MAIN MAIN MAIN MAIN MAIN MAIN	Montgomery County, Maryland D 7/17/18	ATION Montgomery County, Maryland D 7/17/18 COMPLETED 7/17/18 CONTRACTOR The Robert B. Balter Company METHOD J. Bailey CHECKED BY K. Crist 9.11008 Long: -77.13921 SOUND STONE OF THE PROPERTY OF THE PR	PROJECT NO	PROJECT NAME GIPROJECT NAME GIPROJECT NAME GIPROJECT NUMBER D	PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MI GROUND ELEVATION WA DATE TIME ELAPSED HOURS 7/17/18 0 ¥ 9.11008 Long: -77.13921 MATERIAL DESCRIPTION MATERIAL DESCRIPTION SM F F	PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD D 7/17/18 COMPLETED 7/17/18 CONTRACTOR The Robert B. Balter Company METHOD J. Bailey CHECKED BY K. Crist 9.11008 Long: -77.13921 MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION	PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD TEST PIT SIZE CONTRACTOR The Robert B. Balter Company METHOD J. Bailey CHECKED BY K. Crist 9.11008 Long: -77.13921 PROJECT NUMBER 16943-0 MD TEST PIT SIZE WATER LEVELS DATE TIME ELAPSED CASING HOURS DEPTH (ft) 7/17/18 0 ♀ MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION	PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MID PROJECT NUMBER 16943-0 MID PROJECT NUMBER 16943-0 MID PROJECT NUMBER 16943-0 MID GROUND ELEVATION TEST PIT SIZE CONTRACTOR The Robert B. Balter Company METHOD DATE TIME ELAPSED CASING HOLE DEPTH (ft) DEPTH (ft) DEPTH (ft) DEPTH (ft) DEPTH (ft) NE 9.11008 Long: -77.13921 MATERIAL DESCRIPTION MATERIAL DESCRIPTION Trash 2.5

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Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

TEST PIT TP-208

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CLIENT EA E	Engineering, Inc.					_ PROJECT N	NAME Gu	ide Landfill				
PROJECT LO	CATION Montgomery	/ Coun	ty, Mar	yland		_ PROJECT N	NUMBER _	16943-0 M	D			
DATE START	ED <u>7/17/18</u>	_ co	MPLE1	ED _	7/17/18	_ GROUND E	LEVATION			ST PIT SIZE	=	
EXCAVATION	CONTRACTOR The	Rober	t B. Ba	Iter Co	ompany			WA ELAPSED	TER LEVEL	_S HOLE	WATER	WATER
EXCAVATION	METHOD					DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bailey	_ CH	ECKE	BY _	K. Crist	_		0 ∑			NE	
NOTES Lat:	39.10939 Long: -77.13	972				_						
O DEPTH O (ft) SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG					RIAL DESC	CRIPTION			
2.5		SM	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	5.0	Moist, Light B	Brown, Silty SAN	ND					
					Trash							
			XXX	6.0			Bottor	n of test pit	at 6.0 feet			



TEST PIT TP-209 PAGE 1 OF 1

CLIENT	LIENT EA Engineering, Inc. ROJECT LOCATION Montgomery County, Maryland										Р	ROJECT	NAME G	ude Landfill				
														16943-0 M				
	STARTE								18/18					N		ST PIT SIZ	E	
EXCAV	ATION (CONT	RACTO	OR TI	ne Rob	oert B.	Balte	er Con	npany	/			T	WA	TER LEVE	LS	WATER	WATER
EXCAV	ATION I	METH	OD _									DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGE	ED BY _	J. Bail	еу		(CHECK	KED B	3Y <u>K</u>	. Cris	t		7/18/18		0 ∑			NE	
NOTES	Lat: 39	9.1092	26 Lon	g: -77.	14083	,												
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC		Moio	st Liab	at Prov	un Si	ilty S/	AND		MATE	RIAL DES	SCRIPTION				
		SM		0.9	Tras	st, Ligh	it Brov	wn, Si	iity SA	AND								
F -	_			1.5								Botton	n of test p	it at 1.5 feet				



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TEST PIT TP-210 PAGE 1 OF 1

CLIENT EA	Engine	ering,	Inc.					PROJECT I	NAME Gu	ıde Landfill				
PROJECT LO	CATIO	N _Mc						PROJECT I	NUMBER	16943-0 M	D			
DATE START	ED _7/	18/18		COME	PLETED	7/18/18	3	GROUND E	LEVATION	١	TE	ST PIT SIZI	≣	
EXCAVATION	CONT	RACT	OR The	e Robert B	B. Balter (Compan	у			WA [*] ELAPSED	TER LEVEL	S HOLE	WATER	WATER
EXCAVATION	METH	OD _						DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bai	ley		CHEC	KED BY	K. Cris	st	7/18/18		0 ⊼			NE	
NOTES Lat:	39.108	96 Lor	ng: -77.1	4148										
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATER	RIAL DESC	CRIPTION				
2.5	SM	F	2.5	Moist, Lig	ht Brown	n, Silty S	AND							
								Botton	n of test pit	at 4.0 feet				



TEST PIT TP-211 PAGE 1 OF 1

,	T EA Er	nginee	ering, I	nc.							_ PROJ	ECT N	IAME G	ude Landfill				
PROJE	ECT LOC	ATIO	N <u>Mo</u>	ntgom								ECT N	IUMBER .	16943-0 M	D			
DATE S	STARTE	D 7/	18/18			COMF	PLETE	D 7/1	18/18		GROU	JND E	LEVATIO	N			•	
EXCAV	ATION (CONT	RACTO	OR T	he Ro	bert B	. Balte	er Com	npany		- ₋		TIME	WA ELAPSED	TER LEVEI CASING	HOLE	WATER	WATER
1	/ATION I										- 7/18	TE	TIME	ELAPSED HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	ED BY _						KED E	3Y <u>K</u> .	. Crist		- ''''	0/10		0 =			INE	
NOTES	Lat: 39	9.1084	41 Lon	g: -77	.14166	6					_							
0.0 DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								Μ	MATER	RIAL DESC	CRIPTION				
		SM	F	1.7	Mois Tras		ht Brov	wn, Sil	ity SA	ND								
GENERAL BH / IP / WELL 10943-U GUDE LANDFILL.GFJ KOBERI B BALIER.GDI 99/18												Sottom	of test pil	t at 2.3 feet				



TEST PIT TP-212 PAGE 1 OF 1

	WW															
	NT EAE									PROJECT I						
	ECT LOC									PROJECT I						
	STARTE									GROUND E	LEVATION			ST PIT SIZI	≣	
EXCA	VATION	CONT	RACTO	OR Th	ne Robe	rt B. Bal	ter Com	npany		DATE		WA ELAPSED	TER LEVEL CASING	_S HOLE	WATER	WATER
_ I	VATION									DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bail	еу		CH	ECKED	BY K	. Crist		7/19/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.107	88 Lon	g: - 77.	14278											
0.0 0.0	SAMPLE TYPE SAMPLE TYPE NUMBER		GRAPHIC LOG	<u>1.7</u>		Light Br	own, Si	Ity SANE)			CRIPTION t at 2.5 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ. ROBERT B BALTER.GDT 9/6/18																



TEST PIT TP-213

	IT EAE											ude Landfill				
	ECT LOC											16943-0 M				
DATE	STARTE	D <u>7/</u>	18/18		cor	MPLETE	D _7/18	3/18	G	ROUND E	LEVATIO	N			≣	
EXCA	VATION	CONT	RACT	OR The	e Robert	B. Balte	er Comp	any	— г	T		WA' ELAPSED	TER LEVEL	_S HOLE	WATER	WATER
EXCA	VATION I	METH	OD _							DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bail	ey		CHE	ECKED E	3Y <u>K</u> . (Crist		7/18/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.108	26 Lor	ng: - 77.1	409											
0.0 (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Bro	wn, Silt <u>y</u>	y SAND		MATER	RIAL DES	CRIPTION				
		SM	FF	2.3	Trash											
			XXXX	3.2						Bottom	of test pi	t at 3.2 feet				



TEST PIT TP-214 PAGE 1 OF 1

CLIENT EA Engineering, Inc.	PROJECT	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland		NUMBER	16943-0 M	D			
DATE STARTED _7/19/18 COMPLETED _7/19/18	GROUND E	LEVATIO	N	TE	ST PIT SIZ	E	
EXCAVATION CONTRACTOR The Robert B. Balter Company	DATE	TIME	WA ELAPSED	TER LEVEL	HOLE	WATER	WATER
EXCAVATION METHOD	7/19/18	TIME	ELAPSED HOURS 0 ♀	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K. Crist			0 -			INE	
NOTES Lat: 39.10877 Long: -77.14042							
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATEI	RIAL DES	CRIPTION				
Moist, Light Brown, Silty SAND							
SM							
3.5	D.#		0 5 5				
	Botton	n of test pr	t at 3.5 feet				
9/5/18							
AN							
BB/T							
8년							
NDET CONTROL OF THE C							
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT							
NAME NAME NAME NAME NAME NAME NAME NAME							
<u> </u>							
NERA BA							
뭥							

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-215 PAGE 1 OF 1

W	ww.balterco.com											
CLIENT EA	Engineering, Inc.					_ PROJECT N	NAME Gu	ıde Landfill				
PROJECT LO	CATION Montgomery	/ Coun	ty, Mar	yland		_ PROJECT N	NUMBER _	16943-0 M	D			
DATE START	ED 7/19/18	_ co	MPLET	ED _	7/19/18	_ GROUND E	LEVATION	N	TE	ST PIT SIZE	■	
EXCAVATION	I CONTRACTOR The	Rober	t B. Ba	Iter C	ompany			WA ELAPSED	TER LEVEL	_S	WATER	WATER
EXCAVATION	METHOD					DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bailey	_ CHI	ECKE	BY	K. Crist	7/19/18 		0 ∑			NE	
NOTES Lat:	39.10899 Long: -77.13	3973				_						
O DEPTH (ft) (ft) SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG		Ministra			RIAL DESC	CRIPTION		·	
2.5		ML	F F F F	6.5	Moist, Light E	Brown, Sandy Sl		m of test pit	at 6.5 feet			



TEST PIT TP-216 PAGE 1 OF 1

	 										_	DO IECT	NIANT C	النامام المساطنا				
	T EAE													ude Landfill				
	ECT LOC STARTE				-					<u> </u>				16943-0 M		CT DIT CIT	E	
												INCOIND E	LEVATIO	N WA	TER LEVE		<u> </u>	
	VATION (DATE	TIME	ELAPSED HOURS	CASING	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
1	VATION I ED BY _										—	7/19/18		0 ∑	DEPTH (II)	DEPTH (II)	NE NE	ELEV (II)
							CKED	Bĭ r	V. Cris	il	_							
NOTES	S <u>Lat: 3</u>	9.108	5 I LOI	1g: -7	7.139	96												
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG									MATE	RIAL DES	CRIPTION				
0.0	SA	SM	F	2.3		ash	ght Bro	own, S	Silty SA	AND		Botton	n of test pi	t at 3.5 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																		



TEST PIT TP-217 PAGE 1 OF 1

CLIENT _									PROJECT I						
PROJECT									PROJECT I					_	
DATE ST									GROUND E	LEVATION			ST PIT SIZI	፟፟፟፟፟፟፟፟፟፟፟	
EXCAVAT									DATE	TIME	ELAPSED HOURS	TER LEVEL CASING	LS HOLE DEPTH (ft)	WATER	WATER
EXCAVAT										IIIVIE		DEPTH (ft)	DEPTH (ft)		ELEV (ft)
LOGGED	BY <u>J. l</u>	Bailey		(CHECKE	D BY _k	K. Crist		7/19/18		0 ∑			NE	
NOTES _	Lat: 39.1	10756 I	_ong: -7	7.13993	3										
NOTES _	Lat: 39.1	US.C.S. O.S.C.S. GRAPHIC	_ong: -7	7.13993	B		Silty SAN	D			t at 4.7 feet				
GENERAL BH / TP / WELL 169															

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-218 PAGE 1 OF 1

www.baiterco.com							
CLIENT EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	PROJECT N	NUMBER	16943-0 M	D			
DATE STARTED 7/19/18 COMPLETED 7/19/18	GROUND E				ST PIT SIZI	E	
EXCAVATION CONTRACTOR _The Robert B. Balter Company			WA ⁻	TER LEVEL	_S		
EXCAVATION METHOD	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY _J. Bailey CHECKED BY _K. Crist	7/19/18		0 ∑			NE	
NOTES Lat: 39.10719 Long: -77.14022							
SAMPLE TYPE NUMBER NUMBER CRAPHIC LOG	MATEF	RIAL DES	CRIPTION				
SM F F SM F F F F F F F F F F F F F F F							
5.0							
	Bottom	of test pi	t at 5.0 feet				



TEST PIT TP-219

								_							
CLIENT EA Er											ude Landfill				
PROJECT LOC											16943-0 M				
DATE STARTE								(GROUND E	LEVATIO	N			E	
EXCAVATION C							oany	— г	DATE	TIME	WA' ELAPSED	TER LEVEL CASING	LS HOLE	WATER	WATER
EXCAVATION N								 	DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY _	J. Baile	еу		CHE	CKED E	3Y <u>K</u> . (Crist		7/19/18		0 ∑			NE	
NOTES Lat: 39	9.1072	1 Lor	ng: - 77.1	394											
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Bro	wn, Silty	y SAND		MATER	RIAL DES	CRIPTION				
2.5	SM		4.3	Trash	ight bio	wii, Siity	y SAND		Bottom	ı of test pi	it at 5.0 feet				



TEST PIT TP-220 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering,	Inc.							F	PROJECT	NAME G	ude Landfill				
PROJ	ECT LOC	ATIO	N <u>M</u> c	ntgom								PROJECT	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/	18/18			COMF	PLETE	ED _7	7/18/18	3	(GROUND E	LEVATIO	N	TE	ST PIT SIZ	E	
EXCA	VATION	CONT	RACT	OR _T	he Ro	bert B	B. Balt	er Co	mpan	У	— г	DATE	TIME	WA ELAPSED	TER LEVEI CASING	LS HOLE	WATER	WATER
- 1	VATION										—	DATE 7/18/18	TIME	ELAPSED HOURS 0 ♀	DEPTH (ft)	HOLE DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
1	SED BY _						KED	BY _	K. Cris	st		7/10/10		0 ±			INE	
NOTE	S <u>Lat: 3</u>	9.107	89 Lor	ng: -77	.1405	5												
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG									MATE	RIAL DES	CRIPTION				
	-	SM	F		Moi	st, Lig	ht Bro	own, S	Silty S	AND								
			F	3.0	Tra	sh												
												Botton	n of test pi	t at 3.3 feet				
TER.GDT 9/5/18																		
DFILL.GPJ ROBERT B BAL																		
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																		
GENERAL																		



TEST PIT TP-221 PAGE 1 OF 1

	IT EAE													ude Landfill				
	ECT LOC			_		-	-							16943-0 M				
	STARTE										_ GRO	UND E	LEVATIO	N		ST PIT SIZI	Ē	
EXCA	VATION	CONT	RACTO	OR T	he Rol	oert B.	Balte	r Com	npany					WA	TER LEVEI CASING	_S HOLE	WATER	WATER
EXCA	VATION	METH	OD _								_	ATE O	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bai	еу		(CHEC	KED B	3Y <u>K</u> .	. Crist		_ '/18	8/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.107	26 Lon	ıg: -77.	14095	5					_							
O DEPTH	SAMPLE TYPE NUMBER		GRAPHIC LOG	1.3		st, Ligh	nt Brov	wn, Sil	lty SA	ND		MATER	IIAL DESC	CRIPTION				
				1.7														
											E	Bottom	of test pit	t at 1.7 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																		



TEST PIT TP-222

	NT EAE												IAME G						
	ECT LOC												IUMBER						
	STARTE										 GRO	UND E	LEVATIO					E	
l l	VATION									-	 	ATE	TIME	ELAPS	ED	TER LEVEL CASING	HOLE	WATER	WATER
1	VATION										 -		IIIVIE	HOUF	RS_	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGG	SED BY _	J. Bail	еу			CHE	CKED	BY _	K. Cri	ist	 //1	8/18		0	<u>V</u>			NE	
NOTE	S <u>Lat: 3</u>	9.107	36 Lon	ıg: - 77	.1412	29													
l l		9.107	GRAPHIC OF TOO	ng: -77	.1412	ist, Liç	ght Bro						of test pi						
ERT B																			
PJ ROB																			
DFILL.G																			
JDE LAN																			
343-0 GL																			
ELL 168																			
TP / WE																			
AL BH /																			
GENER.																			



TEST PIT TP-223 PAGE 1 OF 1

CLIEN																		
	NT EAE													ude Landfill				
	ECT LOC					-	-							16943-0 M				
DATE	STARTE	D _7/	18/18			COMP	LETE	D _7/	18/18		GRO	DUND E	LEVATIO	N			≣	
	VATION									<u> </u>		NATE	T184=	ELAPSED	TER LEVE	LS HOLE	WATER	WATER
1	VATION											ATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bai	ley			CHEC	KED E	3Y <u>K</u>	. Crist	t	_ '''	18/18		0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.107	99 Lor	ng: -77	.14142	2					_							
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Mois	st, Ligh	nt Brov	wn, Si	ilty SA	AND		MATER	RIAL DES	CRIPTION				
	-	SM	F	0.9	Tras			wii, 61										
-	-			2.0								Bottom	of test pi	it at 2.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT <i>9/5/</i> 18																		



TEST PIT TP-224 PAGE 1 OF 1

	WW																
	NT EAE												ude Landfill				
H	ECT LOC				_	-	-						16943-0 M				
DATE	STARTE	D _7/	18/18		c	OMPLE	TED _	7/18/1	18	GF	ROUND E	LEVATIO	N		ST PIT SIZI	E	
EXCA	VATION	CONT	RACTO	or <u>T</u>	ne Robe	ert B. Ba	alter C	ompai	ny		DATE	TIP	ELAPSED	TER LEVEI CASING	LS HOLE	WATER	WATER
EXCA	VATION	METH	OD _								DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bail	еу		CI	HECKE	D BY	K. Cr	rist	′	7/18/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.107	62 Lon	ıg: - 77.	14197												
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 C DEPTH (ft) (ft)	SAMPLE TYPE SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	2.3		Light B	Brown,	Silty S	SAND				t at 2.7 feet				
GENERAL BH / TP / WELL 1																	



TEST PIT TP-225 PAGE 1 OF 1

CLIENT													ude Landfill				
					ery Cour								16943-0 M				
DATE S						OMPLE1				G	ROUND E	LEVATIO	N		ST PIT SIZ	≣	
EXCAVA	ATION (CONT	RACT	OR _T	he Robe	rt B. Ba	Iter Co	ompar	ny				WA' ELAPSED	TER LEVE	LS HOLE	WATER	WATER
EXCAVA	ATION I	METH	OD _							_ -	DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGGE	DBY _	J. Bail	ley		CH	HECKE	BY _	K. Cri	st		7/18/18		0 ⊼			NE	
NOTES	_Lat: 39	9.107	78 Lor	ng: - 77	.14199												
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							·	MATE	RIAL DES	CRIPTION				
		SM	F	0.3	Moist,	Light B	rown,	Silty S	SAND								
					Trash												
			XXXX	1.7							Botton	of test pi	t at 1.7 feet				
/5/18																	
)6 L																	
R.G.																	
ALTE																	
B B																	
BER																	
Z Z																	
L.GF																	
Ā L																	
99																	
943-0																	
165																	
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9																	
JP/																	
BH/																	
ERAL																	
GEN																	



TEST PIT TP-226 PAGE 1 OF 1

w																
CLIENT EA												ude Landfill				
PROJECT LO												16943-0 M				
DATE START									GRO	UND E	LEVATION	N		ST PIT SIZI	≣	
EXCAVATION								У		\	T13.4F	ELAPSED	TER LEVEL CASING	LS HOLE	WATER	WATER
EXCAVATION									_	ATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bai	ley		Cł	HECKE	DBY _	K. Cris	st	_ ′′¹	8/18		0 ∑			NE	
NOTES Lat:	39.107	32 Lon	g: - 77.	14234					_							
O DEPTH O O (ft) O O O O O O O O O O O O O O O O O O O		GRAPHIC LOG	<u>g: -77.</u>	14234	Light B				_	MATER		CRIPTION t at 2.1 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																



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TEST PIT TP-227

CLIEN	IT EA E	nginee	ering, I	nc.						PROJECT	NAME Gu	ude Landfill				
PROJ	ECT LOC	ATIO	M _Mo	ntgome	ry Coun	ity, Mar	ryland			PROJECT	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/1	18/18		_ co	MPLE	TED _	7/18/18	3	GROUND I	ELEVATION	N	TE	ST PIT SIZI	≣	
EXCA	VATION (CONT	RACTO	OR Th	e Rober	t B. Ba	alter C	ompan	у	-	Γ	WA ELAPSED	TER LEVEL	S	WATER	WATER
EXCA	VATION I	METH	OD _							DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	ED BY _	J. Bail	ey		СН	ECKE	DBY .	K. Cris	st	7/18/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.1070	09 Lor	ng: - 77.1	4275					-						
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATE	RIAL DES	CRIPTION				
		SM		2.0	Moist,	Light B	Frown,	Silty S	AND							
2.5				2.5												
										Bottor	n of test pit	t at 2.5 feet				



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TEST PIT TP-228

CLIENT EA Engineering, Inc.		PROJECT I	NAME Gu	ıde Landfill				
PROJECT LOCATION Montgome		PROJECT I	·					
DATE STARTED 7/18/18		GROUND E				ST PIT SIZI	E	
EXCAVATION CONTRACTOR Th	ne Robert B. Balter Company			WA	TER LEVEL	-S	MATER	WATER
EXCAVATION METHOD		DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGGED BY J. Bailey	CHECKED BY K. Crist	7/18/18		0 ∑			NE	
NOTES Lat: 39.1069 Long: -77.14	4385							
	GRAPHIC LOG	Brown, Sandy S	ILT	RIAL DESC				

TEST PIT TP-229

	ww	w.balt	erco.c	om										
CLIE	NT EAE	ngine	ering, l	lnc.				 PROJECT	NAME Gu	ude Landfill				
PROJ	IECT LOC	ATIO	N <u>Mo</u>	ntgom	ery County	, Maryland	d	 PROJECT	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/	18/18		CON	IPLETED	7/18/18	 GROUND E	ELEVATION	N		ST PIT SIZ	E	
EXCA	VATION	CONT	RACT	OR TI	he Robert	B. Balter 0	Company		I	WA' ELAPSED	TER LEVEI CASING	LS HOLE	WATER	WATER
EXCA	VATION	METH	OD _					DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGG	GED BY _	J. Bai	ley		CHE	CKED BY	K. Crist							
NOTE	S <u>Lat: 3</u>	9.106	57 Lor	ng: -77.	.1433									
		9.106 S.O.S.D.		ng: -77.	1433	ght Brown			n of test pit	CRIPTION t at 5.7 feet				
ENERAL BH / TP / WEI														
GENERA														



TEST PIT TP-230 PAGE 1 OF 1

	VVV								_							
	NT EAE											ude Landfill				
	JECT LO											16943-0 M			_	
	STARTE								0	ROUND E	LEVATIO	N		ST PIT SIZI	L	
	AVATION							-	— Г	DATE	TIME	ELAPSED HOURS	TER LEVEL	HOLE DEPTH (ft)	WATER	WATER
	AVATION									7/18/18		HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	GED BY					ECKED	BY <u>K.</u>	Crist		7710710					""	
NOTE	ES Lat: 3	39.106	74 Lor	ıg: -77.	14291											
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATER	RIAL DES	CRIPTION				
2.5		SM		<u>2.7</u> 4.0	Moist, I	Light Bro	own, Silt	ty SAND		Botton	ı of test pi	t at 4.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ. ROBERT B BALTER.GDT 9/5/18																



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Geotechnical and Environmental Engineers
Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

TEST PIT TP-231

	www	w.balterco.com											
CLIENT _E	A Er	ngineering, Inc.					PROJECT	NAME _	Gude Landfill				
PROJECT	LOC	ATION Montgome	ery Count	y, Mar	yland		PROJECT	NUMBER	16943-0 N	ID			
DATE STA	RTE	o _7/18/18	cor	MPLE1	ED _	7/18/18	GROUND	ELEVATIO	ON	TE	ST PIT SIZE	=	
EXCAVATI	ON C	CONTRACTOR _TI	ne Robert	B. Ba	Iter C	ompany		1	WA ELAPSED	TER LEVEL	S HOLE	WATER	WATER
EXCAVATI	ON N	METHOD					DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED E	3Y _	J. Bailey	CHE	ECKE	BY	K. Crist	7/18/18		0 ⊼			NE	
NOTES L	at: 39	9.10682 Long: -77.	14237										
O DEPTH O (ft) SAMPLE TYPE	NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG					ERIAL DES	CRIPTION		·	
2.5			ML		5.0	Moist, Light	t Brown, Silty SA		om of test pit	t at 5.5 feet			



TEST PIT TP-232 PAGE 1 OF 1

PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MID	CLIENT	— · EA Er	nginee	ering,	Inc.							PROJECT I	NAME G	ude Landfill				
EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD LOGGED BY J. Balley CHECKED BY K. Crist NOTES Lat: 39,10691 Long: -77.1414 MATERIAL DESCRIPTION MATERIAL																		
EXCAVATION METHOD LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10691 Long: -77.1414 MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION Bettle description MATERIAL DESCRIPTION MATERIAL DESCRIPTION Bottom of test pit at 3.3 feet	DATE S	TARTE	D _7/	18/18			COM	IPLET	TED _7	7/18/1	18	 GROUND E	LEVATIO	N	TE	ST PIT SIZ	E	
NOTES Lat: 39.10691 Long: -77.1414 A	EXCAVA	ATION (CONT	RACT	OR _T	he R	obert !	B. Bal	Iter Co	ompar	ny			WA	TER LEVE	LS	WATER	WATER
NOTES Lat: 39.10691 Long: -77.1414 A	1												TIME		DEPTH (ft)	DEPTH (ft)		ELEV (ft)
MATERIAL DESCRIPTION MATERIAL DESCRIPTION SM F SM F SM SM F SM A SM B SM	LOGGE	D BY	J. Bail	еу			CHE	CKED	BY _	K. Cri	rist	 7/18/18		0 ₹			NE	
SM F Moist, Light Brown, Silty SAND 2.5 Trash Bottom of test pit at 3.3 feet	NOTES	Lat: 39	9.1069	91 Lo	ng: - 77	'.141 ₄	4											
SM SM F SM F SM SM F SM SM F Bottom of test pit at 3.3 feet	O.O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATEI	RIAL DES	CRIPTION				
RAL BH 7TP / WELL 16943-0 GUDE LANDHILL.GPU KUDEKI I BAALI			SM	F	1			ght Br	rown,	Silty S	SAND	Botton	n of test pi	it at 3.3 feet				



TEST PIT TP-233 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering, I	nc.						F	PROJECT I	NAME G	ude Landfill				
1	IECT LOC												16943-0 M				
	STARTE								18				N		ST PIT SIZ	E	
EXCA	VATION	CONT	RACT	OR _T	he Robe	ert B. B	alter C	Compa	ny	— г			WA	TER LEVE	LS	WATER	WATER
EXCA	VATION	METH	OD _							├	DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	GED BY _	J. Bai	еу		c	HECKE	D BY	K. Cr	rist		7/18/18		0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.106	13 Lor	ng: -77	.14079												
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATER	RIAL DES	CRIPTION				
 2.5		SM	F	2.2	Moist	, Light	Brown,	, Silty S	SAND								
GENERAL BITTY WELL 19940-0 GODE LANDTILL.STO NOBERT BEALTEN.GDT 99,10											Bottom	of test pi	t at 3.5 feet				



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TEST PIT TP-234

www.bailerco.com							
CLIENT _EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	PROJECT N	NUMBER	16943-0 M	D			
DATE STARTED 7/17/18 COMPLETED 7/17/18	GROUND E				ST PIT SIZI	=	
EXCAVATION CONTRACTOR _The Robert B. Balter Company			WA [*]	TER LEVEL	.s		
EXCAVATION METHOD	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K. Crist	7/17/18		0 ∑			NE	
NOTES Lat: 39.10595 Long: -77.13967	·						
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATEF	RIAL DES	CRIPTION				
O.0 O Moist, Light Brown, Silty SAND SM F SM F 3.3 Trash	Bottom	of test pi	t at 4.0 feet				



TEST PIT TP-235 PAGE 1 OF 1

www.															
CLIENT EAE											ude Landfill				
PROJECT LOC											16943-0 M				
DATE STARTE					IPLETE				GROUND E	LEVATIO	N		ST PIT SIZI	≣	
EXCAVATION							-		DATE	TIME	ELAPSED	TER LEVE	HOLE	WATER	WATER
EXCAVATION									7/17/18	1 11 1 1E	HOURS 0 ♀	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
LOGGED BY					CKED E	BY <u>K</u> . (Crist		1,11,10		U <u>*</u>			INL	
NOTES Lat: 3	39.106°	13 Long	g: -77.13	8878											
SAMPLE TYPE	U.S.C.S.	GRAPHIC LOG							MATE	RIAL DES	CRIPTION				
	SM	F	2.0	√oist, Lie	ght Bro	wn, Silt	y SAND								
2.0		*****	2.0						D-#		it at 2.7 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18															



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TEST PIT TP-236

DATE STARTED 7/17/18 COMPLETED 7/17/18 GROUND ELEVATION TEST PIT SIZE	www.bailerco.com							
DATE STARTED	CLIENT EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
DATE STARTED	PROJECT LOCATION Montgomery County, Maryland	PROJECT N	NUMBER	16943-0 M	D			
EXCAVATION CONTRACTOR The Robert B. Baller Company EXCAVATION METHOD LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10645 Long: -77.13873 MATERIAL DESCRIPTION SM	DATE STARTED 7/17/18 COMPLETED 7/17/18					ST PIT SIZI	=	
DATE TIME ELAPS CASING DEPTH (ft) DEPTH (ft)	EXCAVATION CONTRACTOR The Robert B. Balter Company			WA	TER LEVEL	.s		
NOTES Lat: 39.10645 Long: -77.13873		DATE	TIME	HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
NOTES _Lat: 39.10645 Long: -77.13873		7/17/18		0 ∑				
MATERIAL DESCRIPTION MATERIAL DESCRIPTION Moist, Light Brown, Silty SAND SM F 2.5 3.0 Trash		-						
SM S		-						
Moist, Light Brown, Silty SAND SM F 2.5 2.7 Trash 3.0	SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATEF	RIAL DES	CRIPTION				
	SM F SM F S Trash	Bottom	n of test pi	it at 3.0 feet				



TEST PIT TP-237 PAGE 1 OF 1

CUENT FA								DDO IECT	NAME C	التاجاء المنتاجات				
CLIENT EA										ude Landfill				
PROJECT LO			_	_			10/40			16943-0 M		OT DIT OIL		
DATE START								 GROUND E	LEVATIO	N	TE TER LEVEL		E	
EXCAVATIO								 DATE	TIME	ELAPSED	CASING	HOLE	WATER	WATER
EXCAVATIO								 7/18/18	111112	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
LOGGED BY					ECKED	BY K	. Crist	 7/10/10		0 -			INC	
NOTES Lat	39.106	52 Lon	g: - 77.′	1396										
NOTES Late Appendix A	U.S.C.S.	GRAPHIC T T T LOG	3.5		Light Bro	own, Si	Ity SAND			t at 4.1 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18														



TEST PIT TP-238 PAGE 1 OF 1

CLIEN	 NT <u>eae</u>	ngine	ering, l	nc.							PROJECT	NAME G	ude Landfill				
	ECT LOC												16943-0 M				
	STARTE								8/18				N		ST PIT SIZ	E	
EXCA	VATION	CONT	RACTO	OR TI	he Rob	ert B.	Balter	Com	pany				WA FLAPSED	TER LEVE	LS	WATER	WATER
EXCA	VATION	METH	OD _								DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	SED BY _	J. Bai	еу		(CHECK	ED B	Y <u>K.</u>	Crist		7/18/18		0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.106	27 Lon	ıg: - 77.	13977												
O.O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATE	RIAL DES	CRIPTION				
 2.5		SM		2.7	Tras		t Brow	vn, Silt	y SAN	D	Bottor	n of test pi	it at 2.7 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																	



TEST PIT TP-239

www.baiterco.com							
CLIENT _EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	PROJECT N	NUMBER	16943-0 M	D			
DATE STARTED 7/18/18 COMPLETED 7/18/18	GROUND E				ST PIT SIZI	E	
EXCAVATION CONTRACTOR The Robert B. Balter Company			WA ⁻	TER LEVEL	_S		
EXCAVATION METHOD	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K. Crist	7/18/18		0 ∑			NE	
NOTES Lat: 39.10656 Long: -77.14034	•						
SAMPLE TYPE NUMBER NUMBER U.S.C.S. GRAPHIC LOG	MATER	RIAL DES	CRIPTION				
SM F SM F SM F SM F SM SM F SM							
5.0	Bottom	of test pi	t at 5.0 feet				



TEST PIT TP-240 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering, I	nc.						PROJECT I	NAME G	ude Landfill				
	JECT LO											16943-0 M				
DATE	STARTE	D 7/	17/18		co	OMPLE	TED	7/17/	/18	GROUND E	LEVATIO	N	TE	ST PIT SIZ	E	
EXCA	AVATION	CONT	RACTO	OR Th	ne Robe	rt B. B	alter C	Compa	any			WA	TER LEVE	S	WATER	WATER
EXCA	AVATION	METH	OD _							 DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	GED BY	J. Bai	еу		CI	HECKE	D BY	K. C	Crist	 7/17/18		0 ∑			NE	
NOTE	ES <u>Lat: N</u>	N/A Lo	ng: N/	4												
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATE	RIAL DES	CRIPTION				
		SM		2.3	Moist,		Brown.	, Silty	SAND			t at 3.0 feet				
סבובואר מון זון ארביב וספרסס ספסב בשנמן רביסו מועסבינון מושר ביניסון שמון מ																



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TEST PIT TP-241



TEST PIT TP-242 PAGE 1 OF 1

CLIEN	NT EAE	nginee	ering, I	nc.							PROJECT	NAME G	ude Landfill				
PROJ	ECT LOC	OITA	M <u>Mo</u>	ntgom	ery C	ounty,	Mary	/land			 PROJECT	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/	17/18			СОМІ	PLETI	ED _7	7/17/1	18	 GROUND I	ELEVATIO	N	TE	ST PIT SIZ	E	
EXCA	VATION	CONT	RACT	OR _T	he Ro	bert E	B. Balt	ter Co	ompai	ny	 D.4.T.F.		WA ELAPSED	TER LEVEI CASING	HOLE	WATER	WATER
	VATION										 DATE	TIME	ELAPSED HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
	SED BY _						CKED	BY _	K. Cr	ist	 7/17/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.106	5 Long	j: - 77.	13825												
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATE	RIAL DES	CRIPTION				
0.0	_		F		Мо	st, Lig	jht Bro	own, S	Silty S	SAND							
-	_	014	F														
-		SM	 														
2.5	_		F	3.0													
			XXX	3.3	Tra	sh					Bottor	n of test ni	it at 3.0 feet				
												'					
9/5/18																	
DBERT B BA																	
FILL.GPJ R(
GUDE LAND																	
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																	
L BH / TP / WI																	
GENERA																	



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TEST PIT TP-243

ww.	w.bait	erco.c	OIII													
CLIENT EAE	nginee	ering, I	lnc.						PROJ	JECT N	IAME G	ude Landfill				
PROJECT LOC	OITA	M _Mo	ntgomer	y Count	y, Maryl	land			PROJ	JECT N	IUMBER	16943-0 M	ID			
DATE STARTE	D _7/1	17/18		CON	/IPLETE	ED _7/	17/18				LEVATIO			ST PIT SIZI	=	
EXCAVATION (WA	TER LEVEL	_S		-
EXCAVATION I	METH	OD C	Case 580	N Backl	noe				DA	TE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						BY K	. Crist		7/17	7/18		0 ∑			NE	
NOTES Lat: 3									_							
									-							
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							N	//ATER	IIAL DES	CRIPTION				
	SM	F F	1.3	Moist, L	ight Bro	own, S	ilty SA	ND								
			2.3						F	Bottom	of test ni	it at 2.3 feet				
										סטונטוח	or test bi	ıı aı z.ə ieel				



TEST PIT TP-244 PAGE 1 OF 1

www.baiterco.com							
CLIENT EA Engineering, Inc.	PROJECT	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	PROJECT	NUMBER	16943-0 M	D			
DATE STARTED _7/17/18 COMPLETED _7/17/18	GROUND E	LEVATIO			ST PIT SIZE	≣	
EXCAVATION CONTRACTOR _The Robert B. Balter Company			WA	TER LEVEL	_S HOLE	WATER	WATER
EXCAVATION METHOD Case 580N Backhoe	DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K. Crist	7/17/18		0 ∑			NE	
NOTES Lat: 39.10739 Long: -77.13747							
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATE	RIAL DES(CRIPTION				
SM F Moist, Light Brown, Silty SAND							
1.3	Rotton	n of test nit	t at 1.4 feet				
	Botton	1 01 toot p					
8							
80,271							
DD DD							
8 8 8							
BERT							
하							
6843-							
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/6/18							
図 							
σ <u> </u>							



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TEST PIT TP-245

		w.bait	C100.0	OIII											
CLIENT	EA Er	nginee	ering, I	nc.					PROJECT N	IAME G	ude Landfill				
PROJEC	T LOC	ATIO	M _Mo	ntgomer	y County, N	//aryland			PROJECT N	IUMBER	16943-0 M	D			
DATE ST						ETED _			GROUND E				ST PIT SIZE	_	
					– Robert B.						WA ⁻	TER LEVEL	_S		
					N Backhoe				DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED							K. Crist		7/19/18		0 ∑			NE	
NOTES															
								_							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DES	CRIPTION				
		SM	F F	1.3	Moist, Ligh	t Brown,	Silty SANE)							
2.5				3.3	Irasn										
			×××	0.0					Bottom	of test pi	t at 3.3 feet				

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GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-246

CLIEN		ngine	ering,	Inc.						PROJ	ECT N	IAME G	ude Landfill				
	ECT LOC												16943-0 M				
DATE	STARTE	D _7/	19/18		cc	MPLET	ED _7	/19/18		GROL	JND E	LEVATIO	N	TE	ST PIT SIZI	E	
EXCA	VATION (CONT	RACT	OR Th	e Robe	rt B. Bal	Iter Co	mpany					WA	TER LEVEL	-S	WATER	WATER
	VATION I									DA [*]	TE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
	SED BY						BY F	K. Crist		7/19	9/18		0 ∑			NE	
	S Lat: 3																
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							M	MATER	RIAL DES	CRIPTION				
0.0] F		Moist,	Light Br	rown, S	Silty SA	ND								
		SM	F	3.8	Trash												
5.0																	
				5.2													
										E	3ottom	of test pi	t at 6.2 feet				



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TEST PIT TP-247

CLIEN		nginee	ering, I	nc.						PROJECT	NAME G	ude Landfill				
	ECT LOC				ry Coun	ty, Mary	/land					16943-0 M				
DATE	STARTE	D _7/1	19/18		co	MPLET	ED _7/	19/18		GROUND	ELEVATIO	N	TE	ST PIT SIZ	Ε	
EXCA	VATION (CONT	RACTO	OR Th	e Rober	t B. Bal	ter Con	npany			T	WA	TER LEVEL	_S	*/ATED	WATER
EXCA	VATION I	METH	OD _C	case 580	ON Back	thoe				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	SED BY _	J. Bail	ey		CH	ECKED	BY K	. Crist		7/19/18		0 ⊼			NE	
NOTE	S Lat: 3	9.1080	06 Lor	ng: -77.1	3856											
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATE	RIAL DES	CRIPTION				
0.0 2.5	/S	SM		3.3	Trash	Light Br	own, S	ilty SAN	ND	Botto	m of test pi	t at 3.6 feet				



TEST PIT TP-248

		T EAE														ude Landf					
- 1		ECT LOC														16943-0		_			
		STARTE											GRO	OUND E	LEVATIO	N			ST PIT SIZ	E	
- 1		VATION							alter (Comp	any			ATE	TIME	ELAPSE	ATER LE	IG	HOLE	WATER	WATER
- 1		VATION												17/18	TIVIE	HOURS 0 ∑	DEPTH	(ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	LOGG	ED BY	J. Bail	еу			CHE	CKE	D BY	<u>K</u> . C	Crist		- '''	17/10		0 ¥				INE	
	NOTE	S <u>Lat: 3</u>	9.108	56 Lon	ng: -77	7.138	4						-								
-	O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	1.5	Mo	oist, Li	ight B	Brown	ı, Silty	/ SANI)		MATER	RIAL DES	CRIPTION	ı				
_	_					Tra	ash							Botton	of test pi	t at 2.0 fe	et				
OT 9/5/18																					
T B BALTER.GI																					
L.GPJ ROBEF																					
GUDE LANDFII																					
WELL 16943-0																					
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																					



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TEST PIT TP-249

VVVV	w.bait	erco.c	OIII											
CLIENT EAE	nginee	ering, I	nc.					PROJECT I	NAME G	ude Landfill				
PROJECT LOC	OITA	M _Mo	ntgomer	ry County,	Maryland	<u> </u>		PROJECT I	NUMBER	16943-0 M	D			
DATE STARTE	D _7/1	17/18		COMP	LETED	7/17/18		GROUND E	LEVATIO	N	TE	ST PIT SIZI	=	
EXCAVATION	CONTI	RACT	OR The	e Robert B	. Balter C	ompany				WA [*]	TER LEVEL	.s		
EXCAVATION	METH	OD C	Case 580)N Backho	е			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						K. Crist	_	7/17/18		0 ∑			NE	
NOTES Lat: 3														
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DES	CRIPTION				
2.5	SM	п п п п	3.0	Moist, Ligh	nt Brown,	Silty SAN	ID	Bottom	ı of test pi	t at 3.5 feet				



TEST PIT TP-250 PAGE 1 OF 1

w w															
CLIENT EAL											ude Landfill				
PROJECT LO											16943-0 M				
DATE START					MPLETE			GR	OUND E	LEVATION			ST PIT SIZI	E	
EXCAVATION						er Comp	oany		DATE	TIME	WA ELAPSED	TER LEVEL CASING	_S HOLE	WATER	WATER
EXCAVATION	METH	OD _C	ase 58	30N Back	thoe					I IIVIE	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bai	еу		CH	ECKED E	3Y <u>K. (</u>	Crist	"	17/18		0 ∑			NE	
NOTES Lat:	39.108	53 Lon	g: - 77.	13708											
NOTES Tat: O DEPTH O (ft) C (ft) NUMBER	39.108	GRAPHIC LOG	<u>g: -77.</u>	13708	Light Bro				MATER		CRIPTION t at 2.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/6/18															



TEST PIT TP-251 PAGE 1 OF 1

	CLIEN	T EA E	ngine	ering, I	Inc.							PF	ROJECT I	NAME GL	ude Landfill				
	PROJI	ECT LOC	ATIO	N <u>M</u> o	ntgon	nery C	ounty,	Maryl	land						16943-0 M				
-		STARTE					COMF			17/18					N		ST PIT SIZ	Ε	
	EXCA	VATION (CONT	RACT	OR _	he Ro	bert B	. Balte	er Con	mpany	/		П		WA ELAPSED	TER LEVEL	S HOLE	WATER	WATER
	EXCA	VATION I	METH	OD _C	Case 5	80N E	Backho	е				_	DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
	LOGG	ED BY _	J. Bai	ley			CHEC	KED I	BY K	(. Crist	t	_ 7	7/17/18		0 ∑			NE	
	NOTE	S <u>Lat: 3</u>	9.108	02 Lor	ng: -77	'.1380	6					_							
-	O DEPTH O (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moi	st, Lig	ht Bro	own, S	ilty SA	AND		MATE	RIAL DESC	CRIPTION				
•			SM	F WXX	1.0	Tra	sh												
•	2.5				3.0														
													Botton	of test pit	t at 3.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																			
GENER,																			



TEST PIT TP-252 PAGE 1 OF 1

CLILIAI	Γ <u>EA Er</u>	ngine	ering, I	nc.							F	PROJECT	NAME G	ude Landfill				
	CT LOC													16943-0 M				
	STARTE								/17/18	3				N		ST PIT SIZ	=	
EXCAV	ATION C	CONT	RACTO	OR _T	he Ro	bert B	B. Balte	er Con	mpany	у				WA	TER LEVE	-S	MATER	MATER
EXCAV	ATION N	METH	OD _C	ase 5	80N E	Backho	ре					DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGE	D BY	J. Bail	еу			CHEC	KED I	BY K	(. Cris	st		7/17/18		0 ⊼			NE	
NOTES	Lat: 39	9.107	69 Lon	ıg: -77	.1372	9												
0.0 DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moi	ist, Lig	ht Bro	own, Si	ilty S	AND		MATE	RIAL DES	CRIPTION				
		SM	F	1.5	Tra	sh												
			××××	2.0								Botton	of test pi	t at 2.0 feet				

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-253

CLIENT	EA E	ngineering, Inc.					PF	ROJECT N	IAME Gu	ıde Landfill				
		ATION Montgor								16943-0 M				
		D 7/17/18				7/17/18				١		ST PIT SIZI	E	
EXCAVA	ATION (CONTRACTOR _	The Robert	B. Bal	ter C	Company				WA	TER LEVEL	S	*/ATED	WATER
EXCAVA	ATION I	METHOD Case	580N Back	hoe				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGGE	DBY_	J. Bailey	СНІ	ECKED	BY	K. Crist	7	7/17/18		0 ∑			NE	
NOTES	Lat: 3	9.10805 Long: -7	7.1365											
ОЕРТН (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG				ı	MATE	RIAL DESC	CRIPTION			
0.0 	SAN		SM		5.5	Moist, Ligh	nt Brown,	Silty SAN	ID					



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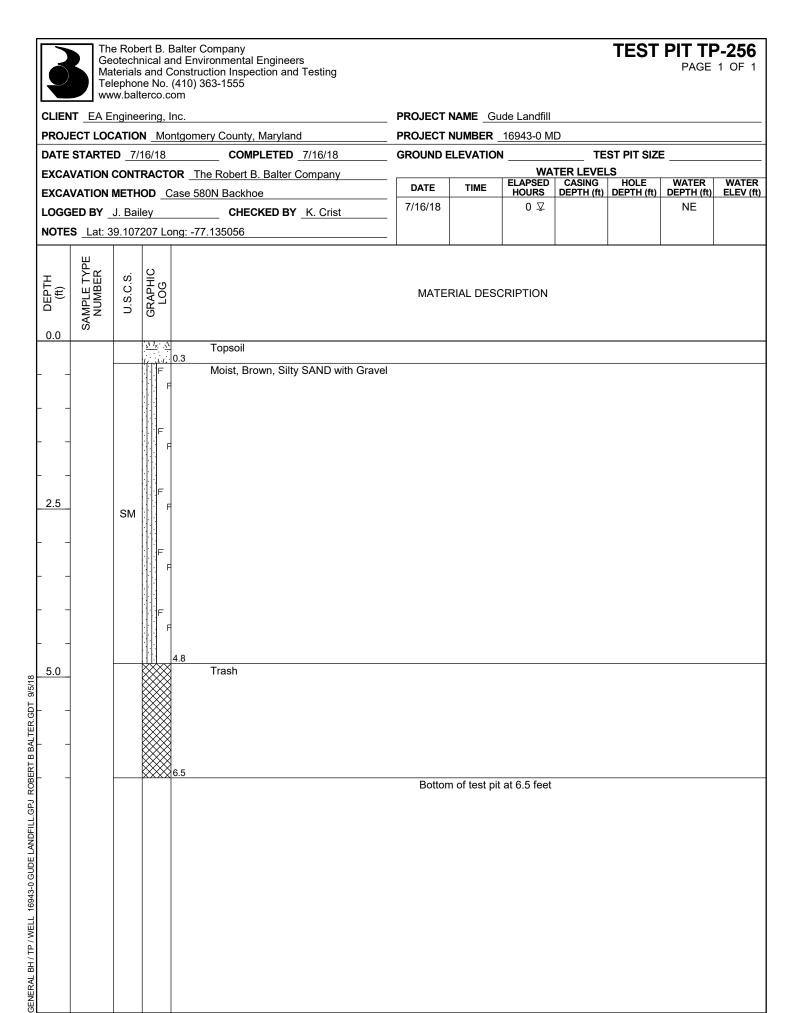
TEST PIT TP-254

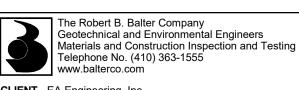
	erco.c												
ngine	ering, I	nc.					PROJECT I	NAME G	ude Landfill				
ATIOI	N <u>Mo</u>	ntgomer	y County	, Marylan	nd		PROJECT I	NUMBER	16943-0 M	D			
						3					ST PIT SIZ	E	
									WA	TER LEVEI	_S		
					•		DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
					′ K. Cris	======================================	7/16/18		0 ⊼			NE	
U.S.C.S.	GRAPHIC LOG						MATE	RIAL DES	CRIPTION				
	71 V	0.3											
SM		3.9		eddish Br	own, Silt	y SAND wit	h Gravel (Fill)					
	\ggg	4.3											
							Botton	n or test pi	it at 4.3 feet				
	ATIOI D 7// CONTI	ATION Mo D 7/16/18 CONTRACTO METHOD C J. Bailey 9.107852 Lc SOSO	D 7/16/18 CONTRACTOR The METHOD Case 580 J. Bailey 9.107852 Long: -77. S. O.	ATION Montgomery County D 7/16/18 COM CONTRACTOR The Robert METHOD Case 580N Backh J. Bailey CHE 9.107852 Long: -77.13603 SO O O O O O O O O O O O O O O O O O O	Montgomery County, Marylar D 7/16/18 COMPLETED CONTRACTOR The Robert B. Balter METHOD Case 580N Backhoe J. Bailey CHECKED BY 9.107852 Long: -77.13603 Signature of the county of the co	ATION Montgomery County, Maryland D 7/16/18 COMPLETED 7/16/18 CONTRACTOR The Robert B. Balter Companion METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 Signature of the Robert B. Balter Companion METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 Moist, Reddish Brown, Silt SM SM 3.9 Trash	ATION Montgomery County, Maryland D 7/16/18 COMPLETED 7/16/18 CONTRACTOR The Robert B. Balter Company METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 S. O. O. D.	ATION Montgomery County, Maryland GROUND ED 7/16/18 COMPLETED 7/16/18 GROUND ED 7/16/18 CONTRACTOR The Robert B. Balter Company METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 MATER MATER MATER SM Trash 4.3	ATION Montgomery County, Maryland PROJECT NUMBER D 7/16/18 COMPLETED 7/16/18 GROUND ELEVATIO CONTRACTOR The Robert B. Balter Company METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 MATERIAL DES MATERIAL DES SM SM Trash 4.3	ATION Montgomery County, Maryland D 7/16/18 COMPLETED 7/16/18 CONTRACTOR The Robert B. Balter Company METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION SM 13.9 Trash 4.3	ATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD D	ATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD TO 7/16/18 COMPLETED 7/16/18 CONTRACTOR The Robert B. Balter Company METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 9.107852 Long: -77.13603 MATERILE CONTRACTOR Time Robert B. Balter Company MATERIA CONTRACTOR TIME Robert B. Balter Company MATERIA CONTRACTOR TIME ROBERT B. BALTER B. BALT	ATION Montgomery County, Maryland D 7/16/18 COMPLETED 7/16/18 COMPLETED 7/16/18 GROUND ELEVATION TEST PIT SIZE WATER LEVELS DATE TIME ELAPSED CASING HOLE WATER HOURS DEPTH (ft) DEPTH (f



TEST PIT TP-255

PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD DATE STARTED 7/16/18 COMPLETED 7/16/18 GROUND ELEVATION TEST PIT SIZE EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD Case 580N Backhoe LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.107514 Long: -77.135773 PROJECT NUMBER 16943-0 MD TEST PIT SIZE WATER LEVELS DATE TIME ELAPSED CASING HOLE WATER WATER HOURS DEPTH (ft) DEPTH (ft) DEPTH (ft) ELE MATER LEVELS 7/16/18 0 Q Q NATER LEVELS	CLIE	NT EAE	ngine	ering,	lnc.						PROJECT I	NAME G	ude Landfill				
EXCAVATION CONTRACTOR																	
EXCAVATION METHOD Case 580N Backhoe LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.107514 Long: -77.135773 MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION SM SM SM F SM SM F SM SM SM	DATE	STARTE	D 7/	16/18		cc	MPLET	TED _7/	/16/18		GROUND E	LEVATIO	N	TE	ST PIT SIZ	Ε	
NOTES Lat: 39.107514 Long: -77.135773 NE NOTES Lat: 39.107514 Long: -77.135773 NATERIAL DESCRIPTION NE NOTES Lat: 39.107514 Long: -77.135773 NATERIAL DESCRIPTION NE NE NE NOTES Lat: 39.107514 Long: -77.135773 NATERIAL DESCRIPTION NE NE NE NE NE NE NE	EXC	AVATION	CONT	RACT	OR Th	ne Robe	rt B. Ba	lter Cor	mpany				WA	TER LEVEL	_S		
NOTES Lat: 39.107514 Long: -77.135773	EXC	NOITAVA	METH	OD (Case 58	0N Bac	khoe				DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	WATER ELEV (ft)
MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION Moist, Brown, Silty SAND with Gravel And Boulders SM F SM F SM SM F SM SM SM S								BY K	K. Crist		7/16/18		0 ∑			NE	
2.5 SM F SM F SM SM F SM SM SM S	NOTI	ES _Lat: 3	9.107	514 Lo	ong: -77	7.135773	3										
	HLGGO 0.0	GED BY _ ES _Lat: 3	J. Bail 9.107	STATE OF THE PROPERTY OF THE P	ong: -77	CH	HECKED 3			Gravel A	7/16/18 MATER	S	0 ♀				





TEST PIT TP-257 PAGE 1 OF 1

	NT									DDO IECT	NAME C	التاما مسافاا				
	NT EAE											ude Landfill				
	JECT LOC											16943-0 M		OT DIT OIL		
	STARTE									GROUND E	:LEVATIO	N	TE TER LEVEL	ST PIT SIZ	E	
	NATION						aner Co	ompany		DATE	TIME	ELAPSED HOURS	CASING	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
	AVATION I						D DV	V Criet		7/16/18		0 <u>∑</u>	DEFIN (II)	DEPTH (IL)	NE NE	ELEV (II)
	GED BY _						ַ זאַע	K. Crist								
NOTE	ES <u>Lat: 3</u>	107	24 LUII	ig//	. 134000) ———										
o DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATE	RIAL DES	CRIPTION				
2.5		SM	F	0.1	Tops: Dry, E	Brown,	Silty SA	ND with	n Gravel							
	_			3.0						Botton	n of test pi	t at 3.0 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																



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TEST PIT TP-258

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Engineering, Inc.					PROJECT N	NAME G	ude Landfill				
	ry Coun	ty, Mar	yland					D			
									ST PIT SIZ	 E	
					_		WA ⁻	TER LEVEL	_S		
					DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
			BV	K Criet	7/16/18		0 ∑			NE	(,
			· -	rt. Onst	-						
39.107704 Long77.	133029				-						
TESTS	U.S.C.S.	GRAPHIC LOG		Topsoil		MATE	ERIAL DESC	CRIPTION			
		1/ . 1/	0.5	1 000011							
	ML	F E E E			Sandy SILT						
				Trash							
	-		4.5			Rotto	m of test nit	at 4.5 feet			
						Botto	iii oi test pit	at 4.5 leet			
- I	Engineering, Inc. CATION Montgomer ED 7/16/18 I CONTRACTOR The I METHOD Case 580 J. Bailey 39.107704 Long: -77.	Engineering, Inc. CATION Montgomery Coun ED 7/16/18 CO CONTRACTOR The Rober METHOD Case 580N Back J. Bailey CH 39.107704 Long: -77.135629 TESTS O O O O O O O O O O O O O	Engineering, Inc. CATION Montgomery County, Manual ED 7/16/18 COMPLET CONTRACTOR The Robert B. Ball METHOD Case 580N Backhoe J. Bailey CHECKED 39.107704 Long: -77.135629 TESTS TESTS TESTS ML F F F F F F F F F F F F F F F F F	Engineering, Inc. CATION Montgomery County, Maryland ED 7/16/18 COMPLETED CONTRACTOR The Robert B. Balter County METHOD Case 580N Backhoe J. Bailey CHECKED BY 39.107704 Long: -77.135629 TESTS TESTS OBJECT ML F F F ML F F F F F F F F F F F F	Engineering, Inc. ICATION Montgomery County, Maryland ED 7/16/18	Engineering, Inc. PROJECT Note	Engineering, Inc. PROJECT NAME G PROJECT NUMBER GROUND ELEVATIO DATE TIME 7/16/18 39.107704 Long: -77.135629 TESTS TIME Topsoil Tops	Engineering, Inc. ICATION Montgomery County, Maryland ED 7/16/18 COMPLETED 7/16/18 I CONTRACTOR The Robert B. Balter Company I METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 39.107704 Long: -77.135629 TESTS MATERIAL DESC MATERIAL DESC MATERIAL DESC MIL F ML F ML F ML Trash 4.5	Engineering, Inc. CATION Montgomery County, Maryland ED 7/16/18 COMPLETED 7/16/18 COMPLETED 7/16/18 CONTRACTOR The Robert B. Balter Company I METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 39.107704 Long: -77.135629 TESTS MATERIAL DESCRIPTION MIL F F F F 4.0 4.0 Trash	CATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD	Engineering, Inc. CATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD TEST PIT SIZE CONTRACTOR The Robert B. Balter Company I METHOD Case 580N Backhoe J. Bailey CHECKED BY K. Crist 39.107704 Long: -77.135629 TESTS TESTS TESTS COMPLETED 7/16/18 GROUND ELEVATION WATER LEVELS DATE TIME ELAPSED CASING HOLE HOURS DEPTH (ft) D

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-259

EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD Case 580N Backhoe LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.107749 Long: -77.134712 WATER LEVELS DATE TIME FLAPSED HOURS DEPTH (ft) DE	
DATE STARTED 7/16/18 COMPLETED 7/16/18 GROUND ELEVATION TEST PIT SIZE	
EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD	
Date Time ELAPS CASING HOLE WATER MATERIAL DESCRIPTION Topsoil	
NOTES Lat: 39.107749 Long: -77.134712	WATER
NOTES Lat: 39.107749 Long: -77.134712 Hard Control of the Contr	ELEV (ft)
TESTS S S S S S S S S S S S S S S S S S	
Topsoil Topsoil Moist, Brown, Sandy SILT F 2.5	
5.0	



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TEST PIT TP-260

CLIENT EAE											Gude Landfill				
PROJECT LOC	OITA	M _Mo	ntgome	ery Cou	unty, M	larylan	nd		 PROJECT	NUMBER	16943-0 N	ИD			
DATE STARTE	D _7/1	6/18		c	OMPLI	ETED	7/16/	18	 GROUND	ELEVATION	ON		ST PIT SIZ	E	
EXCAVATION	CONTI	RACT	OR Th	ne Rob	ert B. E	Balter	Compa	any		1	EI ABSED	ATER LEVE	LS	WATER	WATER
EXCAVATION	METH	OD _C	Case 58	0N Ba	ckhoe				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY _	J. Bail	еу		c	HECK	ED BY	′ <u>K. C</u>	rist	 7/16/18		0 ∑			NE	
NOTES Lat: 3	9.1056	66 Lor	ng: - 77.	13373											
LOGGED BY _	J. Bail 9.1056	ey 66 Lor CRAPHIC Properties of the control of the	ng: -77.	c	t, Brown	ED BY			7/16/18	ERIAL DE	HOURS 0 SCRIPTION		DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)



TEST PIT TP-261 PAGE 1 OF 1

www.balterco.	o.com							
CLIENT EA Engineering	, Inc.	PROJECT	NAME Gu	ide Landfill				
PROJECT LOCATION M	Montgomery County, Maryland	PROJECT	NUMBER _	16943-0 MI	D			
DATE STARTED _7/16/18	8 COMPLETED _7/16/18	GROUND E	LEVATION			ST PIT SIZI	≣	
EXCAVATION CONTRACT	TOR The Robert B. Balter Company	-		WA ⁻ ELAPSED	TER LEVEL CASING	LS HOLE	WATER	WATER
EXCAVATION METHOD _	Case 580N Backhoe	DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGGED BY J. Bailey	CHECKED BY K. Crist	7/16/18		0 ∑			NE	
NOTES Lat: 39.10746 Lo	ong: -77.133188	_						
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC	Moist, Light Brown, Silty SAND F F F F F F F F F		n of test pit	at 6.5 feet				



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TEST PIT TP-262

WW	w.bait	erco.c	OIII											
CLIENT EA E	ngine	ering, l	lnc.				F	PROJECT N	IAME G	ude Landfill				
PROJECT LOC	ATIO	N _Mo	ntgomer	y County, M	Maryland		F	PROJECT N	IUMBER	16943-0 M	D			
DATE STARTE	D _7/	16/18		COMPI	LETED _	7/16/18		ROUND E				ST PIT SIZI	=	
EXCAVATION (WA	TER LEVEL	_S		
EXCAVATION I	METH	OD (Case 580	N Backhoe)			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						K. Crist		7/16/18		0 ∑			NE	
NOTES Lat: 3					_									
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DES	CRIPTION				
	SM	F	2.0	Moist, Brov	wn, Silty S	SAND								
2.5			3.8											
								Bottom	of test pi	t at 3.8 feet				

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-263

PAGE 1 OF 1

CLIENT	– EA En	gineering, Inc.							PROJE	ECT N	IAME Gu	ude Landfill				
		ATION Montgo										16943-0 N				
		7/16/18						8				N		ST PIT SIZI	======================================	
		ONTRACTOR							_			W/	TER LEVE	LS		
		METHOD Case							DAT	E	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
		. Bailey				BY	K. Cri	ist	7/16/	18		0 ∑			NE	
		0.107969 Long:														
DEPTH (ft)	NUMBER	TESTS	U.S.C.S.	GRAPHIC	FOG						MATE	RIAL DES	CRIPTION			
0.0				74	<u>1,\</u>		Tor	osoil								
				1/	<u>1.1,</u>	0.5	,									
					F	0.0	Moi	ist, Brown,	Silty SAN	D						
					F											
2.5					F											
			SM		: : : : : :											
					F											
					F											
5.0					F											
					F											
					<u> </u>	6.0	Tra	sh								
				*	$\overset{\times}{\times}$											
					$\overset{\times}{\times}$											
7.5				\otimes	\bigotimes											
				*	\bigotimes											
				*	\bigotimes											
					\bigotimes											
10.0				\otimes	\bowtie	10.0										

Bottom of test pit at 10.0 feet



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TEST PIT TP-264



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TEST PIT TP-265

www.baiterco.com							
CLIENT EA Engineering, Inc.	PROJECT	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	PROJECT	NUMBER	16943-0 M	D			
DATE STARTED 7/16/18 COMPLETED 7/					ST PIT SIZI	E	
EXCAVATION CONTRACTOR _The Robert B. Balter Con	mpany		WA [*]	TER LEVEL	_S		
EXCAVATION METHOD Case 580N Backhoe	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K	7/16/18		0 ∑			NE	
NOTES Lat: 39.108515 Long: -77.135298							
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATE	RIAL DESC	CRIPTION				
O.0 O Moist, Reddish Brown SM F S.0 Trash 3.7		n of test pil	t at 3.7 feet				



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TEST PIT TP-266

CLIENT	— EA Er	nginee	ering, I	Inc.						PRO	JECT N	IAME Gu	ude Landfill				
PROJEC					ry Cou	nty, Ma	ryland	t					16943-0 M				
DATE S	TARTE	D _7/	6/18		C	OMPLE	TED	7/16/1	8	GRO	OUND E	LEVATIO	N	TE	ST PIT SIZ	=	
EXCAVA	ATION (CONT	RACTO	OR Th	e Robe	ert B. B	alter C	Compar	ny				WA	TER LEVEL	_S	14/4TED	\4/4 T ED
EXCAVA	ATION N	ИЕТН	OD _C	Case 58	0N Bad	khoe				_ D	ATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGE	D BY _	J. Bail	ey		CI	HECKE	D BY	K. Cri	ist	_ 7/1	16/18		0 ⊼			NE	
NOTES	Lat: 39	9.108	506 Lc	ong: -77	'.13411	2				_							
о ОЕРТН	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATER	RIAL DESC	CRIPTION				
0.0		SM		2.3	Moist,	Brown	, Silty	SAND									
	-		$\times\!\!\times\!\!\times$	3.2							Bottom	of test pit	t at 3.2 feet				



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TEST PIT TP-267

CLIEN		ngine	ering, l	Inc.						PRO	DJECT N	NAME G	ude Landf	ill				
	ECT LOC				ery Cou	nty, Ma	arylan	d				NUMBER						
DATE	STARTE	D _7/	16/18		C	OMPLE	ETED	7/16	/18	GR	OUND E	LEVATIO	N		TE	ST PIT SIZ	E	
EXCA	VATION (CONT	RACT	OR T	ne Robe	ert B. B	alter (Comp	any				W. FI ADOE	ATER	LEVEL	_S	*/ATED	\4.4.TED
EXCA	VATION I	METH	OD _C	Case 58	30N Bad	khoe					DATE	TIME	ELAPSE HOURS	DEF	ASING PTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	SED BY _	J. Bail	ey		CI	HECKE	ED BY	K. C	Crist	_ 7/	16/18		0 ∑				NE	
NOTE	S Lat: 3	9.108	229 Lc	ong: -7	7.13338					.								
	ш																	
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATER	RIAL DES	CRIPTION	N				
0.0			F	-	Moist,	Brown	ı, Silty	y SAN	D									
		SM	F F	=														
			F	2.0														
2.5					Trash													
2.5																		
				3.0							Dattan	of test pi	t at 2.0 fa	n+				
											Dotton	i or test pr	t at 5.0 16	51				



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TEST PIT TP-268

			•												
CLIENT EAE	ngine	ering, I	nc.						PROJEC	T NAME _	Gude Landfill				
PROJECT LOC	OITA	M _ Mo	ntgome	ry Coun	ty, Mary	yland			PROJEC	T NUMBER	R 16943-0 M	1D			
DATE STARTE					MPLET		/17/18				ON		ST PIT SIZ	E	
EXCAVATION										_	WA	TER LEVE	_S		
EXCAVATION							•		DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						BY K	Crist		7/17/18		0 ∑			NE	
NOTES Lat: 3							27,01								
	300		۰ ۱۰۰۱						-						
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MAT	ERIAL DE	SCRIPTION				
2.5	SM		3.0	Moist, I	Light Br	rown, S	Silty SAN	ND							
-		XXX	3.5						Bott	om of test	pit at 3.5 feet	t			



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TEST PIT TP-269

VVVV	w.bait	erco.c	OIII										
CLIENT EAE	nginee	ering, I	lnc.				PROJEC	T NAME _G	Gude Landfill				
PROJECT LOC	ATIO	N _Mo	ntgomer	y County, N	/laryland		PROJEC	T NUMBER	16943-0 M	D			
DATE STARTE	D _7/1	17/18		COMPL	ETED _7	7/17/18	GROUNI	ELEVATION	ON	TE	ST PIT SIZ	E	
EXCAVATION									WA	TER LEVEL	_S		
EXCAVATION							DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY					ED BY	K. Crist	7/17/18	;	0 ∑			NE	
NOTES Lat: 3					_								
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MAT	ERIAL DES	SCRIPTION				
2.5	SM	F	2.5	Moist, Ligh	t Brown, \$	Silty SAND							
		(XXX	0.0				Bott	om of test p	oit at 3.5 feet				



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TEST PIT TP-270

	IT EAE												ude Landfill				
PROJ	ECT LOC	ATIO	M _Mo	ntgome	ery Cour	ity, Mar	yland			PRO	JECT N	IUMBER	16943-0 M	D			
DATE	STARTE	D _7/	17/18		cc	MPLET	ED _7	/17/18		GRO	UND E	LEVATIO	N	TE	ST PIT SIZ	■	
EXCA	VATION (CONT	RACT	OR Th	ne Robei	rt B. Ba	Iter Co	mpany					WA	TER LEVEL	-S	VALATED '	WATER
EXCA	VATION I	METH	OD C	Case 58	0N Bacl	khoe				DA	TE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY	J. Bail	ey		СН	IECKED	BY P	K. Crist		7/17	7/18		0 ∑			NE	
	S <u>Lat: 3</u>																
										•							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							N	MATER	RIAL DES	CRIPTION				
 2.5 		SM		3.0	Moist,	Light Br	rown, S	Silty SA	ND	E	Bottom	of test pi	it at 3.5 feet				



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TEST PIT TP-271 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering, I	nc.						F	PROJECT I	NAME G	ude Landfill				
PROJ	ECT LOC	ATIO	M _ Mo	ntgom	ery Cou	unty, M	arylan	d		F	PROJECT I	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/	17/18		c	OMPLI	ETED	_7/17/	′18	0	GROUND E	LEVATIO	N	TE	ST PIT SIZ	E	
EXCA	VATION	CONT	RACTO	OR _T	he Rob	ert B. E	Balter (Compa	any	— г	DATE	T184E	WA ELAPSED	TER LEVEL CASING	HOLE	WATER	WATER
	VATION									—	DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
	GED BY _						ED BY	K. C	rist	—	7/17/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.109	66 Lon	ıg: - 77	13839												
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATER	RIAL DESC	CRIPTION				
		SM			Mois	t, Light	Brown	n, Silty	SAND								
-	+			2.0	Trasl	า											
			(XXXX	2.3							Botton	of test pit	t at 2.3 feet				
LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																	
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																	



TEST PIT TP-272

WW	w.bait	.00.0	,0111										
CLIENT EAE	ngine	ering,	Inc.				PROJECT	NAME G	ude Landfill				
PROJECT LOC				ry County, Ma	aryland		PROJECT	NUMBER	16943-0 M	D			
DATE STARTE					TED 7/17		GROUND E				ST PIT SIZI		
EXCAVATION (_			TER LEVEL	_S		
EXCAVATION I					<u> </u>	· · · · · ·	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ff)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY					D BV K	Criet	7/17/18		0 ∑			NE	\
NOTES Lat: 3					<u> </u>	Olist	_						
NOTES Lat. 5	9.100	OO LOI	ig/ / . i	032			_						
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATEF	RIAL DES	CRIPTION				
_	SM	F	1.0	Moist, Light	Brown, Silt	ty SAND							
	GM	F F	1.5	Moist, Gray,	Silty GRA	VEL							
2.5	SM	F		Moist, Light	Brown, Silt	y SAND							
	SIVI	F	3.5										
			4.5	Trash									
- 1			1				Bottom	of test pi	t at 4.5 feet				

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TEST PIT TP-273 PAGE 1 OF 1

CLIENT EAL	Engineering, Inc.					PROJECT I	NAME G	ude Landfill				
PROJECT LO	CATION Montgomer	y Coun	ty, Mar	yland		PROJECT I	NUMBER	16943-0 M	D			
DATE STARTI	ED <u>7/17/18</u>	_ co	MPLET	ED 7/17/18	(GROUND E	LEVATIO	N		ST PIT SIZI	E	
EXCAVATION	CONTRACTOR The	Rober	t B. Ba	ter Company		DATE	TIME	WA ELAPSED	TER LEVEL CASING	LS HOLE	WATER	WATER
	METHOD Case 580					DATE 7/17/18	TIME	ELAPSED HOURS 0 ♀	DEPTH (ft)	HOLE DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	J. Bailey		ECKED	BY K. Crist		7/17/10		0 -			INE	
NOTES Lat:	39.10993 Long: -77.1	3773										
O DEPTH (ft) (ft) SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG				MATE	ERIAL DESC	CRIPTION			
2.5		CL		6.5 Trash	Reddish Br	rown, Sand		m of test pit	at 7.0 feet			



TEST PIT TP-274 PAGE 1 OF 1

DATE STARTED _7/17/18	www.baiterc	0.00111									
DATE STARTED	CLIENT EA Engineerin	ng, Inc.			PROJECT N	IAME G	ude Landfill				
DATE STARTED	PROJECT LOCATION _	Montgomery (County, Maryland		PROJECT N	IUMBER	16943-0 M	D			
EXCAVATION CONTRACTOR The Robert B. Balter Company	DATE STARTED 7/17/	18	COMPLETED	7/17/18					ST PIT SIZE	=	
DATE TIME ELAPS DASHING DATE TIME HOURS DASHING DEPTH (ft) DEP							WA ⁻	TER LEVEL	.s		
NOTES Lat: 39.11031 Long: -77.13718	EXCAVATION METHOD	Case 580N	Backhoe		DATE	TIME	HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
NOTES Lat: 39.11031 Long: -77.13718 Hand Hand				K. Crist	7/17/18		0 ∑			NE	
MATERIAL DESCRIPTION MATERIAL DESCRIPTION Moist, Light Brown, Silty SAND SM F E 4.0 Trash 4.5											
Moist, Light Brown, Silty SAND SM F F F F F F F F F											
Moist, Light Brown, Silty SAND SM SM F 2.5 Trash 4.5	SAMPLE TYPE NUMBER U.S.C.S.	907			MATER	RIAL DESC	CRIPTION				
	0.0 SM	F F F F F F Tr		Silty SAND	Bottom	of test pit	t at 4.5 feet				



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TEST PIT TP-275

CLIENT EA	Engine	ering, l	nc.					PROJE	ECT N	AME G	ude Landfill				
PROJECT LC	CATIO	N <u>Mo</u>	ntgome	ry Count	y, Maryla	and		_ PROJE	ECT N	UMBER	16943-0 M	D			
DATE START	ED _7/	17/18		COI	/IPLETEI	D <u>7/17/</u>	/18	GROU	ND EL	EVATIO	N		ST PIT SIZI	≣	
EXCAVATION	CONT	RACT	OR <u>Th</u>	e Robert	B. Balte	r Compa	any				WA ELAPSED	TER LEVEL	S	WATER	WATER
EXCAVATION	METH	OD _C	case 58	0N Backl	noe			DAT		TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bai	ley		CHE	CKED B	Y <u>K. C</u>	rist	7/17/	/18		0 ∑			NE	
NOTES Lat:	39.110	88 Lor	ng: - 77.1	13745				_							
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Brov	wn, Silty	SAND	M	ATER	IAL DES	CRIPTION				
2.5	SM	F	3.5		ight Brov	wn, Sility	SAND								
			4.0	Trash											
		XXX	4.0					В	ottom	of test pi	t at 4.0 feet				



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TEST PIT TP-276 PAGE 1 OF 1

CLIE	ENT _	EA Er	ngine	ering,	Inc.								_ PR	OJECT I	NAME G	ude La	andfill				
PRO	JEC1	LOC	ATIOI	N _M	ontgo										NUMBER						
DAT	E ST	ARTE	D _7/	19/18	}		СО	MPLE	ETEC	7/1	19/18		GR	OUND E	LEVATIO	N			ST PIT SIZ	E	
EXC	AVA	TION (CONT	RAC	TOR _	The	Rober	t B. E	Balter	r Com	npany					ELA	WA PSED	TER LEVE CASING	HOLE	WATER	WATER
1					Case								_	DATE	TIME	- 1	PSED URS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
								ECKE	ED B	Y <u>K.</u>	Crist		- ''	/19/18			0 ∑			NE	
NOT	ES _	Lat: 39	9.1110	03 Lc	ong: -7	7.13	744						_								
DEPTH (#)	SAMPI F TYPE	NUMBER	U.S.C.S.	GRAPHIC										MATE	RIAL DES	CRIP	ΓΙΟΝ				
0.0]]]F		١	loist,	Light	Brow	vn, Sil	Ity SA	ND									
BERT B BALTER.GDT 9/5/18			SM	F	F 3.0		rash		Brow	vn, Sil	lty SAI	ND		Botton	n of test pi	it at 3.	8 feet				
SUDE LANDFILL.GPJ RC																					
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																					



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TEST PIT TP-277 PAGE 1 OF 1

CLIEN	CLIENT EA Engineering, Inc.								PRO	JECT N	NAME GU	ude Landfill				
					nery Count							16943-0 M				
DATE	STARTE	D _7/:	20/18		CO	MPLETE	D 7/20)/18	GRO	DUND E	LEVATION	N	TE	ST PIT SIZ	E	
EXCA	VATION (CONT	RACT	OR _	he Robert	t B. Balte	er Comp	any				WA	TER LEVEL	S	WATER	WATER
EXCA	VATION	METH	OD _	Case 5	80N Back	hoe				ATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	ED BY	J. Bai	еу		СНІ	ECKED E	BY <u>K</u> . (Crist	7/2	20/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.110	97 Lor	ng: -77	7.13793											
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATEF	RIAL DESC	CRIPTION				
		GM		0.9	Crushe	d Stone										
		SM	F	1.8	Moist, L	₋ight Bro	wn, Silty	/ SAND								
2.5				1.6	Trash											
				2.7						Bottom	of test nit	t at 2.7 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL,GPJ ROBERT B BALTER,GDT 9/5/18																
GENERAL E																



TEST PIT TP-278

CLIEN	IT EA E	nginee	ering, I	nc.					PROJECT N	NAME Gu	ıde Landfill				
PROJ	ECT LOC	ATIO	M _Mo	ntgome	ry County	, Marylan	nd		PROJECT N	NUMBER _	16943-0 MI	D			
DATE	STARTE	D _7/	19/18		COM	PLETED	7/19/18	3	GROUND E	LEVATION	ı	TE	ST PIT SIZI	=	
EXCA	VATION (CONT	RACT	OR Th	e Robert E	B. Balter	Compan	У			WA ⁻	TER LEVEL	S	MATER	WATER
EXCA	VATION I	METH	OD _C	case 58	0N Backh	ое			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY _	J. Bail	ey		CHE	CKED BY	K. Cris	st	7/19/18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.110	52 Lor	ng: - 77.1	13746										
LOGG	ED BY _	J. Bail	еу		CHE	CKED BY			7/19/18 MATER	RIAL DESC		DEPTH (ft)	DEPTH (ft)		ELEV (ft)

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555

TEST PIT TP-279 PAGE 1 OF 1

	www.balterco.com										
	Engineering, Inc.						ude Landfill				
	OCATION Montgomer						16943-0 M				
	TED <u>7/19/18</u>			TED <u>7/19/18</u>	GROUND E	LEVATIO	N		ST PIT SIZ	E	
	N CONTRACTOR The			lter Company	DATE	TIME	ELAPSED	TER LEVE	HOLE	WATER	WATER
	N METHOD Case 580				7/19/18	111112	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (f
	['] J. Bailey		ECKE	D BY K. Crist			0 -			l INC	
NOTES Lat	: 39.10976 Long: -77.1	3802		•							
SAMPLE TYPE	REMARKS	U.S.C.S.	GRAPHIC LOG				ERIAL DESC				
2.5 2.5 5.0 7.5	Trash Not Encountered	SM		Moist, Light	Brown, Silty SA		m of test pit				

The Robert B. Balter Company **TEST PIT TP-280** Geotechnical and Environmental Engineers PAGE 1 OF 1 Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD DATE STARTED 7/19/18 COMPLETED 7/19/18 **GROUND ELEVATION TEST PIT SIZE** WATER LEVELS SED CASING RS DEPTH (ft) D **EXCAVATION CONTRACTOR** The Robert B. Balter Company HOLE DEPTH (ft) WATER ELEV (ft) WATER DEPTH (ft) ELAPSED DATE TIME **EXCAVATION METHOD** Case 580N Backhoe HOURS 7/19/18 0 ∑ ΝE LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10993 Long: -77.1375 SAMPLE TYPE NUMBER GRAPHIC LOG DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION 0.0 Asphalt Debris Moist, Light Brown, Silty SAND with variable amounts of garbage 2.5 SM 5.0 GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 Trash Bottom of test pit at 6.5 feet



The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com

TEST PIT TP-281 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering,	Inc.							PROJECT	NAME	Gu	ıde Landfill				
	ECT LO													16943-0 M				
DATE	STARTE	D _7/2	20/18			CON	IPLET	ED _7	7/20/1	18	 GROUND	ELEVAT	101	ı	TE	ST PIT SIZ	E	
EXCA	VATION	CONT	RACT	OR _	Γhe R	obert	B. Bal	lter Co	ompar	ny				WA'	TER LEVE	LS	WATER	WATER
EXCA	VATION	METH	OD _	Case 5	80N	Backh	oe				 DATE	TIME		ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	GED BY _	J. Bai	ley			CHE	CKED	BY _	K. Cri	rist	 7/20/18			0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.110	28 Lor	ng: -77	7.139 ⁻	1												
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Мс	oist, Li	ght Br	rown, \$	Silty S	SAND	MATE	RIAL DI	ESC	CRIPTION				
2.5		SM	F	3.5	Tra	ash												
	-			4.8	118	45(1												
18											Botto	m of test	t pit	at 4.8 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																		



TEST PIT TP-282

WW	w.bait	- 100.0	JUIII										
CLIENT EAE	ngine	ering, l	Inc.				PROJECT I	NAME G	ude Landfill				
PROJECT LOC	ATIO	N _Mo	ntgomery	County, Ma	ryland		PROJECT I	NUMBER	16943-0 M	<u>D</u>			
DATE STARTE	D _7/2	20/18		COMPLE	TED _7/20/	′18	GROUND E				ST PIT SIZI	=	
EXCAVATION (CONT	RACT	OR The I	Robert B. Ba	lter Compa	any			WA	TER LEVEL	.s		
EXCAVATION I	METH	OD C	Case 580N	I Backhoe			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY) BY K. C	rist	7/20/18		0 ∑			NE	
NOTES Lat: 3													
			I										
O DEPTH (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATER	RIAL DES	CRIPTION				
2.5	SM		N = 4.0	loist, Light B	rown, Silty	SAND							
				rash									
		\ggg											
		XXX											
5.0		\ggg											
		XXX	5.3										
							Botton	of test pi	t at 5.3 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com CLIENT FA Engineering Inc.

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-283

CLIENT EA Eng	jineer	ring, I	nc.					PROJECT N	NAME Gu	ıde Landfill				
PROJECT LOCAT	TION	Мо	ntgomer	y County, I	Maryland	d		PROJECT N	NUMBER _	16943-0 M	D			
DATE STARTED	7/20	0/18		COMP	LETED	7/20/18		GROUND E	LEVATION	١	TE	ST PIT SIZI	≣	
EXCAVATION CO	ONTR	ACT	OR The	Robert B.	Balter C	Company				WA	TER LEVEL	_S	WATER	WATER
EXCAVATION ME	ETHO	D _C	ase 580	N Backhoe)			DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY J. I	Baile	y.		CHEC	(ED BY	K. Crist		7/20/18		0 ∑			NE	
NOTES Lat: 39.1	1096	4 Lon	ıg: - 77.13	3941										
SAI	U.S.C.S.	GRAPHIC LOG						MATER	RIAL DESC	CRIPTION				
0.0	- 1	iji _E		Moist, Ligh	t Brown	Silty SA	ND							
2.5 S	БМ		5.5		LIJOWII	, Jilly JA								
				Trash										
.	×	\bowtie	7.0							-1705				
								Bottom	ı or test pit	at 7.0 feet				



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TEST PIT TP-284

CLIENT EA E												ude Landfill				
PROJECT LOC	ATION	I <u>Mo</u>	ntgomer	y Coun	ty, Mary	yland			_ PR	OJECT	NUMBER	16943-0 M	D			
DATE STARTE	D <u>7/1</u>	9/18		_ co	MPLET	ED _7/	19/18		_ GR	ROUND E	LEVATIO	N		ST PIT SIZ	E	
EXCAVATION (CONTR	RACT	OR The	Rober	t B. Bal	lter Cor	mpany	•				WA ELAPSED	TER LEVEL	_S	WATER	WATER
EXCAVATION I	ИЕТНО	DD _C	Case 580	N Back	thoe				_	DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY _	J. Baile	еу		_ СН	ECKED	BY K	(. Crist	t	_ 7	7/19/18		0 ∑			NE	
NOTES Lat: 3	9.1095	1 Lor	ng: -77.1	3799					_							
LOGGED BY _	J. Baile 9.1095	ey State of the st	ng: -77.1	CH 3799					_	MATER	RIAL DES	HOURS 0 CRIPTION t at 4.5 feet		DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)



The Robert B. Balter Company
Geotechnical and Environmental Engineers
Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

TEST PIT TP-285

ww	w.balt	erco.c	om											
CLIENT EAE	nginee	ering, l	Inc.					PROJECT N	NAME Gu	de Landfill				
PROJECT LOC	OITA	M _ Mo	ntgomer	y County, N	<i>l</i> aryland			PROJECT N	NUMBER _	16943-0 M	D			
DATE STARTE	D _7/	19/18		_ COMPL	_ETED _	7/19/18		GROUND E	LEVATION			ST PIT SIZE	≣	
EXCAVATION	CONT	RACT	OR The	Robert B.	Balter Co	ompany				WA'	TER LEVEL	_S HOLE	WATER	WATER
EXCAVATION	METH	OD _C	Case 580	N Backhoe)			DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	I	ELEV (ft)
LOGGED BY	J. Bail	еу		_ CHECK	KED BY _	K. Crist		7/19/18		0 ⊼			NE	
NOTES Lat: 3	9.109	52 Lor	ng: -77.13	3738										
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG			4.00			MATER	RIAL DESC	CRIPTION			,	
0.0 2.5 	SM	FFF	3.5	Moist, Ligh	t Brown,	Silty SAN	ID	Bottom	n of test pit	at 4.7 feet				



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TEST PIT TP-286

VVVV	w.baile	E100.0	OIII											
CLIENT EA E	nginee	ering, I	nc.					PROJECT I	NAME G	ude Landfill				
PROJECT LOC	ATION	M _Mo	ntgomer	y County, N	/laryland			PROJECT I	NUMBER	16943-0 M	D			
DATE STARTE	D _7/2	20/18		COMPL	_ETED _	7/20/18		GROUND E				ST PIT SIZE	=	
EXCAVATION (WA	TER LEVEL	_S		
EXCAVATION I								DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						K. Crist	_	7/20/18		0 ∑			NE	
NOTES Lat: 3					-									
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATE	RIAL DES	CRIPTION				
0.0	SM		3.0	Moist, Ligh	t Brown,	Silty SAN	D	Botton	n of test pi	t at 3.7 feet				



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Geotechnical and Environmental Engineers
Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

TEST PIT TP-287 PAGE 1 OF 1

	ww														
	T EA E								PROJECT I						
					ery County				PROJECT I						
	STARTE					PLETED _			GROUND E	LEVATION			ST PIT SIZE	፟፟፟፟፟፟፟፟፟፟፟	
					e Robert E		ompany		DATE	TIME	ELAPSED	TER LEVEI	HOLE	WATER	WATER
					0N Backho				7/20/18	IIIVIL	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
					CHEC	CKED BY	K. Crist		7/20/10		0 =			INL	
NOTES	Lat: 3	9.1089) Long	j: - 77.1	3878			_							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATER	RIAL DESC	CRIPTION				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2		SM		6.5	Moist, Lig	ght Brown,	Silty SAN	ID	Botton	of test pit	at 7.5 feet				
GENERAL BH / TP / WELL 1															



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TEST PIT TP-288

CLIEN	NT EA E	ngine	ering, I	lnc.					PI	ROJECT I	NAME G	ude Landfill				
PROJ	ECT LOC	ATIO	N <u>Mo</u>	ntgomer	y Count	y, Maryla	and		PI	ROJECT I	NUMBER	16943-0 M	D			
DATE	STARTE	D 7/2	20/18		CO	/IPLETE	D 7/20	/18	G	ROUND E	LEVATIO	N	TE	ST PIT SIZ	=	
EXCA	VATION (CONT	RACT	OR The	e Robert	B. Balte	er Comp	any				WA	TER LEVEL	-S	MATES!	\A/ATES
EXCA	VATION I	METH	OD _C	Case 580)N Backl	noe				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	SED BY _	J. Bail	ey		CHE	CKED E	3Y K. (Crist		7/20/18		0 ∑			NE	
	S Lat: 3															
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Bro	wn, Silty	/ SAND		MATEF	RIAL DES	CRIPTION				
		SM	F	2.3	Trash											
				4.0						Bottom	of test ni	t at 4.0 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland DATE STARTED 7/19/18 COMPLETED 7/19/18 EXCAVATION CONTRACTOR The Robert B. Balter Company

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-289

CLIEN	<u>——</u> IT <u>EA Eı</u>	nginee	ering,	lnc.					PROJECT I	NAME G	ude Landfill				
					y County, N						16943-0 M	D			
DATE	STARTE	D _7/1	9/18		COMPL	ETED _	7/19/18		GROUND E	LEVATIO	N	TE	ST PIT SIZI	=	
EXCA	VATION (CONT	RACT	OR The	Robert B.	Balter Co	ompany				WA ⁻	TER LEVEL	-S	14/4TED	14/4 T ED
EXCA	VATION I	ИЕТН	OD _C	Case 580	N Backhoe)			DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY	J. Bail	ey		CHECK	ED BY	K. Crist		7/19/18		0 ∑			NE	
	S <u>Lat: 3</u>					_		_							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATER	RIAL DES	CRIPTION				
0.0] F		Moist, Ligh	t Brown,	Silty SAN	ID							
2.5		SM	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	4.3	Trash										
5.0				6.5	114311				Botton	n of test pit	t at 6.5 feet				



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TEST PIT TP-290

CLIEN	IT EA E	nginee	ering, I	nc.						_ PROJ	ECT N	AME Gu	ıde Landfill				
PROJ	ECT LOC	ATIO	Mo_Mo	ntgome	ery Cou	ınty, Ma	arylan	d		_ PROJ	ECT N	UMBER _	16943-0 M	D			
DATE	STARTE	D _7/2	20/18		c	OMPLE	ETED	7/20/	18	GROL	JND E	EVATION	١	TE	ST PIT SIZI	≣	
EXCA	VATION (CONT	RACTO	OR T	ne Rob	ert B. B	Balter (Compa	iny				WA	TER LEVEL	.S	WATER	WATER
EXCA	VATION I	ИЕТН	OD _C	Case 58	30N Ba	ckhoe				_ DA		TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGG	ED BY _	J. Bail	ey		c	HECKE	D BY	K. C	rist	7/20)/18		0 ∑			NE	
NOTE	S _Lat: 3	9.1093	35 Lon	ng: -77.	14033					_							
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							M	MATER	IAL DESC	CRIPTION				
0.0			HF.		Moist	, Light I	Brown	. Siltv	SAND								
2.5		SM	F F F	2.7	Trash					E	3ottom	of test pit	at 3.0 feet				



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TEST PIT TP-291

CLIENT EAE											ude Landfill				
PROJECT LOC											16943-0 M				
DATE STARTE	D _7/2	20/18		co	MPLETE	D _7/2	0/18		GROUND I	ELEVATIO	N		ST PIT SIZ	E	
EXCAVATION	CONT	RACT	OR Th	e Robert	B. Balte	er Com	pany			Ι.	WA ELAPSED	TER LEVEL	S HOLF	WATER	WATER
EXCAVATION	METH	OD _C	Case 580	0N Back	hoe				DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY _	J. Bail	ey		СНІ	ECKED	BY <u>K.</u>	Crist		7/20/18		0 ∑			NE	
NOTES Lat: 3	9.108	77 Lor	ng: -77.1	13928											
LOGGED BY _	J. Bail	ey CRAPHIC SAPHIC SAPHI		CHI	ECKED		ty SAND				CRIPTION			NE NE	
			I												



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TEST PIT TP-292

W	ww.bai	leico.c	OIII											
CLIENT EA	Engine	ering, l	lnc.					PROJECT	NAME G	ude Landfill				
PROJECT LO	CATIO	N <u>Mo</u>	ntgomer	y County,	Maryland	l		PROJECT	NUMBER	16943-0 M	D			
DATE START					PLETED			GROUND E				ST PIT SIZI	=	
EXCAVATION										WA	TER LEVEL	_S		
EXCAVATION								DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						K. Crist		7/19/18		0 ∑			NE	
NOTES Lat:														
	1	T = 0.												
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATE	RIAL DES	CRIPTION				
2.5	SM	F	1.5	Moist, Ligi	ht Brown,	Silty SAI	ND							
			4.0											
								Botton	n of test pi	it at 4.0 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555

TEST PIT TP-293 PAGE 1 OF 1

CLIENT EAE	Engineering, Inc.				PROJECT	NAME G	ıde Landfill				
PROJECT LOC	CATION Montgomer	y Count	y, Mar	ryland	PROJECT	NUMBER	16943-0 M	D			
DATE STARTE	ED 7/19/18	_ coi	MPLE1	TED <u>7/19/18</u>	GROUND E	LEVATION	N	TE	ST PIT SIZ	E	
EXCAVATION	CONTRACTOR The	e Robert	B. Ba	lter Company			WA ELAPSED	TER LEVE	LS HOLE	WATER	WATER
EXCAVATION	METHOD Case 580	N Back	hoe		DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (fi
LOGGED BY	J. Bailey	CHE	ECKE	D BY K. Crist	7/19/18		0 ∑			NE	
NOTES Lat: 3	39.1085 Long: -77.13	673									
O DEPTH O (ft) SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG				RIAL DESC	CRIPTION			
0.0			iii F	Moist, Ligh	nt Brown, Silty SAI	ND					
2.5	Trash Not Encountered	SM		8.0		Bottoi	ກ of test pit	at 8.0 feet			



TEST PIT TP-294

CLIENT EA Engineering, Inc.	www.bailerco.com							
DATE STARTED 7/19/18 COMPLETED 7/19/18 GROUND ELEVATION TEST PIT SIZE	CLIENT EA Engineering, Inc.	PROJECT N	NAME G	ude Landfill				
DATE STARTED 7/19/18 COMPLETED 7/19/18 GROUND ELEVATION TEST PIT SIZE	PROJECT LOCATION Montgomery County, Maryland	PROJECT N	NUMBER	16943-0 M	D			
EXCAVATION CONTRACTOR The Robert B. Balter Company	DATE STARTED 7/19/18 COMPLETED 7/19/18					ST PIT SIZI	E	
DATE TIME PLAYSED CASING CASING DEPTH (ft)		- [WA	TER LEVEL	_S		
NOTES Lat: 39.10817 Long: -77.13632 NE		DATE	TIME	HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
NOTES Lat: 39.10817 Long: -77.13632 Hand Hand		7/19/18		0 ∑			NE	
MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION MATERIAL DESCRIPTION Moist, Light Brown, Silty SAND SM F F A.5 Trash A.5								
0.0 Moist, Light Brown, Silty SAND F SM F F F F F F F F F		-						
SM F F F F F F F F F F F F F F F F F F F	SAMPLE TYPE NUMBER U.S.C.S. LOG	MATEF	RIAL DES	CRIPTION				
	Moist, Light Brown, Silty SAND SM F 2.5 F F And F Trash	Bottom	of test pi	t at 4.5 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland DATE STARTED 7/20/18 COMPLETED 7/20/18 EXCAVATION CONTRACTOR The Robert B. Balter Company

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST	PIT	TP	-295
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CLIENT EAE	nginee	ering, l	lnc.				PROJ	ECT N	NAME G	ude Landfill				
PROJECT LOC										16943-0 M	D			
DATE STARTE	D 7/2	20/18		COMPLE	TED _7/2	20/18	GROU	JND E	LEVATIO	N	TE	ST PIT SIZI	=	
EXCAVATION	CONT	RACT	OR The F	Robert B. Ba	alter Com	pany				WA	TER LEVEL	-S	14/4TED	14/4 T ED
EXCAVATION	METH	OD _C	Case 580N	Backhoe			DA	TE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY					DBY K.	Crist	7/20)/18		0 ∑			NE	
NOTES Lat: 3														
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					Μ	IATEF	RIAL DES	CRIPTION				
0.0		F	М	oist, Light E	Brown, Sil	Ity SAND								
2.5	SM	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF	5.0											
				rash										
			6.0					Rottom	of tost ni	t at 6.0 feet				
								Jouon	i or test pl	t at 0.0 leet				

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TEST PIT TP-298 PAGE 1 OF 1

			w.bailerco.com										
	CLIEN	IT EAE	ngineering, Inc.				PROJECT	NAME G	ude Landfill				
	PROJ	ECT LOC	ATION Montgomery	Count	y, Mar	yland	PROJECT	NUMBER	16943-0 M	D			
	DATE	STARTE	D 7/20/18	CON	/IPLE	TED 7/20/18	_ GROUND E	LEVATIO	N	TE	ST PIT SIZE	:	
			CONTRACTOR The I				_		WA ⁻	TER LEVEL	.s		
			METHOD Case 580N				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
			J. Bailey			DBY K. Crist	7/20/18		0 ∑			NE	
			9.1073 Long: -77.133				_						
								<u> </u>		<u> </u>			
	O DEPTH O (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG			MATE	RIAL DESC	CRIPTION			
	0.0				III F	Moist, Light B	rown, Silty SA	ND					
					F		•						
					∷HF HHF								
	_												
					iiiF IIIF								
	2.5												
					F								
					F								
	_ =				F								
	_ =			SM	F								
					iii F								
81	5.0				F								
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18													
ER.GD					∏∏F ∷∷ F								
B BALT	_												
BERT					F								
J RO					F								
L.GP	-												
NDFIL	7.5				F								
JE LA					F								
0 GUL			Trash Not Encountered			8.0		Rotto	m of test pit	at 8.0 feet			
6943-			Lilountered					וטווטם	in or test bit	at 0.0 leet			
ELL 1)													
P / WŁ													
3H/T													
RAL E													
GENE													
_													



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TEST PIT TP-299

CLIEN	IT EAE	nginee	ering, I	nc.						PROJE	ECT N	IAME Gu	ude Landfill				
	ECT LOC				y Coun	ty, Mar	yland						16943-0 N				
	STARTE								3	GROUI	ND E	LEVATIO	N	TE	ST PIT SIZ	=	
EXCA	VATION (CONT	RACTO	OR The	Rober	t B. Ba	Iter Co	ompany	У				WA	TER LEVEL	_S	14/4TED	\44TED
EXCA	VATION I	METH	OD _C	ase 580	N Back	hoe				DAT		TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY	J. Bail	ey		_ CH	ECKED	BY _	K. Cris	st .	7/20/	18		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.1070	01 Lor	ng: -77.1	3348					_							
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MA	ATER	IIAL DESC	CRIPTION				
0.0		SM		2.0	Moist, I	Light Bı	rown,	Silty S	AND								
2.5				27													
			C X X X S							Во	ottom	of test pit	t at 2.7 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com **CLIENT** EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland COMPLETED 7/20/18 **GROUND ELEVATION** DATE STARTED 7/20/18 **EXCAVATION CONTRACTOR** The Robert B. Balter Company DATE TIME **EXCAVATION METHOD** Case 580N Backhoe 7/20/18 LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10739 Long: -77.13395 SAMPLE TYPE NUMBER GRAPHIC LOG DEPTH (ft) U.S.C.S. 0.0 Moist, Light Brown, Silty SAND

2.5

5.0

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD **TEST PIT SIZE** WATER LEVELS SED CASING RS DEPTH (ft) D HOLE DEPTH (ft) WATER DEPTH (ft) WATER ELEV (ft) ELAPSED HOURS 0 ∑ ΝE MATERIAL DESCRIPTION SM Trash Bottom of test pit at 7.0 feet

TEST PIT TP-301



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TEST PIT TP-302 PAGE 1 OF 1

CLIE	NT EAE	ngine	ering, I	nc.							PROJE	CT N	IAME G	ude Land	dfill				
PROJ	ECT LOC	CATIO	N Moi	ntgom									UMBER			D			
DATE	STARTE	D _7/2	20/18		(СОМРІ	LETE	D _7/2	20/18		GROUN	DΕ	LEVATIO	N		TE	ST PIT SIZ	E	
EXCA	VATION	CONT	RACTO	OR _T	he Rol	oert B.	Balte	r Com	npany					ELAPS	WA.	TER LEVEL	S HOLE	WATER	WATER
EXCA	VATION	METH	OD _C	ase 5	80N B	ackhoe)				DATE	\rightarrow	TIME	HOUF	es_	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGO	GED BY _	J. Bail	еу		(CHECK	(ED B	SY <u>K.</u>	. Crist		7/20/	8		0	⊻			NE	
NOTE	S <u>Lat: 3</u>	9.107	37 Lon	g: - 77	.13473						_								
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Mois	t Liah	t Brov	wn Sil	Ity SAI	ND.	MA	TEF	RIAL DES	CRIPTIC	Ν				
		SM	F	2.0	Tras		ПБІО	wii, Sii	ily SAI	ND									
				3 0															
	1		XXXX	J.U							Во	ttom	of test pi	t at 3.0 f	eet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																			



TEST PIT TP-303 PAGE 1 OF 1

www.bal	terco.com									
CLIENT EA Engine	ering, Inc.			PROJECT I	NAME Gu	de Landfill				
PROJECT LOCATIO	N Montgome	ery County, Maryland		PROJECT I	NUMBER _	16943-0 MI	D			
DATE STARTED _7/	20/18	COMPLETED _7/2	20/18	GROUND E	LEVATION			ST PIT SIZI	≣	
EXCAVATION CONT	RACTOR T	he Robert B. Balter Com	npany			WA ⁻ ELAPSED	TER LEVEL CASING	_S HOLE	WATER	WATER
EXCAVATION METH	IOD Case 58	BON Backhoe		DATE	TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
LOGGED BY J. Ba	iley	CHECKED BY K	. Crist	7/20/18		0 ∑			NE	
NOTES Lat: 39.107	67 Long: -77.	.13531								
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18 10 DEPTH	GRAPHIC GRAPHIC COST	Moist, Light Brown, Si	ilty SAND		n of test pit	at 5.0 feet				



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TEST PIT TP-304 PAGE 1 OF 1

CLIENT EA	Engir	nee	ring, I	nc.						PF	ROJECT I	NAME Gu	ude Landfill				
PROJECT LO	CATI	ION	l <u>M</u> o	ntgomer	y Coun	ty, Ma	ryland	l		PF	ROJECT I	NUMBER	16943-0 M	D			
DATE START	ED _	7/1	9/18		_ co	MPLE	TED _	7/19/	18	GF	ROUND E	LEVATION	N	TE	ST PIT SIZI	=	
EXCAVATION	OO CO	NTF	RACTO	OR The	Rober	t B. Ba	alter C	ompa	any				WA ELAPSED	TER LEVEL	S	WATER	WATER
EXCAVATION	N MET	THC	D _C	ase 580	N Back	choe					DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. B	Baile	Э У		_ СН	ECKE	D BY	K. C	rist	7	7/19/18		0 ∑			NE	
NOTES Lat:	39.10	074	9 Lon	ng: -77.13	3753												
111					-						ı			I		1	
SAMPLE TYPE NUMBER	S C S C S C S C S C S C S C S C S C S C		GRAPHIC LOG								MATER	RIAL DESC	CRIPTION				
0.0		-	ili _E		Moist, I	Liaht B	Brown.	Siltv	SAND								
 	SM	М	F	1.8		Ligiti L	, in own,	Only	OAND								
		Š	XX		Trash												
		Š	XX														
2.5			XX														
		K	XX	3.0													
			***								Botton	of test pit	t at 3.0 feet				



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TEST PIT TP-305

w	vw.baii	erco.c	OIII											
CLIENT EA E	ngine	ering, l	lnc.					PROJECT N	NAME G	ude Landfill				
PROJECT LO	CATIO	N <u>Mo</u>	ntgomer	ry County,	Maryland			PROJECT N	NUMBER	16943-0 M	D			
DATE STARTE	ED _7/2	20/18		COMP	LETED _	7/20/18		GROUND E				ST PIT SIZI	=	
EXCAVATION	CONT	RACT	OR The	e Robert B.	. Balter C	ompany				WA	TER LEVEL	_S		
EXCAVATION	METH	OD (Case 580	N Backho	е			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						K. Crist		7/20/18		0 ∑			NE	
NOTES Lat: 3														
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DES	CRIPTION				
2.5	SM	F	3.3	Moist, Ligh	nt Brown,	Silty SANI	D	Bottom	ı of test pi	t at 4.0 feet				



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TEST PIT TP-307

			0,00.0	0111													
CLIE	NT EAE	ngine	ering, I	nc.						PR	ROJECT	NAME G	ude Landfill				
PROJ	ECT LOC	ATIO	N <u>Mo</u>	ntgome	ry Cour	nty, Mai	ryland			PR	ROJECT	NUMBER	16943-0 M	<u>D</u>			
DATE	STARTE	D 7/2	20/18		CC	OMPLE"	TED _	7/20/18	3	GF	ROUND E	LEVATIO	N	TE	ST PIT SIZ	Ε	
	VATION (rt B. Ba	alter Co	<u>ompa</u> n	у				WA	TER LEVEL	_S		
	VATION I								<u> </u>		DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
	SED BY						D BY	K. Cris	st	_ 7	7/20/18		0 ∑			NE	
	S Lat: 3						• -			_							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATEI	RIAL DES	CRIPTION				
2.5		SM	FFF	3.5	Moist, Trash	Light B	Brown,	Silty S	AND		Botton	n of test pi	it at 4.0 feet				

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-308

www	w.baite	erco.c	om											
CLIENT EA En								PROJECT	NAME Gu	ude Landfill				
PROJECT LOCA	ATION	1 <u>Mo</u>	ntgomer	-	-			PROJECT	NUMBER	16943-0 MI				
DATE STARTED	7/2	0/18		_ COMF	PLETED	7/20/18	3	GROUND E	LEVATION			ST PIT SIZE		
EXCAVATION C	ONTE	RACTO	OR The	Robert B	B. Balter	Compan	у	- 		WA ⁻ ELAPSED	TER LEVEL CASING	S HOLE	WATER	WATER
EXCAVATION N	/ETH	DD _C	ase 580	N Backho	е			DATE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY J	l. Baile	еу		_ CHEC	KED BY	K. Cris	st	7/20/18		0 ∑			NE	
NOTES Lat: 39	9.1061	3 Lor	ng: -77.13	3903				-						
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DESC	CRIPTION			,	
	SM		3.5	Moist, Lig	ht Brown	n, Silty S	AND	Bottom	n of test pit	t at 1.8 feet				



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TEST PIT TP-309 PAGE 1 OF 1

CLIENT EA Engineering, Inc	C.	_ PROJECT N	IAME Gu	de Landfill				
PROJECT LOCATION Montg	gomery County, Maryland	_ PROJECT N	NUMBER _	16943-0 MI	D			
DATE STARTED 7/19/18	COMPLETED _7/19/18	_ GROUND E	LEVATION	I	TE	ST PIT SIZI	≣	
EXCAVATION CONTRACTOR	The Robert B. Balter Company			WA	TER LEVEL	-S	WATER	WATER
EXCAVATION METHOD Cas	se 580N Backhoe	DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGGED BY J. Bailey	CHECKED BY K. Crist	7/19/18		0 ∑			NE	
NOTES _Lat: 39.10789 Long:	: -77.13805	_						
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG		MATEF	RIAL DESC	CRIPTION				
0.0	Trash	Bottom	of test pit	at 3.8 feet				

The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com CLIENT _EA Engineering, Inc. PROJECT LOCATION _Montgomery County, Maryland DATE STARTED _7/19/18 ______ COMPLETED _7/19/18

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

TEST PIT TP-310

CLIEN	IT EA E	ngine	ering, I	nc.					PR0	DJECT N	IAME G	ude Landfill				
PROJ	ECT LOC	ATIO	N <u>Mo</u>	ntgomer	y County	, Maryla	nd		PR(DJECT N	IUMBER	16943-0 M	D			
DATE	STARTE	D 7/	19/18		CON	IPLETED	7/19/	18	GR	OUND E	LEVATIO	N	TE	ST PIT SIZ	=	
EXCA	VATION (CONT	RACTO	OR _The	Robert	B. Balter	Compa	any				WA	TER LEVEL	_S		
	VATION I							<u> </u>		DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
	ED BY _						Y K.C	rist	7/	19/18		0 ∑			NE	
	S <u>Lat: 3</u>								_							
		0.107	0 + LOI	ig. 77.10	0001											
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATER	RIAL DES	CRIPTION				
		SM	F	1.0		ght Brow	n, Silty	SAND								
					Trash											
2.5																
				4.1						Pottom	of toot ni	t at 4.1 feet				
										DOLLOIT	or test pr	ı aı 4.1 leei				



TEST PIT TP-311 PAGE 1 OF 1

CLIEN	NT EAE	ngine	ering, I	nc.							F	PROJECT	NAME G	ude Landfill				
PROJ	ECT LOC	ATIO	N <u>Mo</u>	ntgom	ery C	ounty,	Maryl	land			F	PROJECT	NUMBER	16943-0 M	D			
DATE	STARTE	D 7/	19/18			COMF	LETE	ED _7/	/19/18	3		GROUND E	LEVATIO	N			E	
EXCA	VATION	CONT	RACT	OR _T	he Ro	bert B	. Balt	er Cor	mpan	У	— г	DATE	T114F	WA ELAPSED	TER LEVEI CASING	HOLE	WATER	WATER
	VATION										}	DATE 7/19/18	TIME	ELAPSED HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
	SED BY _						KED	BY K	K. Cris	st		7/19/10		0 ∑			NE	
NOTE	S <u>Lat: 3</u>	9.108	14 Lor	ıg: -77	'.1384	1												
O DEPTH	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG									MATE	RIAL DES	CRIPTION				
0.0			F		Moi	st, Lig	ht Bro	wn, S	Silty S	AND								
	-	SM	F	1.6														
					Tra	sh												
-																		
2.5																		
				3.0														
-	-		XXXX	5.0								Botton	n of test pi	t at 3.0 feet				
9/5/18																		
ER.G																		
BALT																		
ERT B																		
ROB																		
-GPJ																		
JDFIL.																		
E E																		
0 GUD																		
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT																		
ELL 1																		
<u>A</u>																		
BH / T																		
-RAL																		
GEN																		



TEST PIT TP-312 PAGE 1 OF 1

CLIE	ENT _	EA Er	nginee	ering,	Inc.						ı	PROJECT	NAME G	ude Landfill				
PRO	JECT	LOC	ATIO	N _Mc	ontgom	ery Co								16943-0 M				
DAT	E STA	RTE	7/	19/18			OMPL	ETED	7/19/	/18		GROUND E	LEVATION	N			=	
EXC	AVAT	ION C	CONT	RACT	OR _T	he Rob	ert B. E	Balter	Compa	any	— г	DATE	TIME	ELAPSED	TER LEVEL CASING	HOLE	WATER	WATER
1						80N Ba						DATE 7/19/18	TIME	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
1						(ED BY	/ <u>K. C</u>	Crist		7/19/10		0 -			INE	
NOT	ES _l	_at: 39	9.1080	07 Lo	ng: -77	.13892												
DEPTH (ft)	SAMPLE TYPE	NUMBER	U.S.C.S.	GRAPHIC LOG								MATE	RIAL DESC	CRIPTION				
0.0]] F		Mois	t, Light	Brown	n, Silty	SAND								
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ. ROBERT B BALTER.GDT 9/6/18			SM		3.5	Trasi		Brown	n, Sility	SAND		Botton	n of test pit	t at 4.0 feet				
GENERAL BH / TP / WELL																		



TEST PIT TP-314 PAGE 1 OF 1

1	'''' T									DDO	IECT I	JAME C	ıda Landfill				
1	T EA E												ude Landfill				
	ECT LOC								o				16943-0 M		OT DIT OUT	-	
1	STARTE									GRO	UND E	LEVATIO	N	TER LEVEL	ST PIT SIZI	Ξ	
	/ATION (alter C	ompan	ıy		ATE	TIME	ELAPSED	CASING	HOLE	WATER	WATER
1	/ATION I										9/18	1 IIVIL	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)	DEPTH (ft) NE	ELEV (ft)
	ED BY _				с	HECKE	D BY	K. Cri	st	_ '''	9/10		0 =			INC	
NOTES	6 <u>Lat: N</u>	/A Loi	ng: N//	Α						_							
0.0 0.0	SAMPLE TYPE NUMBER	MS U.S.C.S.	The state of the s		Moist	, Light I	Brown,	Silty S	SAND		MATER	RIAL DESC	CRIPTION				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18			F F	4.5	Trash						Bottom	ı of test pit	t at 4.5 feet				
GENERAL BH / TP / WELL 1694																	



TEST PIT TP-315 PAGE 1 OF 1

CLIEN	NT EAE	ngine	ering, I	nc.							PR	OJECT	NAME G	ude Landfill				
	ECT LOC													16943-0 M				
	STARTE								19/18					N		ST PIT SIZ	E	
EXCA	VATION	CONT	RACTO	OR _T	he Ro	bert B.	. Balte	er Con	npany					WA	TER LEVE	LS	WATER	WATER
EXCA	VATION	METH	OD _C	ase 5	80N B	ackho	е				_ ⊢	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	DEPTH (ft)	WATER ELEV (ft)
LOGG	SED BY	J. Bail	еу			CHEC	KED I	BY K	. Crist		_ 7	7/19/18		0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.107	42 Lon	g: - 77	7.139						_							
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG									MATEI	RIAL DES	CRIPTION				
	-	SM	F	1.3	Moi	st, Ligh	ht Bro	own, S	ilty SA	ND								
2.5				3.3														
				0.0								Botton	n of test pi	it at 3.3 feet				
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18																		



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TEST PIT TP-317

CLIENT	Γ <u>EA E</u> ι	nginee	ering, I	nc.					PROJECT	NAME Gu	ıde Landfill				
PROJE	CT LOC	ATION	M _Mo	ntgomer	y County,	Marylar	nd		PROJECT	NUMBER	16943-0 M	D			
DATE S	STARTE	D _7/2	20/18		СОМ	PLETED	7/20/1	8	GROUND E	LEVATION	N	TE	ST PIT SIZI	≣	
EXCAV	ATION (CONTI	RACT	OR The	Robert E	B. Balter	Compa	ny	-		WA	TER LEVEL	-S	WATER	WATER
EXCAV	ATION I	ИЕТН	OD _C	ase 580	N Backho	ре			DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		WATER ELEV (ft)
LOGGE	D BY _	J. Bail	ey		_ CHEC	CKED BY	/ K. Cr	ist	7/20/18		0 ∑			NE	
NOTES	Lat: 3	9.1084	47 Lor	ıg: -77.1	4028				-						
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATE	RIAL DESC	CRIPTION				
0.0]]F		Moist, Lig	ht Brow	n, Silty S	SAND							
		SM		3.2	Trash										
-			AAXX						Botton	n of test pit	at 4.0 feet				



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Geotechnical and Environmental Engineers
Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

TEST PIT TP-318

	ww	w.balt	erco.c	com											
CLIEN.	T EA E	ngine	ering,	Inc.					PROJECT N	NAME Gu	ide Landfill				
PROJE	ECT LOC	ATIO	N _Mc	ntgomer	y County, I	Maryland			PROJECT N	NUMBER _	16943-0 M	D			
DATE	STARTE	D 7/2	20/18		COMP	LETED	7/20/18		GROUND E	LEVATION	١	TE	ST PIT SIZE	=	
EXCA\	ATION (CONT	RACT	OR The	e Robert B.	Balter C	ompany				WA	TER LEVEL	_S	MATER	14/4750
EXCA\	ATION I	METH	OD _	Case 580	N Backhoe	Э			DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGI	ED BY _	J. Bail	еу		CHECI	KED BY	K. Crist		7/20/18		0 ∑			NE	
NOTES	S _Lat: 3	9.109	04 Lor	ng: -77.1	4062										
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATER	RIAL DESC	CRIPTION				
0.0 2.5		SM	F	2.5	Moist, Ligh	nt Brown,	Silty SAN	ND	Bottom	n of test pit	at 3.8 feet				



TEST PIT TP-319

	VVVV	···.bait	0100.0	OIII											
CLIEN	T EA E	ngine	ering, I	nc.					PROJECT I	NAME G	ude Landfill				
PROJE	ECT LOC	ATIO	M _Mo	ntgomer	y County	, Marylan	d		PROJECT I	NUMBER	16943-0 M	D			
DATE	STARTE	D _7/2	20/18		СОМ	PLETED	7/20/18	3	GROUND E	LEVATIO	N	TE	ST PIT SIZI	=	
EXCA	ATION (CONT	RACT	OR The	Robert E	B. Balter	Company	У			WA	TER LEVEL	.s		
EXCAV	/ATION I	METH	OD C	ase 580	N Backh	oe			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
						CKED BY	′ K. Cris	st	7/20/18		0 ∑			NE	
	Lat: 3														
O DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATE	RIAL DES	CRIPTION				
		SM	FFF	1.5	Moist, Lig Trash	ght Brown	n, Silty SA	AND							
2.5			\bowtie	2.5											
									DOLLOIT	i oi test pi	t at 2.5 feet				



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TEST PIT TP-320

www.balterco.com							
CLIENT EA Engineering, Inc.	PROJECT	NAME G	ude Landfill				
PROJECT LOCATION Montgomery County, Maryland	_ PROJECT N	NUMBER	16943-0 M	D			
DATE STARTED _7/20/18	GROUND E				ST PIT SIZI	=	
EXCAVATION CONTRACTOR _ The Robert B. Balter Company	_		WA ⁻	TER LEVEL	_S		
EXCAVATION METHOD Case 580N Backhoe	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY J. Bailey CHECKED BY K. Crist	7/20/18		0 ∑			NE	
NOTES Lat: 39.10809 Long: -77.14083	-						
	-						
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATER	RIAL DES	CRIPTION				
O.O. O.O. O.O. O.O. O.O. O.O. O.O. O.O	Bottom	ı of test pi	t at 4.8 feet				



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TEST PIT TP-321

CLIEN	 IT <u>EA E</u>	ngine	ering, I	lnc.					PR	OJECT N	NAME GU	ude Landfill				
	ECT LOC											16943-0 M				
DATE	STARTE	D _7/2	20/18		СОМІ	PLETE	D 7/20)/18	GR	OUND E	LEVATIO	N	TE	ST PIT SIZ	=	
EXCA	VATION (CONT	RACT	OR The	Robert E	B. Balte	r Comp	any				WA	TER LEVEL	_S	14/4TED	WATER
EXCA	VATION I	METH	OD _C	Case 580I	N Backho	ре				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY	J. Bail	ey		CHEC	CKED B	Y K. (Crist	7	/20/18		0 ⊼			NE	
NOTE	S <u>Lat: 3</u>	9.107	99 Lor	ng: -77.14	ļ.											
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							MATEF	RIAL DESC	CRIPTION				
0.0		SM	F		Moist, Lig	ght Brov	wn, Silty	y SAND								
				1.5	Trash											
					riadii											
2.5																
				3.2												
			~~~	0.2						Bottom	of test pit	t at 3.2 feet				



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**TEST PIT TP-322** 

CLIEN	IT EA E	nginee	ering, I	lnc.						PRO	JECT N	IAME Gu	ıde Landfill				
PROJ	ECT LOC	ATIO	<b>M</b> _Mo	ntgome	ry Cour	nty, Ma	ryland			PRO	JECT N	IUMBER _	16943-0 M	D			
DATE	STARTE	D _7/2	20/18		co	MPLE.	TED _	7/20/1	8	GRO	UND E	LEVATION	N	TE	ST PIT SIZI	≣	
EXCA	VATION (	CONT	RACTO	OR Th	e Robe	rt B. Ba	alter Co	ompan	ıy				WA' ELAPSED	TER LEVEL	S	WATER	WATER
EXCA	VATION I	<b>METH</b>	<b>OD</b> _C	Case 58	0N Bac	khoe					TE	TIME	HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGG	ED BY _	J. Bail	еу		CH	IECKEI	D BY	K. Cri	st	_   7/20	0/18		0 ∑			NE	
NOTE	<b>S</b> <u>Lat: 3</u>	9.1076	32 Lor	ng: <b>-</b> 77.	14041					_							
	ш															1	
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							N	MATER	RIAL DESC	CRIPTION				
0.0			iii _E		Moist.	Light B	rown.	Silty S	SAND								
2.5		SM		2.3	Trash												
				2.0													
			^ <b>/</b>	3.0						E	Bottom	of test pit	at 3.0 feet				

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

#### **TEST PIT TP-323**

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CLIENT EAE	ngine	ering,	Inc.				PROJECT N	IAME Gu	ide Landfill				
PROJECT LOC	ATIO	<b>N</b> _Mo	ntgomery C	County, Mar	yland		_ PROJECT N	NUMBER _	16943-0 M	D			
DATE STARTE	D _7/	19/18		COMPLET	<b>ED</b> <u>7/19/</u>	18	_ GROUND E	LEVATION			ST PIT SIZE	<b>=</b>	
EXCAVATION	CONT	RACT	OR The R	obert B. Ba	lter Compa	ny		T114F	WA' ELAPSED	TER LEVEL CASING	_S HOLE	WATER	WATER
EXCAVATION	METH	OD _C	Case 580N	Backhoe			- DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)
LOGGED BY	J. Bai	ley		CHECKED	BY K. Cı	rist	7/19/18		0 ⊼			NE	
NOTES Lat: 3	9.107	53 Lor	ng: -77.1384	4			-						
ODEPTH (ft) (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATEF	RIAL DESC	CRIPTION				
2.5	SM		4.0	ash	rown, Silty	SAND							
5.0			5.2										
							Bottom	of test pit	at 5.2 feet				



#### TEST PIT TP-324 PAGE 1 OF 1

CALC   Time   HOURS   DEPTH (ft)   DEPTH (				terco.c											
DATE STARTED   7/20/18   COMPLETED   7/20/18   GROUND ELEVATION   TEST PIT SIZE	CLIE	NT EAE	ngine	ering, I	nc.				PROJECT I	IAME Gu	de Landfill				
EXCAVATION CONTRACTOR The Robert B. Balter Company EXCAVATION METHOD Case 580N Backhoe LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10692 Long: -77.13959  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  Berth (ft) DEPTH (ft) D	PRO.	JECT LO	CATIO	<b>N</b> <u>Mo</u>	ntgom	nery County, Ma	aryland		PROJECT I	NUMBER _	16943-0 M	D			
EXCAVATION METHOD Case 580N Backhoe LOGGED BY J. Bailey CHECKED BY K. Crist NOTES Lat: 39.10692 Long: -77.13959  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  SM   F	DATE	STARTE	<b>ED</b> _7/	20/18		COMPLE	<b>TED</b> 7/20/1	18	GROUND E	LEVATION				≣	
EXCAVATION METHOD Case 580N Backhoe  LOGGED BY J. Bailey  CHECKED BY K. Crist  NOTES  Lat: 39.10692 Long: -77.13959  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  SM  F  L22  Trash  Bottom of test pit at 4.0 feet	EXC	NOITAVA	CONT	RACT	OR _T	he Robert B. B	Balter Compa	ny			WA'	TER LEVE	_S	WATER	WATER
NOTES Lat: 39.10692 Long: -77.13959  HARDON SOLUTION  OLD HARDON SOLUTION  MATERIAL DESCRIPTION  SM F F F F F F F F F F F F F F F F F F F	EXC	AVATION	METH	<b>OD</b> _C	Case 5	80N Backhoe				TIME	HOURS	DEPTH (ft)	DEPTH (ft)	DEPTH (ft)	ELEV (ft)
MATERIAL DESCRIPTION  MATERIAL DESCRIPTION  Moist, Light Brown, Silty SAND  SM  F  C2.2  Trash  Bottom of test pit at 4.0 feet	LOG	GED BY	J. Bai	ley		CHECKE	D BY K. Cr	rist	7/20/18		0 ∑			NE	
SM   F	NOTE	<b>ES</b> _Lat: 3	39.106	92 Lor	ng: <b>-</b> 77	7.13959									
1/ TP / WELL 16943-0 GUD	H(#) 0.0	1	U.S.C.S.	GRAPHIC LOG	2.2	Moist, Light I	Brown, Silty S	SAND							



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#### **TEST PIT TP-325**

WW	w.bait	<del>-</del> 100.0	OIII										
CLIENT EAE	nginee	ering, I	nc.				PROJECT	NAME G	ude Landfill				
PROJECT LOC	OITA	<b>M</b> _ Mo	ntgomer	y County, M	laryland		_ PROJECT N	NUMBER	16943-0 M	D			
DATE STARTE					ETED 7/2	20/18	GROUND E				ST PIT SIZI	E	
EXCAVATION (									WA	TER LEVEL	_S		
EXCAVATION I							DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY						. Crist	7/20/18		0 ⊼			NE	
NOTES Lat: 3							-						
							-						
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATER	RIAL DES	CRIPTION				
2.5	SM	F	2.5	Moist, Light	Brown, Si	Ity SAND							
_		$\times\!\!\times\!\!\times$	4.0										
							Bottom	of test pi	t at 4.0 feet				



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#### **TEST PIT TP-326**

VVVV	w.bait	erco.c	OIII										
CLIENT EAE	nginee	ering, I	nc.				PROJECT I	NAME G	ude Landfill				
PROJECT LOC	OITA	<b>M</b> _Mo	ntgomery	/ County, Ma	ryland		PROJECT I	NUMBER	16943-0 M	D			
DATE STARTE					TED 7/20/	/18	GROUND E				ST PIT SIZI	E	
EXCAVATION									WA	TER LEVEL	_S		
EXCAVATION					•	-	DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY _					DBY K.C	rist	7/20/18		0 ⊼			NE	
NOTES Lat: 3							-						
			J										
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATER	RIAL DES	CRIPTION				
2.5	SM		3.0	Moist, Light Ε	Brown, Silty	SAND							
							Bottom	n of test pr	t at 4.5 feet				



#### TEST PIT TP-327 PAGE 1 OF 1

WW WW												
CLIENT EAE												
PROJECT LOC						_ PROJECT I						
DATE STARTE				IPLETED 7/		_ GROUND E	LEVATION			ST PIT SIZI	≣	
EXCAVATION					mpany	DATE	TIME	ELAPSED HOURS	TER LEVEL CASING	LS HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER
EXCAVATION						- 7/20/18	IIIVIE	HOURS 0 ∑	DEPTH (ft)	DEPTH (ft)		ELEV (ft)
LOGGED BY _				CKED BY K	C. Crist	_		0 \$			NE	
NOTES Lat: 3	9.10714	4 Long: -	77.14309			_						
SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	Moist, Li	ght Brown, S	ilty SAND	MATER	RIAL DESC	CRIPTION				
2.5	SM	F F 3.3	Trash									
GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18						Bottom	of test pit	t at 4.2 feet				



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#### **TEST PIT TP-329**

CLIEN	 IT <u>EA E</u>	nginee	ering, I	nc.						PRO	JECT N	IAME Gu	ude Landfill				
	ECT LOC												16943-0 M				
	STARTE								8	GRO	UND E	LEVATION	N	TE	ST PIT SIZI	<b>=</b>	
EXCA	VATION (	CONT	RACTO	OR Th	e Robe	rt B. Ba	alter C	ompan	ny				WA	TER LEVEL	_S	14/4TED	WATER
EXCA	VATION I	METH	<b>OD</b> _C	ase 58	0N Bac	khoe				_	ATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGG	ED BY _	J. Bail	ey		CF	HECKE	D BY	K. Cri	st	_   7/2	20/18		0 ⊼			NE	
NOTE	<b>S</b> _Lat: 3	9.107	52 Lor	ng: -77.	14253					_							
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG								MATEF	RIAL DESC	CRIPTION				
0.0		SM		2.3	Moist,	Light B	Brown,	Silty S	SAND								
											Bottom	of test pit	t at 3.0 feet				

# The Robert B. Balter Company Geotechnical and Environmental Engineers Materials and Construction Inspection and Testing Telephone No. (410) 363-1555 www.balterco.com CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL GPJ ROBERT B BALTER GDT 9/5/18

<b>TEST</b>	PIT	TP	-330
-------------	-----	----	------

VVVV	w.bait	erco.c	OIII										
CLIENT EA E	nginee	ering, I	Inc.				PROJECT N	NAME G	ude Landfill				
PROJECT LOC	ATION	<b>M</b> _ Mo	ntgomery	County, Ma	ryland		PROJECT N	NUMBER	16943-0 M	D			
DATE STARTE					TED 7/20/	/18	GROUND E				ST PIT SIZI	<b>=</b>	
EXCAVATION (									WA	TER LEVEL	.s		
EXCAVATION I							DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
LOGGED BY					DBY K.C	Crist	7/20/18		0 ∑			NE	
NOTES Lat: 3							-						
	5.1072	_OO	ig. 77.14				•						
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG					MATER	RIAL DES	CRIPTION				
0.0		]  F	N	/loist, Light B	Brown, Silty	SAND							
2.5	SM		6.0	ū									
		XX											
		XX	7.0										
		XXXX	7.0				Bottom	of test pi	t at 7.0 feet				



#### TEST PIT TP-331 PAGE 1 OF 1

CLIENT EA Engineering, Inc.							F	PROJECT NAME Gude Landfill									
	PROJECT LOCATION Montgomery County, Maryland								PROJECT NUMBER 16943-0 MD								
DATE START	TED _7/	20/18		cor	MPLETE	<b>D</b> 7/20	0/18	GROUND ELEVATION TEST PIT SIZE									
EXCAVATION	N CONT	RACT	OR _T	he Robert	B. Balte	er Comp	oany		WATER LEVELS								
EXCAVATION	N METH	OD _C	Case 5	80N Backl	hoe				DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)		
LOGGED BY	J. Bai	ley		СНЕ	ECKED E	<b>3Y</b> _K. (	Crist		7/20/18		0 ⊼			NE			
NOTES Lat:	39.108	03 Lor	ng: -77	.14175													
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG		Moist, L	ight Brov	wn, Silty	y SAND		MATEF	RIAL DES	CRIPTION						
	SM	F	3.5	Trash													
			4.2	IIasii													
		XXXX							Botton	of test pi	t at 4.2 feet						
GENERAL BH 7 IP 7 WELL 16943-0 GUDE LANDFILL.GFU KÜBER I B BALTER.GDT 9/5/18																	



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Geotechnical and Environmental Engineers
Materials and Construction Inspection and Testing
Telephone No. (410) 363-1555

#### **TEST PIT TP-332**

w	ww.balt	erco.c	om													
CLIENT EA E	ngine	ering, l	lnc.					PROJECT NAME Gude Landfill								
PROJECT LO	CATIO	<b>N</b> _Mo	ntgomery	County, N	Maryland	<u> </u>		PROJECT NUMBER 16943-0 MD								
DATE START	ED _7/2	20/18		COMPL	LETED	7/20/18		GROUND ELEVATION TEST PIT SIZE WATER LEVELS								
EXCAVATION	CONT	RACT	OR The	Robert B.	Balter C	ompany			WATER	WATER   WATER						
EXCAVATION	METH	<b>OD</b> _C	Case 580	N Backhoe	)			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	DEPTH (ft)	ELEV (ft)		
LOGGED BY	J. Bail	еу		CHECK	KED BY	K. Crist		7/20/18		0 ∑			NE			
NOTES Lat: 3	39.107	11 Lor	ng: -77.14	23												
O DEPTH O (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATE	RIAL DESC	CRIPTION			,			
2.5	SM		3.5	Voist, Ligh	t Brown,	Silty SAI	ND	Botton	n of test pit	at 4.5 feet						



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#### **TEST PIT TP-333**

WW	····bait	C100.0	OIII													
CLIENT _EA Engineering, Inc.								PROJECT NAME _Gude Landfill								
PROJECT LOC	ATIO	<b>N</b> <u>Mo</u>	ntgomer	y County,	Maryland	<u> </u>		PROJECT NUMBER 16943-0 MD								
DATE STARTE	D _7/2	20/18		COMP	LETED	7/20/18		GROUND ELEVATION TEST PIT SIZE								
<b>EXCAVATION</b> (	CONT	RACT	OR The	e Robert B.	Balter C	ompany		WATER LEVELS								
EXCAVATION I	METH	OD C	Case 580	N Backho	е			DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)		
LOGGED BY						K. Crist	_	7/20/18		0 ∑			NE			
NOTES Lat: 3																
O DEPTH (ft) SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG						MATEF	RIAL DES	CRIPTION						
2.5	SM	F	2.0	Moist, Ligh	nt Brown,	Silty SAN	D									
-		$\bowtie$	3.3													
								Bottom	of test pi	t at 3.3 feet						

GENERAL BH / TP / WELL 16943-0 GUDE LANDFILL.GPJ ROBERT B BALTER.GDT 9/5/18

#### **TEST PIT TP-334**

WWW.balleree.sem										
CLIENT EA Engineering, Inc.		PROJECT NAME Gude Landfill								
PROJECT LOCATION Montgomery County, Maryland		PROJECT NUMBER 16943-0 MD								
DATE STARTED 7/19/18 COMPLETED		GROUND ELEVATION TEST PIT SIZE  WATER LEVELS								
EXCAVATION CONTRACTOR The Robert B. Balter C			_S HOLE	WATER WATER						
EXCAVATION METHOD Case 580N Backhoe	DATE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)		ELEV (ft)			
LOGGED BY _J. Bailey CHECKED BY	' <u>K. Crist</u> 7/19/18		0 ⊼			NE				
NOTES Lat: 39.10849 Long: -77.13795										
SAMPLE TYPE NUMBER U.S.C.S. GRAPHIC LOG	MATER	RIAL DESC	CRIPTION							
SM F Solution Moist, Light Brown	n, Silty SAND									
Trash										
	Bottom	of test pit	t at 6.0 feet							



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#### **TEST PIT TP-335**

CLIENT _EA Engineering, Inc.								PROJECT NAME Gude Landfill											
	ECT LOC									PROJECT NUMBER 16943-0 MD									
	STARTE								18	GROUND ELEVATION TEST PIT SIZE									
EXCA	VATION (	CONT	RACT	OR T	he Rob	ert B. B	alter C	Compa	ny	WATER LEVELS									
EXCA	VATION I	METH	<b>OD</b> _C	Case 58	30N Ba	ckhoe				DA	TE	TIME	ELAPSED HOURS	DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)		
LOGG	ED BY _	J. Bail	ey		с	HECKE	D BY	K. Cr	rist	_ 7/20	0/18		0 ⊼			NE			
NOTE	<b>S</b> _Lat: 3	9.1069	95 Lor	ng: -77.	13868					_									
DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG							N	MATER	RIAL DESC	CRIPTION						
0.0		SM	F	2.3	Moist Trash	, Light I	Brown	, Silty s	SAND	E	Bottom	of test pit	t at 3.0 feet						

### APPENDIX B LABORATORY TEST RESULTS



TP-273

0.0' - 2.0'

BULK

30

6

25

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#### **SUMMARY OF LABORATORY RESULTS**

PAGE 1 OF 1

**CLIENT** EA Engineering, Inc.

PROJECT NAME Gude Landfill

SM

24.3

A-4

121.7

12.0

PROJECT LO	PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD DATE TESTED											
Borehole	Depth	Sample Number	Liquid Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	AASHTO Classification	ASTM Classification	Water Content (%)	Max Dry Density (pcf)	Optimum Moisture (%)	CBR Value
TP-208	0.0' - 2.0'	BULK	36	10	37.5	48	A-4	SM	27.6	118.7	13.3	
TP-215	0.0' - 2.0'	BULK	36	11	25	62	A-6	ML	29.8	115.0	14.4	
TP-228	0.0' - 2.0'	BULK	40	13	12.5	71	A-6	ML	26.3	112.9	15.5	
TP-231	0.0' - 2.0'	BULK	34	10	19	62	A-4	ML	28.9	118.2	13.6	
TP-241	0.0' - 2.0'	BULK	38	7	12.5	52	A-4	ML	29.7	121.7	9.0	
TP-253	0.0' - 2.0'	BULK	35	6	37.5	41	A-4	SM	24.1	119.4	12.4	
TP-258	0.0' - 2.0'	BULK	37	11	37.5	60	A-6	ML	26.0	115.8	13.8	
TP-259	0.0' - 2.0'	BULK	49	12	37.5	54	A-7-5	ML	31.0	108.4	17.8	
TP-263	0.0' - 2.0'	BULK	36	6	25	41	A-4	SM	31.0	117.6	10.5	

49

LAB SUMMARY MODIFIED ASTM AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

#### **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/31/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification Classification LL PL Ы Cc Cu **TP-208, BULK** Darek Yellowish Brown SILTY SAND(SM) {A-4, GI=2} 36 26 10 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-208, BULK 37.5 0.16 10.6 41.5 47.8

#### **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD PROJECT LOCATION Montgomery County, Maryland **DATE TESTED** 7/31/2018 U.S. SIEVE OPENING IN INCHES

6 4 3 2 1.5 1 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine coarse medium fine Specimen Identification LL PL Ы Сс Cu Classification **TP-215, BULK** Reddish Brown SANDY SILT(ML) {A-6, GI=5} 25 36 11 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-215, BULK 25 7.1 30.7 62.2

#### **GRAIN SIZE DISTRIBUTION**

TEST METHOD ASTM D422

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/29/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 1/23/8 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine coarse medium fine Specimen Identification LL PL Ы Сс Cu Classification **TP-228, BULK** Yellowish Red SILT with SAND(ML) {A-6, GI=9} 40 27 13 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-228, BULK 12.5 27.0 70.9 2.0

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#### **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD PROJECT LOCATION Montgomery County, Maryland **DATE TESTED** 7/29/2018 U.S. SIEVE OPENING IN INCHES U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification LL PL Ы Сс Cu Classification **TP-231, BULK** Yellowish Red SANDY SILT(ML) {A-4, GI=5} 34 24 10 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-231, BULK 19 32.9 4.7 62.4

#### **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD PROJECT LOCATION Montgomery County, Maryland **DATE TESTED** 7/29/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 1/23/8 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification LL PL Ы Сс Cu Classification **TP-241, BULK** Yellowish Red SANDY SILT(ML) {A-4, GI=2} 38 31 7 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-241, BULK 12.5 0.123 5.0 43.4 51.6

#### **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/27/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification LL PL Ы Cc Cu Classification **TP-253, BULK** Brown SILTY SAND with GRAVEL(SM) {A-4, GI=0} 35 29 6 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-253, BULK 37.5 0.427 25.5 33.9 40.6

## **GRAIN SIZE DISTRIBUTION**

TEST METHOD ASTM D422

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/30/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine coarse medium fine Specimen Identification LL PL Ы Cc Cu Classification **TP-258, BULK** Reddish Brown SANDY SILT(ML) {A-6, GI=5} 37 26 11 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-258, BULK 37.5 12.4 27.2 60.4

## **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/28/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 1 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification LL PL Ы Cc Cu Classification **TP-259, BULK** Brown SANDY SILT with GRAVEL(ML) {A-7-5, GI=5} 49 37 12 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-259, BULK 37.5 0.121 17.6 28.0 54.4

## **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT NUMBER 16943-0 MD PROJECT LOCATION Montgomery County, Maryland **DATE TESTED** 7/30/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 <u>1</u> 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification Classification LL PL Ы Сс Cu **TP-263, BULK** Brown SILTY SAND(SM) {A-4, GI=0} 36 30 6 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-263, BULK 25 0.207 11.1 47.5 41.4

## **GRAIN SIZE DISTRIBUTION**

**TEST METHOD ASTM D422** 

CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/27/2018 U.S. SIEVE OPENING IN INCHES 6 4 3 2 1.5 <u>1</u> 3/4 1/23/8 U.S. SIEVE NUMBERS | 810 14 16 20 30 40 50 60 100 140 200 HYDROMETER 100 95 90 85 80 75 70 65 PERCENT FINER BY WEIGHT 60 55 50 45 40 35 30 25 20 15 COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 10 5 100 10 0.1 0.01 0.001 **GRAIN SIZE IN MILLIMETERS GRAVEL** SAND **COBBLES** SILT OR CLAY coarse fine medium fine coarse Specimen Identification LL PL Ы Cc Cu Classification **TP-273, BULK** Red SILTY SAND(SM) {A-4, GI=1} 30 24 6 Specimen Identification D100 D60 D30 D10 %Gravel %Sand %Silt %Clay ● TP-273, BULK 25 0.166 7.8 43.4 48.8

GDT

MTA REDLINE

GPJ

16943-0 GUDE LANDFILL

ATTERBERG ASTM AASHTO

## ATTERBERG LIMITS' RESULTS

**TEST METHOD ASTM D4318** 

www.balterco.com CLIENT EA Engineering, Inc. PROJECT NAME Gude Landfill PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/27/2018 60 (CL)(CH) 50 A S 40 С 30 Ν 20 DE 10 CL-ML (ML)(MH)20 40 60 80 100 LIQUID LIMIT PL PI Fines LL Specimen Identification Classification ● TP-208, BULK @ 0.0' - 2.0', 36 26 10 48 Darek Yellowish Brown SILTY SAND(SM) {A-4, GI=2} TP-215, BULK @ 0.0' - 2.0', 36 25 11 62 Reddish Brown SANDY SILT(ML) {A-6, GI=5} TP-228, BULK @ 0.0' - 2.0', 40 27 13 Yellowish Red SILT with SAND(ML) {A-6, GI=9} 71 TP-231, BULK @ 0.0' - 2.0', 34 24 10 Yellowish Red SANDY SILT(ML) {A-4, GI=5} **⊙** TP-241, BULK @ 0.0' - 2.0', 7 Yellowish Red SANDY SILT(ML) {A-4, GI=2} 38 31 52 ▼ TP-253, BULK @ 0.0' - 2.0', 35 29 6 Brown SILTY SAND with GRAVEL(SM) {A-4, GI=0} 41 ○ TP-258, BULK @ 0.0' - 2.0', 37 26 11 60 Reddish Brown SANDY SILT(ML) {A-6, GI=5} 37 12 Brown SANDY SILT with GRAVEL(ML) {A-7-5, GI=5} △ TP-259, BULK @ 0.0' - 2.0', 49 54  $\otimes$ TP-263, BULK @ 0.0' - 2.0', 36 30 6 41 Brown SILTY SAND(SM) {A-4, GI=0} ⊕ TP-273, BULK @ 0.0' - 2.0', 30 24 6 Red SILTY SAND(SM) {A-4, GI=1}

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/31/2018 145 140 TP-208, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Darek Yellowish Brown SILTY SAND(SM) 130 **Test Method** ASTM D1557 Method B **Curve Number** 16943-0 MD-001 125 **TEST RESULTS Maximum Dry Density** 118.7 PCF 120 13.3 % **Optimum Water Content** 27.6 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL PLЫ 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/31/2018 145 140 TP-215, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Reddish Brown SANDY SILT(ML) ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-010 125 **TEST RESULTS Maximum Dry Density** 115.0 PCF 120 14.4 % **Optimum Water Content** 29.8 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL PLЫ 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/29/2018 145 140 TP-228, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Yellowish Red SILT with SAND(ML) ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-008 125 **TEST RESULTS Maximum Dry Density** 112.9 PCF 120 15.<u>5</u> % **Optimum Water Content** 26.3 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS Ы 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

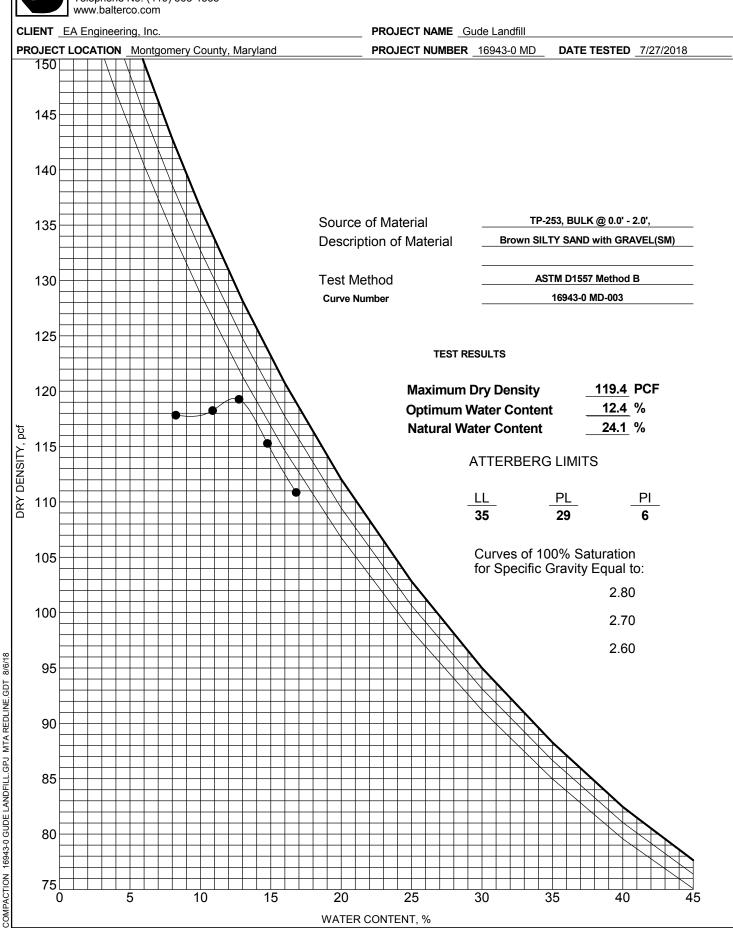
## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/29/2018 145 140 TP-231, BULK @ 0.0' - 2.0', Source of Material 135 Yellowish Red SANDY SILT(ML) **Description of Material** ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-009 125 **TEST RESULTS Maximum Dry Density** 118.2 PCF 120 13.6 % **Optimum Water Content** 28.9 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS Ы 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/29/2018 145 140 TP-241, BULK @ 0.0' - 2.0', Source of Material 135 Yellowish Red SANDY SILT(ML) **Description of Material** ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-007 125 **TEST RESULTS Maximum Dry Density** 121.7 PCF 120 9.0 % **Optimum Water Content** 29.7 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP



## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/30/2018 145 140 TP-258, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Reddish Brown SANDY SILT(ML) ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-004 125 **TEST RESULTS Maximum Dry Density** 115.8 PCF 120 13.8 % **Optimum Water Content** 26.0 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS Ы 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/28/2018 145 140 TP-259, BULK @ 0.0' - 2.0', Source of Material 135 Brown SANDY SILT with GRAVEL(ML) **Description of Material** 130 **Test Method** ASTM D1557 Method B **Curve Number** 16943-0 MD-005 125 **TEST RESULTS Maximum Dry Density** 108.4 PCF 120 17.8 % **Optimum Water Content** 31.0 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL Ы 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

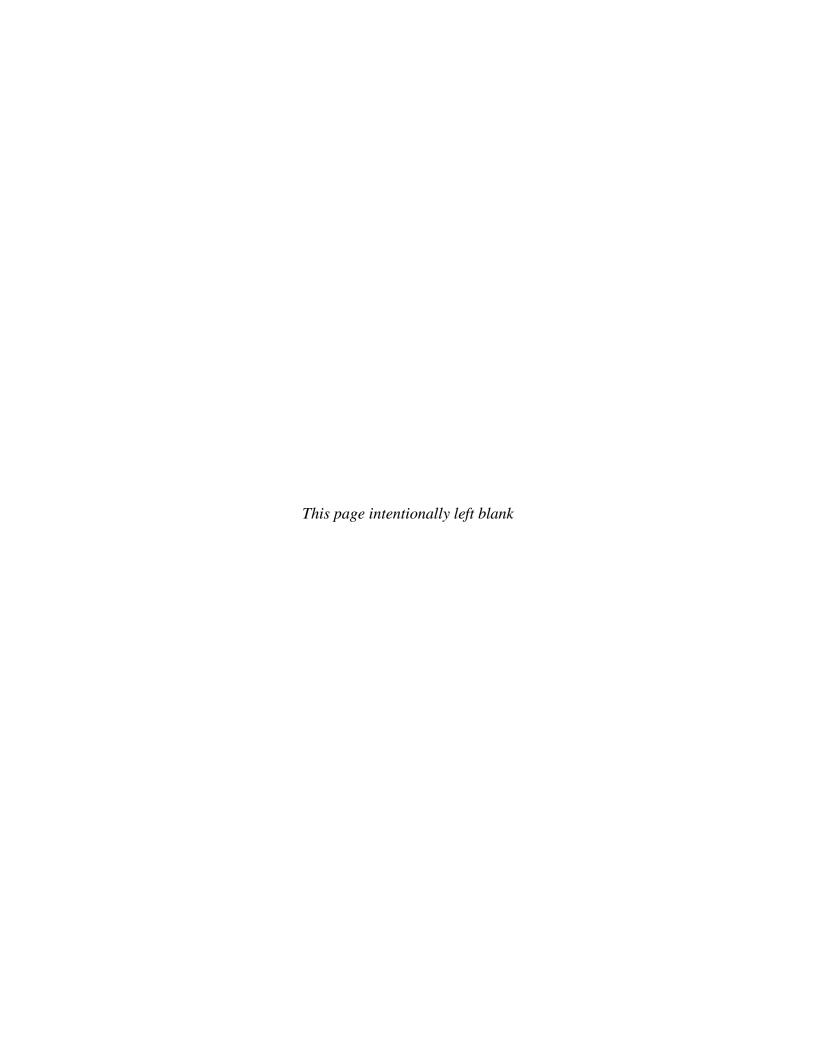
PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/30/2018 145 140 TP-263, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Brown SILTY SAND(SM) ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-006 125 **TEST RESULTS Maximum Dry Density** 117.6 PCF 120 10.5 % **Optimum Water Content** 31.0 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL Ы 110 30 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

## MOISTURE-DENSITY RELATIONSHIP

www.balterco.com PROJECT NAME Gude Landfill CLIENT EA Engineering, Inc. PROJECT LOCATION Montgomery County, Maryland PROJECT NUMBER 16943-0 MD **DATE TESTED** 7/27/2018 145 140 TP-273, BULK @ 0.0' - 2.0', Source of Material 135 **Description of Material** Red SILTY SAND(SM) ASTM D1557 Method B 130 **Test Method Curve Number** 16943-0 MD-002 125 **TEST RESULTS Maximum Dry Density** 121.7 PCF 120 12.0 % **Optimum Water Content** 24.3 % **Natural Water Content** DRY DENSITY, pcf 115 ATTERBERG LIMITS LL Ы 110 Curves of 100% Saturation 105 for Specific Gravity Equal to: 2.80 100 2.70 2.60 COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18 95 90 85 80 75 10 15 20 30 35 40

# **Attachment D**

Forest Stand Delineation Report And Wetland Delineation Report





# **Gude Landfill Remediation Project Design Engineer Contract**

# **Wetland Delineation Report**

## Prepared for

Department of Environmental Protection Division of Solid Waste Services Montgomery County, Maryland

Prepared by
EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

January 2019 Version: FINAL EA Project No. 15646.01



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# **Gude Landfill Remediation Project Design Engineer Contract**

# **Wetland Delineation Report**

## Prepared for

Department of Environmental Protection Division of Solid Waste Services Montgomery County, Maryland

Prepared by

EA Engineering, Science, and Technology, Inc., PBC 225 Schilling Circle, Suite 400 Hunt Valley, Maryland 21031 (410) 584-7000

January 2019 Version: FINAL EA Project No. 15646.01



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## LIST OF ACRONYMS AND ABBREVIATIONS

the County Montgomery County Department of Environmental Protection, Division of

Solid Waste Services

EA Engineering, Science, and Technology, Inc., PBC

FAC Facultative

FACU Facultative upland FACW Facultative wetland

the Landfill Gude Landfill LF Linear feet

NRCS Natural Resources Conservation Service

NWI National Wetlands Inventory

OBL Obligate

OHWM Ordinary high water mark

RPW Relatively Permanent Water

UPL Upland

USACE U.S. Army Corps of Engineers USDA U.S. Department of Agriculture USFWS U.S. Fish and Wildlife Service

USGS U.S. Geological Survey

WUS Waters of the United States

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## 1. INTRODUCTION

This Wetland Delineation Report was prepared for the Engineering, Bid Preparation, and Support Services for the Gude Landfill (the Landfill) Remediation Project for Montgomery County, Maryland (the Remediation Design), under the Northeast Maryland Waste Disposal Authority and the Montgomery County Department of Environmental Protection, Division of Solid Waste Services (the County).

The Landfill Remediation Design is for the recommended Corrective Measure Alternative, Toupee Capping and Additional Landfill Gas Collection, as approved by the Maryland Department of the Environment on July 8, 2016.

#### 1.1 **PURPOSE**

The purpose of this Wetland Delineation Report is to review and delineate the wetlands and/or Waters of the United States (WUS) located on and within the vicinity of the Gude Landfill (the Landfill) project site. The Landfill consists of approximately one hundred sixty-two and seventenths (162.7) acres, located at 600 East Gude Drive in Montgomery County in Rockville, Maryland (Appendix A, Figure 1).

In November 2009, EA Engineering, Science, and Technology, Inc. (EA) conducted an initial wetland delineation of the proposed project site. In order to complete a thorough review of the wetlands/WUS that could potentially be impacted, EA established an area of review to extend outside of the property boundary and include portions of the surrounding properties. In April 2018, EA was tasked with re-evaluating the project site for wetlands and waterways. The area of review for the 2018 wetland delineation effort is depicted on Figure 2 in Appendix A.

## 2. RESEARCH OF AVAILABLE DOCUMENTS

### 2.1 BACKGROUND INFORMATION

At the time of EA's environmental review in April 2018, the project site consisted of approximately one hundred sixty-two and seven-tenths (162.7) acres of land predominantly comprised of open grass and vegetative covered fields (**Appendix A, Figure 2**). The outer portions of the project site consisted of undeveloped forested land. Major site features included an extensive landfill gas collection piping system throughout the property, a paved open area in the southeastern portion of the Landfill, a model airplane flying area in the northern portion of the Landfill, and a landfill gas-to-energy flare station and shelter in the southwest corner of the property.

The site is bordered to the south by industrial operations, to the west/northwest by the community of Derwood Station South, and to the north and east by Maryland-National Capital Park and Planning Commission property. The surrounding area was mixed use with the Derwood residential community to the northwest, commercial and industrial properties to the south, and predominantly undeveloped wooded areas to the north and east. The approximate latitude/longitude of the property is 39° 06' 29" N and 77° 08' 16" W, respectively.

Prior to conducting the wetland delineation in the field, relevant site-specific data for the area of review was reviewed to identify the likely location of potential wetlands and streams.

## 2.2 UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHIC MAP

The U.S. Geological Survey (USGS) topographic map for the area (*Rockville Quadrangle*, Figure 3 in Appendix A) was also used as a reference to identify possible wetlands and waterways on the property. Topographic maps identify elevations, forested areas, streams, ponds, roads, and structures. The USGS map identified multiple buildings and roads within the project site and depicted the majority of the site as being non-forested. Three (3) blue-line stream channels were depicted within the vicinity of the project site on the USGS map, including Crabbs Creek, Rock Creek, and an unnamed channel. Crabbs Creek was identified as being located on the northeastern corner of the project site. Crabbs Creek flowed in a southeasterly direction where it contributed to Rock Creek. Rock Creek was depicted to the east of the project site. Rock Creek was not located within the area of review. The third blue-line stream channel (unnamed) was located along the southern property line and conveyed flow in an easterly direction to Rock Creek. The streams discussed above are listed in the Code of Maryland Regulations stream use classification index as Use IV (Recreational Trout Waters), with an in-stream restriction during the period of March 1 through May 31.

The site topography was plateau-like and consisted of gentle relief along the top of the plateau and sharp relief along the entirety of the Landfill boundary. The elevation along the top of the plateau gently sloped to the south, with localized mounds and depressions throughout. The topography around the edges of the waste layer fell sharply from the plateau to elevations ranging from sixty (60) to ninety (90) feet below the plateau.

## 2.3 SOIL SURVEY INFORMATION

The online Natural Resources Conservation Service (NRCS) Web Soil Survey for Montgomery County was reviewed for the area of review (**Appendix A, Figure 4**). Ten soil types were identified within the project site (U.S. Department of Agriculture [USDA] NRCS 2018a). According to the USDA NRCS hydric soils list by state (NRCS 2018b), seven (7) of the soil units within the project site were listed as a hydric soil. Soil types found within the project site are identified in **Table 1**.

**Table 1** Mapped Soil Types

Table 1 Mapped Son Types				
		Hydric		
Soil Mapping Unit	Symbol	Soil	Drainage Class	
Gaila silt loam, 3 to 8 percent slopes	1B	Yes	Well drained	
Glenelg silt loam, 3 to 8 percent slopes	2B	No	Well drained	
Elioak silt loam, 3 to 8 percent slopes	4B	No	Well drained	
Glenville silt loam, 3 to 8 percent slopes	5B	Yes	Moderately well drained	
Brinklow-Blocktown channery silt loams,	16D	Yes	Well drained	
15 to 25 percent slopes	1010	1 05	wen dramed	
Occoquan loam, 8 to 15 percent slopes	17C	Yes	Well drained	
Hatboro silt loam, 0 to 3% slopes, frequently flooded	54A	Yes	Poorly drained	
Dump, refuse	100	No		
Blocktown channery silt loam, 15 to 25 percent slopes,	116D	Yes	Well drained	
very rocky	1100	1 68	well drained	
Blocktown channery silt loam, 25 to 45 percent slopes,	116E	Yes	Well drained	
very rocky	TIUL	1 03	Well dramed	
Source: Adapted from U.S. Department of Agriculture Natural Resources Conservation Service 2018a, 2018b.				

## 2.4 NATIONAL WETLAND INVENTORY MAP

EA's environmental scientists reviewed wetland data from the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI) (USFWS 2018). The NWI map (Appendix A, Figure 5) identified NWI wetlands and streams within the general vicinity of the blue-line streams, identified on the USGS map (Appendix A, Figure 3). More specifically, the NWI map identified one (1) wetland system on the northeastern corner of the site, one (1) pond adjacent to the southwestern corner, and two (2) wetlands along the southeastern portion of the site. Each wetland system was classified with a Cowardin designation (Cowardin et al. 1979). The system to the northeast was designated as PEM1A (Palustrine Emergent Persistent, Temporarily Flooded). The two (2) wetlands identified along the southeastern side of the site were classified as PFO1A (Palustrine Forested Deciduous, Temporarily Flooded). The large pond located to the southwest was identified as PUBHh (Palustrine Unconsolidated Bottom, Permanently Flooded, Diked/Impounded). A riverine system was also identified in the NWI maps as R5UBH (Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded) flowing adjacent to the southwestern side of the area of review. NWI wetlands and riverine systems within and adjacent to the area of review are presented in **Table 2**. It is important to note that not all NWI wetlands identified in the mapper may currently exist, hence the need for a wetland investigation to groundtruth all potential wetlands, as described in the following sections of this report.

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## Table 2 NWI Wetlands

Wetland Types	Description	Location in Project Area	
PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded	Northeastern boundary	
PFO1A	Palustrine, Forested Deciduous, Temporarily Flooded	Adjacent to southeastern boundary; outside area of review	
PUBHh	Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded	Southwestern boundary	
R5UBH	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	Adjacent to southwestern boundary; largely outside area of review	
Source: Adapted from USFWS 2018.			

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## 3. METHODOLOGY

The wetland delineation was conducted in accordance with the Routine Determination procedures outlined in the *Corps of Engineers Wetland Delineation Manual* (U.S. Army Corps of Engineers [USACE] 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0) (USACE 2012). This approach is based on the presence of three (3) parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) including indicators, delineation guidance, and other information that is specific to the region. The USACE technical guidance for identifying wetlands requires that a positive wetland indicator be present for each of the three (3) identified parameters except in limited instances identified as an atypical situation.

## 3.1 HYDROPHYTIC VEGETATION

Hydrophytic vegetation is defined in the USACE manual as a community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence. A plant-community approach to evaluate vegetation is used and, therefore, hydrophytic vegetation decisions are based on the community of plant species growing in a particular area rather than the presence or absence of particular indicator species. Common wetland plant species have been categorized regionally by USACE in the 2016 National Wetland Plant List, Version 3.3 (USACE 2016). Each plant is classified into one (1) of five (5) categories as follows:

- Obligate (OBL) = Greater than ninety-nine (99) percent estimated probability of occurring in wetlands.
- Facultative Wetland (FACW) = sixty-seven (67) to ninety-nine (99) percent estimated probability of occurring in wetlands.
- Facultative (FAC) = thirty-four (34) to sixty-six (66) percent estimated probability of occurring in wetlands.
- Facultative Upland (FACU) = one (1) to thirty-three (33) percent estimated probability of occurring in wetlands.
- Upland (UPL) = less than one (1) percent estimated probability of occurring in wetlands.

Plants that have an indicator status of OBL, FACW, or FAC are considered to be typically adapted for life in anaerobic soil conditions. When the dominant species in a plant community are typically adapted for life in anaerobic soil conditions, hydrophytic vegetation is present. Several indicators may be used to determine whether hydrophytic vegetation is present on a site; however, the presence of a single individual of a hydrophytic species does not mean that hydrophytic vegetation is present.

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Evaluation of the vegetation begins with a rapid field test for hydrophytic vegetation to determine if there is a need to collect more detailed vegetation data. If the area is not dominated solely by OBL and FACW species, the standard dominance test is performed to determine if more than fifty (50) percent of the dominant species are OBL, FACW, or FAC. Some wetland plant communities may not be considered hydrophytic based only on dominant species. Therefore, in those cases where indicators of hydric soil and wetland hydrology are present, the vegetation would be reevaluated with the prevalence index taking into account non-dominant plant species as well. A plant community is considered hydrophytic if any one of these tests are passed.

## 3.2 HYDRIC SOILS

Hydric soils are soils that are saturated, ponded, or flooded long enough during the growing season to develop anaerobic conditions in the upper portion of the soil column (typically within the upper eighteen (18) inches). The prolonged presence of water results in the chemical reduction of elements, particularly iron and manganese. Reduced soils often exhibit a gray (or gleyed) color that reflects either the leaching of elements or the presence of reduced elements.

Hydric soils are often characterized by bright mottles, sometimes called redoximorphic features. Mottles are an indication of incomplete saturation. They typically represent isolated pockets where elements (mainly iron) have remained oxidized. Another feature of hydric soils is a low matrix chroma in the diagnostic zone, which is typically identified as the upper eighteen (18) inches of the soil layer, but may vary. For mineral hydric soils, the diagnostic zone typically must have a matrix chroma of two (2) or less for soils with mottles, or a matrix chroma of one (1) or less for soils without mottles. To make this determination, soil cores are collected in the field in suspected wetland areas and the soil colors are compared to a Munsell Soil Color Chart (Kollmorgen Instruments Corporation 1988). Other examples of field indicators for hydric soils include, but are not limited to, high organic content, histic epipedons, concretions, sandy redox, and/or a sulfidic odor and are defined in the Regional Supplement to the Wetland Delineation Manual (USACE 2012).

## 3.3 WETLAND HYDROLOGY

Wetland hydrology supplies the moisture required to support wetland vegetation and also creates the conditions necessary for the formation of hydric soils. Primary indicators of wetland hydrology include, but are not limited to, observed inundation or saturation, water marks, drift deposits, sediment deposits, aquatic fauna, oxidized rhizospheres on living roots, and water-stained leaves. Secondary indicators of wetland hydrology include, but are not limited to, drainage patterns, surface soil cracks, crayfish burrows, and the FAC-Neutral test. The FAC-Neutral test involves comparing the number of OBL and FACW plant species to the number of FACU and UPL plant species, with FAC species being neutral. If fifty (50) percent or more of the plant species are OBL or FACW, the FAC-Neutral test is considered a secondary indicator of wetland hydrology. An area must contain at least one (1) primary indicator or two (2) secondary indicators of wetland hydrology for the criterion of wetland hydrology to be met.

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## 3.4 STREAM CHANNELS

In addition to identifying wetlands, stream channels were flagged that would likely be considered jurisdictional WUS. Stream channels were identified by the presence of a defined bed and bank, as well as a defined ordinary high water mark (OHWM). Furthermore, identified stream channels were classified into one (1) of three (3) categories: perennial stream channels that typically flow year-round, intermittent stream channels that only flow seasonally, and ephemeral stream channels that typically flow less than seasonally. Ephemeral channels receive hydrology from surficial sources such as runoff from surrounding uplands during and immediately following precipitation events and/or snow melt (i.e., do not have a direct connection to groundwater and are not hydraulically connected to wetlands). Desktop information such as USGS maps, soil surveys, NWI maps, and other materials were used to assist in classifying stream channels in addition to observations made during the site visits.

### 3.5 FIELD DATA COLLECTION

Locations for collection of data were established onsite to evaluate the presence or absence of jurisdictional wetlands/waterways, and to demonstrate the typical characteristics of uplands and wetlands along the line of delineation. Surrounding vegetative species and hydrologic indicators were observed at the sample locations. EA personnel collected soil to a depth of approximately eighteen (18) inches or until refusal was encountered to observe soil conditions and classify the soil as either hydric or non-hydric. The sample plot within the wetland boundary was marked and surveyed with a Trimble Geo 7x – sub-meter accurate global positioning system. Routine wetland determination data sheets were used to summarize observations on vegetation, soils, and hydrology for both the wetland and upland sample plots. Copies of these wetland determination data forms are included in **Appendix B**.

Photographs of the wetlands and streams identified in the area of review were taken and are included in **Appendix** C of this report.

### 3.6 FIELD DELINEATION

A field review to evaluate whether wetlands and/or waterways were present within the area of review was originally performed in October 2009. The field delineation of wetlands and WUS consisted of identifying the limits of the wetlands and waterways with pink and black flags, which were numbered sequentially. Wetland flag locations were located in the field using a handheld Trimble Geo 7x global positioning system with sub-meter horizontal accuracy and collected in the North American Datum of 1983, Maryland State Plane South Coordinate System.

On May 1, 2018, EA's wetland scientists re-visited the site to re-evaluate the wetland and stream boundaries and confirmed very little change to these resources. Slight variations in the wetland and stream boundaries that were observed were re-surveyed and included on the attached Wetland Delineation Map (**Appendix D**).

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## 4. SYSTEMS IDENTIFIED

On May 1, 2018, EA's wetland scientists conducted onsite investigations of the project site and identified four (4) potentially jurisdictional wetlands and three (3) defined WUS within the project site. Additionally, a series of ponds, drainage swales, outfalls, and pipes were identified throughout the project site, but have not been identified as jurisdictional since these features are part of the stormwater management system and were created in previously upland habitat. The four (4) wetlands and three (3) WUS, as well as the non-jurisdictional features, are described in the following sections of this report and are provided on the figure found in **Appendix D**.

## 4.1 STREAM CHANNEL #1 (CRABBS BRANCH)

Stream Channel #1 consisted of one (1) perennial stream channel referred to on the USGS map as Crabbs Branch (**Appendix A, Figure 3**). Stream Channel #1 originated offsite to the north and entered the area of review through the existing utility right-of-way (**Appendix D**). Stream Channel #1 generally flowed in the area of review in a southeasterly direction for approximately sixty-eight (68) feet and adjacent to Wetland A before exiting the area of review. Outside of the project site, Crabbs Branch continued in an easterly direction for over two thousand one hundred (2,100) feet to the confluence with Rock Creek. EA's wetland scientists observed a defined bed and bank and an OHWM within the limits of the stream channel. Based on observations made during the wetland delineation effort and subsequent site visits, it has been determined that Crabbs Branch is a perennial stream channel with relatively permanent flow throughout the year. This stream channel has been classified as a Relatively Permanent Water (RPW) with directly abutting wetlands (Wetland A).

## 4.2 WETLAND A / POND #2 (EMERGENT WETLAND)

Wetland A was predominately located within the utility right-of-way on the northeast portion of the site (**Appendix D**). This wetland was identified as an emergent wetland encompassing a small open water pond and directly abutting Stream Channel #1. The source of hydrology for Wetland A appeared to be groundwater, as well as runoff from the surrounding land.

Wetland A contained predominantly hydrophytic vegetation consisting of red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*) saplings, and black willow (*Salix nigra*) saplings, as well as skunk cabbage (*Symplocarpus foetidus*) false nettle (*Boehmeria cylindrica*), sensitive fern (*Onoclea sensibilis*), soft rush (*Juncus effusus*), sedge species (*Carex* spp.), and arrowleaf tearthumb (*Polygonum sagittatum*). The soil matrix within the wetland area had a chroma value of two (2) or less with mottling of the matrix. Redox features and depletions were observed in soil samples throughout the wetland. Wetland hydrology indicators included saturation in the upper twelve (12) inches, water-stained leaves, and drainage patterns.

This wetland extended from the right-of-way into the forested edge of the Landfill and included a small pond that appears to have been a sediment basin for the existing landfill (referred to as Pond #2 by the County). Although Pond #2 was surrounded by a chain-link fence, it was evident that

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Wetland A included the surrounding area outside of the fence; therefore, the entire fenced area was included in the delineation.

## 4.3 STREAM CHANNEL #2 (UNNAMED TRIBUTARY TO ROCK CREEK)

Stream Channel #2 consisted of a perennial stream channel depicted on the USGS map as an unnamed tributary to Rock Creek (Appendix A, Figure 3). Stream Channel #2 originated offsite to the west and entered the area of review from a box culvert located beneath East Gude Drive (Appendix D). Additionally, a second channel originates from the large pond (referred to as Pond #1 by the County and considered a non-jurisdictional feature) located offsite to the west that outfalls onto the project site and contributes to Stream Channel #2. Stream Channel #2 generally flowed onsite in an easterly direction for approximately four hundred fifty-two (452) feet and adjacent to Wetland B before exiting the area of review. The majority of this stream channel is located outside of the project site to the south. From the southeastern corner of the project site. Steam Channel #2 flows in an easterly direction for approximately one thousand six hundred (1,600) feet to the confluence with Rock Creek. EA personnel observed a defined bed and bank and OHWM within the limits of the stream channel. Based on observations made during the wetland delineation effort and subsequent site visits, it has been determined that this unnamed tributary to Rock Creek is a perennial stream channel with relatively permanent flow throughout the year. Stream Channel #2 has been classified as an RPW with directly abutting wetlands (Wetland B) and adjacent wetlands (Wetland C).

## 4.4 WETLAND B (PALUSTRINE FORESTED WETLAND)

Wetland B was located along Stream Channel #2 on the south-central portion of the site (**Appendix D**). This wetland was classified as a forested wetland directly abutting Stream Channel #2. The source of hydrology for Wetland B appeared to be groundwater, as well as runoff from the surrounding land.

Wetland B contained predominantly hydrophytic vegetation consisting of red maple, sweetgum, and willow oak (*Quercus phellos*), soft rush, sedge species, and arrowleaf tearthumb. The soil matrix within the wetland area had a chroma value of two (2) or less with mottling of the matrix. Redox features and depletions were observed in soil samples throughout the wetland. Wetland hydrology indicators included saturation in the upper twelve (12) inches, water-stained leaves, and drainage patterns.

Within the areas outside of the wetland boundaries, EA personnel observed predominantly non-hydrophytic vegetation species, including tulip poplar (*Liriodendron tulipifera*), white oak (*Quercus alba*), and Christmas fern (*Polystichum acrostichoides*). No evidence of wetland hydrology was observed in the adjacent upland areas during the site visit.

## 4.5 WETLAND C (PALUSTRINE EMERGENT WETLAND)

Wetland C was located upslope from Stream Channel #2 within the cleared area for the Landfill on the central portion of the site (**Appendix D**). This wetland was classified as an emergent

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wetland that has developed within a depression adjacent to a large basin (referred to as Pond #3 by the County, and considered a non-jurisdictional feature). Wetland C does not directly abut any stream channel onsite. However, EA personnel identified a series of inlets, outfalls, pipes, and drainage swales that convey flow from this wetland down to Stream Channel #2.

Within the limits of the wetland, EA personnel observed predominantly hydrophytic vegetation species, including soft rush, softstem bullrush (*Schoenoplectus tabernaemontani*), blunt spikerush (*Eleocharis obtusa*), and sedge species. Evidence of observed wetland hydrology included saturated soil within twelve (12) inches of the ground surface and inundation. EA personnel excavated test pits to depths of approximately eighteen (18) inches and observed gleyed or low-chroma soils.

Within the areas outside of the wetland boundaries, EA personnel observed predominantly non-hydrophytic vegetation species, including multiflora rose (*Rosa multiflora*), red cedar (*Juniperus virginiana*), barnyardgrass (*Echinochloa crus-galli*), and black locust (*Robinia pseudoacacia*). No evidence of wetland hydrology was observed in the upland areas during the site visit, and the soils sample predominately consisted of fill material.

## 4.6 POND #4 (PALUSTRINE EMERGENT WETLAND)

EA personnel identified a fenced pond (referred to as Pond #4 by the County) associated with the stream/wetland system located on the south side of the project site (**Appendix D**). Pond #4 appeared to be a historical sediment basin, and classified as a potential emergent wetland. This pond was located adjacent to Wetland B but appeared to be hydrologically separated by an earthen berm. A deteriorated eighteen (18)-inch corrugated metal pipe was identified at this location and directly connects the pond to Stream Channel #2. This pond was identified as a potentially jurisdictional feature due to its location, directly adjacent to Stream Channel #2, and its location within the floodplain. Furthermore, groundwater was observed in the soil pit during the field effort; the presence of hydrophytic emergent vegetation within the pond as well as larger hydrophytic trees was documented along the pond boundary. Unlike other ponds identified onsite this pond does not appear to have been constructed solely in uplands and, therefore, this pond has potential to be considered jurisdictional.

Pond #4 contained predominantly hydrophytic vegetation consisting of red maple, silver maple (*Acer saccharinum*), and black willow along the edge of the pond, and sensitive fern, soft rush, and sedge species within the central portion of the pond. The soil matrix within the wetland area had a chroma value of two (2) or less with mottling of the matrix. Redox features were observed in soil samples throughout the wetland. Wetland hydrology indicators included inundation and saturation in the upper twelve (12) inches, along with water-stained leaves, and water marks.

## 4.7 WATERS OF THE U.S. #3 (EPHEMERAL CHANNEL)

Stream Channel #3 consisted of an ephemeral stream channel just offsite of the southeast corner of the project site (**Appendix D**). This ephemeral channel originated near the toe of the steep slopes surrounding the Landfill and flowed in a southerly direction for approximately one hundred eighty-

eight (188) linear feet before contributing to Stream Channel #2 near the outfall of Pond #1. Although this stream channel is located outside of the project site, it was flagged due to its proximity to the project site. EA personnel observed a defined bed and bank and OHWM within the limits of the stream channel; however, no evidence of recent flow was observed at the time of the site visit. Based on observations made during the wetland delineation effort and subsequent site visits, it has been determined that this channel is an ephemeral stream channel. This channel appeared to have been formed from surficial runoff from the Landfill. Within the forested area along the ephemeral channel, EA personnel observed predominantly non-hydrophytic vegetation species, including tulip poplar, white oak, American beech (*Fagus grandifolia*), and Japanese honeysuckle (*Lonicera japonica*). Stream Channel #3 has been classified as a Non-Relatively Permanent Water (Non-RPW) with no adjacent or abutting wetlands that contributed surface flow directly to an RPW.

A description of the wetlands and stream channels with a list of dimensions is provided in **Table 3**, with a preliminary significant nexus determination for each feature.

**Table 3** Delineated Features Identified

Table 5 Defineated Features Identified				
Delineated Feature	Resource	Significant Nexus Determination	Dimensions within the Project Site	Location within the Area of Review
Wetland A	Forested Wetland	Abutting an RPW	0.22 acre	Northeastern corner of area of review
Wetland B	Forested Wetland	Abutting an RPW	0.06 acre	Along southwestern boundary of area of review
Wetland C	Emergent Wetland	Isolated	0.03 acre	Central area of review
Pond #4	Perennial Stream	Year-Round RPW	0.15 acre	Along south boundary of area of review
Stream Channel #1	Perennial Stream	Year-Round RPW	68 LF	Northern corner of area of review
Stream Channel #2	Perennial Stream	Year-Round RPW	452 LF	Adjacent to the southern boundary of the area of review
Stream Channel #3	Ephemeral Stream	Non-RPW	188 LF ^(a)	Southeastern corner of area of review

⁽a) Dimension includes feature located outside of the project site.

Notes: LF = Linear feet.

RPW = Relatively Permanent Water.

### 4.8 NON-JURISDICTIONAL STORMWATER MANAGEMENT FEATURES

EA wetland scientists identified multiple locations throughout the area of review as part of the existing landfill, including stormwater management infrastructure, that are not typical of natural wetland systems. EA reviewed these areas and, with the exception of Ponds #2 and #4, did not identify any other stormwater management infrastructure as a potentially jurisdictional feature. Although most ponds are designed to outfall to an existing stream channel, and therefore could be seen as contributing to waters of the U.S., it is EA's professional experience that stormwater management infrastructure is typically only regulated as wetlands or streams if it is believed to be

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constructed in previous wetland or stream areas or is considered to be an in-line feature. For example:

- In-line ponds, where a likely jurisdictional stream channel was identified to flow into a pond and then continued below the pond—In this situation, the pond would likely be considered jurisdictional.
- Located within floodplains—If a pond appears to be located within a floodplain of an existing stream channel and the pond banks are surrounded with wetland vegetation, it would be difficult to determine whether or not the pond was originally constructed in uplands. These areas would typically be flagged as an abutting or adjacent wetland.

Ponds #1, #3, and the M-NCPPC, as well as swales identified throughout the site, appeared to be maintained features that were constructed completely in uplands with no wetlands or streams contributing to them from upslope locations. Since no natural stream or wetland feature was identified upslope from these ponds, EA believes that jurisdictional status will begin immediately below the pond outfall.

Many of the riprap swales throughout the facility were identified along existing roads and throughout the upland portion of the Landfill and were viewed as stormwater management drainage swales. These riprap and grass swales receive surficial runoff from the roads and other impervious or unvegetated surfaces and do not receive hydrology from natural stream channels or wetlands. Furthermore, these areas are underlain by fill material and refuse of the landfill.

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#### 5. CONCLUSION

The four (4) potentially jurisdictional wetlands and three (3) stream channels identified within the area of review either exhibited characteristics of regulated WUS (such as a defined bed and bank and presence of an OHWM) or all three (3) wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) as defined in the Regional Supplement (USACE 2012). Therefore, these areas were identified in the field and mapped on the wetland delineation map provided in Appendix D.

It is important to note that USACE is the federal agency that determines the official jurisdictional status of wetlands/waterways. Furthermore, the Maryland Department of the Environment can regulate wetlands/waterways considered non-jurisdictional by USACE. To determine whether USACE or the Maryland Department of the Environment will take jurisdiction over any areas of the subject property, a Jurisdictional Determination request should be submitted jointly to these agencies.

#### 6. REFERENCES

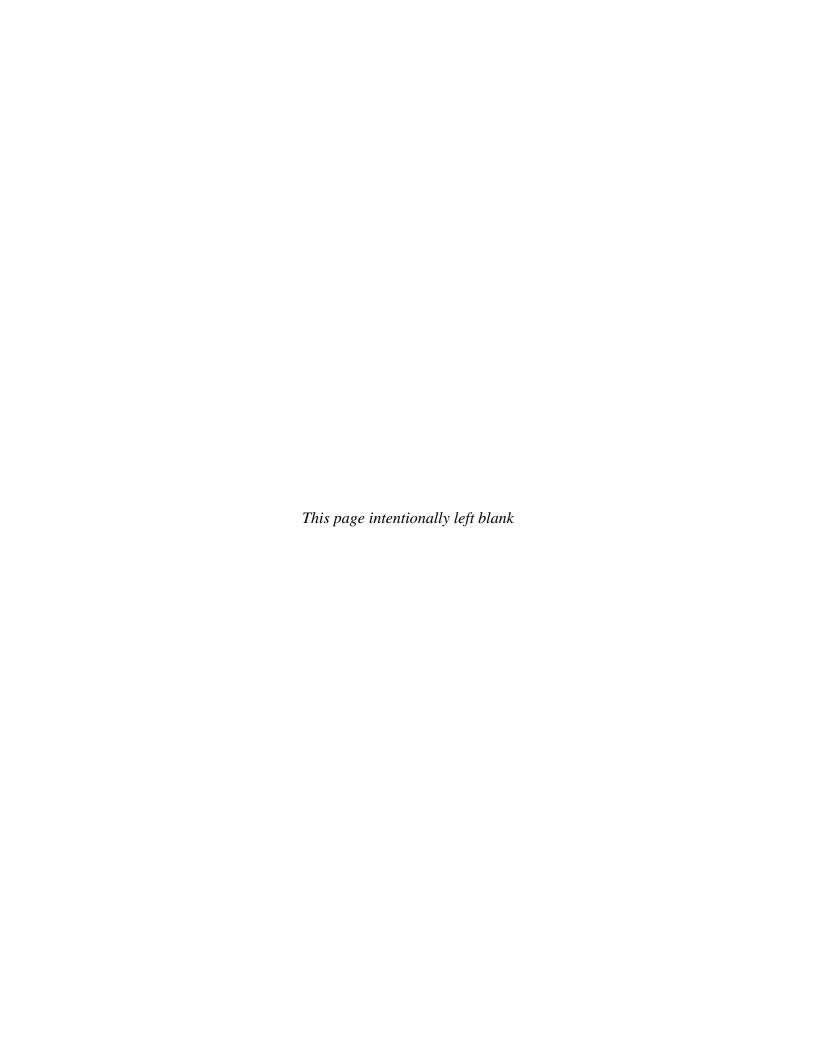
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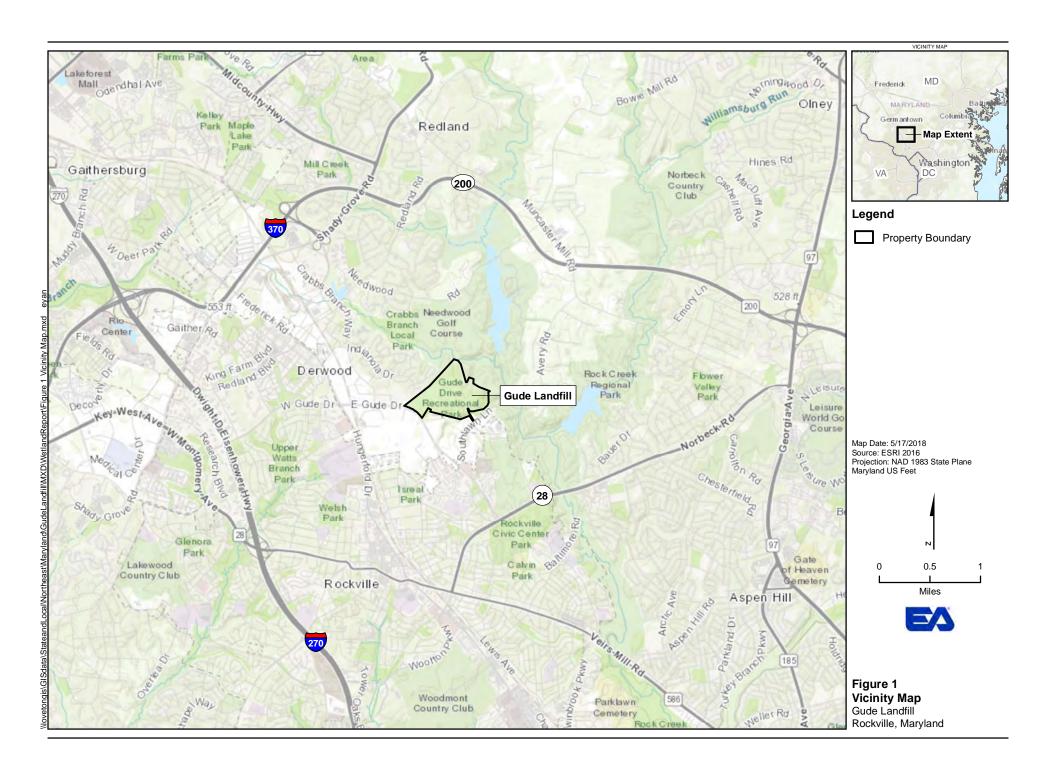
Kollmorgen Instruments Corporation. 1988. Munsell Soil Color Charts. Baltimore, Maryland.

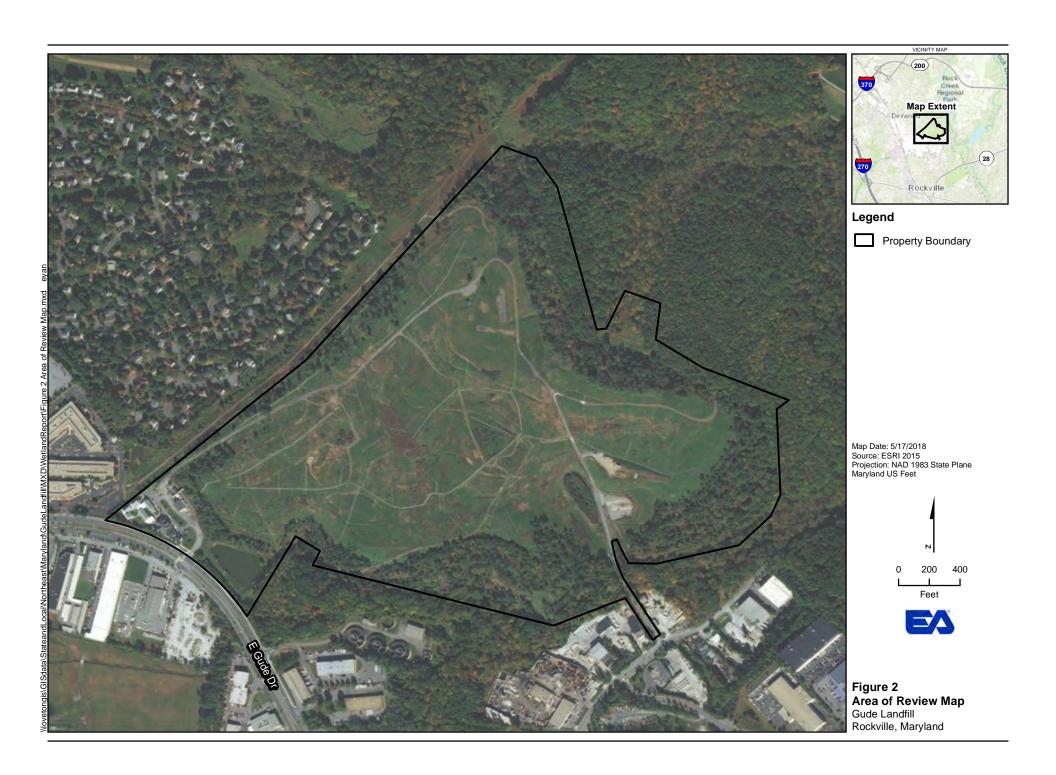
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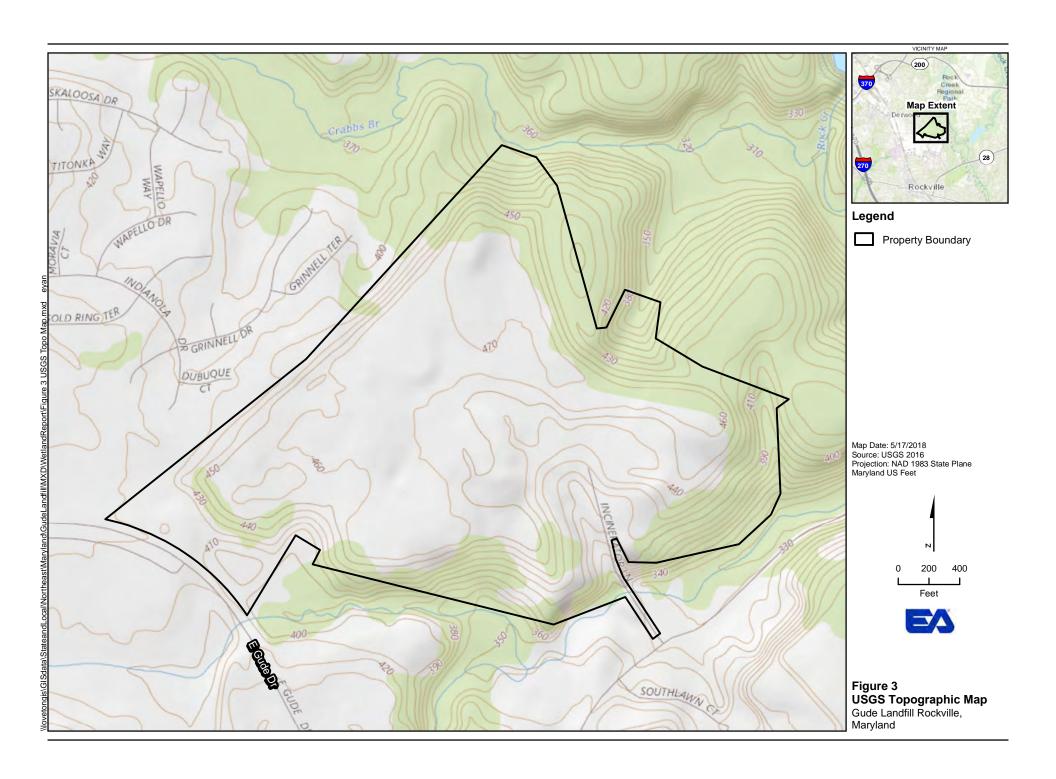
Appendix A

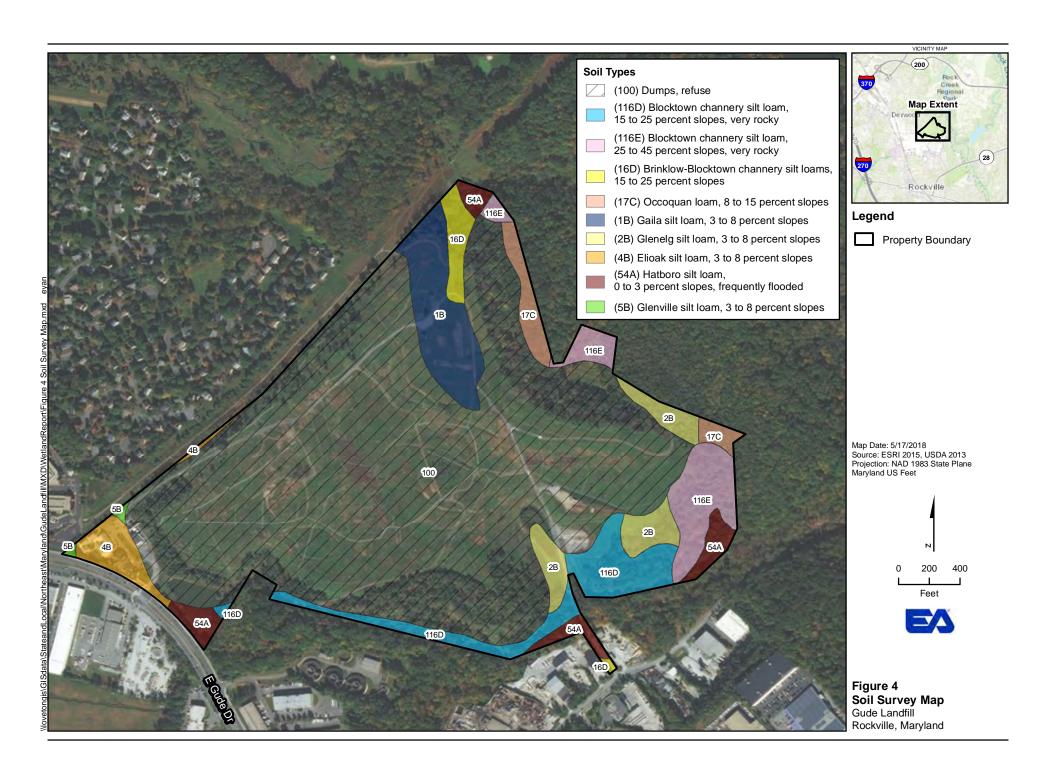
**Figures** 

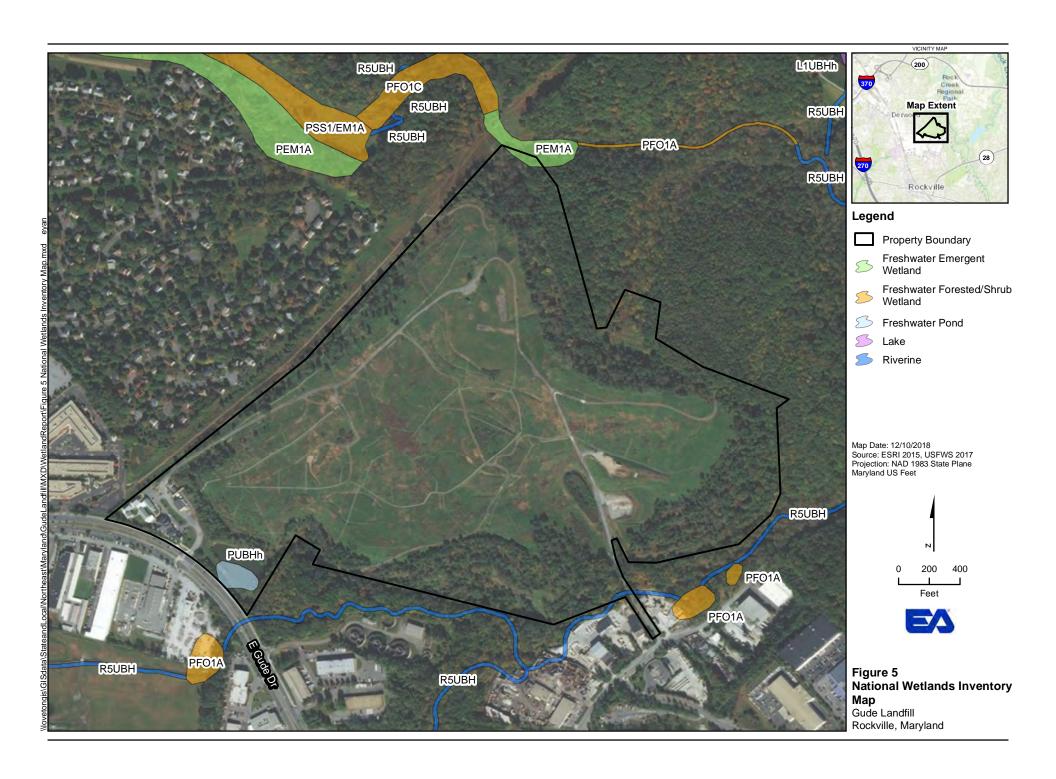


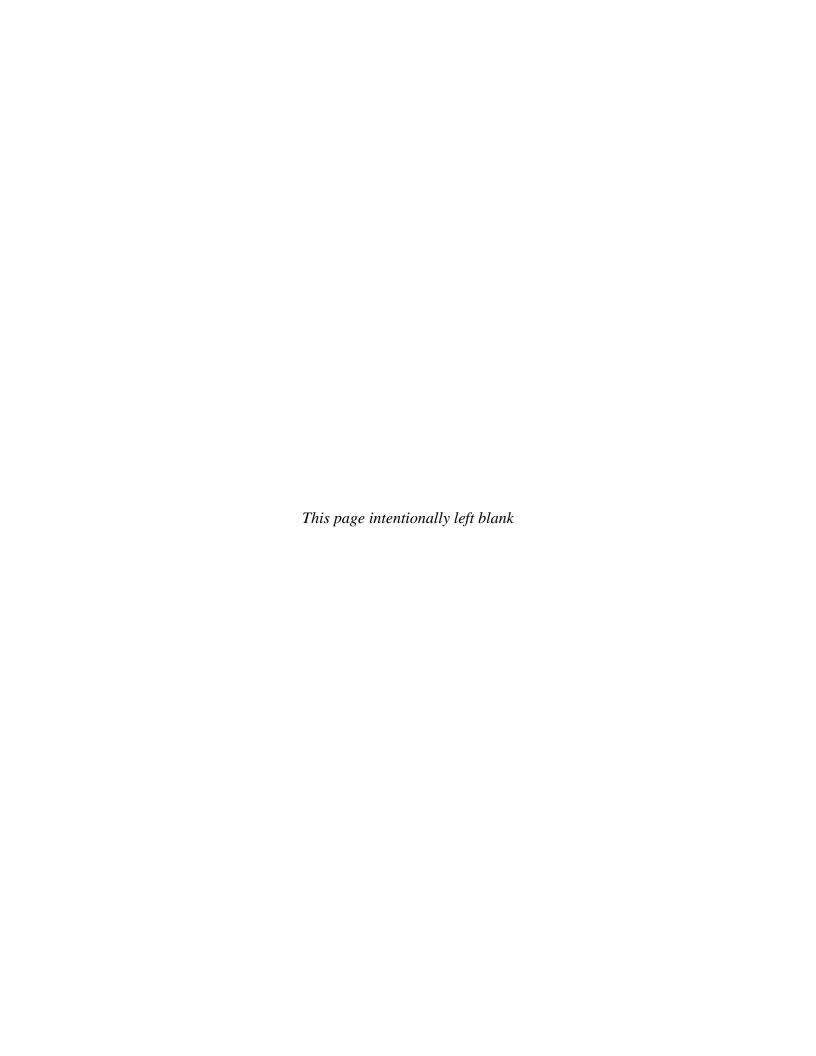




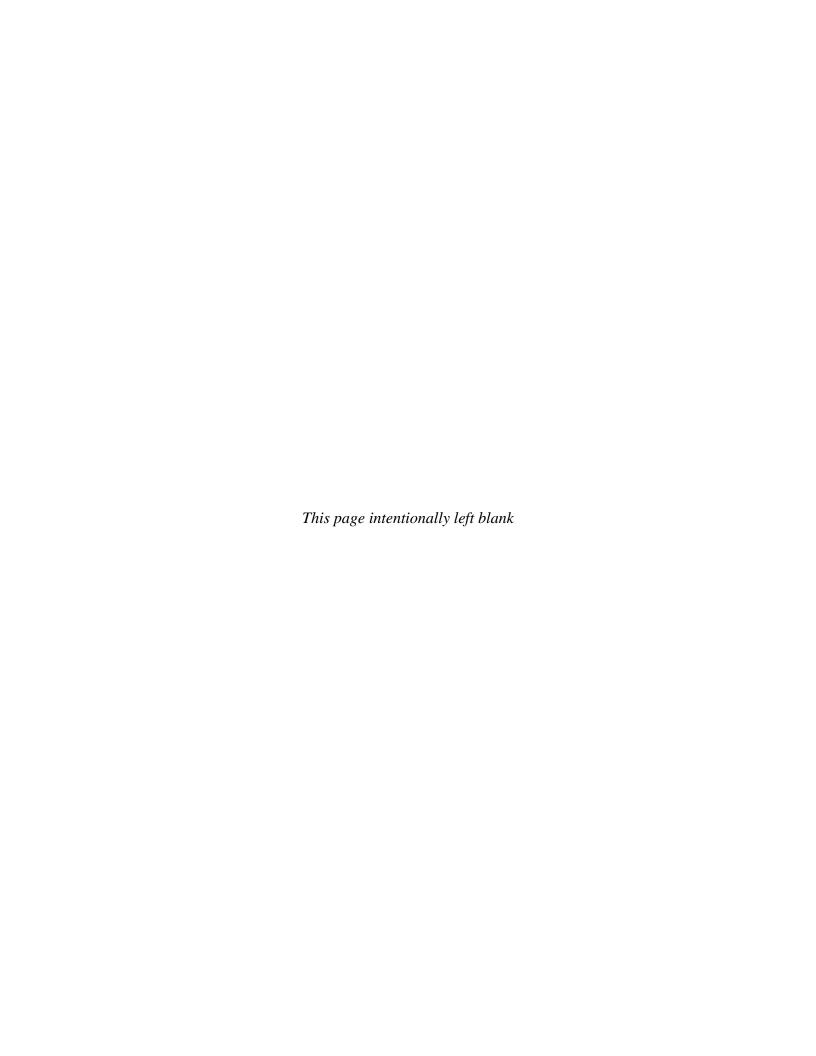








## Appendix B Wetland Delineation Data Forms



Project/Site: Gude Landfill		City/Co	ounty: Montgo	omery Cour	nty	Sam	pling Date: <u>5/1</u>	/18
Applicant/Owner: DEP/DSWS					State:	MD Sam	pling Point: _\	WETA
Investigator(s): TMK			Section, T	ownship, R	ange:		_	
Landform (hillslope, terrace, etc.):	floodplain			Local Relie	ef (concave, c	onvex, none): co	ncave	
Slope %: <5% Latitude:			Longitude:				NAD83 state p	plane
· ———	t loam, 0-3% slopes		_ ==:::::::::::::::::::::::::::::::::::			NWI Classificati		
Are climatic/hydrologic conditions of	· · · · · · · · · · · · · · · · · · ·	his time of yes	ar2 Vo	s☑ No□	lf no. (	explain in Remarks.		
·		-			, ,	·	_	
Are Vegetation □ , Soi □ , or hydi						present? Yes	NO L	
Are Vegetation $\square$ , Soil $\square$ , or hydronical	ology □ naturally pr	oblematic?	(If no	eeded, expl	ain any answ	ers in remarks.)		
SUMMARY OF FINDINGS - A	ttach site map sho	wing samp	ling point l	ocations,	, transects,	important feat	ures, etc.	
Hydrophytic Vegetation Present?	Yes ☑ No□				within a Wet		No□	
Hydric Soil Present?	Yes ☑ No□							
Wetland Hydrology Present?	Yes ☑ No□		If you ont	ional Wetla	and Sita ID:	Wetland A		
			ii yes, opt	ional wetia	and site ib.	Wetland A		
Remarks: (Explain alternative proce	dures nere or in a sep	arate report.)						
HYDROLOGY								
Wetland Hydrology Indicators:						Secondary Indicat	ors (minimum i	of 2)
Primary Indicators (minimum of one	e is required; check all	that apply)				☐ Surface Soil (		<u> </u>
☐ Surface Water (A1)						☐ Sparsely Veg	. Concave Surfa	ace(B8)
☑ High Water Table (A2)		Aquatic Faur	na (B13)			Drainage Pat	terns (B10)	
☑ Saturation (A3)		•	Plants (B14)			☐ Moss Trim Li		
☐ Water Marks (B1)			ılfide Odor (C	-		=	Water Table (C2	2)
☐ Sediment Deposits (B2)			zospheres on	_	ts (C3)	Crayfish Buri	. ,	
☐ Drift Deposits (B3)			Reduced Iron				isible on Aerial	
☐ Algal Mat or Crust (B4)			Reduction in	Tilled Soils (	(C6)		tressed Plants (	(D1)
Iron Deposits (B5)	(27)	Thin Muck S		,			Position (D2)	
Inundation Visible on Aerial In	nagery (B7)	Other (Expla	in in Remarks	5)		☐ Shallow Aqu		4)
☑ Water-Stained Leaves (B9)						_	aphic Relief (D4	4)
Field Observations						☐ FAC-Neutral	Test (D5)	
Field Observations: Surface Water Present? Yes □	No☑ Depth (inch	oc).						
Water Table Present? Yes	No □ Depth (inch		20					
Saturation Present? Yes	No ☐ Depth (inch	· <del></del>		Wetlan	d Hydrology	Present? Yes 🗸	No□	
(includes capillary fringe)			_		,			
Describe Recorded Data (stream gu	age, monitoring well,	aerial photos,	previous insp	ections), if	available:			
Remarks:								
<b>VEGETATION</b> - Use Scientific	Names of Plants.							
		Absolute	Dominant	Indicator	Dominance 1	Test worksheet:		
Tree Stratum (Plot size: 30 ft	)	% Cover	Species?	Status	1	Oominant Species		
1 Acer rubrum		15	YES	FAC	That Are OB	L, FACW, or FAC:	8	(A)
2					Takal Niveska			
3					1	er of Dominant ss All Strata:	0	(D)
5					species Acro	SS All Strata:	8	(B)
6					Percent of D	ominant Species		
7					4	L, FACW, or FAC:	100.0	(A/B)
` <del> </del>		15 =	Total cover					
			50% 3	= 20%				
Sapling/Shrub Stratum (Plot size	e: 30 ft )				Prevalence I	ndex worksheet:		
1 Acer rubrum		15	YES	FAC	Total % Co	ver of:	Multipl	ly by:
2 Liquidamber styraciflua		10	YES	FAC	OBL species		x 1	
3 Salix nigra		15	YES	FACW	FACW specie	es	x 2	
4					FAC species		x 3	
5					FACU specie	s	x 4	
6					UPL Species		x 5	
7			T		Column Tota		(A)	(B)
			Total Cover	200/	Prevala	ince Index = B/A =		
i e		20 =	50% 8	= 20%	ı			



Vegetation (continued) Sampling Point: WETA Absolute Dominant Indicator **Hydrophytic Vegetation Indicators:** Herb Stratum (Plot size: 30 ft % Cover Species? Status Rapid Test for Hydrophytic Vegetation 1 Polystichun acrostichoides **FACU** Dominance test is >50% 5 NO 1 Prevalence Index is  $\leq 3.0^{\circ}$ 2 Symplocarpus foetidus 25 OBL YES Morphological Adaptations¹ (Provide Supporting 3 Boehmeria cylindrica 10 YES **FACW** 4 Juncus effusus 10 YES FACW data in Remarks or on a separate sheet) 10 Problematic Hydrophytic Vegetation¹ (Explain) 5 Polygonum sagittatum YES **FACW** Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 60 = Total Cover **Definitions of Vegetation Strata:** = 50% 12 = 20% Woody Vine Stratum Tree: Woody plants 3 in. (7.6cm) or more in diameter (Plot size: 30 ft at breast height (DBH), regardless of height. Sapling/shrub: Woody plants less than 3 in. DBH and greater then 3.28 ft (1m) tall. 3 Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines: All woody vines greater than 3.28 ft in = Total Cover Hydrophytic Vegetation Present? 0 = 50% = 20% Yes 🗹 No Remarks: (Include photo numbers here or on a separate sheet.) SOIL Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks 0-2 10YR32/2 100 organio 2-10 10YR 4/2 90 7.5YR 4/6 10 C Μ Silt loam 10-20 10YR 5/1 80 10YR 4/6 20 С М Silt loam ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils³: **Hydric Soil Indicators:** ☐ Histosol (A1) ☐ Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) ☐ Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prarie Redox (A16) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Piedmont Floodplain Soils (F19) Hydron Sulfide (A4) Loamy Gleyed Matrix (F2) (MLRA 136, 147) Stratified Layers (A5) Depleted Matrix (F3) Red Parent Material (TF2) 1 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12) П Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) П ☐ Sandy Mucky Mineral (S1) (LRR N, П Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) ☐ Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ☐ Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) ☐ Stripped Matrix (S6)  3 Indicators of hydrophtic vegetation and wetland hydrology $\square$ ust be present, unless disturbed or problematic. Restrictive Layer (if observed): **Hydric Soil Present?** No□ Type: Yes 🗸 Depth (inches): Remarks:



Applicant/Owner: DEP/DSWS		City/Co	unty: Wontgo	omery Cour	ity	Jaili	pling Date: <u>5/1/</u>	18
					State:	MD Sam	pling Point: V	/ETB
Investigator(s): TMK			Section, T	ownship, R	ange:			
Landform (hillslope, terrace, etc.): floo	odplain			Local Relie	ef (concave, c	onvex, none): co	ncave	
Slope %: <5% Latitude: 39	9° 06′ 29″ N		Longitude:	77° 08′ 1	16" W	Datum:	NAD83 state p	ane
Soil Map Unit Name: Blocktown chann	nery silt loam, 15-2	25% slopes				NWI Classificati	ion: PFO	
Are climatic/hydrologic conditions on the			ır? Ye	s☑ No□	(If no. 6	—— explain in Remarks.		
Are Vegetation $\square$ , Soil $\square$ , or hydrology	* *	· ·			, ,	present? Yes 🗹	_	
Are Vegetation $\square$ , Soil $\square$ , or hydrology						ers in remarks.)		
SUMMARY OF FINDINGS - Attach			ling noint l	ocations	transects	important feat	tures etc	
Hydrophytic Vegetation Present? Yes		wing samp			within a Wet		No 🗆	
1, 1, 9	i		is the san	ipieu Aiea	within a vvet	iailu: Tes 🗆	NOL	
1 '			16	:! \\/-+!-	and Cita ID.	METIAND D		
Wetland Hydrology Present? Yes			if yes, opt	ional Wetla	ina Site ID:	WETLAND B		
Remarks: (Explain alternative procedures	here or in a sepa	rate report.)						
HYDROLOGY								
Wetland Hydrology Indicators:						Secondary Indicat		f 2)
Primary Indicators (minimum of one is re	quired; check all t	hat apply)				Surface Soil (	. ,	
Surface Water (A1)	П	A acception Force	o (D12)				. Concave Surfa	ce(B8)
☐ High Water Table (A2) ☑ Saturation (A3)		Aquatic Faun True Aquatic				<ul><li>☑ Drainage Pat</li><li>☑ Moss Trim Li</li></ul>		
☐ Water Marks (B1)		Hydrogen Su		1)			Nater Table (C2	)
Sediment Deposits (B2)		Oxidized Rhiz	-	-	s (C3)	☐ Crayfish Burn		,
☐ Drift Deposits (B3)		Presence of I	•	_	,		isible on Aerial	(C9)
☐ Algal Mat or Crust (B4)		Recent Iron F	Reduction in 1	Γilled Soils (	C6)	☐ Stunted or St	tressed Plants (I	01)
☐ Iron Deposits (B5)		Thin Muck Su	urface (C7)			•	Position (D2)	
☐ Inundation Visible on Aerial Imager	y (B7)	Other (Explai	in in Remarks	)		Shallow Aqui		
✓ Water-Stained Leaves (B9)						_	aphic Relief (D4	)
						☐ FAC-Neutral	Test (D5)	
Field Observations:		٠١.						
Curfoss Motor Drosont? Vos - No	Donth linche							
Surface Water Present? Yes ☐ No								
Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes ✓ No	☑ Depth (inche	s):	<u>e</u>	Wetlan	d Hydrology	Present? Yes ✓	No□	
Water Table Present? Yes ☐ No	☑ Depth (inche	s):	e	Wetlan	d Hydrology	Present? Yes ✓	No□	
Water Table Present? Yes ☐ No Saturation Present? Yes ☑ No	Depth (inche	s): surfac				Present? Yes 🗸	No□	
Water Table Present? Yes ☐ No Saturation Present? Yes ☑ No (includes capillary fringe)	Depth (inche	s): surfac				Present? Yes 🗸	No□	
Water Table Present? Yes □ No Saturation Present? Yes ☑ No (includes capillary fringe) Describe Recorded Data (stream guage, I	Depth (inche	s): surfac				Present? Yes ✓	No□	
Water Table Present? Yes □ No Saturation Present? Yes ☑ No (includes capillary fringe) Describe Recorded Data (stream guage, I	✓ Depth (inche ☐ Depth (inche monitoring well, a	s): s): surfac erial photos, į	previous insp	ections), if a	available:		No□	
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, in Remarks:  VEGETATION - Use Scientific Nar	✓ Depth (inche ☐ Depth (inche monitoring well, a	s): surfac erial photos, p	previous inspo	ections), if a	available:  Dominance	Test worksheet:	No□	
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, I Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft )	☑ Depth (inche ☐ Depth (inche monitoring well, a	s): surfaces: su	previous insponential Dominant Species?	ections), if a	Dominance Number of E	Test worksheet:		(0)
Water Table Present? Yes □ No Saturation Present? Yes ☑ No (includes capillary fringe)  Describe Recorded Data (stream guage, I  Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft ) 1 Acer rubrum	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15	Dominant Species? YES	Indicator Status FAC	Dominance Number of E	Test worksheet:	<b>No</b> □	(A)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, I Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft )	☑ Depth (inche ☐ Depth (inche monitoring well, a	s): surfaces: su	previous insponential Dominant Species?	ections), if a	Dominance Number of E That Are OB	Test worksheet:		(A)
Water Table Present? Yes □ No Saturation Present? Yes ☑ No (includes capillary fringe)  Describe Recorded Data (stream guage, I  Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft )  1 Acer rubrum  2 Liquidambar styraciflua	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 15	Dominant Species? YES YES	Indicator Status FAC FAC	Dominance Number of E That Are OB	Test worksheet: Dominant Species L, FACW, or FAC:		(A)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, I Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft ) 1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 15	Dominant Species? YES YES	Indicator Status FAC FAC	Dominance Number of E That Are OB	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant	6	
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes)  Remarks:  VEGETATION - Use Scientific Narian (Plot size: 30 ft ) 1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 15	Dominant Species? YES YES	Indicator Status FAC FAC	Dominance Number of E That Are OB Total Numbe Species Acro	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species	6	(B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, I Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft ) 1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 10	Dominant Species? YES YES YES	Indicator Status FAC FAC	Dominance Number of E That Are OB Total Numbe Species Acro	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata:	6	
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream guage, I Remarks:  VEGETATION - Use Scientific Nar  Tree Stratum (Plot size: 30 ft ) 1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 10	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species	6	(B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narion (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7	☑ Depth (inche ☐ Depth (inche monitoring well, a mes of Plants.	Absolute % Cover 15 10	Dominant Species? YES YES YES	Indicator Status FAC FAC	Dominance Number of E That Are OB Species Acro Percent of D That Are OB	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC:	6	(B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narion (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7	☑ Depth (inche ☐ Depth (inche monitoring well, a	Absolute % Cover 15 10	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet:	6 6 100.0	(B) (A/B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narion (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7	☑ Depth (inche ☐ Depth (inche monitoring well, a mes of Plants.	Absolute % Cover 15 10  40 = 20 = 9	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Species Acro Percent of D That Are OB	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet:	6	(B) (A/B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narion (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7	☑ Depth (inche ☐ Depth (inche monitoring well, a mes of Plants.	Absolute % Cover 15 10  40 = 20 = 9	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet: ver of:	6 6 100.0 Multiply	(B) (A/B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narian (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7 Sapling/Shrub Stratum (Plot size: 31 Acer rubrum )  Sapling/Shrub Stratum (Plot size: 32 ft )	☑ Depth (inche ☐ Depth (inche monitoring well, a mes of Plants.	Absolute % Cover 15 10  40 = 20 = 9	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB  Prevalence I Total % Co OBL species FACW species FAC species	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet: ver of:	6 6 100.0 Multiply	(B) (A/B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narian (Plot size: 30 ft )  1 Acer rubrum   2 Liquidambar styraciflua   3 Quercus phellos   4   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum   2   3   4   5   5   6   7   Sapling/Shrub Stratum   5   Sapling/Shrub Stratum   6   Sapling/Shrub Stratum   7   Sapling/Shrub Stratum   8   Sapling/Shrub Stratum   9   Sapling/Shrub Stratu	□ Depth (inche □ Depth (inche monitoring well, a  mes of Plants.	Absolute % Cover 15 10  40 = 20 = 9	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB  Prevalence I Total % Co OBL species FACW species FACW species FACU species	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet: ver of:	6 100.0 Multiply x1 x2 x3 x4	(B) (A/B)
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narian (Plot size: 30 ft )  1 Acer rubrum 2 Liquidambar styraciflua 3 Quercus phellos 4 5 6 7 Sapling/Shrub Stratum (Plot size: 1 Acer rubrum 2 Liquidambar styraciflua (Plot size: 1 Acer rubrum) 2 3 4	□ Depth (inche □ Depth (inche monitoring well, a  mes of Plants.	Absolute % Cover 15 10  40 = 20 = 9	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB  Prevalence I Total % Co OBL species FACW species FACW species FACU species FACU species FACU species FACU species FACU species	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet: ver of:	6 100.0 Multiple x1 x2 x3 x4 x5	(B) (A/B) / by:
Water Table Present? Yes No Saturation Present? Yes No (includes capillary fringe)  Describe Recorded Data (stream guage, includes capillary fringe)  Remarks:  VEGETATION - Use Scientific Narian (Plot size: 30 ft )  1 Acer rubrum   2 Liquidambar styraciflua   3 Quercus phellos   4   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum (Plot size: 31 Acer rubrum   2   3   4   5   5   6   7   Sapling/Shrub Stratum   2   3   4   5   5   6   7   Sapling/Shrub Stratum   5   Sapling/Shrub Stratum   6   Sapling/Shrub Stratum   7   Sapling/Shrub Stratum   8   Sapling/Shrub Stratum   9   Sapling/Shrub Stratu	□ Depth (inche □ Depth (inche monitoring well, a  mes of Plants.	Absolute % Cover 15 10  40 = 15	Dominant Species? YES YES YES Total cover	Indicator Status FAC FACW	Dominance Number of E That Are OB Total Numbe Species Acro Percent of D That Are OB  Prevalence I Total % Co OBL species FACW species FACW species FACU species FACU species Column Total	Test worksheet: Dominant Species L, FACW, or FAC: er of Dominant uss All Strata: ominant Species L, FACW, or FAC: ndex worksheet: ver of:	6 100.0 Multiply x1 x2 x3 x4	(B) (A/B)



Vegetation (continued)				Sampling Point: WETB
,	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: 30 ft )	% Cover	Species?	Status	☐ Rapid Test for Hydrophytic Vegetation
1 Juncus effusus	10	YES	FACW	✓ Dominance test is >50%
2 Polygonum sagittatum	10	YES	FACW	☐ Prevalence Index is ≤3.0 ¹
3				☐ Morphological Adaptations¹ (Provide Supporting
4				data in Remarks or on a separate sheet)
5				☐ Problematic Hydrophytic Vegetation¹ (Explain)
6				¹ Indicators of hydric soil and wetland hydrology must
7				be present, unless disturbed or problematic.
·	20 :	= Total Cover		be present, unless disturbed of problematic.
		= 10tal Covel = 50% 4	- 20%	Definitions of Vegetation Strata:
Woody Vine Stratum (Diet size) 20 ft		= 50% 4	= 20%	_
Woody Vine Stratum (Plot size: 30 ft )				Tree: Woody plants 3 in. (7.6cm) or more in diameter
1				at breast height (DBH), regardless of height.
2				Sapling/shrub: Woody plants less than 3 in. DBH
3				and greater then 3.28 ft (1m) tall.
4				Herb: All herbaceous (non-woody) plants, regardless
5				of size, and woody plants less than 3.28 ft tall.
6				Woody Vines: All woody vines greater than 3.28 ft in
7				height.
		= Total Cover		
	0 :	= 50%0	= 20%	Hydrophytic Vegetation Present? Yes ☑ No□
Remarks: (Include photo numbers here or on a separate	sheet.)			
.com				
SOIL				
Profile Description: (Describe to the depth needed to do			firm the al	bsence of indicators.)
	edox Features		•	
(inches) Color (moist) % Color (moist)		pe ¹ Loc ²	Text	ure Remarks
0-6 10YR 4/2 97 10YR 4/4	3	<u>С</u> М	fine sand	ly loam
6-20 10YR 5/1 90 10YR 4/6	10	<u>С</u> М	Silt lo	oam
¹ Type: C=Concentration, D=Depletion, RM=Reduced Mat	trix, CS=Covere	ed or Coated Sa	ind Grains.	. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :
	rk Surface (S7	١		☐ 2 cm Muck (A10) <b>(MLRA 147)</b>
	,	, Surface (S8) <b>(N</b>	NI DA 147	, (, (,
	•	e (S9) (LRR R, N	-	
	amy Gleyed M		ILNA 1430)	
1 — · · — · — —				(MLRA 136, 147)
=	pleted Matrix			Red Parent Material (TF2)
	dox Dark Surfa			☐ Very Shallow Dark Surface (TF12)
1 — · — — — — — — — — — — — — — — — — —	pleted Dark S			Other (Explain in Remarks)
<u> </u>	dox Depressio			
<u>                                     </u>	=	Masses (F12) (	LRR N,	
	LRA 136)			
		F13) <b>(MLRA 13</b>		
1	edmont Flood	olain Soils (F19)	(MLRA 14	8)
☐ Stripped Matrix (S6)				
³ Indicators of hydrophtic vegetation and wetland hydrol	ogy⊡ust be p	resent, unless	disturbed o	or problematic.
Restrictive Layer (if observed):				
Type:				Hydric Soil Present? Yes ✓ No ☐
Depth (inches):				
Remarks:				
incinuing.				



Project/Site: Gude Landfill		City/Cou	nty: Montgo	omery Cour	nty	Samı	pling Date: <u>5/1</u>	./18
Applicant/Owner: DEP/DSWS					State:	MD Samı	pling Point: \(\)	WETC
Investigator(s): TMK			Section, T	ownship, R	ange:			
Landform (hillslope, terrace, etc.):	hillslope - drainage s	swale				onvex, none): co	ncave	
Slope %: 5% Latitude:	39° 06′ 29″ N		Longitude:	77° 08′ :	16" W	Datum:	NAD83 state p	olane
Soil Map Unit Name: Dump,refus	se		J			NWI Classificati		
Are climatic/hydrologic conditions of		his time of year	? Ye	s☑ No□	(If no. 6	explain in Remarks.		
Are Vegetation $\square$ , Soil $\square$ , or hydronical section $\square$ , soil $\square$ , or hydronical section $\square$ , soil $\square$ , or hydronical section $\square$ , so hydronical section $\square$		•			, ,	present? Yes 🗹	_	
Are Vegetation $\square$ , Soil , or hydronyddiae , or hydronyddiae , soil , or hydronyddiae , sae y chaef y						ers in remarks.)	NO L	
Are vegetation , 301 , or flydd	ology - Haturally pri	obiematic:	(11.11)	eeueu, expi	alli aliy alisw	ers in remarks.)		
SUMMARY OF FINDINGS - A	ttach site map sho	owing sampli	ng point l	ocations,	, transects,	important feat	ures, etc.	
Hydrophytic Vegetation Present?	Yes ☑ No□		Is the San	npled Area	within a Wet	land? Yes ☑	No□	
Hydric Soil Present?	Yes ☑ No□							
Wetland Hydrology Present?	Yes ☑ No□		If yes, opt	ional Wetla	and Site ID:	Wetland C		
Remarks: (Explain alternative proce		arate report.)	, , ,					
(,		,						
HYDROLOGY								
Wetland Hydrology Indicators:						Secondary Indicate		of 2)
Primary Indicators (minimum of one	e is required; check all	that apply)				☐ Surface Soil (	• •	
☐ Surface Water (A1) ☐ High Water Table (A2)		Aquatic Fauna	(D12)			<ul><li>☐ Sparsely Veg</li><li>☑ Drainage Pat</li></ul>	. Concave Surfa	₃ce(B8)
☐ Figit Water Table (A2)  ☐ Saturation (A3)		Aquatic Fauna True Aquatic F				☐ Moss Trim Li		
Water Marks (B1)		Hydrogen Sulf		1)			Nater Table (C2	2)
☐ Sediment Deposits (B2)	<b>V</b>	Oxidized Rhizo			ts (C3)	☐ Crayfish Burr	ows (C8)	
☐ Drift Deposits (B3)		Presence of R				<del></del>	isible on Aerial	. ,
☐ Algal Mat or Crust (B4)		Recent Iron Re		Tilled Soils (	(C6)		tressed Plants (	D1)
Iron Deposits (B5)		Thin Muck Sur	. ,	Λ.			Position (D2)	
☐ Inundation Visible on Aerial In☐ Water-Stained Leaves (B9)	nagery (B7)	Other (Explain	i ili kemarks	•)		<ul><li>☐ Shallow Aqui</li><li>☐ Microtopogra</li></ul>	aphic Relief (D4	4)
Water-Stained Leaves (B5)						☐ FAC-Neutral		*/
Field Observations:							1631 (D3)	
Surface Water Present? Yes ☐	No☑ Depth (inch	es):						
Water Table Present? Yes ☐	No☑ Depth (inch	· <del></del>						
Saturation Present? Yes ✓	No□ Depth (inch	es): surface	<u>-</u>	Wetlan	d Hydrology	Present? Yes 🗹	No□	
(includes capillary fringe)  Describe Recorded Data (stream gu	age monitoring well	aerial nhotos in	revious insn	ections) if	availahle:			
Describe Necorded Data (stream gu	age, monitoring wen,	aeriai pilotos, p	revious irisp	ections), ii	available.			
Remarks:								
VEGETATION - Use Scientific	Names of Plants.							
		Absolute [	Dominant	Indicator	Dominance '	Test worksheet:		
Tree Stratum (Plot size: 30 ft	)	% Cover	Species?	Status	4	ominant Species		
1					That Are OB	L, FACW, or FAC:	2	(A)
3					Total Numbe	er of Dominant		
4					Species Acro		2	(B)
5								` '
6					Percent of D	ominant Species		
7					That Are OB	L, FACW, or FAC:	100.0	(A/B)
			Total cover	200/				
Conling/Shrub Stratum / Diet size	20 ft \	0 = 5	0% 0	= 20%	Duovalonas I	ndex worksheet:		
Sapling/Shrub Stratum (Plot size	e: <u>30 ft</u> )				Total % Co		Multipl	lv hv
2					OBL species	ver or.	x 1	y by.
3					FACW specie	es —	x 2	
4					FAC species		x 3	
5					FACU specie	s	x 4	
6					UPL Species	. ———	x 5	
		<del></del>	otal Carre		Column Tota		(A)	(B)
		$\frac{0}{0} = T_0$	otal Cover 0% 0	= 20%	rievala	nce Index = B/A =		
Ī								



Vegetation (continued) Sampling Point: WETC Absolute Dominant Indicator **Hydrophytic Vegetation Indicators:** Herb Stratum (Plot size: 30 ft % Cover Species? Status Rapid Test for Hydrophytic Vegetation 1 schoenoplectus tabernaemontani OBL Dominance test is >50% 25 YES 1 Prevalence Index is  $\leq 3.0^{\circ}$ 2 Eleocharis obtusa 35 OBL YES Morphological Adaptations¹ (Provide Supporting 3 data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) П Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 60 = Total Cover **Definitions of Vegetation Strata:** = 50% 12 = 20% Woody Vine Stratum Tree: Woody plants 3 in. (7.6cm) or more in diameter (Plot size: 30 ft at breast height (DBH), regardless of height. Sapling/shrub: Woody plants less than 3 in. DBH and greater then 3.28 ft (1m) tall. 3 Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vines: All woody vines greater than 3.28 ft in 0 = Total Cover Hydrophytic Vegetation Present? 0 = 50% = 20% Yes 🗹 No Remarks: (Include photo numbers here or on a separate sheet.) SOIL Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks 0-2 10YR 2/1 100 organio 2-5 2.5Y 5/2 95 7.5YR 4/6 5 C PL Silt loam 5-12 10YR 4/1 85 10YR 6/8 15 С Μ fill material present Silt loam ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils³: **Hydric Soil Indicators:** ☐ Histosol (A1) ☐ Dark Surface (S7) 2 cm Muck (A10) (MLRA 147) ☐ Histic Epipedon (A2) Polyvalue Below Surface (S8) (MLRA 147, 148) Coast Prarie Redox (A16) (MLRA 147, 148) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Piedmont Floodplain Soils (F19) Hydron Sulfide (A4) Loamy Gleyed Matrix (F2) (MLRA 136, 147) Stratified Layers (A5) Depleted Matrix (F3) Red Parent Material (TF2) 1 2 cm Muck (A10) (LRR N) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12) П Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks) Thick Dark Surface (A12) Redox Depressions (F8) П ☐ Sandy Mucky Mineral (S1) (LRR N, П Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148) MLRA 136) ☐ Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122) ☐ Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148) ☐ Stripped Matrix (S6)  3 Indicators of hydrophtic vegetation and wetland hydrology $\square$ ust be present, unless disturbed or problematic. Restrictive Layer (if observed): **Hydric Soil Present?** Yes 🗸 No□ Type: Depth (inches): Remarks:



Project/Site: Gude Landfill		City/C	County: Montge	omery Cou	nty	Samp	pling Date: <u>5/</u>	1/18
Applicant/Owner: DEP/DSWS					State: MD	Samp	pling Point:	UPL1
Investigator(s): TMK			Section, T	Γownship, R	ange:		-	
Landform (hillslope, terrace, etc.):	hillslope			-	ef (concave, convex	c. none): co	nvex	
Slope %: 5% -10% Latitude:	39° 06′ 29″ N		Longitude:				NAD83 state	nlane
Soil Map Unit Name: dump, refus						WI Classificati		piarie
•		L-ic time of w	2 Vo	es☑ No□				
Are climatic/hydrologic conditions o					, , ,	n in Remarks.)	_	
Are Vegetation □ , Soil □ , or hydro					rcumstances" prese		No ⊔	
Are Vegetation $\square$ , Soil $\square$ , or hydro	ology □ naturally pr	oblematic?	(If n	eeded, expl	lain any answers in	remarks.)		
SUMMARY OF FINDINGS - At	tach site map sho	owing sam	nling point	locations	transects, imp	ortant feat	ures. etc.	
Hydrophytic Vegetation Present?	Yes□ No☑	711			within a Wetland?		No☑	
Hydric Soil Present?	Yes □ No ☑		13 tile 34	IIpicu Aica	Within a weekana.	163	No	
1 '			ifs. oni	· · · -   \ \	4.00 × 10.			
Wetland Hydrology Present?	Yes □ No ☑			tional Wetla	and Site ID:			
Remarks: (Explain alternative proced	dures here or in a sep	arate report.	)					
on upland slope adjacent to wetland	НΔ							
HYDROLOGY	10							
Wetland Hydrology Indicators:					Sacc	endary Indicate	ors /minimum	of 2\
Primary Indicators (minimum of one	is required: check all	I that apply)			Seco		ors (minimum Cracks (B6)	01 2)
☐ Surface Water (A1)	10 104000, 222	1,000 0000					. Concave Surf	face(B8)
☐ High Water Table (A2)		Aquatic Fau	una (B13)			Drainage Pat		,
☐ Saturation (A3)		=	tic Plants (B14)			Moss Trim Li		
☐ Water Marks (B1)		, .	Sulfide Odor (C	•		=	Water Table (C	(2)
Sediment Deposits (B2)			hizospheres on	_		Crayfish Burr	. ,	
Drift Deposits (B3)			f Reduced Iron		(66)		isible on Aeria	. ,
☐ Algal Mat or Crust (B4)			n Reduction in T	Tilled Sons (	• •		tressed Plants	(D1)
☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Im	□ Lagery (B7)		Surface (C7) lain in Remarks	-1		Geomorphic Shallow Aqui	Position (D2)	
☐ Inundation Visible on Aerial Im ☐ Water-Stained Leaves (B9)	agery (b/)	Other (Lapi	ain in Kemarka	5)		· · ·	itard (D3) aphic Relief (D	241
Water-Stained Leaves (55)								14)
Field Observations:						FAC-Neutral	ופטן Test	
Surface Water Present? Yes	No Depth (inch	ies):						
Water Table Present? Yes □	No☑ Depth (inch							
Saturation Present? Yes ☐	No☑ Depth (inch			Wetlan	nd Hydrology Prese	nt? Yes □	No✓	
(includes capillary fringe)	·							
Describe Recorded Data (stream gua	age, monitoring well,	aerial photos	, previous insp	ections), if	available:			
Remarks:								
Remarks.								
	·							
VEGETATION - Use Scientific	Names of Plants.			· Ptor	In the same Took w			
Tree Stratum (Plot size: 30 ft	<b>V</b>	Absolute % Cover	Dominant Species?	Indicator	Dominance Test v Number of Domin			
1 Acer rubrum (Plot size: 30 ft	_'	% Cover 10	Species? YES	Status FAC	That Are OBL, FAC		2	(A)
2 Liquidambar styraciflua		5	NO	FAC	Illat Ale Obe,	.VV, ULLAG.		(,,,
3 Quercus alba		15	YES	FACU	Total Number of D	Oominant		
4 Liriodendron tulipfera		20	YES	FACU	Species Across All		5	(B)
5					1			<del></del>
6					Percent of Domina	•		
7			1		That Are OBL, FAC	.W, or FAC:	40.0	(A/B)
			= Total cover	20%				
Sapling/Shrub Stratum (Plot size	:: 30 ft )	=	= 50%10	= 20%	Prevalence Index	Irchooti		
1 Ilex opaca	: 3011 )	10	YES	FAC	Total % Cover of		Multip	nly hy:
2 Kalmia latifolia		10	YES	FACU	OBL species	<u> </u>	x 1	лу Бу.
3				.,	FACW species		x 2	
4					FAC species		x 3	
5					FACU species		x 4	
6					UPL Species		x 5	
7					Column Totals:		(A)	(B)
_	_		= Total Cover	_	Prevalance II	ndex = B/A =		
		10 =	= 50% 4	= 20%				



Absolute   Dominant   Indicator   Hydrophytic Vegetation (locators:   New Cover   Species   Status   Species   Status   Rapid Test for Hydrophytic Vegetation   Dominance test is >50%   Prevalence lendex is \$3.0°   Problematic Hydrophytic Vegetation (Explain)   Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.    Woody Vine Stratum   (Plot size: 30 ft )
Dominance test is 50%
Prevalence Index is \$3.0 f   Morphological Adaptations (Provide Supporting data in Remarks or on a separate sheet)   Gardian in Remarks or on a separate sheet   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Include photo numbers here or on a separate sheet)   Gardian in Remarks (Incl
Morphological Adaptations* (Provide Supporting data in Remarks or on a separate sheet)   General Cover   Gen
data in Remarks or on a separate sheet)    Comparison   C
Problematic Hydrophytic Vegetation   Replant
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Department   De
Definitions of Vegetation Strata:   Definitions of Vegetation Strata:   Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (Delf), regardless of height.   Suppling/Shrub: Woody plants 3 in. (7.6cm) or more in diameter at breast height (Delf), regardless of height.   Suppling/Shrub: Woody plants 18cs than 3 in. DBH and greater then 3.28 ft (1m) tail.   Herb: All breabceus (Delf) shrub: woody vines: Set han 3 in. DBH and greater then 3.28 ft (1m) tail.   Herb: All woody vines: All woody vines separate she shan 3.28 ft tail.   Woody Vines: All woody vines greater than 3.28 ft in height.   High tail woody vines greater than 3.28 ft in height.   Hydrophytic Vegetation Present?   Yes   Nd□
O = 50%
Tree: Woody plants 3 in. (7.6cm) or more in diameter at the reast height (DBH), regardless of height.  2
at breast height (DBH), regardless of height.  Sapling/shrub: Woody plants less than 3 in. DBH and greater then 3.28 ft (1m) tall.  Herb: All herbaceous (non-woody) plants, regardless of size, and woody vines (non-woody) plants, regardless of size, and woody vines sthan 3.28 ft tall.  Woody Vines: All woody vines greater than 3.28 ft in height.  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features ((inches) Color (moist) % Color (moist) % Type ¹ Loc ² Texture Remarks  Grinches) Color (moist) % Color (moist) % Type ¹ Loc ² Texture Remarks silt loam sandy loam  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (inches) Color (moist) % Type ¹ Loc ² Texture Remarks  Grid (inches) Color (moist) % Color (moist) % Type ¹ Loc ² Texture Remarks  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (inches) Color (moist) % Type ¹ Loc ² Texture Remarks  Frofile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (inches) Color (moist) % Type ¹ Loc ² Texture Remarks  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix (Britan Type) Loc ² Texture Remarks  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  The profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  The profile Description: (Descri
Sapling/Shrub: Woody plants less than 3 in, DBH   and greater then 3.28 ft (1m) tall.
and greater then 3.28 ft (Im) tall.  Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  Woody Vines: All woody vines and woody plants less than 3.28 ft tall.  Despit.  Despit.  Bedarris: (Include photo numbers here or on a separate sheet.)  SOIL  Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  Remarks: (Include photo numbers here or on a separate sheet.)  SOIL  Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  Remarks: (Include photo numbers here or on a separate sheet.)  SOIL  Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  Remarks: Indicators: Remarks  O-4 10/R 4/2 100 Silt loam  1-Type: C-Concentration, D-Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Phydric Soil Indicators: Indicators: Indicators for Problematic Hydric Soils*: 2 cm Muck (A10) (MIRA 147)  Histosol (A1) Dark Surface (SS) (MIRA 147, 148) Coast Prarie Redox (A16) (MIRA 147, 148)  Hydron Sulfide (A4) Dark Surface (SS) (MIRA 147, 148) Pendent Hoodplain Soils (F19)  Stratified Layers (A5) Depleted Matrix (F2) Redox Depressions (F8)  Stratified Layers (A5) Redox Dark Surface (F6) Very Shallow Dark Surface (TF12)  Depleted Bark Surface (A11) Depleted Dark Surface (F13) (MIRA 146, 122)  Sandy Mucky Mineral (S1) (LIRR N, MIRA 148)  Stratiped Matrix (S4) Defleted Matrix (F3) MIRA 136, 122)  Sandy Gleyed Matrix (S4) Durbir Csurface (F13) (MIRA 136, 122)  Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MIRA 148)  Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MIRA 148)  Stripped Matrix (S6) Piedmont Floodplain Soils (F19) (MIRA 148)  Stripped Mirace (F10 Seerved): Type: Hydric Soil Present? Yes No.
Herbix All herbaceous (non-woody) plants, regardless of size, and woody vines greater than 3.28 ft tall.   Woody Vines: All woody vines greater than 3.28 ft in height.
of size, and woody plants less than 3.28 ft tail.
Woody Vines: All woody vines greater than 3.28 ft in height.
Remarks: (Include photo numbers here or on a separate sheet.)    SOIL
Remarks: (Include photo numbers here or on a separate sheet.)    SOIL
Remarks: (Include photo numbers here or on a separate sheet.)  SOIL  Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (Inches) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks
SOIL  Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks  0-4 10YR 4/2 100   silt loam   sandy loam    4-18 10YR 6/3 100   sandy loam    *Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. **  *Location: PL=Pore Lining, M=Matrix.    ### Histosol (A1)
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type¹ Loc² Texture Remarks  0-4 10/R 4/2 100  4-18 10/R 6/3 100 Sandy loam  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Thick soil Indicators: Indicators for Problematic Hydric Soils³:  Histosol (A1) Dark Surface (S7) Dark Surface (S9)  Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 147, 148) Coast Prarie Redox (A16) (MLRA 147, 148)  Hydron Sulfide (A4) Depleted Matrix (F2) MLRA 147, 148, A17, A18, A18, A18, A18, A18, A18, A18, A18
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  (inches) Color (moist)
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  (inches) Color (moist)
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)  Depth Matrix Redox Features  (inches) Color (moist)
Depth (inches) Color (moist)  % Color (moist)  % Type¹ Loc² Texture
Color (moist)
1 O'R 4/2 100
4-18   10YR 6/3   100
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  Thydric Soil Indicators:  Histosol (A1)  Dark Surface (S7)  Histosol (A2)  Polyvalue Below Surface (S8) (MLRA 147, 148)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Piedmont Floodplain Soils (F19)  Hydron Sulfide (A4)  Loamy Gleyed Matrix (F2)  Coast Prarie Redox (A16) (MLRA 147, 148)  Piedmont Floodplain Soils (F19)  (MLRA 136, 147)  Redox Dark Surface (F6)  Very Shallow Dark Surface (TF12)  Depleted Below Dark Surface (A11)  Depleted Dark Surface (F7)  Thick Dark Surface (A12)  Redox Depressions (F8)  Sandy Mucky Mineral (S1) (LRR N, MLRA 136)  Sandy Gleyed Matrix (S4)  MIRA 147, 148)  MIRA 147, 148)  MIRA 147, 148)  MIRA 147, 148)  MIRA 136,  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Type:  Hydric Soil Present? Yes No □
Hydric Soil Indicators:    Indicators for Problematic Hydric Soils ³ :   Histosol (A1)
Hydric Soil Indicators:    Indicators for Problematic Hydric Soils ³ :   Histosol (A1)
Hydric Soil Indicators:    Indicators for Problematic Hydric Soils ³ :   Histosol (A1)
Hydric Soil Indicators:    Indicators for Problematic Hydric Soils ³ :   Histosol (A1)
Histosol (A1)
Histic Epipedon (A2)
Black Histic (A3)
Hydron Sulfide (A4)
Stratified Layers (A5)
□ 2 cm Muck (A10) (LRR N) □ Redox Dark Surface (F6) □ Very Shallow Dark Surface (TF12)   □ Depleted Below Dark Surface (A11) □ Depleted Dark Surface (F7) □ Other (Explain in Remarks)   □ Thick Dark Surface (A12) □ Redox Depressions (F8)   □ Sandy Mucky Mineral (S1) (LRR N, MLRA 136) □ Iron-Manganese Masses (F12) (LRR N, MLRA 136, 122)   □ Sandy Gleyed Matrix (S4) □ Umbric Surface (F13) (MLRA 136, 122)   □ Sandy Redox (S5) □ Piedmont Floodplain Soils (F19) (MLRA 148)   □ Stripped Matrix (S6)    **Indicators of hydrophtic vegetation and wetland hydrology □ust be present, unless disturbed or problematic.  **Restrictive Layer (if observed):  **Type:
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Other (Explain in Remarks)  Thick Dark Surface (A12) Redox Depressions (F8)  Sandy Mucky Mineral (S1) (LRR N, Iron-Manganese Masses (F12) (LRR N, MLRA 147, 148)  Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Indicators of hydrophtic vegetation and wetland hydrology ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Hydric Soil Present? Yes No ✓
Thick Dark Surface (A12)
Sandy Mucky Mineral (S1) (LRR N,
MLRA 147, 148)  MLRA 136)  Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5)  Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Indicators of hydrophtic vegetation and wetland hydrology ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type:  Hydric Soil Present? Yes No
Sandy Gleyed Matrix (S4) Umbric Surface (F13) (MLRA 136, 122)  Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Indicators of hydrophtic vegetation and wetland hydrology ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Hydric Soil Present? Yes No ✓
Sandy Redox (S5) □ Piedmont Floodplain Soils (F19) (MLRA 148)  Stripped Matrix (S6)  Indicators of hydrophtic vegetation and wetland hydrology □ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: □ Hydric Soil Present? Yes □ No □
□ Stripped Matrix (S6)  Indicators of hydrophtic vegetation and wetland hydrology □ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Hydric Soil Present? Yes □ No □
Indicators of hydrophtic vegetation and wetland hydrology □ust be present, unless disturbed or problematic.  Restrictive Layer (if observed):  Type: Hydric Soil Present? Yes □ No ☑
Restrictive Layer (if observed):  Type: Hydric Soil Present? Yes No
Type: Hydric Soil Present? Yes No
Remarks:



Project/Site: Gude Landfill	City/County: N	Montgomery Cou	nty	Sampling Date: 5	5/1/18
Applicant/Owner: DEP/DSWS			State: MD	Sampling Point:	UPL2
Investigator(s): TMK	Sec	tion, Township, R	ange:	<del>_</del>	
Landform (hillslope, terrace, etc.): hillslope		•	ef (concave, convex, nor	ne): convex	
Slope %: 5% -10% Latitude: 39° 06′ 29″ N	Long	itude: 77° 08'		Datum: NAD83 state	e nlane
Soil Map Unit Name: dump, refuse		77 00		lassification: upland	
<u> </u>		Yes☑ No□			<u>u</u>
Are climatic/hydrologic conditions on the site typical f	-		, , ,	_ ′ _	
Are Vegetation□, Soil□, or hydrology□ significa			rcumstances" present?		
Are Vegetation $\square$ , Soil $\square$ , or hydrology $\square$ naturally	problematic?	(If needed, exp	lain any answers in rem	arks.)	
SUMMARY OF FINDINGS - Attach site map	showing sampling p	oint locations	, transects, importa	ant features, etc.	
Hydrophytic Vegetation Present? Yes □ No ☑			within a Wetland? Y		
Hydric Soil Present? Yes □ No☑					
	ı£	os ontional Woth	and Cita ID.		
, 6,		es, optional Wetl	and Site ID:		
Remarks: (Explain alternative procedures here or in a	separate report.)				
Upland slope located adjacent to Wetland B and Pond	#4				
HYDROLOGY	<u> </u>				
Wetland Hydrology Indicators:			Secondar	ry Indicators (minimur	m of 2)
Primary Indicators (minimum of one is required; check	all that apply)			face Soil Cracks (B6)	111 01 2)
☐ Surface Water (A1)				rsely Veg. Concave Su	urface(B8)
☐ High Water Table (A2)	☐ Aquatic Fauna (B13	3)	☐ Drai	inage Patterns (B10)	
☐ Saturation (A3)	☐ True Aquatic Plants	, ,		ss Trim Lines (B16)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide O		•	-Season Water Table	(C2)
Sediment Deposits (B2)	Oxidized Rhizosphe	_		yfish Burrows (C8)	:-1 (60)
Drift Deposits (B3)	<ul><li>Presence of Reduce</li><li>Recent Iron Reduction</li></ul>			uration Visible on Aeri nted or Stressed Plant	` '
☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5)	☐ Thin Muck Surface (		. ,	omorphic Position (D2	` '
Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Re	` '		llow Aquitard (D3)	-/
☐ Water-Stained Leaves (B9)		a,		rotopographic Relief	(D4)
			_	-Neutral Test (D5)	,
Field Observations:			<del></del>		
Surface Water Present? Yes ☐ No☑ Depth (i	iches):				
Water Table Present? Yes ☐ No ☑ Depth (i					
Saturation Present? Yes ☐ No☑ Depth (i	iches):	Wetlar	d Hydrology Present?	Yes No	
(includes capillary fringe)  Describe Recorded Data (stream guage, monitoring w	all agrial photos proviou	us inspections) if	available:		
Describe Recorded Data (Stream guage, monitoring w	ii, aeriai pilotos, previot	us ilispections), il	available.		
Remarks:					
VEGETATION - Use Scientific Names of Plan	ts				
VEGETATION OSC SCIENTING NUMES OF FIGH	Absolute Domin	nant Indicator	Dominance Test works	sheet:	
Tree Stratum (Plot size: 30 ft )	% Cover Speci		Number of Dominant S		
1 Acer rubrum	5 NC	) FAC	That Are OBL, FACW, o	or FAC: 2	(A)
2 Liquidambar styraciflua	5 NC	) FAC			
3 Quercus alba	15 YES		Total Number of Domi		
4 Liriodendron tulipfera	20 YES		Species Across All Strat	ta: 6	(B)
5 <u>Fagus grandifolia</u>	2 NC	) FACU	D		
6			Percent of Dominant S That Are OBL, FACW, o	•	(A/B)
	47 = Total o	cover	mat Are Obt, PACW, 0	11AC. 33.3	(A/ B)
	23.5 = 50%	9.4 = 20%			
			L		
Sapling/Shrub Stratum (Plot size: 30 ft )			Prevalence Index work	ksheet:	
Sapling/Shrub Stratum (Plot size: 30 ft )  1 Liriodendron tulipfera	15 YES	S FACU	Prevalence Index work Total % Cover of:		tiply by:
	15 YES		Total % Cover of: OBL species	Mult	tiply by:
1 Liriodendron tulipfera			Total % Cover of:  OBL species  FACW species	Mult x 1 x 2	tiply by:
1 Liriodendron tulipfera 2 Nyssa sylvatica 3 4			Total % Cover of: OBL species FACW species FAC species	Mult	tiply by:
1 Liriodendron tulipfera 2 Nyssa sylvatica 3 4 5			Total % Cover of:  OBL species  FACW species  FAC species  FACU species	Mult x1 x2 x3 x4	tiply by:
1 Liriodendron tulipfera 2 Nyssa sylvatica 3 4			Total % Cover of:  OBL species  FACW species  FAC species  FACU species  UPL Species	X1 X2 X3 X4 X5	
1 Liriodendron tulipfera 2 Nyssa sylvatica 3 4 5		S FAC	Total % Cover of:  OBL species  FACW species  FAC species  FACU species	Mult x1 x2 x3 x4 x5 (A)	tiply by:

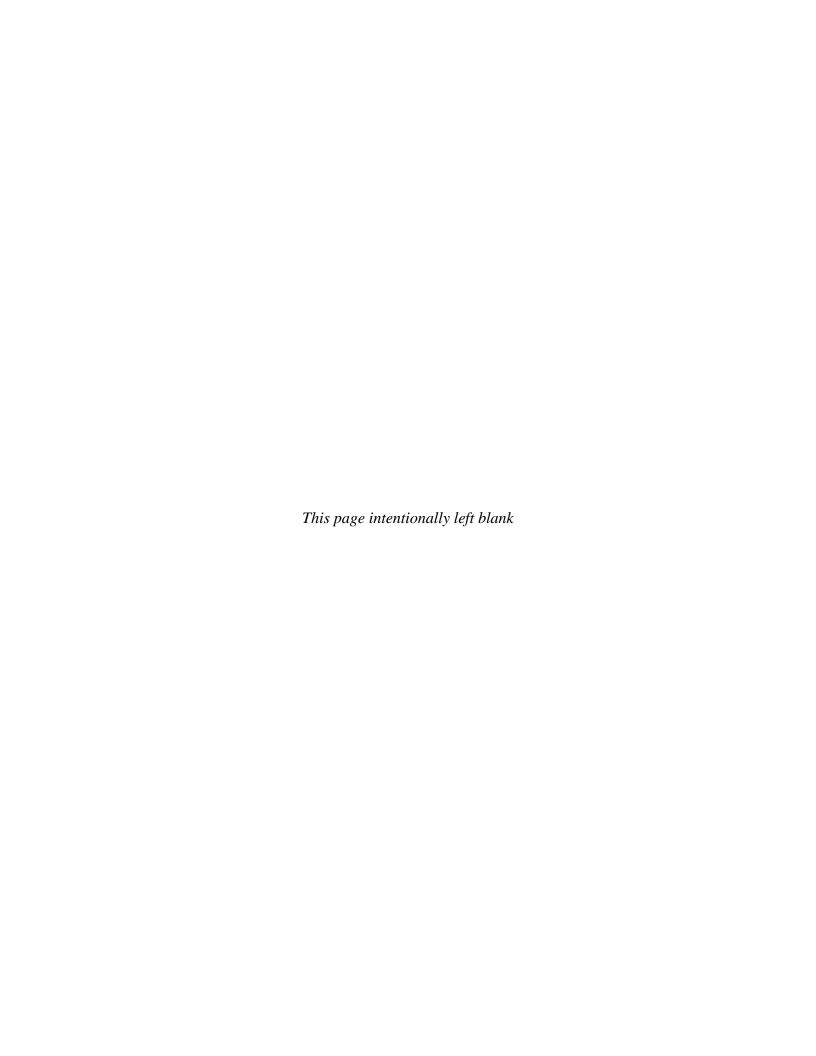


Vegetation (continued)				Sampling Point: UPL2
	Absolute	Dominant	Indicator	Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: 30 ft )	% Cover	Species?	Status	Rapid Test for Hydrophytic Vegetation
1 Polystichum acrostichoid	10	YES	FACU	Dominance test is >50%
2				Prevalence Index is ≤3.0 ¹
3				☐ Morphological Adaptations¹ (Provide Supporting
4				data in Remarks or on a separate sheet)
5				☐ Problematic Hydrophytic Vegetation ¹ (Explain)
6				¹ Indicators of hydric soil and wetland hydrology must
7				be present, unless disturbed or problematic.
		= Total Cover	200/	Deficial conflict the state of
Woody Vino Stratum (Plot size: 20 ft )	5	= 50% 2	= 20%	Definitions of Vegetation Strata:
Woody Vine Stratum	15	YES	FAC	<b>Tree:</b> Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.
2		123	TAC	Sapling/shrub: Woody plants less than 3 in. DBH
3				and greater then 3.28 ft (1m) tall.
4				Herb: All herbaceous (non-woody) plants, regardless
5				of size, and woody plants less than 3.28 ft tall.
6				Woody Vines: All woody vines greater than 3.28 ft in
7	-			height.
	15	= Total Cover		
	7.5	= 50%3	= 20%	Hydrophytic Vegetation Present? Yes ☐ No☑
Remarks: (Include photo numbers here or on a separat	e sheet.)	· · · · · · · · · · · · · · · · · · ·		
	,			
SOIL				
Profile Description: (Describe to the depth needed to d	document the	indicator or con	firm the al	heance of indicators )
	Redox Feature		the a	series of maleutors.
(inches) Color (moist) % Color (moist)		ype ¹ Loc ²	Text	ure Remarks
0-4 10YR 4/3 100		, pc	silt lo	
4-12 10YR 4/4 100			silt lo	
12+ rock refusal				····
¹ Type: C=Concentration, D=Depletion, RM=Reduced Ma	atrix, CS=Cover	red or Coated Sa	and Grains.	. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	ark Surface (S7	7)		2 cm Muck (A10) (MLRA 147)
, ,		, v Surface (S8) <b>(N</b>	/ILRA 147,	` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
	•	ce (S9) (LRR R, N	=	
	oamy Gleyed N	∕latrix (F2)		☐ (MLRA 136, 147)
	epleted Matrix	k (F3)		Red Parent Material (TF2)
	edox Dark Surf	face (F6)		□ Very Shallow Dark Surface (TF12)
☐ Depleted Below Dark Surface (A11) ☐ D	epleted Dark S	Surface (F7)		Other (Explain in Remarks)
☐ Thick Dark Surface (A12) ☐ R	edox Depressi	ons (F8)		
☐ Sandy Mucky Mineral (S1) (LRR N, ☐ Ir	on-Manganese	e Masses (F12) <b>(</b>	LRR N,	
The state of the s	/ILRA 136)			
☐ Sandy Gleyed Matrix (S4) ☐ U	Imbric Surface	(F13) (MLRA 13	6, 122)	
☐ Sandy Redox (S5) ☐ P	iedmont Flood	plain Soils (F19)	(MLRA 14	18)
Stripped Matrix (S6)				
³ Indicators of hydrophtic vegetation and wetland hydro	ology⊡ust be _l	present, unless	disturbed o	or problematic.
Restrictive Layer (if observed):				
Туре:				Hydric Soil Present? Yes ☐ No ✓
Depth (inches):				
Remarks:				



Appendix C

**Site Photographs** 



Photos Taken: October 2009 and April 2018



**Photograph 1:** Stream Channel #1 on the northeast corner of the project site.



**Photograph 3:** Hydric Soils within Wetland A.



**Photograph 2:** Upstream portion of Stream Channel #2.



**Photograph 4:** Overview of Wetland A.

Photos Taken: October 2009 and April 2018



**Photograph 5:** Overview of Wetland B.



**Photograph 7:** Overview of Wetland C.



**Photograph 6:** Overview of Pond #4.



**Photograph 8:** Wetland C, soil sample.

Photos Taken: October 2009 and April 2018



**Photograph 9:** Upland soil sample typically observed throughout the upland forest slopes.



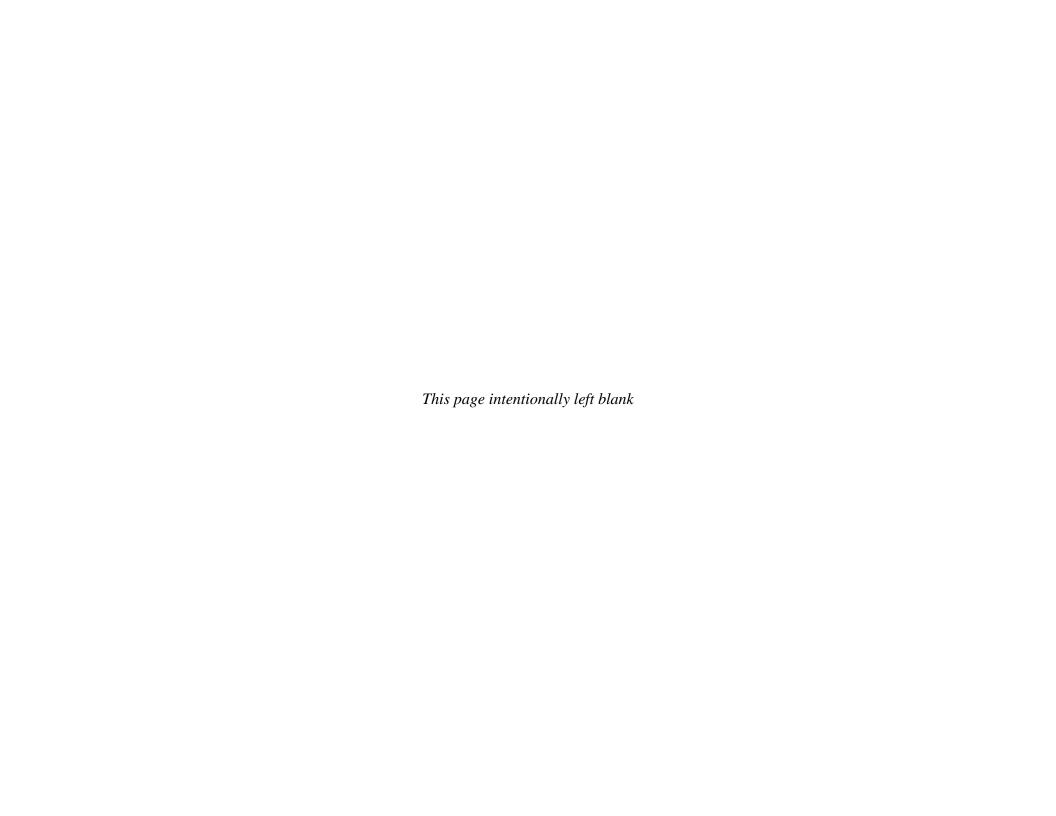
**Photograph 11:** M-NCPPC Pond located offsite to the east.



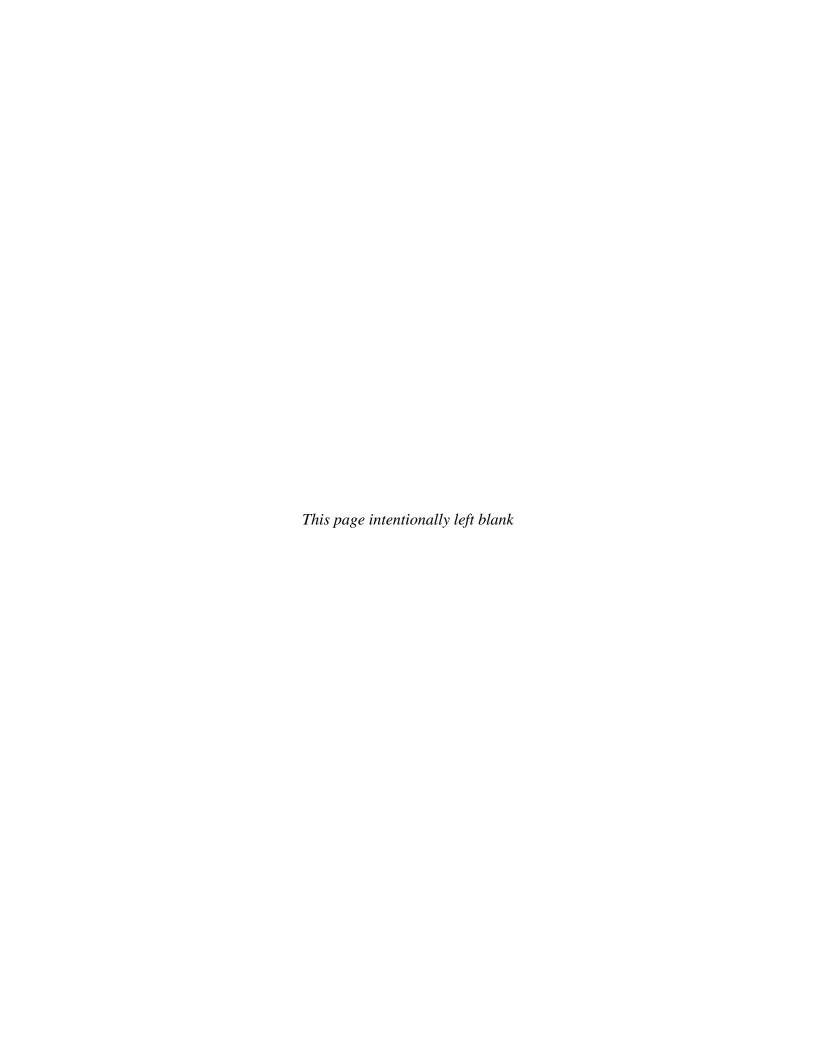
**Photograph 10:** Overview of Gude Landfill, cleared plateau.

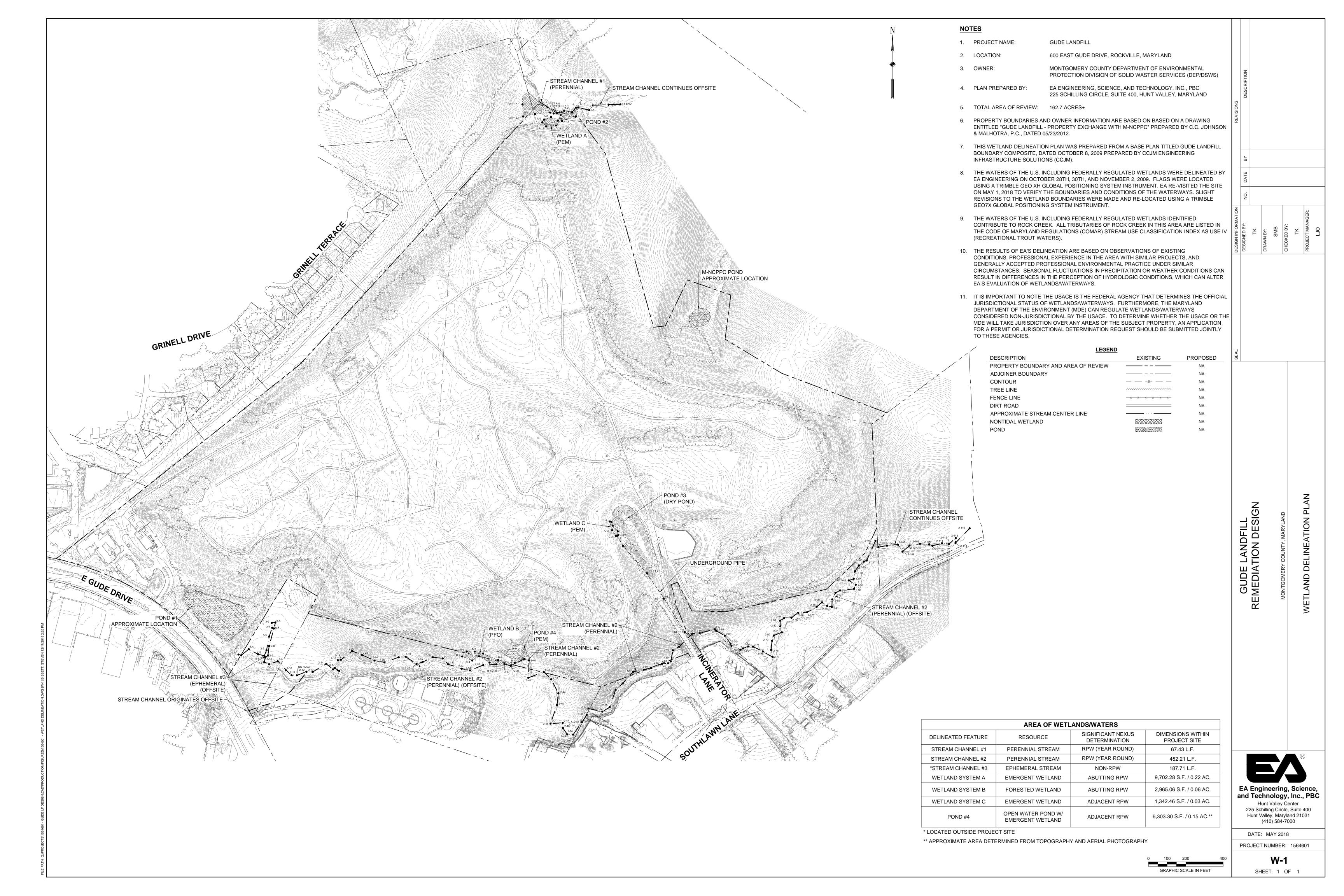


**Photograph 12:** Pond #1 located offsite to the southwest.



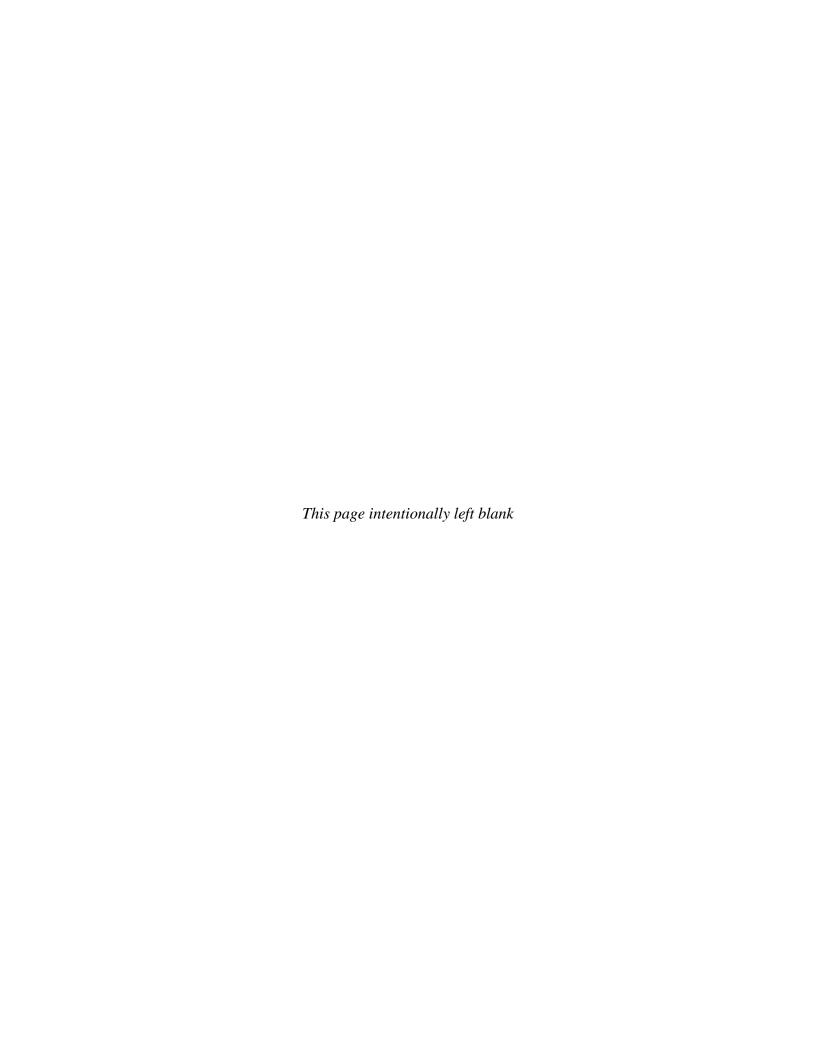
## Appendix D Wetland Delineation Map







## Attachment E Traffic Impact Study



# FINAL TRAFFIC IMPACT STUDY for GUDE LANDFILL REMEDIATION PROJECT

## **ROCKVILLE, MARYLAND**

#### Prepared for

Montgomery County Department of Environmental Protection

**Division of Solid Waste Services** 

In Association With

EA Engineering Science and Technology, Inc., PBC

#### Prepared by:

T3 Design Corporation 10340 Democracy Lane, Suite 305 Fairfax, VA 22030 Phone: (703) 359-5861 Fax: (703) 359-5863



June 2019

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# **LIST OF ACRONYMS AND ABBREVIATIONS**

- 1. AADT Average Annual Daily Traffic
- 2. CLV Critical Lane Volume
- 3. DEP Department of Environmental Protection
- 4. LOS Level of Service
- 5. MNCPPC Maryland National Capital Park and Planning Commission
- 6. v/c volume/capacity
- 7. WSSC Washington Suburban Sanitary Commission



# Introduction

This study evaluates traffic impacts from the Gude Landfill Remediation Project in Rockville, Maryland. The landfill is currently owned by Montgomery County, Maryland, and maintained by the Montgomery County Department of Environmental Protection (DEP). The landfill property currently encompasses 162 acres, of which approximately 140 acres is used for waste disposal.

The County performed a land exchange of 17 acres of land with the Maryland-National Capital Park and Planning Commission (MNCPPC) in 2014. The County plans to construct a toupee landfill capping system with a potential recreational land use component. This study determines the additional traffic generated during the construction of the proposed landfill capping system and its impacts on the adjacent roadways and intersections.

The scope of this study involves analyzing impacts of construction traffic at the following intersections adjacent to the landfill site:

- 1. East Gude Drive and Landfill Access (North)
- 2. East Gude Drive and Dover Road
- 3. East Gude Drive and Southlawn Lane
- 4. Southlawn Lane and Incinerator Lane (Landfill Access)

Figure 1 illustrates the location of Gude Landfill and the study intersections.

Construction for the project is expected to begin in 2020 and be completed in 2023. The traffic impact study follows the three-step process as required by MNCPPC for intersection analysis for the following traffic conditions:

- Existing traffic conditions (2018)
- Background traffic conditions (2022) Traffic projection due to other developments in the vicinity of the project area
- Total traffic conditions (background plus trips generated by the construction traffic)

Although construction is expected to last for about four years (beginning in 2020 and finishing sometime in 2023) the background and total conditions analyses were conducted for 2022 when the background traffic is expected to be at maximum.

Capacity was analyzed using Maryland State Highway Critical Lane Volume (CLV) methodology. Results were as follows:

- Existing conditions All intersections currently operate at level of service (LOS) C or better
- Background traffic conditions All intersections operate at LOS C or better
- Total traffic conditions All intersections operate at LOS C or better. The East Gude Drive at Landfill
  Access intersection drops from LOS B to C in the AM peak hour, but this is still within acceptable service
  levels.

The results of the capacity analyses indicate that there are no significant impacts of the construction traffic at the study intersections. Therefore, no roadway improvements are required due to the additional generated traffic.



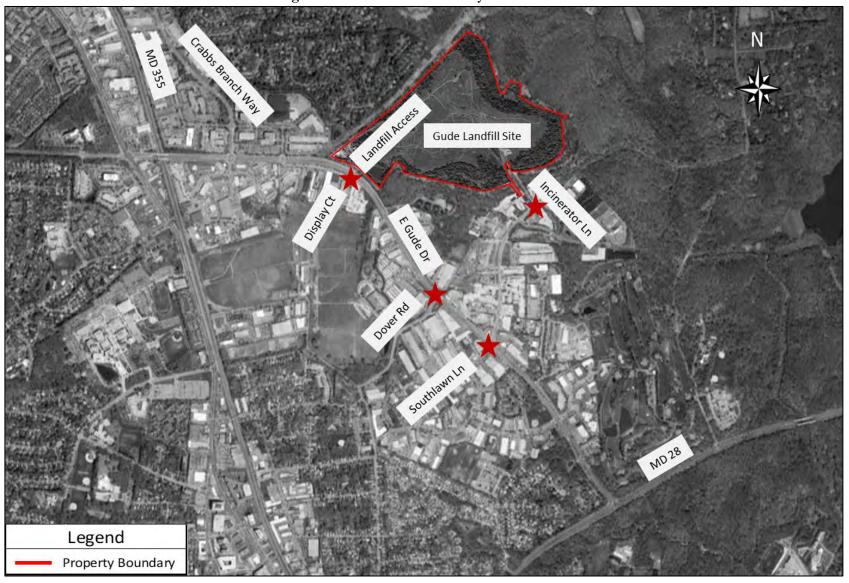


Figure 1: Site Location and Study Intersections



# **Existing Conditions**

# Site Access and Adjacent Development

There are two entrances to the landfill site:

- 1. From East Gude Drive, opposite from Display Court
- 2. From Southlawn Lane at Incinerator Lane

The traffic generated during construction will access the site via the intersection of Southlawn Lane and Incinerator Lane. Land use surrounding the project site consists of light industrial and residential developments, including the following specific properties:

- M-NCPPC land and Crabbs Branch Stream, located to the northeast of Gude Landfill site
- Asphalt and cement production facilities, equipment storage yards, scrap recycling facilities to the southeast of the site
- Washington Suburban Sanitary Commission (WSSC) property and Southlawn Branch stream to the south
- Williams Gas Pipeline Transco/Columbia Gas natural gas pipeline right-of-way and the community of Derwood Station residential development to the west

# **Study Intersections**

Four study intersections are located adjacent to the Gude Landfill site and are expected to be impacted by the construction traffic.

- 1. East Gude Drive at Landfill Access North is a four-legged stop-controlled intersection. The north entrance to the Gude Landfill site intersects East Gude Drive opposite from Display Court. Traffic flows freely on East Gude Drive, and both the landfill site entrance and Display Court are stop-controlled. There is a signalized pedestrian crosswalk on the west sides of the intersection.
- <u>2. East Gude Drive at Dover Road</u> is a four-legged signalized intersection. The northbound and southbound approaches on Dover Road operate with "split" phases. There are marked pedestrian crosswalks on the east, west, and south sides of the intersection with pedestrian signal heads.
- 3. East Gude Drive at Southlawn Lane is a four-legged signalized intersection. There are marked pedestrian crosswalks on the east, west, and north sides of the intersection with pedestrian signal indications.
- <u>4. Southlawn Lane and Incinerator Lane</u> is a T-intersection where Southlawn Lane flows freely and Incinerator Lane is the stop-controlled side street. There are no dedicated turn lanes at this intersection.

Figure 2 shows the lane configuration at each the study intersections, along with the type of traffic control.



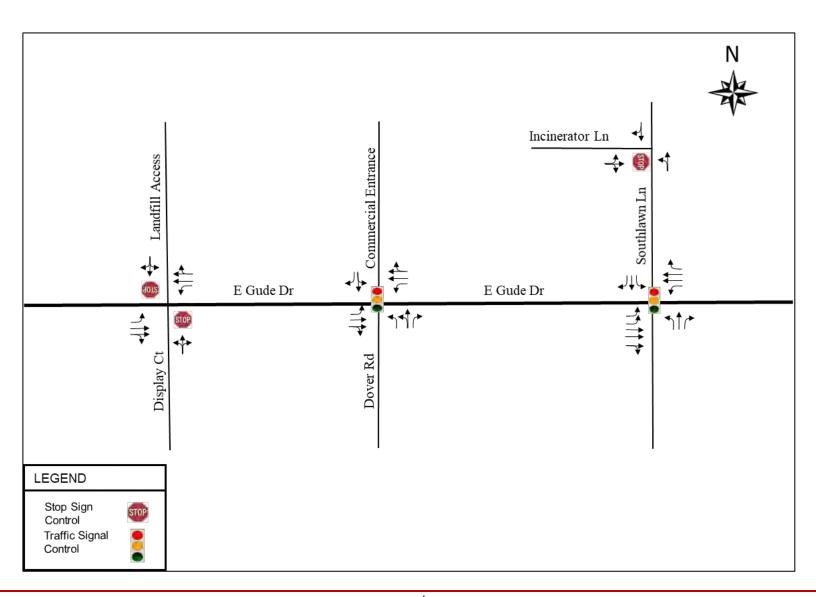


Figure 2: Study Intersection Lane Configuration and Traffic Control



# (2018) Existing Volume

The 3-hour AM and PM peak period turning movement counts were collected by T3 Design on Wednesday, May 30, 2018, at the following intersections:

- 1. East Gude Drive and Landfill Access (North)
- 2. East Gude Drive and Dover Road
- 3. East Gude Drive and Southlawn Lane
- 4. Southlawn Lane and Incinerator Lane (Landfill Entrance)

A review of the counts indicates the AM peak hour is from 7:30 a.m. to 8:30 a.m. and the PM peak hour is from 4:45 to 5:45 p.m. Figure 3 presents AM and PM peak hour turning movement counts at the study intersections. The raw count data is provided in Appendix A.

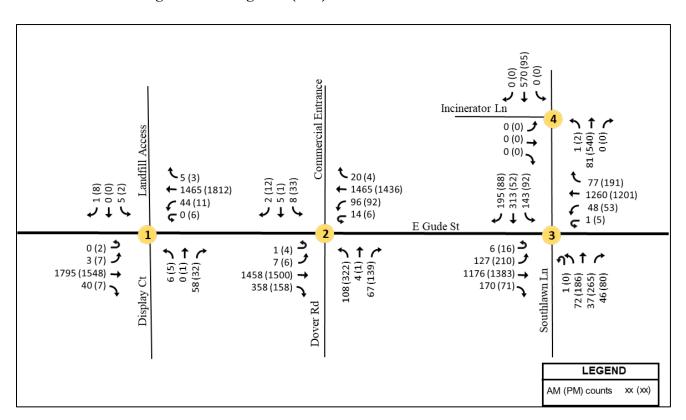


Figure 3: Existing Year (2018) AM and PM Peak Hour Volume

Table 1 displays the 2017 average annual daily traffic (AADT) volumes published by State Highway Administration (SHA) for roadways adjacent to the study site.

Roadway Vehicles per Day (vpd)
East Gude Drive 33,300

5,814

8,065

**Table 1: 2017 AADT** 

Dover Road

Southlawn Lane

The vehicle classification report published by SHA indicates that the daily heavy vehicle percentage for East Gude Road is 7.46 percent.



As part of the classified counts, the pedestrian volumes were recorded during both AM and PM peak periods. However, the counts during the peak period do not present a considerable demand for pedestrian along the study corridor.

# **Capacity Analysis: Existing Conditions**

The study intersections were analyzed using SHA Critical Lane Volume (CLV) methodology. In this methodology, critical lane volumes at an intersection are calculated and added. The sum of the critical lane volume is then compared with the established maximum values for each level of service, LOS A through F, to evaluate the performance of each intersection.

The volume/capacity (v/c) ratio represents the sufficiency of an intersection to accommodate vehicular demand. It is calculated as the CLV divided by 1,600 vehicles/hour/lane. A v/c ratio greater than 0.91 is the threshold at which the intersection is considered to operate at an oversaturated condition.

Table 2 displays the CLV level of service criteria.

Table 2: CLV Level of Service (LOS) Criteria

LOS		CLV	v/c
Α	<u> </u>	1000	0.63
В	<u> </u>	1150	0.72
С	<u> </u>	1300	0.81
D	<u>≤</u>	1450	0.91
Е	<u> </u>	1600	1
F	>	1600	1

The CLV level of service results are presented in Table 3.

Table 3: LOS – Existing Conditions

	Ş	Existing Cor	ndition (2018)
Intersection #	Intersections	AM LOS (CLV) (v/c)	PM LOS (CLV) (v/c)
1	E. Gude Drive at Landfill Access	B (1124) (0.70)	B (1055) (0.66)
2	E. Gude Drive at Dover Road	C (1190) (0.74)	C (1195) (0.75)
3	E. Gude Drive at Southlawn Lane	B (1132) (0.71)	B (1167) (0.73)
4	Southlawn Lane at Incinerator Lane	A (572) (0.36)	A (542) (0.34)

The results show that all intersections currently operate at LOS C or better during both peak hours. The CLV calculation sheets are provided in Appendix B.



# Future Traffic Conditions (2022)

# **Background Traffic Volume**

The construction for the Gude Landfill Remediation project is expected to begin in 2020 and be completed by 2023. With or without the landfill project, traffic volumes are expected to increase along East Gude Road and roadways adjacent to the site. This increase in traffic volume is known as background traffic growth. It does not include trips generated by construction at the Gude Landfill site that are accounted for separately.

A 0.5 percent annual traffic growth rate was used to prepare future traffic volumes projections for 2022. The year 2022 was selected to evaluate the worst-case scenario, since most of the construction at the Gude Landfill site will be completed, and the potential development in the vicinity of the site is also expected to be built by then. The traffic growth rate was based on review of historical traffic volumes on East Gude Road, planned developments adjacent to the study site, engineering judgement, and coordination with the County and EA Engineering, as detailed below.

# **Annual Traffic Growth Rate**

A review of the historical AADT along East Gude Road (from 2007 through 2016) indicates a decrease in daily traffic volume along the road over that period. The Montgomery County land use database did not indicate any future development planned in the proximity of the construction site that may directly impact the study intersections.

For long-range traffic improvements, the County indicated a future improvement planned at the intersection of East Gude Road at Crabbs Branch Way that is not likely to generate additional traffic impacting the study intersections.

The Washington Suburban Sanitary Commission (WSSC) has proposed construction of a Septage Discharge Facility adjacent to the Gude Landfill site that may overlap with the construction at the Gude Landfill site. A letter submitted by the WSSC Project Manager to the County dated February 20, 2018, indicates that the construction at the WSSC site is expected to generate less than 50 new trips during either the AM or PM peak hour. Construction vehicles for the WSSC site are not expected to cause queueing onto East Gude Drive, so no traffic impact study was prepared for that project.

Based on the review of all available resources and coordination with the County and EA Engineering, it is expected that projecting the existing peak hour traffic volumes by 0.5 percent annual growth rate over the 4-year period (2018 through 2022) will encompass increases in traffic volume due to any potential local and regional developments in the vicinity of the study area.

The resulting 2022 background traffic projections are presented in Figure 4. Appendix C includes calculations of the annual growth rate along East Gude Drive based on historical traffic volumes, a copy of letter from WSSC and a copy of the correspondence with the County for the improvements at the Gude Drive and Crabbs Branch.



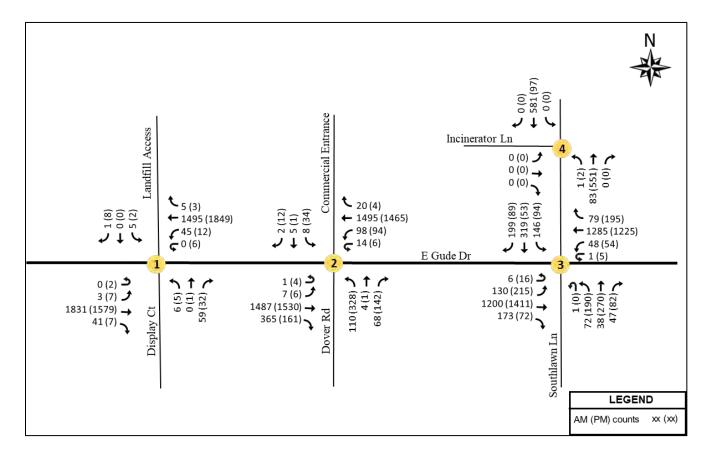


Figure 4: 2022 Background Traffic Volume Projections

# **Total Future Traffic Volumes**

The total traffic volumes expected in 2022 are composed of two components added together:

- 1. Background traffic volume projections
- 2. Trips generated by construction during the Gude Landfill Remediation project

Based on the information provided by EA Engineering, about 50 construction trucks are expected to deliver the material at the site during the AM peak hour, with a 50/50 percent split between inbound and outbound trips. There is no expected truck traffic at the construction site in the PM peak hour. Additionally, 20 workers are expected to work at the site every day. To account for the workers, 20 additional trips were considered accessing the site during both AM and PM peak hours.

The inbound and outbound split for the workers' trips during each peak hour were estimated using the ITE Trip Generation Manual (9th Edition) for Light Industrial Land Use (LU 110). For this land use, 83 percent inbound and 13 percent outbound trips are expected in the AM peak hour, and 21 percent inbound and 79 percent outbound trips are expected in the PM peak hour. Table 5 itemizes trip estimates due to construction vehicle and worker commute traffic during both peak hours.



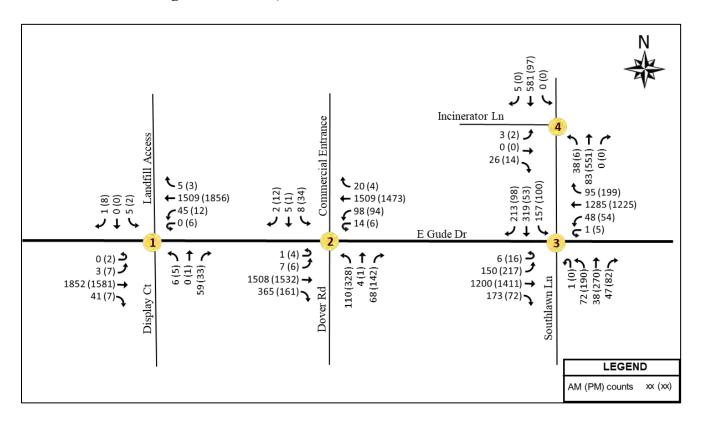
Table 4: Construction-Related Vehicle Trips Generated

		AM			PM	
Type	Total	Inbound	Outbound	Total	Inbound	Outbound
Truck Trips	50	25	25	0	0	0
Workers Trips	20	17	3	20	4	16
Total	70	42	28	20	4	16

All trips will enter and exit the site via the intersection of Southlawn Lane and Incinerator Lane. Trips are distributed to the adjacent roadways and intersections based on existing traffic patterns. Since East Gude Drive is connected with MD 28 (Norbeck Road) to the east and MD 355 (Frederick Road) to the west, 50 percent of the new trips were distributed to the west of the East Gude Drive and Southlawn Lane intersection, 40 percent to the east of the intersection, and 10 percent to Southlawn Lane north.

Figure 5 shows the total AM and PM peak period traffic volumes, including background traffic growth, plus the trips generated by construction.

Figure 5: 2022 Projected Total Peak Hour Traffic Volumes



# **Future Conditions: Capacity Analysis**

CLV results were compared at the study intersections for background growth only and for total traffic conditions in order to determine the impacts of construction. The LOS results are compared in Table 5. The analysis report sheets are provided in Appendix D.

Table 5: LOS - Background vs. Total Traffic Conditions

		2022 Ana	lysis with	2022 Ana	lysis with
		Backgrou	nd Traffic	Total '	Traffic
	Intersections	AM	PM	AM	PM
Intersection		LOS (CLV)	LOS (CLV)	LOS	LOS
#		(v/c)	(v/c)	(CLV)	(CLV)
	E. Gude Drive at Landfill Access	B (1147)	B (1076)	C (1158)	B (1080)
1	E. Gude Drive at Landin Access	(0.72)	(0.67)	(0.72)	(0.68)
	E Codo Doine et Donne Bood	C (1214)	C (1220)	C (1225)	C (1221)
2	E. Gude Drive at Dover Road	(0.76)	(0.76)	(0.77)	(0.76)
		C (1154)	C (1191)	C (1177)	C (1204)
3	E. Gude Drive at Southlawn Lane	(0.72)	(0.74)	(0.74)	(0.75)
	C. dll. I I I	A (583)	A (553)	A (653)	A (574)
4	Southlawn Lane at Incinerator Lane	(0.36)	(0.35)	(0.41)	(0.36)

The results indicate that all intersections continue to operate at LOS C or better for both background and total (construction) traffic conditions. The only change in overall intersection service levels is at the intersection of East Gude Drive and the Landfill Access, where there is a decrease in the AM peak hour from LOS B to C. However, LOS C is still well within acceptable service levels.

The overall capacity analysis results indicate that despite the additional trips generated during construction, all intersections are expected to operate at LOS C or better during both peak hours for the existing lane configuration and traffic control type. Therefore, no additional improvements are required due to anticipated construction traffic.



# **Conclusions**

Traffic impacts were analyzed for the Gude Landfill Remediation Project. The construction is expected to begin in 2020 and be completed by 2023. The analyses were conducted for the existing (2018), background (2022) and total traffic conditions using Critical Lane Volume methodology for the following intersections:

- 1. East Gude Drive and Landfill Access (North)
- 2. East Gude Drive and Dover Road
- 3. East Gude Drive and Southlawn Lane
- 4. Southlawn Lane and Incinerator Lane (Landfill Access)

The results indicate that all intersections operate at LOS C or better during both AM and PM peak hours for all traffic scenarios, existing, background, and construction conditions. The impacts of the construction traffic at the study intersections are minimal, with no change in level of service or significant impact on the critical lane volume. Therefore, no improvements are proposed at the study intersection as a part of the Gude Landfill Remediation project.



Appendix A – Turning Movement Counts



County: Town: Weather: Montgomery Rockville Clear

PEAK HOURS AM PERIOD 6:00AM-12:00PM PM PERIOD 12:00PM-7:00PM LOS LOS End Volume 17:45 3444 Name--> HOUR ENDING Prom South
Through From East Through From West Through GRAND TOTAL From North
Left Through Right U turn Total U turn Right Total U turn Right Total U turn Left Right Total 00:15 00:30 00:45 01:00 01:15 01:30 01:45 02:00 02:15 02:30 02:45 03:00 03:00 03:00 03:45 04:00 04:15 05:00 05:15 05:30 05:45 06:00 06:15 06:30 06:45 07:00 07:15 303 371 446 609 567 718 **813** 185 240 343 319 375 **455** 07:45 08:00 08:15 08:30 08:45 514 453 416 418 401 20 23 10 415 8 12 949 873 787 790 736 0 396 358 09:00 09:15 09:30 09:45 10:00 10:15 10:30 10:15 10:30 11:15 11:30 11:45 12:00 13:15 12:30 12:45 13:30 14:45 15:00 14:45 15:30 14:45 15:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:30 16:45 16:40 16:45 16:40 16:45 16:40 16:45 16:40 16:45 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 16:40 708 668 701 705 821 745 831 **824 931 828** 783 329 290 322 367 380 329 368 **404** <u>17:00</u> 17:15 418 368 374 379 492 17:30 17:45 18:15 18:30 18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45 21:00 21:15 21:30 21:45 22:00 22:15 22:30 22:45 23:00 23:15 23:30 23:45 00:00 TOTAL 15 24 39 38 211 250 11 184 8272 23 8490 17 26 8413 133 8589 17368 AM Peak Vol 0 5 0 6 0 6 0 58 64 0 44 1465 1514 0 1795 40 1838 3422

11

1812

1832

1548

3444

10

Job No.:

Location: Date: Recorder: Interval (dd): (In Minutes) Display Court at E Gude Drive 5/30/2018 Wednesday T3D

County: Town: Weather:

Interval (dd): (In Minutes)	15	J													
(iii Miliatoo)	PEAK		ERIOD	Start	End	Volume	LOS	V/C		12:00PM-		End	Volume	LOS	V/C
	HOURS		12:00PM	07:30	08:30 SCHOOL CI	3422 HILDREN, PI	EDESTRIAN:	S & BICYCL		OPM	16:45	17:45	3444		
Harr		North Leg				South Leg				East Leg				West Leg	
Hour	School	Pedestrians	Bicycles		School	Pedestrians	Bicycles		School	E Gude Drive Pedestrians	Bicycles		School	E Gude Drive Pedestrians	Bicycles
Ending 00:15	Children	redestrians	Dicycles		Children	redestrialis	Dicycles		Children	redestrialis	Dicycles		Children	redestrialis	Dicycles
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06:30 06:45	0	0	1		0	0	0		0	0	0		0	0	0
07:00	0	0	0		0	1	0		0	0	0		0	2	0
07:15 07:30	0		0		0	0	0		0	0	0		0	3	0
<u>07:45</u>	0	0	0		0	0	0		0	0	0		0	1	0
<u>08:00</u> <u>08:15</u>	0	0	0		0	1	0		0	0	0		0	4 2	0
<u>08:30</u>	0	0	0		0	1	1		0	0	0		0	1	0
08:45 09:00	0		0		0	0	0		0	0	0		0	1	0
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15:15	0	0	0		0	0	0		0	0	0		0	1	0
15:30 15:45	0	0	0		0	0	0		0	0	0		0	3	0
16:00	0	0	0		0	0	1		0	0	0		0	2	0
16:15 16:30	0	0	0		0	0	2		0	0	0		0	5	0
16:45 <u>17:00</u>	0	0	0		0	1	0		0	0	0		0	2	0
<u>17:15</u>	0	0	0		0	0	0		0	0	0		0	0	0
<u>17:30</u>	0	0			0	0	1		0	0	0		0	0	0
<u>17:45</u> 18:00	0		0		0	0	0		0	0	0		0	2	0
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TOTAL	0	2	3		0	7	10		0	0	0		0	42	0
AM Peak Vol	0	0	0		0	2	1		0	0	0		0	8	0
PM Peak Vol	0	0	1		0	0	2		0	0	0	I	0	2	0

Job No.: Location: Date: Recorder: Interval (dd) : (In Minutes) AM PERIOD 6:00AM-12:00PM PEAK HOURS PM PERIOD 12:00PM-7:00PM End Volume LOS V/C 17:45 3444 89 **Turning Movement Summary:** 39 50 LEG 1 Keith Avenue Quadrant Total 38 Quadrant Total 67 24 15 0 0 17 E Gude Drive E Gude Drive 26 8272 т LEG 4 LEG 3 16940 17140 8413 184 8589 133 8650 0 38 211 Quadrant Total 171 т 🕇 R → Quadrant Total 406 Display Court LEG 2 317 250 567 Comments: AM Peak Hour : 14 8 LEG 1 Landfill Entrance Quadrant Total 10 Quadrant Total 5 0 1472 1514 E Gude Drive 3 1465 т LEG 4 LEG 3 3310 3372 1795 44 1838 40 1858 58 0 Quadrant Total 46 u \downarrow т 🕇 R i→ Quadrant Total 102 **Display Court** LEG 2 64 84 148 PM Peak Hour: 10 11 LEG 1 Landfill Entrance Quadrant Total 17 Quadrant Total 5 1827 2 3 1832 E Gude Drive 1812 7 LEG 4 LEG 3 3391 3420 1548 11 1564 7 1588 6 1 32 5 Quadrant Total 12 т 🕇 R → 49 Quadrant Total Display Court LEG 2 18 38

TOTAL

AM Peak Vol

100

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33

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5

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156

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19

4

470

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139

1545

179

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7518

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1436

75

20

8135

1595

18

42

7353

1458

1500

1157

358

8570

1824

18406

3613 3714

County: Town: Weather: Montgomery Rockville Clear

PEAK HOURS AM PERIOD 6:00AM-12:00PM PM PERIOD 12:00PM-7:00PM LOS LOS End Volume 17:45 3714 From South Through Name--> HOUR ENDING From West Through GRAND TOTAL From East Through From North
Through Right U turn Left U turn Right Total U turn Right Total U turn Left Right Total 00:15 00:30 00:45 01:00 01:15 01:30 01:45 02:00 02:15 02:30 02:45 03:00 03:00 03:00 03:45 04:00 04:15 05:00 05:15 05:30 05:45 06:00 06:15 06:30 06:45 07:00 07:15 0 319 383 474 597 607 732 848 942 957 866 836 794 305 350 440 471 463 450 07:45 08:00 08:15 08:30 08:45 42 42 52 14 14 21 14 424 449 360 87 76 111 11 407 389 09:00 09:15 09:30 09:45 10:00 10:15 10:30 11:00 11:15 11:30 11:45 12:00 12:15 12:30 12:45 13:00 13:45 14:00 14:15 14:30 14:45 15:00 15:15 15:30 15:45 16:00 16:15 16:30 16:45 727 701 757 746 886 826 862 887 316 299 331 365 362 370 360 **429 437 405** 397 100 17:00 17:15 411 363 416 997 902 928 832 17:30 17:45 103 18:15 18:30 18:45 19:00 19:15 19:30 19:45 20:00 20:15 20:30 20:45 21:00 21:15 21:30 21:45 22:00 22:15 22:30 22:45 23:00 23:15 23:30 23:45 00:00

End Volume LOS 08:30 **3613** 

Job No.: Location: Date: Recorder: Interval (dd): (In Minutes)

| Dover Road at E Gude Drive | 5/30/2018 | Wednesday | T3D | 15 |

AM PERIOD 6:00AM-12:00PM

PEAK HOURS

County: Town: Weather:

| PM PERIOD 12:00PM- | Start | End | Volume | LOS | V/C | | 7:00PM | 16:45 | 17:45 | 3714 |

					SCHOOL C	HILDREN, PI	EDESTRIANS	S & BICYCLE	S						
		North Leg		1		South Leg				East Leg		1		West Leg	
Hour	u	Innamed Roa	ad			Dover Road				E Gude Drive	)	i		E Gude Drive	9
	School			i	School				School			i	School		
Ending	Children	Pedestrians	Bicycles		Children	Pedestrians	Bicycles		Children	Pedestrians	Bicycles		Children	Pedestrians	Bicycles
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<u>07:45</u>	0	0	0	1	0	0	0		0	0	0	1	0	1	0
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16:45	0	0	0		0	2	0		0	1	0	!	0	0	0
<u>17:00</u>	0				0				0	0	0	!	0	0	
<u>17:15</u>	0	0	0		0	0	0		0	0	0		0	0	0
<u>17:30</u>	0		0	l	0	0	0		0	0	0	l	0	0	0
<u>17:45</u>	0		1	l	0	0	0		0	0	0	l	0	0	0
18:00	0	0		l	0	0	0		0	0	0	l	0	0	0
18:15	0	0	0	l	0	0	0		0	0	0	l	0	0	0
18:30	0		0	l	0	0	0		0	0	0	l	0	0	0
18:45	0	0	0	l	0	0	0		0	0	0	l	0	0	0
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TOTAL	0	4	4		0	21	7		0	7	2		0	4	0
AM Peak Vol	0	0	0		0	3	1		0	0	0		0	1	0
PM Peak Vol	0	0	1	l	0	0	0		0	0	0		0	0	0

Job No.: Location: Date: Recorder: Interval (dd) : (In Minutes) AM PERIOD 6:00AM-12:00PM PEAK HOURS PM PERIOD 12:00PM-7:00PM End Volume LOS V/C 17:45 3714 292 **Turning Movement Summary:** 156 136 LEG 1 Keith Avenue Quadrant Total Quadrant Total 97 175 37 19 100 0 18 E Gude Drive E Gude Drive 42 7518 т LEG 4 LEG 3 17197 16135 7353 465 8570 1157 77 8000 2 1054 19 470 u 🖵 т 🕇 R → Quadrant Total Quadrant Total 2213 1012 Dover Road LEG 2 1643 1545 3188 Comments: AM Peak Hour : 46 15 31 LEG 1 Unnamed Road Quadrant Total 10 υ |_↑ 28 Quadrant Total 2 5 8 1576 1595 7 1465 т LEG 4 LEG 3 3400 3142 1458 96 Drive 1824 358 14 1547 67 108 Quadrant Total 466 u \downarrow т 🕇 R i→ 177 Quadrant Total Dover Road LEG 2 459 179 638 PM Peak Hour: 46 11 LEG 1 Unnamed Road Quadrant Total 37 Quadrant Total 22 12 33 1774 U 4 4 1538 E Gude Drive 1436 6 LEG 4 LEG 3 3442 3216 1500 92 1668 158 1678 6 322 1 139 Quadrant Total 480 т 🕇 R → 237 Quadrant Total Dover Road LEG 2 251 462

Job No.: Location: Date: Recorder: Interval (dd): (In Minutes)

County: Town: Weather:

 PEAK HOURS
 AM PERIOD 6:00AM-12:00PM
 Start 07:45
 End 08:45
 Volume 6:52
 LOS
 V/C
 PM PERIOD 7:00PM
 Start 17:00
 End 18:00
 V/C
 V/C

Second   S	Street		HOURS	6:00AM-	-12:00PM	07:45	08:45	652			7.0	0PM	17:00	18:00	637	<del></del>						
Column			S	outhlawn La	ane			So	uthlawn La	ne				N/A				1	ncerator Lane	9		
100	HOUR			From North	h				From South	1				From East					From West			GRAND
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100	ENDING	U turn	Left	Through	Right	Total	U turn	Left	Through	Right	Total	U turn	Left	Through	Right	Total	U turn	Left	Through	Right	Total	TOTAL
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100	00:15		1	1	1		ļ	1			0	1		1		0		1		1	0	0
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Section																						0
Section	04:30										0										0	0
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100						Ü																0
100   10																						0
Color   Colo	05:15																				0	0
Section   Sect												1										0
10   10   10   10   10   10   10   10		l	<b> </b>		1		<b>†</b>					1										0
100   1	06:15			21	0	21	0	0	5		5					0	0	0	0	0	0	26
100   1	06:30			48		48	0			0						0		0	0		0	26 61
Columb											13	<u> </u>			_							62
10   10   11   10   11   10   11   10   11   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10   10			0					0	14									0	0			91 94
10	07.15		0	116	0	116	0	0	12	0	12	1						0	0	0	0	129
Color   Colo																						153
Color   Colo	<u>08:00</u>		0	156	0	156	0	0	23	0	23					0	0	0	0	0	0	179
100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100																						158
00000			0	136	0	136	0	0	20	0	20							0	0	0	0	156
0015																						159
Color	09:00	0	0	136	0	136	- 0	U	15	0		1						0	U	U	0	151
0045																						0
1015	09:45																				0	0
1030	10:00																				0	0
100.65																						0
1100	10:30																				0	0
11:15																						0
1135		1				Ü	-															0
1200																						0
1200	11:45					0										0					0	0
12.20																						0
12-46	12:15																					0
1500	12:30																				0	0
1836	12.45																					0
13-30																						0
1400	13:30					0															0	0
14-15																						0
1430																						0
1443	14:15																				0	0
1500							-															0
1515  0	15:00										0										0	0
1530  0	15:15	0	0	23	0	23	0	0	51	0	51								0	0	0	74
16:00			0	27	0	27	0	0										0	0		0	73 92
16:15   0	15:45	0	0	30	0	30	0	0	62	0	62	<u> </u>			_		0	0	0	0	0	92
16:30																						71 100
16.45	16:15		0	26					106			1									0	100
17.70				23	0																	115
17.15	17:00	Ö	Ö	34	0	34	0	0	97	0	97						Ö	Ö	0	0	0	131
17.45				23	0	23	1		143									0	0			167
18:00			0	24	0	24	0		136						_			0	0		0	160
18:15			0	24	0	24	1 1	0	141	0				<b> </b>				0	0	Ü	0	166 144
18:30		•	0	24	U	24	_ <u>'</u>	U	120	0		1										0
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20.00		<del>                                     </del>	<del>                                     </del>	-	-		<del>                                     </del>					<del>                                     </del>						-			0	0
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20.36			<b>†</b>		<del>                                     </del>																	0
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21:30         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td>21:00</td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>0</td>	21:00					0					0					0					0	0
21:45			ļ						_						_				$\Box$			0
22:00	21:30	<b> </b>									0	1				0					0	0
22:15		<b> </b>	1		1																	0
22:30	22.00	<b> </b>	<b>l</b>			0	<b> </b>				0	<del>                                     </del>				0			<del>                                     </del>		0	0
22.45         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td></td> <td>l</td> <td><b> </b></td> <td></td> <td><b>†</b></td> <td></td> <td>0</td>		l	<b> </b>		<b>†</b>																	0
23:00	22:45				<u> </u>						0					ő					0	0
23:15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	23:00					0					0					0					0	0
23.45 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	23:15										0										0	0
TOTAL 0 0 1545 0 1545 3 0 1290 0 1293 0 0 0 0 0 0 0 0 0 0 0 0 2838 AM Peak Vol 0 0 570 0 570 1 0 81 0 82 0 0 0 0 0 0 0 0 0 0 0 0 0 652																						0
TOTAL 0 0 1545 0 1545 3 0 1290 0 1293 0 0 0 0 0 0 0 0 0 0 0 0 2838 AMPeak Vol 0 0 570 0 570 1 0 81 0 82 0 0 0 0 0 0 0 0 0 0 0 652			-	-			<b> </b>					<b> </b>										0
AM Peak Vol 0 0 570 0 570 1 0 81 0 82 0 0 0 0 0 0 0 0 0 0 652	00:00	<b> </b>	1	l	1	1 0	<del>                                     </del>				0	1		l		. 0		l	1		U	0
AM Peak Vol 0 0 570 0 570 1 0 81 0 82 0 0 0 0 0 0 0 0 0 0 652	ΤΟΤΔΙ	•	0	1545	0	1545	3	0	1290	0	1293	0	n	0	0	0	0	0	0	0	0	2838
וראו רבאר אינו ען ביצון ען היא																						
	rivi reak Vol	U	U	95	U	95		U	540	U	542	U	U	U	U	U	U	U	U	U	U	637

 Start
 End
 Volume
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 07:45
 08:45
 652

Job No.:

Hour

Location: Date: Recorder: Interval (dd): (In Minutes)

Ending

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TOTAL

AM Peak Vol
PM Peak Vol

Southlawn Lane at Incerator Lane 5/30/2018 Wednesday T3D 15

AM PERIOD 6:00AM-12:00PM

PEAK HOURS County: Town: Weather: Montgomery Rockville Clear

| PM PERIOD 12:00PM- | Start | End | Volume | LOS | V/C | | 7:00PM | 17:00 | 18:00 | 637 |

			SCHOOL CI	HILDREN, PI	EDESTRIAN:	S & BICYCL	ĖS				-	
	North Leg			South Leg				East Leg			West Leg	
Sc	outhlawn La	ne	Sc	uthlawn La	ne			N/A		1	ncerator Lan	е
School	Pedestrians	Bicycles	School	Pedestrians	Bicycles		School	Pedestrians	Bicycles	School	Pedestrians	Bicycles
Children		,	Children				Children		,	Children		,
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Job No.: Location: Date: Recorder: Interval (dd): (In Minutes) AM PERIOD 6:00AM-12:00PM PEAK HOURS 
 End
 Volume
 LOS
 V/C
 PM PERIOD
 12:00PM 

 08:45
 652
 7:00PM
 2835 **Turning Movement Summary:** 1545 1290 LEG 1 Keith Avenue Quadrant Total Quadrant Total 0 0 0 1545 0 0 0 LEG 4 LEG 3 N A 0 0 0 3 1290 0 3 т 🕇 R → 0 Quadrant Total Quadrant Total Southlawn Lane LEG 2 1548 1293 2841 Comments: 651 AM Peak Hour : 570 81 LEG 1 Quadrant Total 0 L 0 Quadrant Total 0 570 0 Incerator Lane 0 0 LEG 4 LEG 3 ¥, 0 0 0 0 81 0 Quadrant Total 1 т 🕇 R i→ 0 Quadrant Total Southlawn Lane LEG 2 571 82 653 PM Peak Hour: 95 540 LEG 1 Southlawn Land Quadrant Total Quadrant Total 0 0 0 0 0 0 Incerator Lane 0 LEG 4 LEG 3 ¥, 0 0 0 2 540 0 т 🕇 Quadrant Total Quadrant Total 2 R → 0 Southlawn Lane LEG 2 97 542

County: Town: Weather:

Montgomery Rockville Clear

 
 PEAK HOURS
 AM PERIOD 6:00AM-12:00PM
 Start 07:30
 End 08:30
 Volume 36:71
 LOS
 V/C
 PM PERIOD 7:00PM
 Start 16:45
 End 17:45
 V/C
 V/C

Street		HOURS	6:00AM-	-12:00PM	07:30	08:30	36/1			7:0	00PM	16:45	17:45	3893	<u> </u>	L	1				
Name>		S	outhlawn La					uthlawn La					E Gude Drive	)				E Gude Drive			
HOUR ENDING	U turn	Left	From North	h Right	Total	U turn	Left	From South	n Right	Total	U turn	Left	From East Through	Right	Total	U turn	Left	From West Through	Right	Total	GRAND TOTAL
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TOTAL

AM Peak Vol
PM Peak Vol

Southlawn Lane at E Gude Drive 5/30/2018 Wednesday T3D 15

AM PERIOD 6:00AM-12:00PM

PEAK HOURS County: Town: Weather: Montgomery Rockville Clear

| PM PERIOD 12:00PM- | Start | End | Volume | LOS | V/C | 7:00PM | 16:45 | 17:45 | 3893 |

			SCHOOL C	HILDREN, PE	DESTRIAN	S & BICYCLE	:8			,		
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School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles		School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycl
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Job No.: Southlawn Lane at E Gude Drive 5/30/2018 Wednesday Location: Date: Recorder: Interval (dd): (In Minutes) AM PERIOD 6:00AM-12:00PM PEAK HOURS End Volume LOS V/C 08:30 3671 PM PERIOD 12:00PM-7:00PM Start End Volume LOS V/C 16:45 17:45 3893 4449 **Turning Movement Summary:** 2143 2306 LEG 1 Keith Avenue Quadrant Total Quadrant Total 1678 1400 704 806 629 4 74 E Gude Drive E Gude Drive 900 6379 т LEG 4 LEG 3 15687 14727 6346 251 τ ____ 7924 604 22 7308 606 635 311 u 🖵 т 🕇 R → Quadrant Total Quadrant Total 1211 584 Southlawn Lane LEG 2 1662 1553 3215 Comments: 892 AM Peak Hour: 651 241 LEG 1 L Quadrant Total 328 220 Quadrant Total 195 313 143 1533 1385 127 1260 т LEG 4 LEG 3 3012 2751 1176 47 Drive 1479 170 1366 72 37 46 Quadrant Total 243 т 🕇 R i→ 94 Quadrant Total Southlawn Lane LEG 2 531 156 687 PM Peak Hour: 232 666 LEG 1 Southlawn Lan Quadrant Total Quadrant Total 314 283 52 92 1491 16 191 1450 E Gude Drive 210 1201 LEG 4 LEG 3 3171 3010 1383 53 1680 71 1560 5 186 265 80 Quadrant Total 257 т 🕇 R → 138 Quadrant Total Southlawn Lane LEG 2 176 531

Appendix B – CLV Results - Existing Conditions



# TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

 COUNT DATE:
 Existing
 LOCATION:
 E. Gude Dr

 CONDITIONS:
 Existing
 Landfill Entrance

 DESIGN YEAR:
 2018
 ASM

 COMPUTED BY:
 ASM
 DATE:
 11/20/2018

 CHECKED BY:
 AA
 DATE:
 12/3/2018

	PM PEAK HOUR: 4:45 - 5:45	E Gude Dr. 1833 132 1882 1 1848 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Lane         Critical Lane         Opposing           No. of Lanes         Use         Level of Lolumes         Volume           Lanes         Factor         Service         Total         (vph)         PCE           2         = 0.55         B         ≤ 1150         ≤ 599         1.1           3         = 0.40         C         ≤ 1300         ≤ 799         3.0           4         = 0.30         D         ≤ 1450         ≤ 999         4.0           Dble. Left         = 0.45         F         > 1600         > 1000         5.0	ane Volume Copposing Lane Lefts Factor (4)*(2)=(3) (4) (5) (5) (6) (6) (6)	855 18 1	9 0.55 997 9 1.00 9	39 0	0 00.1	* Critical Volume DN TOTAL 1055	LEVEL OF THE CONTRACT OF THE C	I SERVICE
	LANE CONFIGURATION	Stop Stop	X Ways 1	* Ø Movement	*	WB	NB S		BEMARKS	NBR is a free movement	_
	LANE C	Landfill Entrance	Intersection Control: Signal Stop	Lane         Lane         CLV           Use         Volume         (3)+(6)           (5)         (4)*(5)=(6)         (3)+(6)	1.00 44 1053	3	1.00 0 65	0 00.1	AM TOTAI	틸	REVICE
		889 1858 1858 1858		Lan (1)	1009 44		0 29		* Critical Volume		
	AM PEAK HOUR: 7:30 - 8:30	9 9 9 9 9 9		went Volume Factor (1) (2)	EB 1835 0.55	1465	NB 65 1.00	1.00	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2	
I	M	8881		Movement	E	M	Z	วั	PEMARKS		

# TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

at Dover Ro E. Gude Dr LOCATION: 11/20/2018 DATE: DATE: COUNT DATE:
CONDITIONS:
DESIGN YEAR:
COMPUTED BY:
CHECKED BY:

PCE 1.1 2.0 3.0 4.0 5.0 1672 1238 CLV (3)+(6) 1195 (vph) 199 599 799 999 1000 802 142 Opposing 1436 Critical Volum∈ PM TOTAL Volume (4)*(5)=(6) Lane 1000 1150 1300 1450 1600 Critical Lane Volumes Total <u>9۱</u> 438 4:45 - 5:45 462 Lane Use Factor (5) 33 355 Service 46 Opposing Lefts (4) 797 **PM PEAK HOUR:** Lane Use Factor 1.00 0.55 0.30 0.60 0.45 Lane Volume (1)*(2)=(3) 1500 792 1770 43 No. of Lanes Dble. Left Trpl. Left 899 l Lane Use Factor (2) Volume (1) E Gude Dr Dover Rd LANE CONFIGURATION Movement REMARKS 9 Ways filqS Ø * Intersection Control:
Signal
Stop CLV (3)+(6) 1190 825 68 Lane Volume (4)*(5)=(6) Entrance AM TOTAL Center Commercial E Gude Dr Lane Use Factor (5) Opposing (4) Critical Volume 1533 969 l Lane Volume  $(1)^*(2)=(3)$ 465 9 999 817 89 32 ۷9 Lane Use Factor (2) 179 7:30 - 8:30 80 r 5 Volume (1) 4٤3 133 AM PEAK HOUR: Side street: split LT: pt+pm Movement 1575 REMARKS 1824 Ø

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LEVEL OF SERVICE

0.75

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LEVEL OF SERVICE

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# TURNING MOVEMENT & **LEVEL OF SERVICE** SUMMARY

LOCATION 8/20/2018 7 DATE: DATE: COUNT DATE: CONDITIONS: DESIGN YEAR: COMPUTED BY: CHECKED BY:

E. Gude Dr

1.1 2.0 3.0 4.0 5.0 ပ 1555 1420 CLV (3)+(6) 1167 (vph) 199 599 799 999 1000 641 797 282 Opposing LEVEL OF SERVICE 1201 191 Critical Volum∈ PM TOTAL Volume (4)*(5)=(6) Lane 1000 1150 1300 1450 1600 36 186 92 Critical Lane Volumes Total 289 08 4:45 - 5:45 531 Lane Use Factor (5) 592 98 l 85 Service 232 Opposing Lefts (4) 29 A B O O B L 181 88 **PM PEAK HOUR:** Lane Use Factor 1.00 0.55 0.40 0.30 0.60 0.45 Lane Volume (1)*(2)=(3) 1475 582 661 190 184 No. of Lanes Dble. Left Trpl. Left 1680 Lane Use Factor (2) Volume (1) E Gude Dr Zouthlawn LANE CONFIGURATION Movement REMARKS 9 Ways Ø * œ Intersection Control:
Signal
Stop CLV (3)+(6) 1132 586 773 359 LEVEL OF SERVICE Volume (4)*(5)=(6) uη AM TOTAL Lane Southlawn 48 80 143 E Gude Dr Lane Use Factor (5) Opposing Lefts 4 Critical Volume 1365 1382 Lane Volume  $(1)^*(2)=(3)$ 1260 538 693 216 206 742 Lane Use Factor (2) 155 7:30 - 8:30 32 143 651 313 Volume (1) 96 l 189 216 NBL&SBL pm+pt NBR & EBL OL EB&WB exclusive LT AM PEAK HOUR: Movement 1527 REMARKS 6**2**71 Ø

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Southlawn Ln	at Incinerator Ln			
LOCATION:	21		8/20/2018	8/25/2018
Í	Ī	Ī	DATE:	
	EXISTING	2018	ASM	AA
COUNT DATE:	CONDITIONS:	DESIGN YEAR:	COMPUTED BY:	CHECKED BY:

			7.1 9.0 5.0 0.0	*	*	*		<b>⋖</b>
Southlawn Ln at Incinerator Ln		0	199 599 799 999 1000	(3)+(6)	542	0	542	L OF ICE
South at Incir	15	otal Lane	1150 1450 1450 1600 1600 1600	Lane Volume (4)*(5)=(6)	0 0	0	PM TOTAL	LEVEL OF SERVICE
	4:45 - 5:45		VI VI VI VI VI A	Lane Use Factor (5)	1.00	1.00		0.34
LOCATION: 21 8/20/2018 8/25/2018	l	0 96 → 98	1.00 0.55 0.40 0.30 0.60 E	Opposing Lefts (4)	0	0	* Critical Volume	V/C = <b>0</b> .
DATE:	PM PEAK HOUR:	No. of Lanes	-eft	Lane Volume (1)*(2)=(3)	542 95	0		
EXISTING 2018 ASM AA			Dble. I	Lane Use Factor (2)	1.00	1.00		
		nweldtuod nJ		Volume (1)	542	0		
COUNT DATE: CONDITIONS: DESIGN YEAR: COMPUTED BY CHECKED BY:	LANE CONFIGURATION		Ways 1	Movement	S S	EB	REMARKS	
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≪	E CO	→	<u>:</u>  ×	CLV (3)+(6)	2 3	0	572	▼
	LAN	dot8	on Contro Signal Stop	CLV (3)+(6	83	5	2	LOF
RNING MOVEMENT EVEL OF SERVICE SUMMARY		Southlawn Ln	Intersection Control: Signal Stop	L, (4) (4) (4)	0 +		AM TOTAL	LEVEL OF SERVICE
VO SE		Ē		_	1.00	1.00	₹	
NG MOVEN EL OF SER SUMMARY				Opposing Lefts (4)	0 +	0	* Critical Volume	0.36
TURNING MOVEMENT LEVEL OF SERVICE SUMMARY	I			Lane Volume (1)*(2)=(3)	83	0	* Critical	N/C =
F	7:30 - 8:30	18 8 8		Lane Use Factor (2)	1.00	1.00		
22030	I	029		Volume (1)	83	0		
design Fairfax, VA 22030	AM PEAK HOUR:			Movement	e e	EB	REMARKS	
	,	' 🛊 🗀		Ø			8	

Appendix C – Traffic Growth Rate Calculations

E Gu	de Dr From M	D 28 to MD 355
Year	AADT	Traffic Growth Rate
2017	33,300	-13.82%
2016	38,642	1.90%
2015	37,921	2.60%
2014	36,960	-7.28%
2013	39,862	0.20%
2012	39,781	-0.80%
2011	40,100	-6.51%
2010	42,892	0.61%
2009	42,631	0.00%
2008	42,630	1.62%
2007	41,952	
	Avg.	-2.15%



Asma Ali <aali@t3design.us>

# FW: Gude Landfill Remediation Project - T raffic Data Request from Montgomery County DOT and City of Rockville

3 messages

Oakes, Laura Jo <loakes@eaest.com>

Mon, Apr 30, 2018 at 11:28 AM

To: Asma Ali <aali@t3design.us>

Cc: Amy Morris <amorris@t3design.us>, "Gelder, Moriah" <mgelder@eaest.com>

Please let me know if this is enough information on this project or what specifics you would like me to request (see email chain below).

Thanks, Laura

From: Mitchell, Michael [mailto:Michael.Mitchell@montgomerycountymd.gov]

Sent: Monday, April 30, 2018 11:26 AM To: Oakes, Laura Jo <loakes@eaest.com>

Subject: RE: Gude Landfill Remediation Project - Traffic Data Request from Montgomery County DOT and City of

Rockville

Laura,

I do not believe the improvements will generate new traffic or increase it. One turn lane (right turn lane) is on west-bound Gude onto Crabbs Branch. The other improvement is extending the merge lane on East Gude, east of Crabbs Branch. Finally a turn lane onto a business parking lot.

Michael F. Mitchell, P.E.

Senior Engineer

Montgomery County Department of Transportation

100 Edison Park Drive, 4th Floor

Gaithersburg, Maryland 20878

Ph: 240-777-7262

Fax: 240-777-7277

michael.mitchell@montgomerycountymd.gov

From: Oakes, Laura Jo [mailto:loakes@eaest.com]

Sent: Monday, April 30, 2018 11:23 AM

To: Mitchell, Michael < Michael. Mitchell@montgomerycountymd.gov >



14501 Sweitzer Lane • Laurel, Maryland 20707-5901

Thomasina V. Rogers, Chair T. Eloise Foster, Vice Chair Fausto R. Bayonet Omar M. Boulware Howard A. Denis Chris Lawson

> GENERAL MANAGER Carla A. Reid

February 20, 2018

Ms. Katherine Nelson Montgomery County Planning Department 8787 Georgia Avenue Silver Spring, Maryland 20910

Dear Ms. Nelson:

The Washington Suburban Sanitary Commission (WSSC) proposes to construct Septage and FOG (Fats, Oils, and Grease) Discharge Facilities at the abandoned Rock Creek WWTP located at 700 East Gude Drive, in Rockville, Maryland. The site is located in a mixed industrial, commercial, and residential area. The Septage Discharge Facility and the FOG Discharge Facility will have footprints of 900 sq. ft. and 5,428 sq. ft., respectively. The Facilities would be staffed by two WSSC employees.

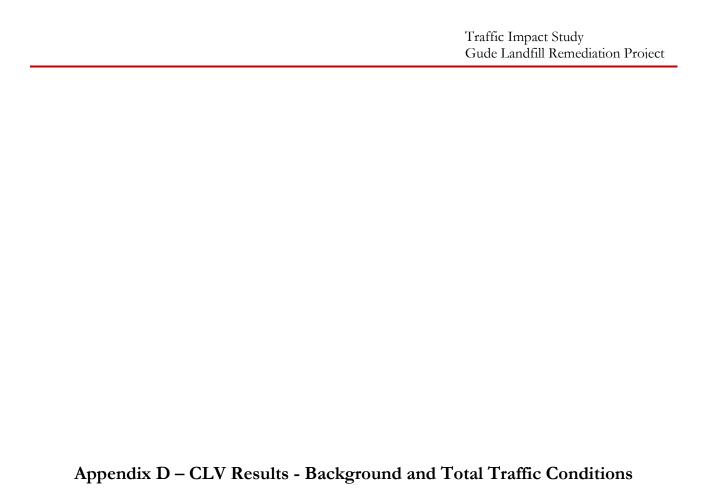
The facility is accessible from Rockville Pike, Maryland Route 355 and then proceeding onto East Gude Drive. East Gude Drive serves as a commercial thoroughfare connecting I-270 to the City of Rockville and is designed for the size and weight of the vehicles entering and exiting the Septage and FOG Discharge Facility. WSSC estimates that 20 to 30 vehicles per day would enter the site based on septage hauling records at existing facilities and future projections. The additional traffic generated by these vehicles would not impact the traffic patterns along East Gude Drive. The site provides ample space for waiting vehicles, so the vehicles would not back up on to East Gude Drive. An additional 5 to 10 trucks per week are estimated to visit the site to remove trash or FOG by-products.

Per the Montgomery County's Local Area Transportation (LATR) test, the project will generate less than 50 peak hour person trips in either the morning or evening peak hours and will not require a traffic study. Therefore, we request an exemption to this requirement.

Sincerely,

Philip Hwang, P.E., PMP,

Project Manager, Facility Design & Construction Division



# Fairfax, VA 22030 design

AM PEAK HOUR:

1502

9781

# TURNING MOVEMENT & LEVEL OF SERVICE

LOCATION 1/20/2018 24 DATE: DATE: COUNT DATE:
CONDITIONS:
DESIGN YEAR:
COMPUTED BY:
CHECKED BY:

0781 1614 E. Gude Dr 1849 13 4:45 - 5:45 9 PM PEAK HOUR: 1579 1862 969 l E Gude Dr LANE CONFIGURATION Stop Entrance Landfill E Gude Dr SUMMARY 1895 495 8 7:30 - 8:30

Display CT

65

98

1.1 2.0 3.0 5.0

(vph) 199 599 799 999 1000

<u>Sritical Lane</u> <u>Volumes</u> Total

Service

No. of Lanes

39

55

1000 1150 1300 1450 1600

A B O O B L

Lane Use Facto 1.00 0.55 0.30 0.30

CLV (3)+(6)

 $(4)^{*}(5)=(6)$ Volume Lane

Lane Use Factor (5)

Opposing Lefts (4)

Lane Volume (1)*(2)=(3)

Lane Use Factor (2)

Volume (1)

Dble. Left Trpl. Left

Ways 1

Intersection Control:
Signal
Stop

Movement

Ø *

CLV (3)+(6)

Lane

Opposing

Lane Volume  $(1)^*(2)=(3)$ 

Lane Use Factor (2)

Volume

Ξ

Movement

Ø

4

Lane Use Factor (5)

Volume (4)*(5)=(6)

Lefts

1030 822 66

825 66

REMARKS

Critical Volume

AM TOTAL 0.72 = 0//

NBR is a free movement. REMARKS 1147 LEVEL OF SERVICE

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LEVEL OF SERVICE

0.67

= 2/A

1076

Critical Volum∈ PM TOTAL

40

40

9

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		1269	<b>↑</b>	PCE 1.1 2.0 3.0 4.0 5.0	*		*	*	+	O
E. Gude Dr at Dover Rd		1465	1400	Opposing Volume (vph) 199 599 799 999	CLV (3)+(6)	818	145	45	1220	L OF
E. G. at D.	45	<b>──</b>	Zti	Critical Lane	Lane Volume (4)*(5)=(6)	100	0	0	DM TOTAL	LEVEL OF SERVICE
	4:45 - 5:45		828	Oritica N N N N N N N V	Lane Use Factor (5)	1.00	1.00	1.00		
LOCATION: 11 11/20/2018 12/3/2018	I	21		Lane   Level of Use   Level of Service   Service   1.00   A   0.55   B   C   0.40   C   0.60   E   0.45   F   F	ing	10	0	0	* Critical	V/C = <b>0.76</b>
	PM PEAK HOUR:	1805	1071	o. of anes = 1	Lane Volume (1)*(2)=(3)	930	145	45		
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ا           خنن		E Gude Dr	Dover Rd		Volume (1)	1469	362	81		
COUNT DATE CONDITIONS: DESIGN YEAF COMPUTED B CHECKED BY	LANE CONFIGURATION	ay y x	<u> </u>	Ways	Mo	WB	NB RB	SB	DEMADKS	
	NFIG	tilq8	tilq₽	11	* *		*	*		
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OVI SE			E Gude		Lane Use Factor (5)	1.00	1.00	1.00	M	Č
NG MOVEN EL OF SER SUMMARY		1627	] 🛕		Opposing Lefts (4)	8	0	0	omilo)	0.76
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) L	7:30 - 8:30	35	89 † 89 011		Lane Use Factor (2)	0.55	0.55	1.00		
<b>2</b> 2030	ı	2 2	787	: split	Volume (1)	1515	125	14		
design Fairfax, VA 22030	AM PEAK HOUR:	1607	0981 1487 3655	Side street: split LT: pt+pm	Movement	WB	2 8	SB	DEMADKS	
	7	' ↓ ∟			Ø					

# Fairfax, VA 22030 design

# TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

LOCATION 1/20/2018 7 DATE: DATE: COUNT DATE: CONDITIONS: DESIGN YEAR: COMPUTED BY: CHECKED BY:

E. Gude Dr

1.1 2.0 3.0 5.0 ပ 1587 CLV (3)+(6) 1191 (vph) 199 599 799 999 1000 288 Opposing 1225 LEVEL OF SERVICE 195 Lane Volume (4)*(5)=(6) Critical Volum∈ PM TOTAL 1000 1150 1300 1450 1600 19 <u>Sritical Lane</u> <u>Volumes</u> 94 Total 969 85 4:45 - 5:45 542 Lane Use Factor (5) 210 160 <del>7</del>6 0.74 Service 237 Opposing Lefts (4) 23 A B O O B L = \( \sqrt{C} = \) 06 184 **PM PEAK HOUR:** Lane Use Facto 1.00 0.55 0.30 0.30 Lane Volume (1)*(2)=(3) 231 1411 593 674 194 1505 188 No. of Lanes Dble. Left Trpl. Left カレノレ Lane Use Factor (2) Volume (1) E Gude Dr Ln Southlawn LANE CONFIGURATION Movement REMARKS 9 Ways Ø * ပ Intersection Control:
Signal
Stop CLV (3)+(6) 1154 598 789 365 283 LEVEL OF SERVICE Volume (4)*(5)=(6) u¬ AM TOTAL Lane Southlawn 49 82 146 E Gude Dr Lane Use Factor (5) Opposing Lefts 0.72 4 Critical Volume 1393 1413 Lane Volume  $(1)^*(2)=(3)$ = 0// 1285 549 707 219 523 ۷۲ Lane Use Factor (2) 158 7:30 - 8:30 38 971 664 316 Volume (1) 66 L 149 NBL&SBL pm+pt NBR & EBL OL EB&WB exclusive LT AM PEAK HOUR: 1200 Movement 1557 REMARKS 609 l Ø

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# O TINDAMOVOM CININGLIT

COUNT DATE:			LOCATION:	Southlawn Ln
CONDITIONS:	Background	ī	21	at Incinerator Ln
DESIGN YEAR:	2022	Ī		
COMPUTED BY:	ASM	DATE	11/20/2018	
CHECKED BY:	AA	DATE:	12/3/2018	

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Soutt at Incir	15	——————————————————————————————————————	Critical Lane  Volumes  Total  1 1000   S   1150   S   1150   S   11600   S	Lane Volume (4)*(5)=(6)	0	2	0		PM TOTAL	LEVEL OF SERVICE
	4:45 - 5:45	199 Jegs 7		Lane Use Factor (5)	1.00	1.00	1.00			2
LOCATION: 21 11/20/2018 12/3/2018		5 26	Lane           Use         Level of           Factor         Service           1.00         A           0.55         B           0.30         D           0.60         E           0.45         F	Opposing Lefts (4)	0	2	0		* Critical Volume	V/C = <b>0.35</b>
_ _ _ DATE:1 	PM PEAK HOUR:		<u>o. of</u> anes = = = = = = = = = = = = = = = = = = =	Lane Volume (1)*(2)=(3)	253	97	0			
Background 2022 ASM AA		· • ——	N 1 2 3 3 4 Dble. Left Trpl. Left	Lane Use Factor (2)	1.00	1.00	1.00			
		nwsirtiuo2 nJ		Volume (1)	253	97	0			
COUNT DATE: CONDITIONS: DESIGN YEAR: COMPUTED BY CHECKED BY:	LANE CONFIGURATION	<del></del>	Ways 1	Movement	NB	SB	EB		REMARKS	
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<b>∞</b>	CON		×			_		H		A
L Н Н	LANE	qof2	n Control Signal Stop	CLV (3)+(6)	85	583	0		583	. OF ICE
RNING MOVEMENT EVEL OF SERVICE SUMMARY		Southlawn	Intersection Control: Signal Stop	Lane Volume (4)*(5)=(6)	0	_	0		1 TOTAL	LEVEL OF SERVICE
OV SE		<u>no</u>		L	1.00	1.00	1.00		AM	
NG MOVEN EL OF SER' SUMMARY				Opposing Lefts (4)	0	-	0		Volume	0.36
TURNING MOVEMENT LEVEL OF SERVICE SUMMARY	ı			Lane Volume (1)*(2)=(3)	85	582	0		* Critical Volume	V/C =
H	7:30 - 8:30	₹8 ₹8		Lane Use Factor (2)	1.00	1.00	1.00			
31n 222030	l	189		Volume (1)	85	582	0			
design Fairfax, VA 22030	AM PEAK HOUR:			Movement	NB	SB	EB		REMARKS	
		' <b>▼</b> '			П	_		T	- 2	

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	1/81	PCE 1.1 2.0 3.0 4.0 5.0	*	*	*	*	H	œ
E. Gude Dr Landfill Entrance		<u>Volume</u> ( <u>vph)</u> 199 599 799 999	CLV (3)+(6)	1030	40	10	1080	L OF //CE
E. G Landfil		Volumes   Columes   Colu	Lane Volume (4)*(5)=(6)	6	0	0	PM TOTAL	LEVEL OF SERVICE
	39		Lane Use Factor (5)	1.00	1.00	1.00		<b>.</b>
LOCATION: 24 11/30/2018 12/3/2018	97	Lane           Use         Level of Service           -actor         A           0.55         B           0.40         C           0.30         D           0.60         E           0.45         F	Opposing Lefts (4)	2 6	0	0	· Critical Volume	V/C = <b>0.68</b>
	1869 1 1869 1 1869 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u>o. of</u> anes = = = =	Lane Volume (1)*(2)=(3) 873	1021	40	10	*	
Total 2022 M	· · · · · · · · · · · · · · · · · · ·	N Li	Lane Use Factor (2)	0.55	1.00	1.00		
ATE: TONS: TYPEAR: ED BY: ASM D BY: AA	Display CT		Volume (1)	1856	40	10		movement.
COUNT DATE: CONDITIONS: DESIGN YEAR: COMPUTED BY: CHECKED BY:	Stopion Stopio	Ways 1	Movement	WB	NB	88	REMARKS	NBR is a free movement.
		LI	* *		*	*		45
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	_	on Contr Signal Stop		2 80			11	L OF /ICE
EMENT & ERVICE RY	☐ Cude Dr. Entrance	Intersection Control: Signal Stop	J > (4)	υ _υ ε		0	M TOTAL	LEVEL OF SERVICE
SE SE	ш		Lane Use Factor (5)	1.00	1.00	1.00	AM	
NG MOVEN EL OF SER' SUMMARY	6991		Opposing Lefts (4)	<b>β</b> κ	0	0	nme	0.72
TURNING MOVEMENT LEVEL OF SERVICE SUMMARY	1509		Lane Volume (1)*(2)=(3)	830	99		* Critical Volume	V/C =
F	830 - 69 9 9 9		Lane Use Factor (2)	0.55	1.00	1.00		
22030	99		Volume (1)	1509	99			
design Fairfax, VA 22030	AM PEAK HOUR:		Movement	WB	NB	88	REMARKS	
	· —————		Ø				7.02	