Attachment A

Topographic Survey

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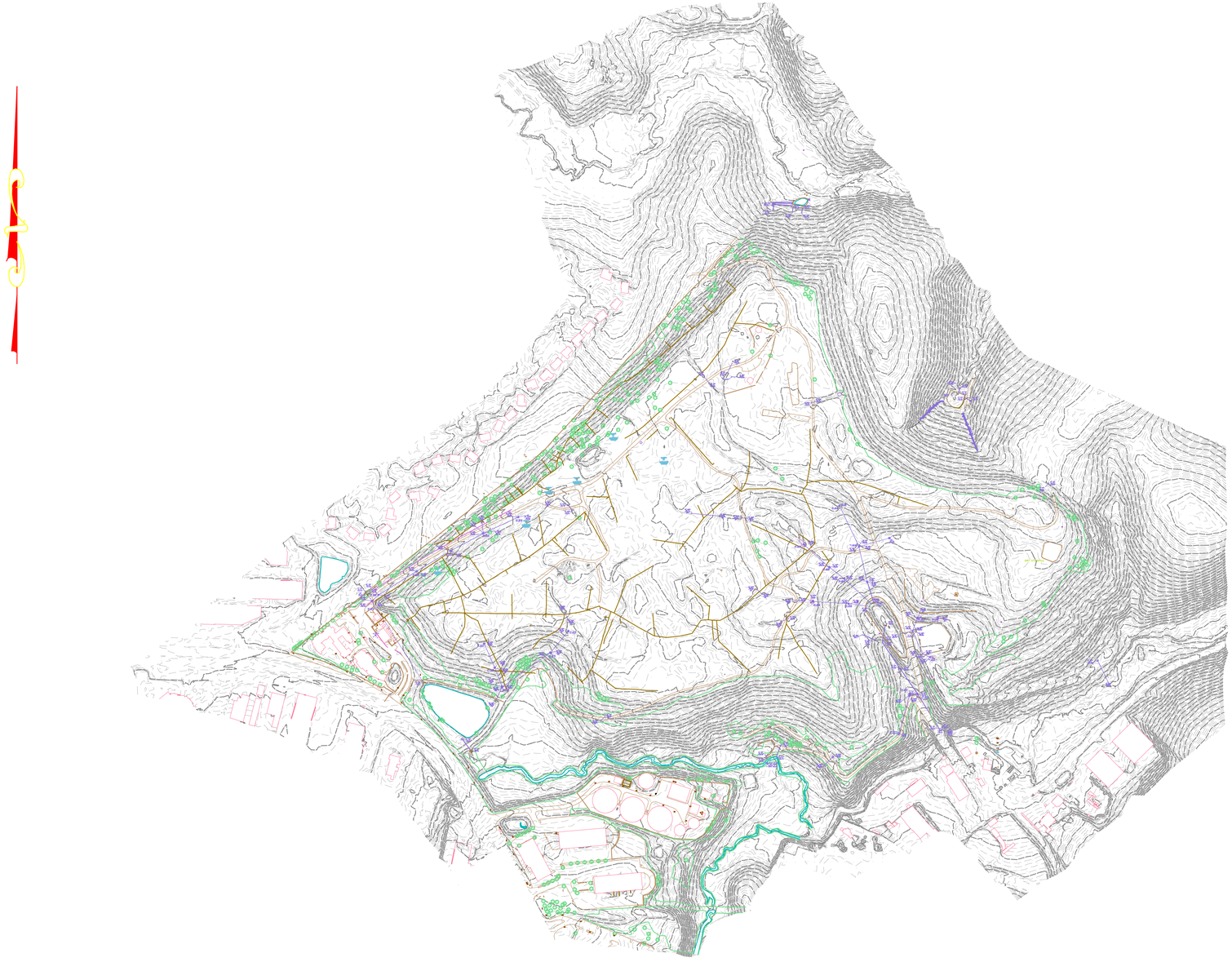

THE TOPOGRAPHICAL SURVEY SHOWN HERON ARE AN INTERPRETATION OF PHOTOGRAMETRY AND FIELD RUN SURVEYS COMPLETED ON JAN. 30, 2019, THE UNDERSIGNED WAS IN RESPONSIBLE CHARGE OF THE PREPARATION OF THIS MAP AND THE SURVEYING WORK REFLECTED IN IT. THIS MAP WAS DEVELOPED IN COMPLIANCE WITH THE REQUIREMENTS SET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

STATE OF MARYLAND
ERIC COOPER
No. 21311
PROFESSIONAL LAND SURVEYOR

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

MAP LEGEND

TREE	ELECT POLE
WOODS	LIGHT POLE
MANHOLE	GUY WIRE
INLET	HYDRANT
POND	MISC FEATURE
FENCE	BOLLARD
GAS LINE	TRAFFIC SIGN
HAND BOX	GUARDRAIL
LFG PIPING	TRANSFORMER

WALLACE MONTGOMERY
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

150 0 150 300
1"= 150'

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

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Attachment B

Utility Locating Report

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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 (~) 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

Attachment 1: Report Figures, Site Photos

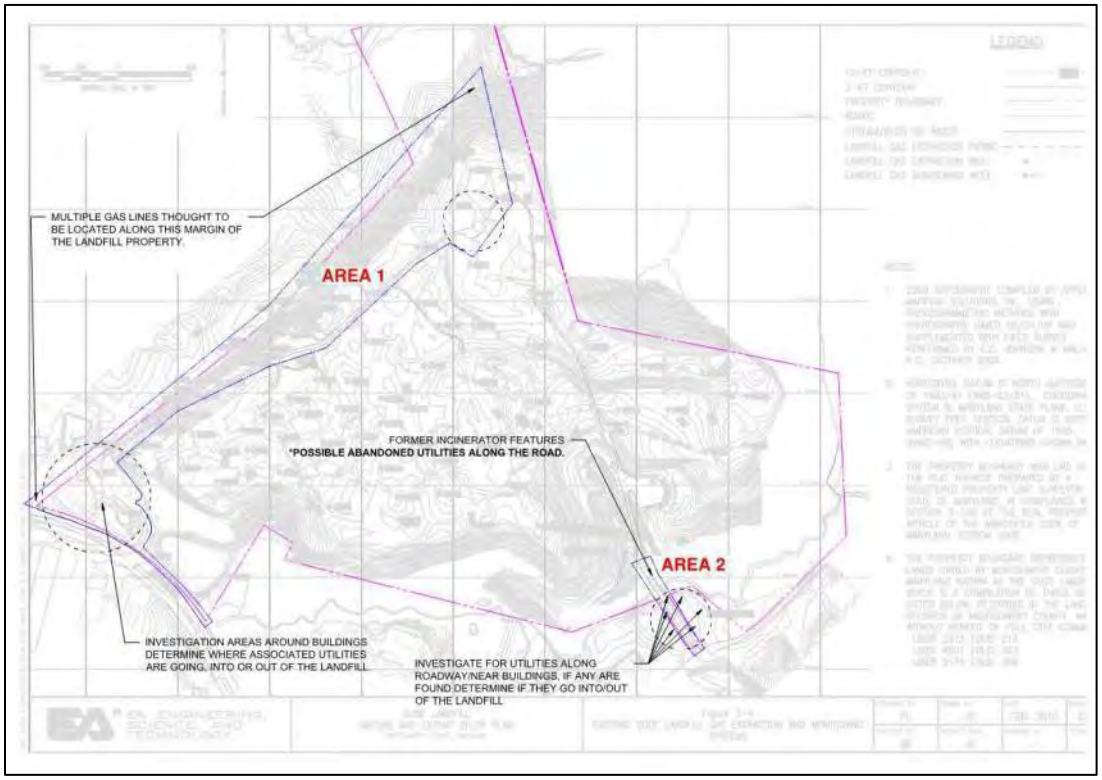


Figure 1: Scope of work includes areas bound by the blue outlines, Area1 and Area 2.
Client Provided Information: 100 foot ROW easement includes Williams Gas/Trans-continental Natural Gas Pipelines (near landfill side). 25-50 foot ROW easement contains Columbia Gas Pipeline and Fiber Optic Line (near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

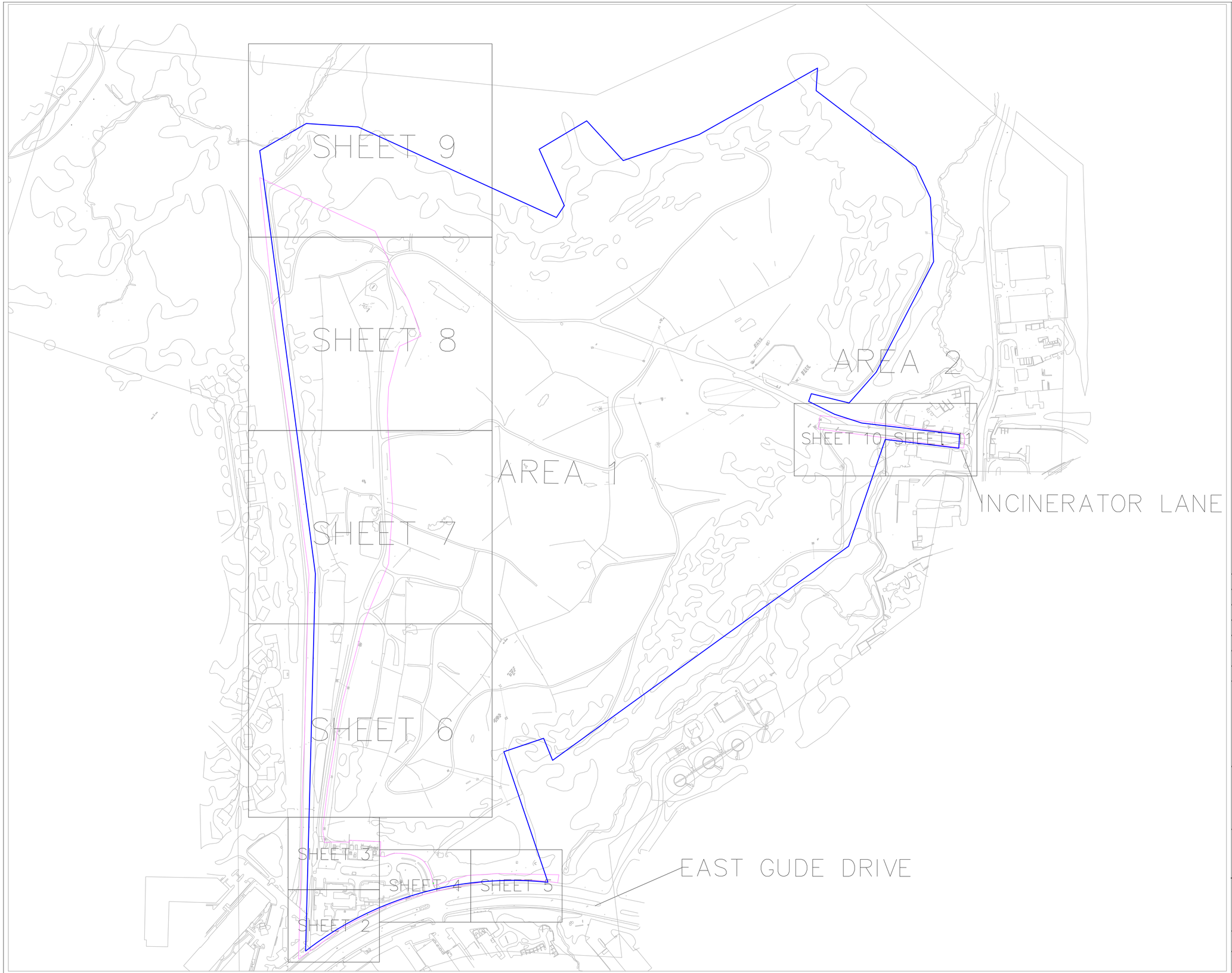
Attachment 1: Report Figures, Site Photos

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



NOTES:

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2. POSITIONAL DATA WAS COLLECTED WITH A GPS SYSTEM, COORDINATES ARE IN THE MARYLAND STATE PLANE ZONE WITH NAD83 HORIZONTAL DATUM. GPS INFORMATION WAS OVERLAIN UPON A EXISTING CAD FILE "GudeLF2015_ver2010-151118".

3. AS THE BASE FILE FOR THIS PROJECT WAS NOT GEO-REFERENCED, MASTER LOCATORS SURVEYED IN FEATURES PRESENT BOTH IN THE FIELD AND ON THE BASE MAP IN ORDER TO OVERLAY THE APPROXIMATE UTILITY LOCATIONS. MASTER LOCATORS IS NOT RESPONSIBLE FOR THE VALIDITY OR POSITIONS OF STRUCTURES PRESENT IN THE CLIENT-PROVIDED BASE MAP.

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5. NO BOUNDARY OR PROPERTY SURVEY WORK WAS CONDUCTED IN THE DEVELOPMENT OF THIS PLAN.

6. BOLDED UTILITY LINES WERE MARKED OUT BY OTHERS VIA ONE CALL TICKET.

UTILITIES LEGEND

- E — U/G ELECTRIC LINE
- E-S — U/G SUSPECTED ELECTRIC LINE
- C — U/G COMMUNICATION LINE
- SD — U/G STORM DRAIN LINE
- W — U/G WATER LINE
- G — U/G GAS LINE
- LFG — U/G LANDFILL GAS LINE
- LFG-S — U/G SUSPECTED LANDFILL GAS LINE
- SS — U/G SANITARY LINE
- UNK — UNKNOWN LINE
- FENCE LINE
- APPROXIMATE SCOPE OF WORK
- CLIENT-PROVIDED PROPERTY BOUNDARY
- MH — MANHOLE (MH)
- STORM INLET/CATCH BASIN (CB)
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- LINE CONTINUES
- CLEANOUT
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- MONITOR WELL

1	6/8/18	UTILITY MAPPING	IH / CY
2	6/20/18	REVISION 1	IH / CY
3	9/11/18	CLIENT NOTES ADDRESSED	IH / CY
4	10/10/18	CLIENT NOTES ADDRESSED	IH / CY
5	11/05/18	CLIENT NOTES ADDRESSED	IH / CY
6	11/21/18	CLIENT NOTES ADDRESSED	IH / CY

REVISIONS

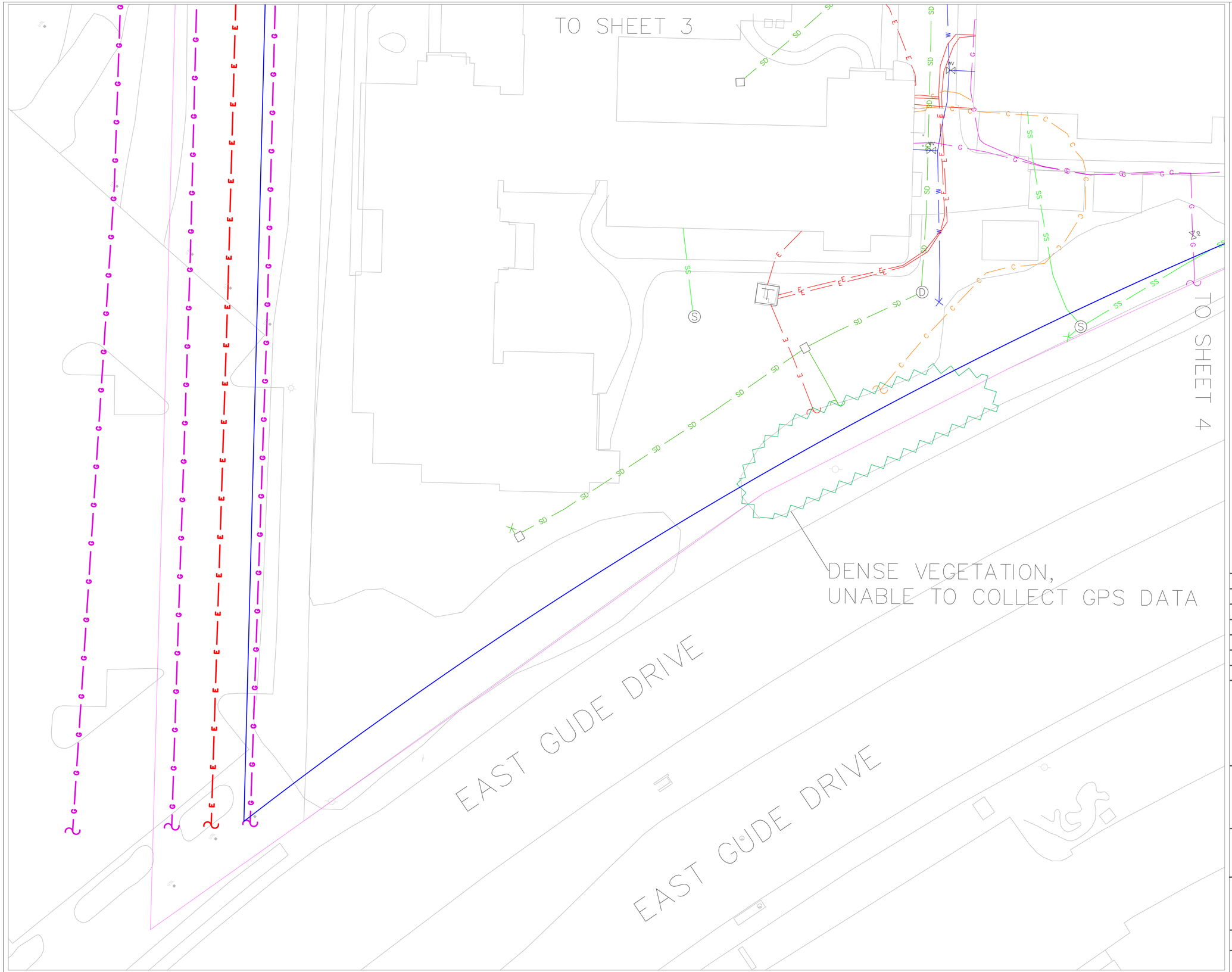
master locators
675 Concord Road
Glen Mills, PA 19342
Phone: 610-358-0172

CLIENT:
EA Engineering

SITE:
Gude Landfill
600 East Gude Drive
Rockville, MD

UNDERGROUND UTILITY PLAN KEY SHEET

SIZE	SCALE:	SHEET	REV
D	1"=200'	1 OF 11	6



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SITE:
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600 East Gude Drive
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UNDERGROUND UTILITY PLAN SW CORNER AREA 1, NORTH OF EAST GUDE DRIVE

SIZE	SCALE:	SHEET	REV
D	1"=15'	SHEET 2 OF 11	6

TO SHEET 6

METHANE GAS STRUCTURES OBSERVED AT SURFACE
SUSPECT NON-METALLIC LINES PRESENT BELOW SURFACE
COULD NOT SCAN AREA WITH GPR DUE TO ROUGH TERRAIN
ROUTE OF SUB-GRADE METHANE LINES UNKNOWN

ELECTRIC CONDUITS

METHANE LINES GOES SUBGRADE

END OF PIPE

TO SHEET 4

TO SHEET 2

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UNDERGROUND UTILITY PLAN
NE OF SHEET 2

SIZE	SCALE:	SHEET	REV
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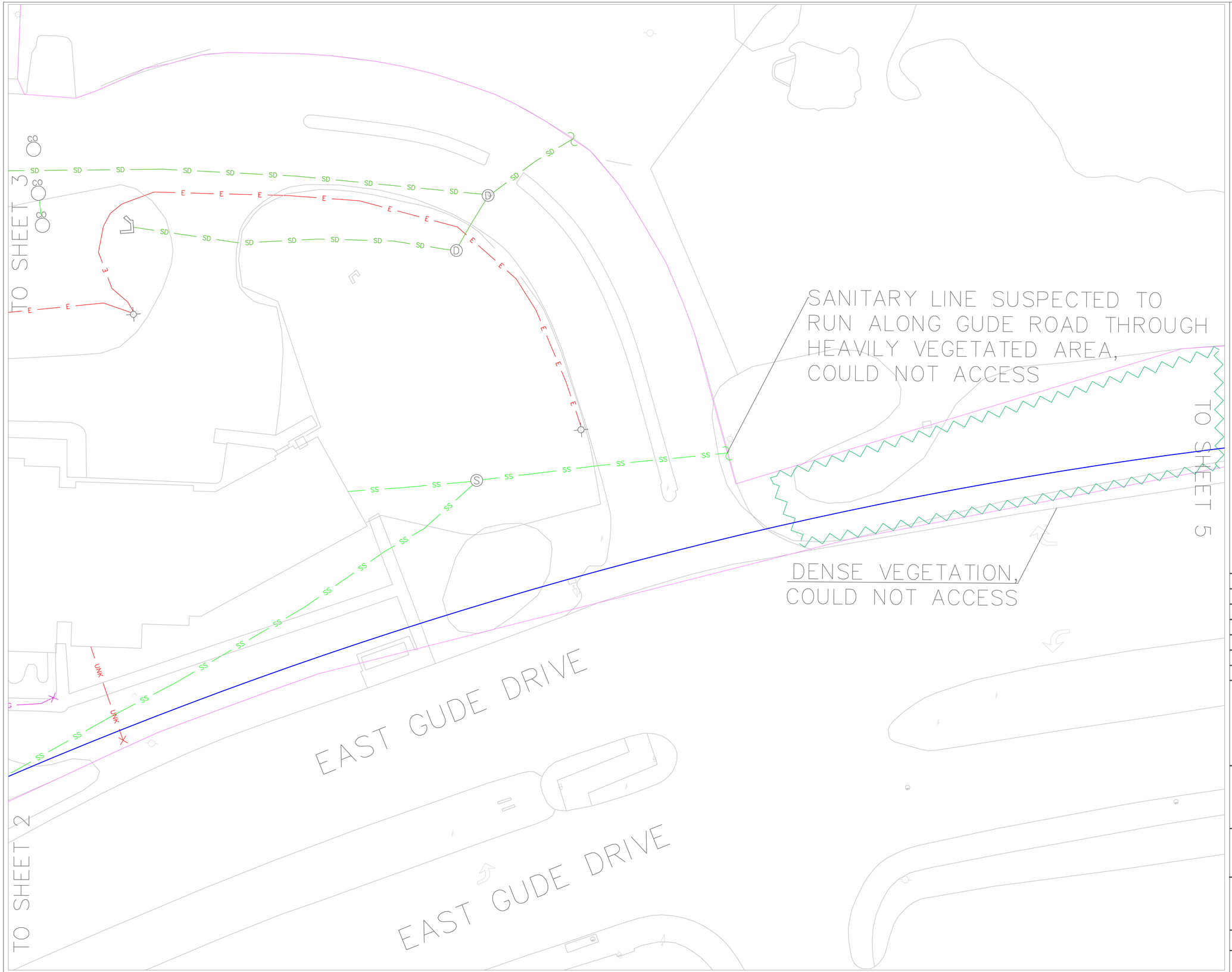

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CLIENT:
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SITE:
Gude Landfill
600 East Gude Drive
Rockville, MD

UNDERGROUND UTILITY PLAN SE OF SHEET 2 NE OF EAST GUDE DRIVE

SIZE	SCALE:	SHEET	REV
D	1"=15'	4 OF 11	6

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- CO — CLEANOUT
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2	6/20/18	REVISION 1	IH / CY
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REVISIONS

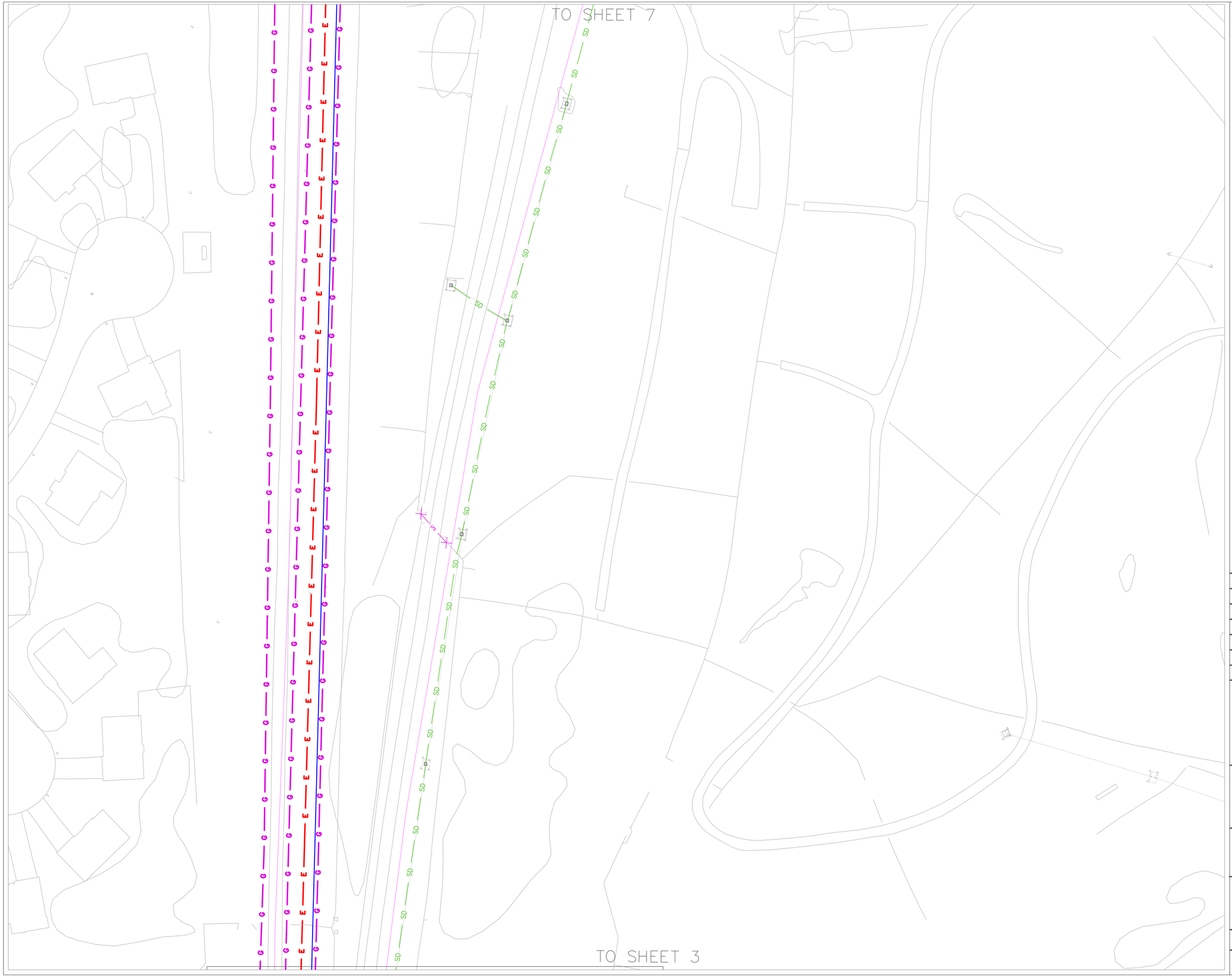
master locators
675 Concord Road
Glen Mills, PA 19342
Phone: 610-358-0172

CLIENT:
EA Engineering

SITE:
Gude Landfill
600 East Gude Drive
Rockville, MD

UNDERGROUND UTILITY PLAN SE OF SHEET 4, NE OF EAST GUDE DRIVE

SIZE	SCALE:	SHEET	REV
D	1"=15'	5 OF 11	6



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Rockville, MD

UNDERGROUND UTILITY PLAN
NE OF SHEET 3

SIZE	SCALE:	SHEET	REV
D	1"=40'	6 OF 11	6

TO SHEET 8

STORM CULVERTS RUN UNDER ROAD

GAS LINES CONTINUE ABOVEGROUND AFTER THESE POINTS

TO SHEET 6

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UNDERGROUND UTILITY PLAN
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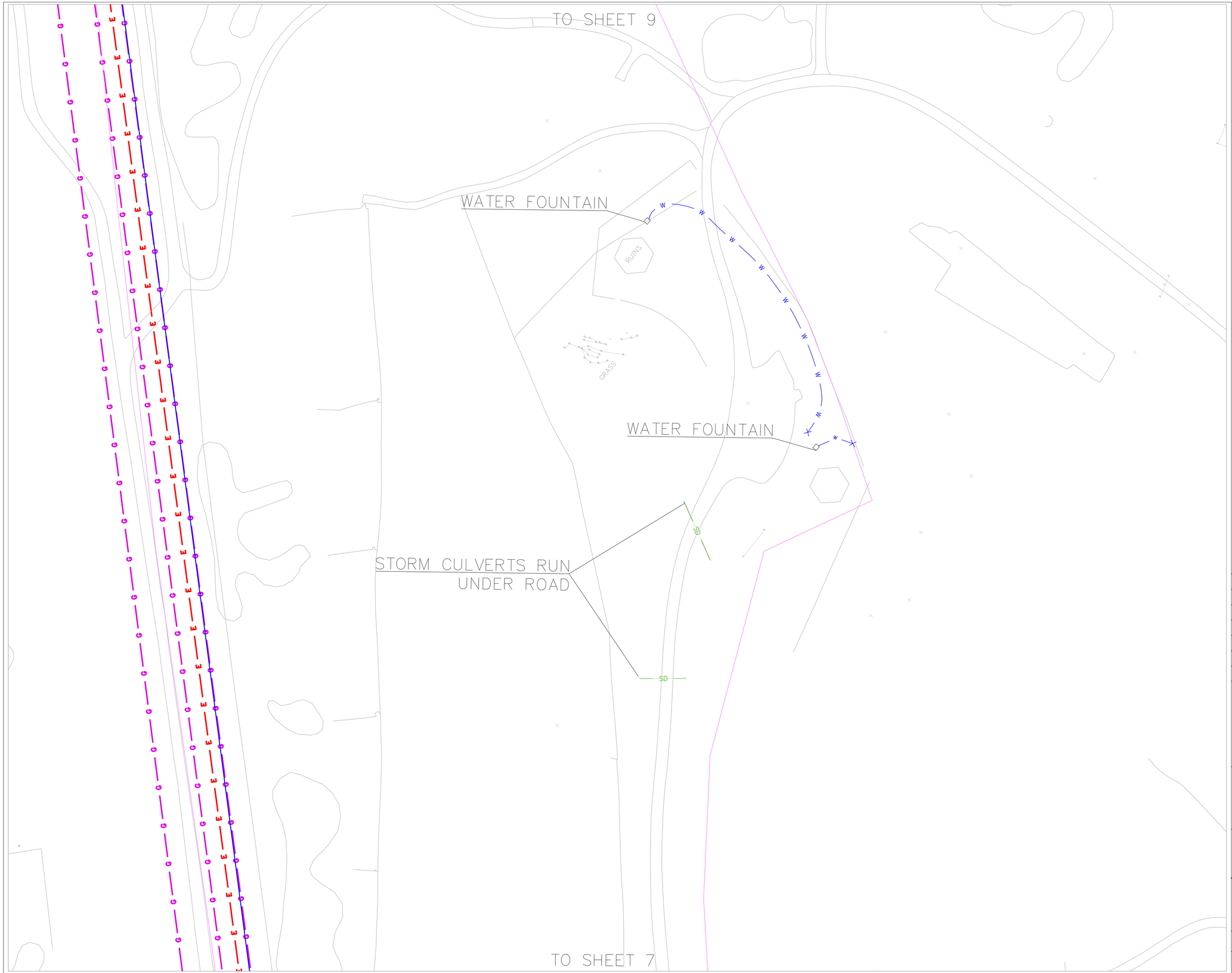
D	1"=40'	7 OF 11	6



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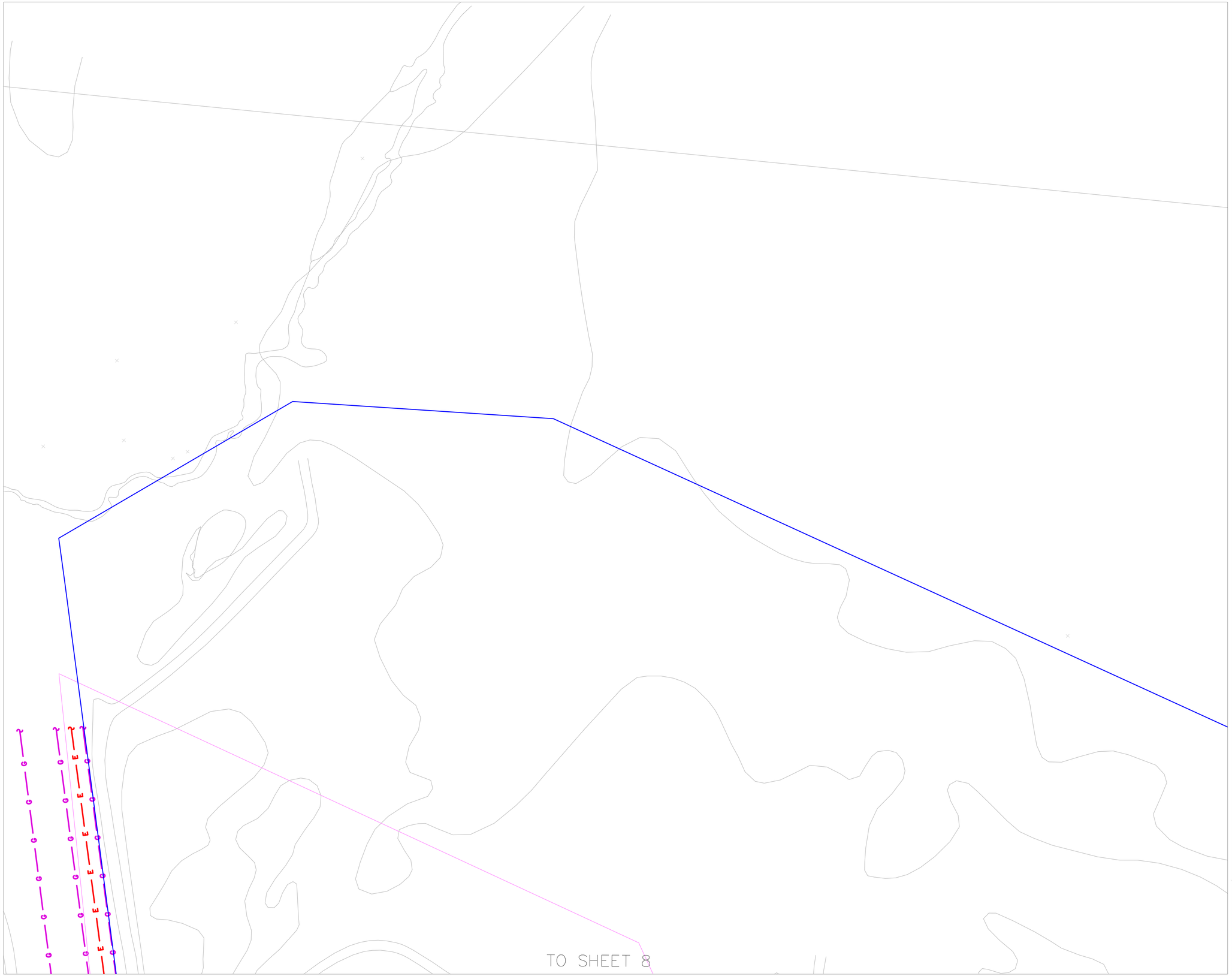
UNDERGROUND UTILITY PLAN
NE OF SHEET 7

SIZE	SCALE:	SHEET	REV
D	1"=40'	8 OF 11	6



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master locators
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Phone: 610-358-0172

CLIENT:

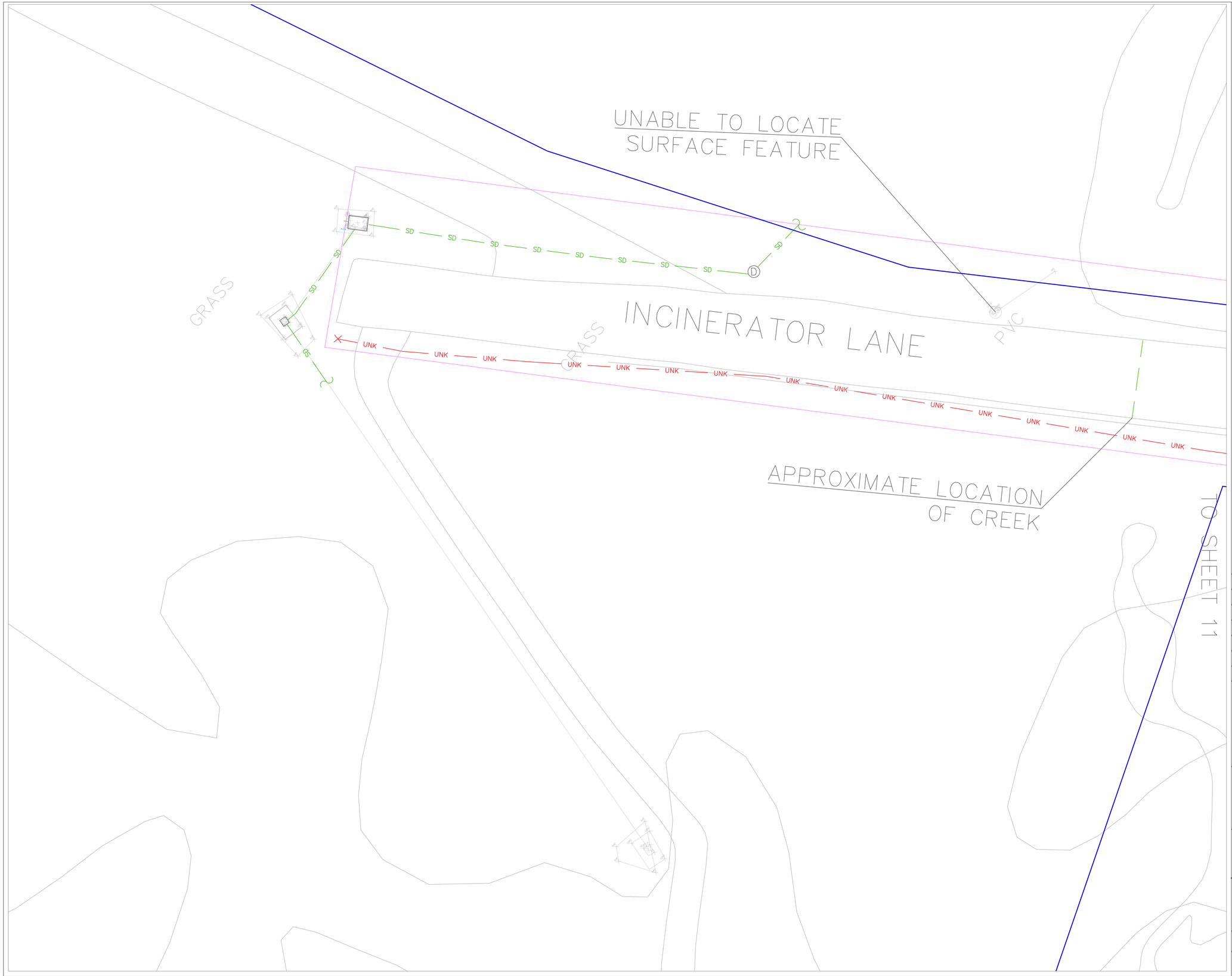
EA Engineering

SITE:

Gude Landfill — 600 East Gude Drive, Rockville, MD

UNDERGROUND UTILITY PLAN
NE OF SHEET 8

SIZE	SCALE:		REV
D	1"=40'	SHEET 9 OF 11	6



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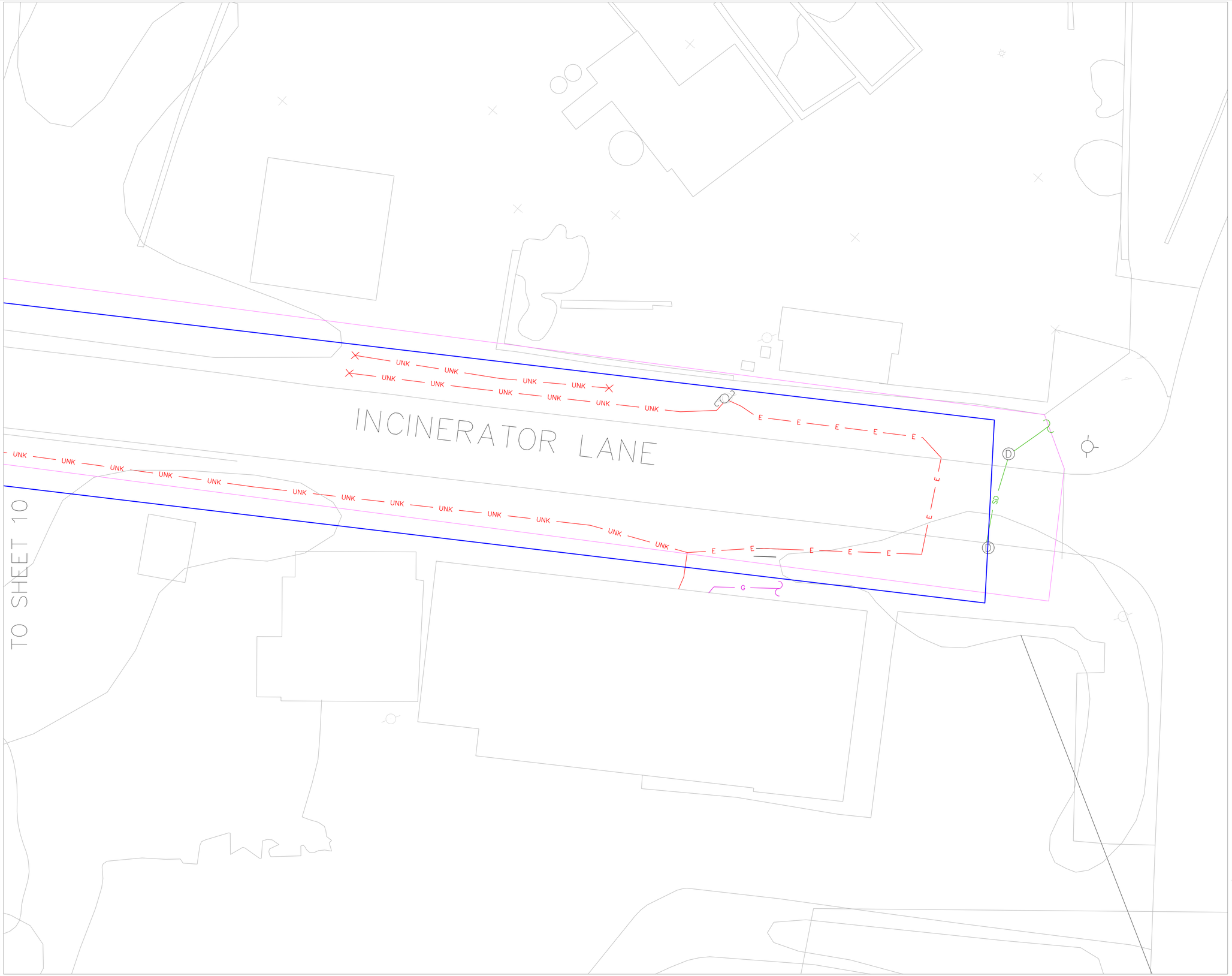
SITE:

Gude Landfill — 600 East Gude Drive, Rockville, MD

UNDERGROUND UTILITY PLAN
NORTH SIDE OF AREA 2
INCINERATOR ROAD

SIZE	SCALE:	SHEET	REV
D	1"=15'	SHEET 10 OF 11	6



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UNDERGROUND UTILITY PLAN
SOUTH SIDE OF AREA 2
INCINERATOR ROAD

SIZE	SCALE:	SHEET	REV
D	1"=15'	11 OF 11	6

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Attachment C

Geotechnical Evaluation

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September 10, 2018

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

RE: Geotechnical Evaluation
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. 23261, Expiration Date: 06/25/2020

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

Joseph F. Whittle Jr., P.G., P.E.
Chief Engineer

STATE OF MARYLAND
JOSEPH F. WHITTLE JR.
No. 23261
PROFESSIONAL ENGINEER

9/10/2018

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PLATES

APPENDICES

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 Reuse	The existing site cap fill soils are expected to be suitable for 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 National Geologic Map Database 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 assumed 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

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.

Table 2 – Environmental Monitoring Results

Test Pit	O_2 (%)	LEL (%)	Test Pit	O_2 (%)	LEL (%)	Test Pit	O_2 (%)	LEL (%)
TP-200	20.9	0	TP-243	20.3	0	TP-286	20.9	0
TP-201	20.9	0	TP-244	20.6	0	TP-287	20.9	0
TP-202	20.9	0	TP-245	20.9	0	TP-288	20.9	0
TP-203	20.9	0	TP-246	20.9	0	TP-289	20.9	0
TP-204	20.9	0	TP-247	20.9	0	TP-290	20.9	0
TP-205	20.9	0	TP-248	20.9	0	TP-291	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	20.9	0	TP-251	20.9	0	TP-294	20.9	0
TP-209	20.9	0	TP-252	20.9	0	TP-295	20.9	0
TP-210	20.9	0	TP-253	20.9	0	TP-298	20.9	0
TP-211	20.9	0	TP-254	20.9	0	TP-299	20.9	0
TP-212	20.9	0	TP-255	20.9	0	TP-301	20.9	0

Notes: O_2 = Oxygen; LEL = Lower Explosive limit

Table 2 – Environmental Monitoring Results (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

Boring	Sample Depth (ft)	USCS Class.	In-Place Moisture (%)	Atterberg Limits			- #200 Sieve (%)	Modified Proctor [1]	
				LL	PL	PI		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
[1]Adjusted precipitation to reflect rainfall only (excludes frozen precipitation- pellets, sleet and hail).
*Not reported

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.

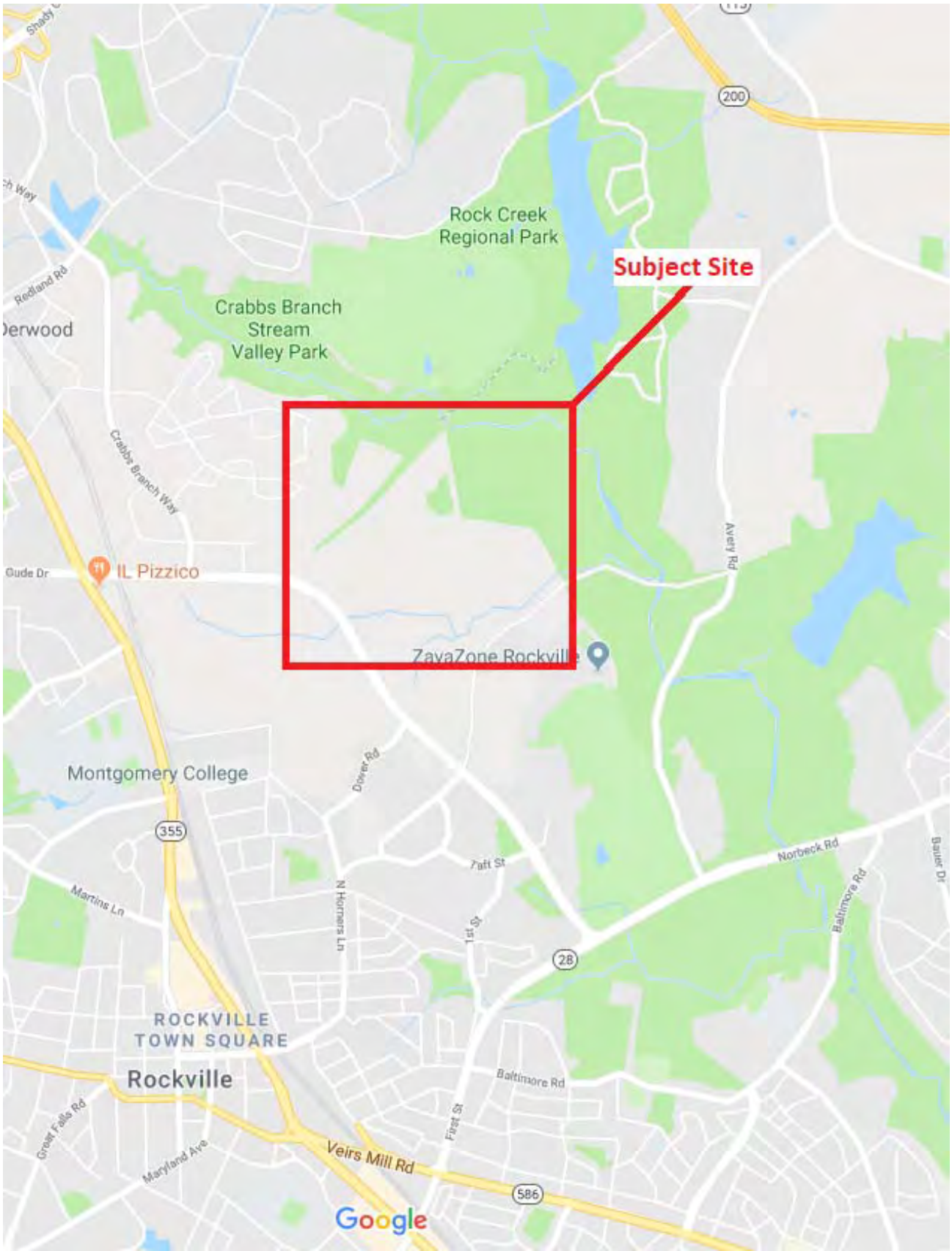
6.0 GEOTECHNICAL OBSERVATION AND TESTING

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.

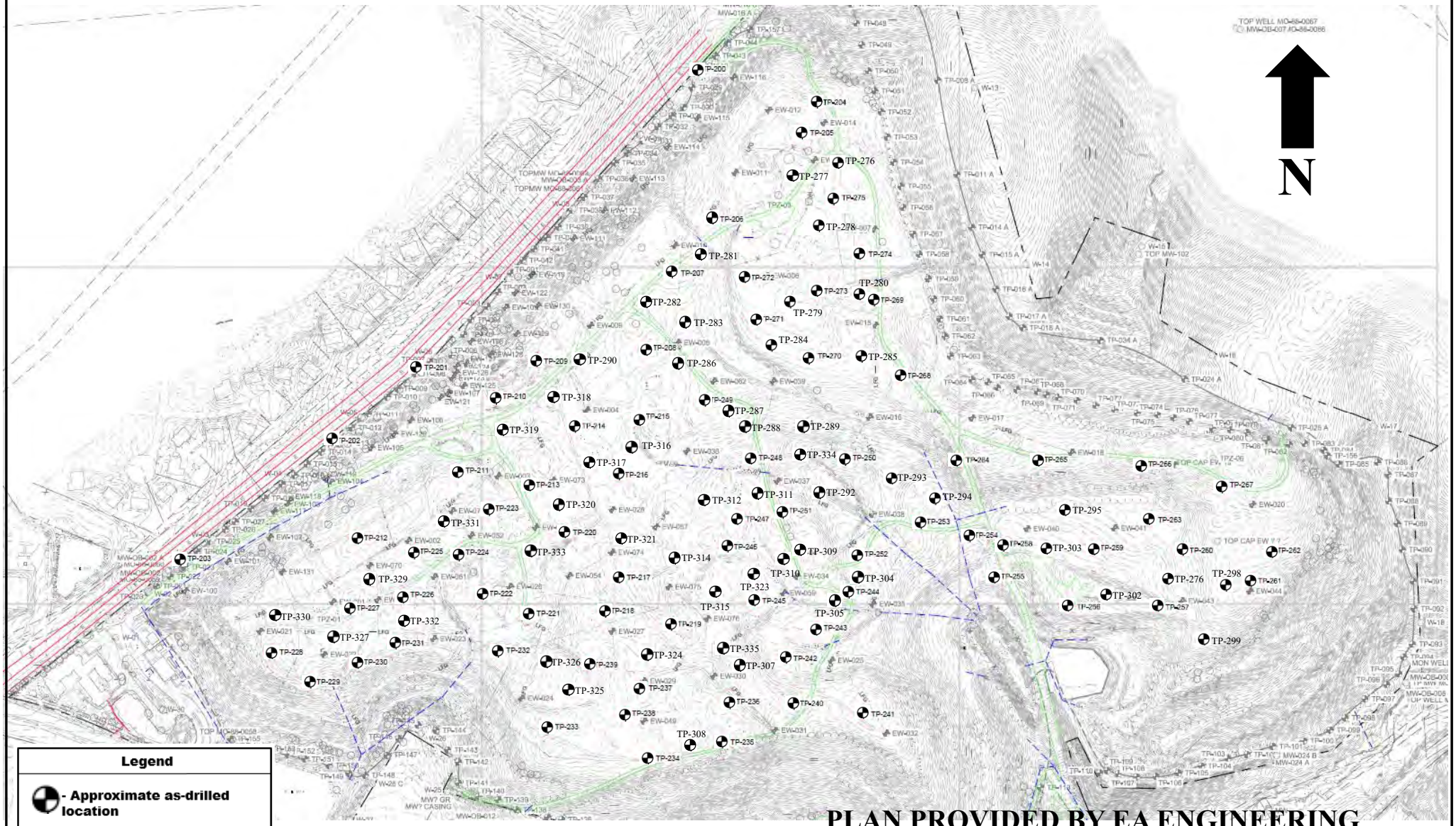
7.0 GENERAL COMMENTS

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.



Gude Landfill **Rockville, MD** THE ROBERT B. BALTER COMPANY® Geotechnical and Geo-environmental Engineers	**Site Vicinity Map**		**Project No.** **16943-0**
	Scale: None	**Date: Sept. 2018**	**PLATE 1**



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

Gude Landfill
Rockville, MD

DRAFT BORING LOCATION PLAN

Project No. 16943-0

Date: August 2018

Plate 2

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.

COARSE GRAINED SOIL > 50% Retained on No. 200 Sieve	**GRAVEL**	0 to 5% Fines	Well Graded		**GW**	GRAVEL
			Poorly Graded		**GP**	GRAVEL
		6 to 12% Fines	Silty Fines	Well Graded	**GW-GM**	GRAVEL with Silt
				Poorly Graded	**GP-GM**	GRAVEL with Silt
			Clayey Fines	Well Graded	**GW-GC**	GRAVEL with Clay
				Poorly Graded	**GP-GC**	GRAVEL with Clay
		13 to 50% Fines	Silty Fines		**GM**	Silty GRAVEL
			Silty Clay Fines		**GC-GM**	Silty, Clayey GRAVEL
			Clayey Fines		**GC**	Clayey GRAVEL
	SAND	0 to 5% Fines	Well Graded		**SW**	SAND
			Poorly Graded		**SP**	SAND
		6 to 12% Fines	Silty Fines	Well Graded	**SW-SM**	SAND with Silt
				Poorly Graded	**SP-SM**	SAND with Silt
			Clayey Fines	Well Graded	**SW-SC**	SAND with Clay
				Poorly Graded	**SP-SC**	SAND with Clay
		13 to 50% Fines	Silty Fines		**SM**	Silty SAND
			Silty, Clayey Fines		**SC-SM**	Silty, Clayey SAND
			Clayey Fines		**SC**	Clayey SAND
FINE GRAINED SOIL ≥ 50% Passing No. 200 Sieve	**SILT & CLAY (ILL<50)**	Low Plastic Fines, PI<4	Plots below "A" line		**ML**	SILT
		Low Plastic Fines, 4≤PI≤7	Plots on or above "A" line		**CL-ML**	Silty CLAY
		Plastic Fines, PI>7	Plots on or above "A" line		**CL**	Lean CLAY
		Significant Organics, PI<4	Plots below "A" line		**OL**	Organic SILT
		Significant Organics, PI≥4	Plots on or above "A" line		**OL**	Organic CLAY
	SILT & CLAY (LL≥50)	Elastic Fines	Plots below "A" line		**MH**	Elastic SILT
		Plastic Fines	Plots on or above "A" line		**CH**	Fat CLAY
		Significant Organics	Plots below "A" line		**OH**	Organic SILT
		Significant Organics	Plots on or above "A" line		**OH**	Organic CLAY
HIGHLY ORGANIC SOIL		Dark, highly organic, decomposed vegetative tissue			**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 and 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".

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-200

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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 _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES _____

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			SM		Moist, Light Brown, Silty SAND (Fill)
					1.5
					Moist, Reddish Brown, Sandy CLAY
2.5					
			CL		
5.0					
7.5					
		Trash Not Encountered			8.0
					Bottom of test pit at 8.0 feet

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

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-201

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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 _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES _____

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
					Topsoil
0.3					
			CL		Moist, Reddish Brown, Sandy CLAY (Fill)
1.5					
					Moist, Reddish Brown, Sandy CLAY
2.5					
			CL		
5.0					
7.5					
		Trash Not Encountered			
8.0					
					Bottom of test pit at 8.0 feet

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TEST PIT TP-202

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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 _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES _____

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					0.1 Topsoil
			CL		Moist, Light Brown, Sandy CLAY (Fill)
					1.8 Moist, Red Brown, Sandy CLAY (Fill)
2.5					
5.0			CL		
7.5		Trash Not Encountered			8.0 Bottom of test pit at 8.0 feet

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TEST PIT TP-203

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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 _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES _____

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					0.1 Topsoil
			CL		Moist, Reddish Brown, Sandy CLAY (Fill)
					2.0
2.5					Moist, Reddish Brown, Sandy CLAY
5.0			CL		
7.5		Trash Not Encountered			8.0
					Bottom of test pit at 8.0 feet

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TEST PIT TP-204

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.11148 Long: -77.13783

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
4.0				Trash
4.5				Bottom of test pit at 4.0 feet

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TEST PIT TP-205

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.11118 Long: -77.13796

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				Moist, Light Brown, Silty SAND
2.5		SM		
5.0				5.0
				Trash
				5.5
				Bottom of test pit at 5.5 feet

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TEST PIT TP-206

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.11053 Long: -77.13894

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-207

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.11008 Long: -77.13921

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				Bottom of test pit at 2.5 feet

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TEST PIT TP-208

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10939 Long: -77.13972

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
			SM		Moist, Light Brown, Silty SAND
2.5					
5.0					5.0
					Trash
					6.0
					Bottom of test pit at 6.0 feet

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TEST PIT TP-209

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10926 Long: -77.14083

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM	F / F	Moist, Light Brown, Silty SAND
0.9				Trash
1.5				Bottom of test pit at 1.5 feet

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TEST PIT TP-210

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10896 Long: -77.14148

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				Trash
				4.0
				Bottom of test pit at 4.0 feet

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TEST PIT TP-211

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10841 Long: -77.14166

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.7				Trash
2.3				Bottom of test pit at 2.3 feet

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TEST PIT TP-212

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10788 Long: -77.14278

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.7				Trash
2.5				Bottom of test pit at 2.5 feet

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TEST PIT TP-213

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10826 Long: -77.1409

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				Bottom of test pit at 3.2 feet
3.2				

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TEST PIT TP-214

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10877 Long: -77.14042

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.5
				Bottom of test pit at 3.5 feet

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TEST PIT TP-215

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10899 Long: -77.13973

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Light Brown, Sandy SILT
2.5			ML		
5.0					
					5.3
					Trash
					6.5
					Bottom of test pit at 6.5 feet

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TEST PIT TP-216

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10851 Long: -77.13996

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				
2.5				Trash
3.5				Bottom of test pit at 3.5 feet

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TEST PIT TP-217

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10756 Long: -77.13993

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
4.0				Trash
4.7				Bottom of test pit at 4.7 feet

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TEST PIT TP-218

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10719 Long: -77.14022

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.0				Trash
5.0				Bottom of test pit at 5.0 feet

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TEST PIT TP-219

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10721 Long: -77.1394

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.3				Trash
5.0				Bottom of test pit at 5.0 feet

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TEST PIT TP-220

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10789 Long: -77.14055

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.3
				Bottom of test pit at 3.3 feet

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TEST PIT TP-221

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10726 Long: -77.14095

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.3				Trash
1.7				Bottom of test pit at 1.7 feet

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TEST PIT TP-222

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10736 Long: -77.14129

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.0				Bottom of test pit at 2.0 feet

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TEST PIT TP-223

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10799 Long: -77.14142

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM	F F	Moist, Light Brown, Silty SAND
0.9				Trash
2.0				Bottom of test pit at 2.0 feet

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TEST PIT TP-224

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10762 Long: -77.14197

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				Bottom of test pit at 2.7 feet
2.7				

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TEST PIT TP-225

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10778 Long: -77.14199

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM	F	Moist, Light Brown, Silty SAND
0.3				Trash
1.7				Bottom of test pit at 1.7 feet

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TEST PIT TP-226

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10732 Long: -77.14234

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.0				Bottom of test pit at 2.1 feet

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TEST PIT TP-227

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10709 Long: -77.14275

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				Bottom of test pit at 2.5 feet

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TEST PIT TP-228

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.1069 Long: -77.14385

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		Moist, Light Brown, Sandy SILT
2.5					
					3.5
					Trash
					4.0
					Bottom of test pit at 4.0 feet

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TEST PIT TP-229

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10657 Long: -77.1433

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
5.3				Trash
5.7				Bottom of test pit at 5.7 feet

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TEST PIT TP-230

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10674 Long: -77.14291

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
			2.7	
				Trash
			4.0	
				Bottom of test pit at 4.0 feet

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TEST PIT TP-231

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10682 Long: -77.14237

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Light Brown, Silty SAND
2.5			ML		
5.0					5.0
					Trash
					5.5
					Bottom of test pit at 5.5 feet

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TEST PIT TP-232

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10691 Long: -77.1414

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.3
				Bottom of test pit at 3.3 feet

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TEST PIT TP-233

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10613 Long: -77.14079

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.2				Trash
2.5				
3.5				Bottom of test pit at 3.5 feet

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TEST PIT TP-234

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10595 Long: -77.13967

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.3				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-235

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10613 Long: -77.13878

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				Bottom of test pit at 2.7 feet

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TEST PIT TP-236

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10645 Long: -77.13873

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
			2.7	
				Trash
			3.0	
				Bottom of test pit at 3.0 feet

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TEST PIT TP-237

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10652 Long: -77.1396

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.0				Bottom of test pit at 4.1 feet

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TEST PIT TP-238

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10627 Long: -77.13977

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.7				Trash
2.5				Bottom of test pit at 2.7 feet
2.7				

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TEST PIT TP-239

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/18/18 **COMPLETED** 7/18/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10656 Long: -77.14034

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/18/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
3.8				Trash
5.0				Bottom of test pit at 5.0 feet

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TEST PIT TP-240

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: N/A Long: N/A

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-241

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.10637 Long: -77.13711

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			ML		Moist, Light Brown, Sandy SILT
2.5					
					3.0
					3.3 Trash
					Bottom of test pit at 3.0 feet

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TEST PIT TP-242

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
GROUND ELEVATION _____ **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR The Robert B. Balter Company
EXCAVATION METHOD _____
LOGGED BY J. Bailey **CHECKED BY** K. Crist
NOTES Lat: 39.1065 Long: -77.13825

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
			3.0	
			3.3	Trash
				Bottom of test pit at 3.0 feet

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TEST PIT TP-243

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10665 Long: -77.13783

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.3				Trash
2.3				Bottom of test pit at 2.3 feet

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TEST PIT TP-244

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10739 Long: -77.13747

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.0				Trash
1.3				Bottom of test pit at 1.4 feet

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TEST PIT TP-245

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10734 Long: -77.13841

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.3				Trash
2.5				
3.3				Bottom of test pit at 3.3 feet

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TEST PIT TP-246

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10779 Long: -77.13878

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
3.8				Trash
5.2				Bottom of test pit at 6.2 feet
2.5				
5.0				

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TEST PIT TP-247

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10806 Long: -77.13856

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.3				
3.5				Trash
				Bottom of test pit at 3.6 feet

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TEST PIT TP-248

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10856 Long: -77.1384

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.0				Bottom of test pit at 2.0 feet

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TEST PIT TP-249

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10801 Long: -77.13895

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.5
				Bottom of test pit at 3.5 feet

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TEST PIT TP-250

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10853 Long: -77.13708

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.8				Trash
2.0				Bottom of test pit at 2.0 feet

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TEST PIT TP-251

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10802 Long: -77.13806

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.0				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-252

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10769 Long: -77.13729

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.0				Bottom of test pit at 2.0 feet

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TEST PIT TP-253

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10805 Long: -77.1365

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			SM		Moist, Light Brown, Silty SAND
5.5					Trash
7.0					

Bottom of test pit at 10.0 feet

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

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TEST PIT TP-254

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107852 Long: -77.13603

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				
			0.3	Topsoil
		SM		Moist, Reddish Brown, Silty SAND with Gravel (Fill)
2.5				
			3.9	
				Trash
			4.3	
				Bottom of test pit at 4.3 feet

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TEST PIT TP-255

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				Topsoil
			0.3	
		SM		Moist, Brown, Silty SAND with Gravel And Boulders
2.5				
			3.3	
			3.5	Trash
				Bottom of test pit at 3.3 feet

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TEST PIT TP-256

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107207 Long: -77.135056

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				Topsoil
			0.3	
		SM		Moist, Brown, Silty SAND with Gravel
2.5				
			4.8	
5.0				Trash
			6.5	
				Bottom of test pit at 6.5 feet

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TEST PIT TP-257

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.10724 Long: -77.134086

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				
		SM		0.1 Topsoil Dry, Brown, Silty SAND with Gravel
				1.9 Trash
2.5				3.0 Bottom of test pit at 3.0 feet

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TEST PIT TP-258

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107704 Long: -77.135629

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Topsoil
					0.5
			ML		Moist, Brown, Sandy SILT
2.5					
					4.0
					Trash
					4.5
					Bottom of test pit at 4.5 feet

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TEST PIT TP-259

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107749 Long: -77.134712

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Topsoil
				0.3	
			ML		Moist, Brown, Sandy SILT
2.5					
5.0					
				6.0	
					Trash
				6.9	
					Bottom of test pit at 6.8 feet

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TEST PIT TP-260

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.10566 Long: -77.13373

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Brown, SIlty SAND
2.5				
4.0				Trash
4.5				Bottom of test pit at 4.6 feet

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TEST PIT TP-261

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.10746 Long: -77.133188

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
5.0				
6.0				Trash
6.5				Bottom of test pit at 6.5 feet

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TEST PIT TP-262

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107675 Long: -77.133093

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Brown, Silty SAND
2.0				Trash
2.5				
3.8				Bottom of test pit at 3.8 feet

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TEST PIT TP-263

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.107969 Long: -77.134034

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Topsoil
0.5					Moist, Brown, Silty SAND
2.5			SM		
5.0					
6.0					Trash
7.5					
10.0					

Bottom of test pit at 10.0 feet

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TEST PIT TP-264

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.108534 Long: -77.136183

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Brown, Silty SAND with Boulders
2.5				
				3.0
				Trash
5.0				
				5.5
				Bottom of test pit at 5.5 feet

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TEST PIT TP-265

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.108515 Long: -77.135298

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Reddish Brown, Silty SAND
2.5				
3.0				Trash
3.7				Bottom of test pit at 3.7 feet

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TEST PIT TP-266

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.108506 Long: -77.134112

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Brown, Silty SAND
2.3				Trash
2.5				
3.2				Bottom of test pit at 3.2 feet

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TEST PIT TP-267

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
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: 39.108229 Long: -77.13338

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/16/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Brown, Silty SAND
2.0				Trash
2.5				3.0
				Bottom of test pit at 3.0 feet

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TEST PIT TP-268

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10909 Long: -77.13675

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.5
				Bottom of test pit at 3.5 feet

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TEST PIT TP-269

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10985 Long: -77.13716

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				Trash
3.5				Bottom of test pit at 3.5 feet

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Telephone No. (410) 363-1555
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TEST PIT TP-270

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10939 Long: -77.1377

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.5
				Bottom of test pit at 3.5 feet

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TEST PIT TP-271

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10966 Long: -77.13839

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.3				Bottom of test pit at 2.3 feet

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TEST PIT TP-272

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10686 Long: -77.1832

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.0		GM		Moist, Gray, Silty GRAVEL
1.5		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-273

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.10993 Long: -77.13773

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Reddish Brown, Sandy CLAY
2.5			CL		
5.0					
					6.5
					Trash
					7.0
					Bottom of test pit at 7.0 feet

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TEST PIT TP-274

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.11031 Long: -77.13718

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
4.0				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-275

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/17/18 **COMPLETED** 7/17/18
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: 39.11088 Long: -77.13745

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/17/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-276

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.11103 Long: -77.13744

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.8
				Bottom of test pit at 3.8 feet

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TEST PIT TP-277

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.11097 Long: -77.13793

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		GM		Crushed Stone
0.9		SM		Moist, Light Brown, Silty SAND
1.8				Trash
2.5				
2.7				Bottom of test pit at 2.7 feet

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TEST PIT TP-278

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.11052 Long: -77.13746

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				2.8
				Trash
				3.7
				Bottom of test pit at 3.7 feet

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TEST PIT TP-279

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10976 Long: -77.13802

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Light Brown, Silty SAND with trace amount of trash debris
2.5			SM		
5.0					
7.5					
		Trash Not Encountered			8.0
					Bottom of test pit at 8.0 feet

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TEST PIT TP-280

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10993 Long: -77.1375

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				Asphalt Debris
0.8		SM		Moist, Light Brown, Silty SAND with variable amounts of garbage
2.5				
5.0				
5.5				Trash
6.5				Bottom of test pit at 6.5 feet

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TEST PIT TP-281

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.11028 Long: -77.1391

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.8				Bottom of test pit at 4.8 feet

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TEST PIT TP-282

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10991 Long: -77.13948

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.0				Trash
5.3				Bottom of test pit at 5.3 feet

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TEST PIT TP-283

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10964 Long: -77.13941

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				Moist, Light Brown, Silty SAND
2.5		SM		
5.0				
				5.5 Trash
				7.0 Bottom of test pit at 7.0 feet

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TEST PIT TP-284

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10951 Long: -77.13799

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.8				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-285

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10952 Long: -77.13738

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.7				Bottom of test pit at 4.7 feet

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TEST PIT TP-286

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10932 Long: -77.13918

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.7
				Bottom of test pit at 3.7 feet

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Telephone No. (410) 363-1555
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TEST PIT TP-287

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.1089 Long: -77.13878

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
6.5				Trash
7.5				Bottom of test pit at 7.5 feet

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TEST PIT TP-288

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10865 Long: -77.13855

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-289

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10885 Long: -77.13804

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.3				Trash
6.5				Bottom of test pit at 6.5 feet
2.5				
5.0				

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TEST PIT TP-290

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10935 Long: -77.14033

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
			2.7	
				Trash
			3.0	
				Bottom of test pit at 3.0 feet

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TEST PIT TP-291

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10877 Long: -77.13928

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
3.5				Trash
5.0				Bottom of test pit at 5.0 feet

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TEST PIT TP-292

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10834 Long: -77.13774

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.5				
4.0				Bottom of test pit at 4.0 feet

The Robert B. Balter Company
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Telephone No. (410) 363-1555
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TEST PIT TP-293

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.1085 Long: -77.13673

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Light Brown, Silty SAND
2.5			SM		
5.0					
7.5					
		Trash Not Encountered			8.0
					Bottom of test pit at 8.0 feet

The Robert B. Balter Company
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TEST PIT TP-294

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10817 Long: -77.13632

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
4.0				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-295

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.1081 Long: -77.13471

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				
				Moist, Light Brown, Silty SAND
2.5		SM		
5.0				5.0
				Trash
				6.0
				Bottom of test pit at 6.0 feet

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TEST PIT TP-298

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.1073 Long: -77.13336

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Moist, Light Brown, Silty SAND
2.5			SM		
5.0					
7.5					
		Trash Not Encountered			8.0
					Bottom of test pit at 8.0 feet

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TEST PIT TP-299

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10701 Long: -77.13348

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				2.7
				Bottom of test pit at 2.7 feet

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TEST PIT TP-301

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10739 Long: -77.13395

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
5.8				Trash
7.0				Bottom of test pit at 7.0 feet

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TEST PIT TP-302

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10737 Long: -77.13473

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-303

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10767 Long: -77.13531

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.3				Trash
5.0				Bottom of test pit at 5.0 feet

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TEST PIT TP-304

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10749 Long: -77.13753

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.8				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-305

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.1074 Long: -77.13733

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.3				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-307

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10668 Long: -77.13871

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-308

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10613 Long: -77.13903

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
3.5				
3.7				Trash
				Bottom of test pit at 1.8 feet

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TEST PIT TP-309

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10789 Long: -77.13805

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				3.8
				Bottom of test pit at 3.8 feet

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TEST PIT TP-310

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10764 Long: -77.13807

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.0				Trash
2.5				
4.1				Bottom of test pit at 4.1 feet

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TEST PIT TP-311

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10814 Long: -77.13841

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.6				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-312

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10807 Long: -77.13892

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-314

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: N/A Long: N/A

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-315

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10742 Long: -77.139

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
				1.3
				Trash
2.5				
				3.3
				Bottom of test pit at 3.3 feet

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TEST PIT TP-317

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10847 Long: -77.14028

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.2				Trash
4.0				Bottom of test pit at 4.0 feet

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TEST PIT TP-318

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10904 Long: -77.14062

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				Trash
3.8				Bottom of test pit at 3.8 feet

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TEST PIT TP-319

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10879 Long: -77.14117

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.5				Bottom of test pit at 2.5 feet

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TEST PIT TP-320

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10809 Long: -77.14083

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.9				Trash
4.9				Bottom of test pit at 4.8 feet

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TEST PIT TP-321

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10799 Long: -77.14

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
1.5				Trash
2.5				
3.2				Bottom of test pit at 3.2 feet

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TEST PIT TP-322

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10762 Long: -77.14041

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-323

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10753 Long: -77.1384

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
4.0				Trash
5.2				Bottom of test pit at 5.2 feet

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Telephone No. (410) 363-1555
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TEST PIT TP-324

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10692 Long: -77.13959

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.2				Trash
2.5				
3.8				Bottom of test pit at 4.0 feet

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TEST PIT TP-325

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.1064 Long: -77.14037

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				Trash
				4.0
				Bottom of test pit at 4.0 feet

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TEST PIT TP-326

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10673 Long: -77.14073

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
				3.0
				Trash
				4.5
				Bottom of test pit at 4.5 feet

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TEST PIT TP-327

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10714 Long: -77.14309

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.3				Trash
4.2				Bottom of test pit at 4.2 feet

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TEST PIT TP-329

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10752 Long: -77.14253

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

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TEST PIT TP-330

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10728 Long: -77.14366

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
6.0				Trash
7.0				Bottom of test pit at 7.0 feet

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TEST PIT TP-331

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10803 Long: -77.14175

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.2				Bottom of test pit at 4.2 feet

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TEST PIT TP-332

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10711 Long: -77.1423

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
3.5				Trash
4.5				Bottom of test pit at 4.5 feet

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TEST PIT TP-333

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10778 Long: -77.1409

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.0				Trash
2.5				
3.3				Bottom of test pit at 3.3 feet

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TEST PIT TP-334

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/19/18 **COMPLETED** 7/19/18
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: 39.10849 Long: -77.13795

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/19/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.5				
5.0				
				5.5
				Trash
				6.0
				Bottom of test pit at 6.0 feet

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TEST PIT TP-335

CLIENT EA Engineering, Inc.
PROJECT NAME Gude Landfill
PROJECT LOCATION Montgomery County, Maryland
PROJECT NUMBER 16943-0 MD
DATE STARTED 7/20/18 **COMPLETED** 7/20/18
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: 39.10695 Long: -77.13868

WATER LEVELS

DATE	TIME	ELAPSED HOURS	CASING DEPTH (ft)	HOLE DEPTH (ft)	WATER DEPTH (ft)	WATER ELEV (ft)
7/20/18		0 ▽			NE	

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0		SM		Moist, Light Brown, Silty SAND
2.3				Trash
2.5				
3.0				Bottom of test pit at 3.0 feet

APPENDIX B

LABORATORY TEST RESULTS

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SUMMARY OF LABORATORY RESULTS

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/31/2018

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	
TP-273	0.0' - 2.0'	BULK	30	6	25	49	A-4	SM	24.3	121.7	12.0	

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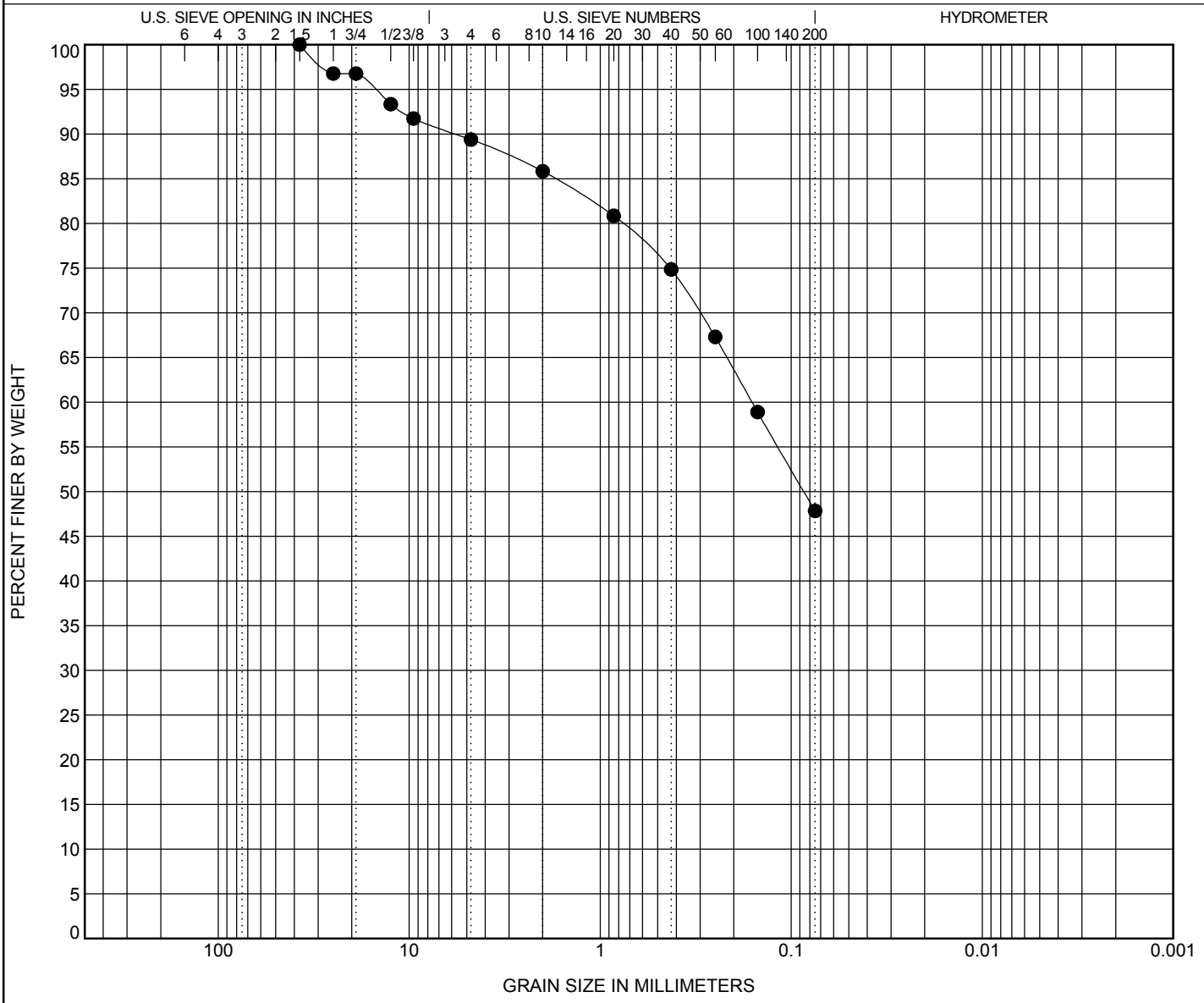
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	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**	

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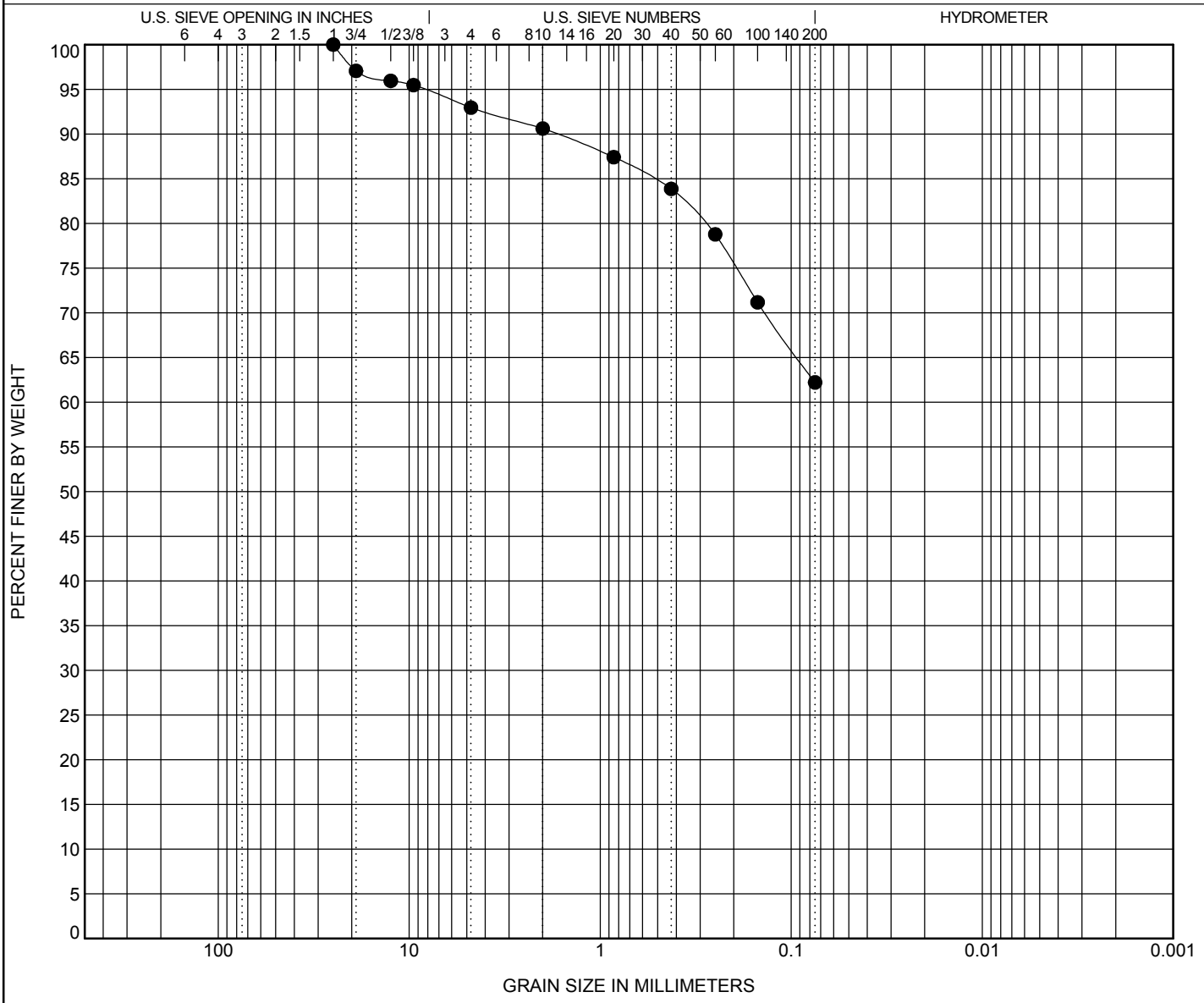
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**TP-215, BULK**	**Reddish Brown SANDY SILT(ML) {A-6, GI=5}**	**36**	**25**	**11**		

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-215, BULK**	**25**				**7.1**	**30.7**	**62.2**	

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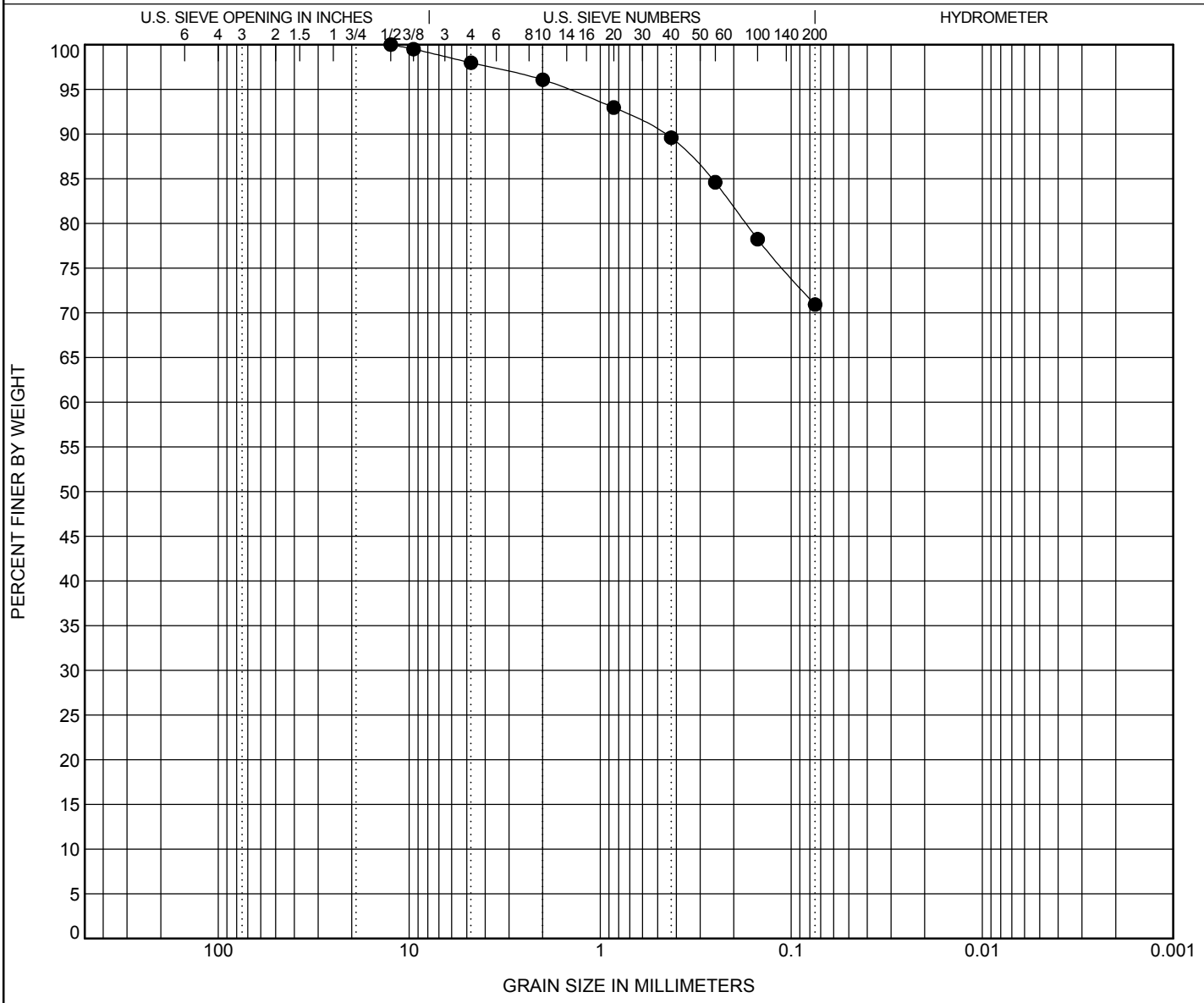
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**				**2.0**	**27.0**	**70.9**	

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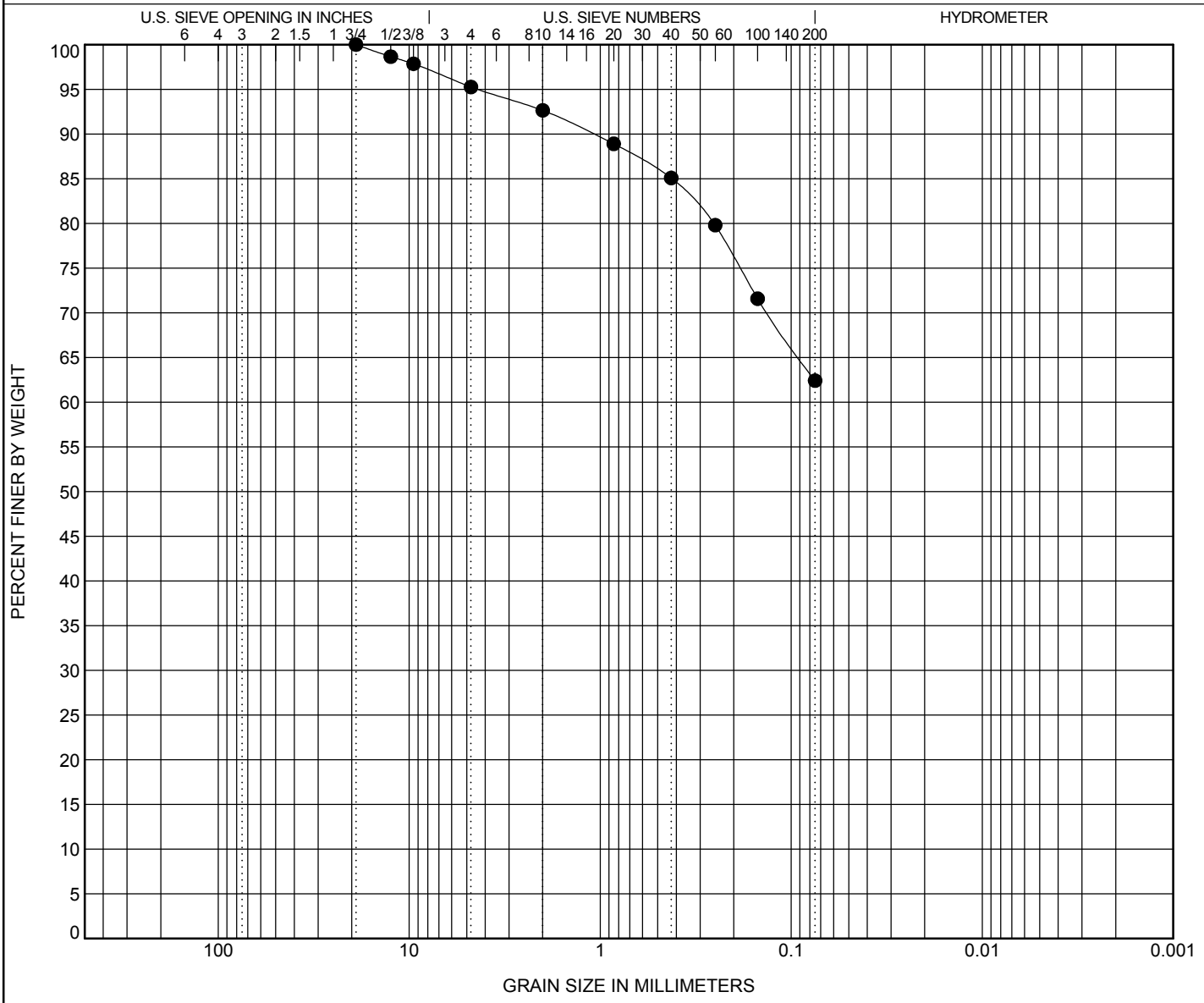
TEST METHOD ASTM D422

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/29/2018



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**				**4.7**	**32.9**	**62.4**	

COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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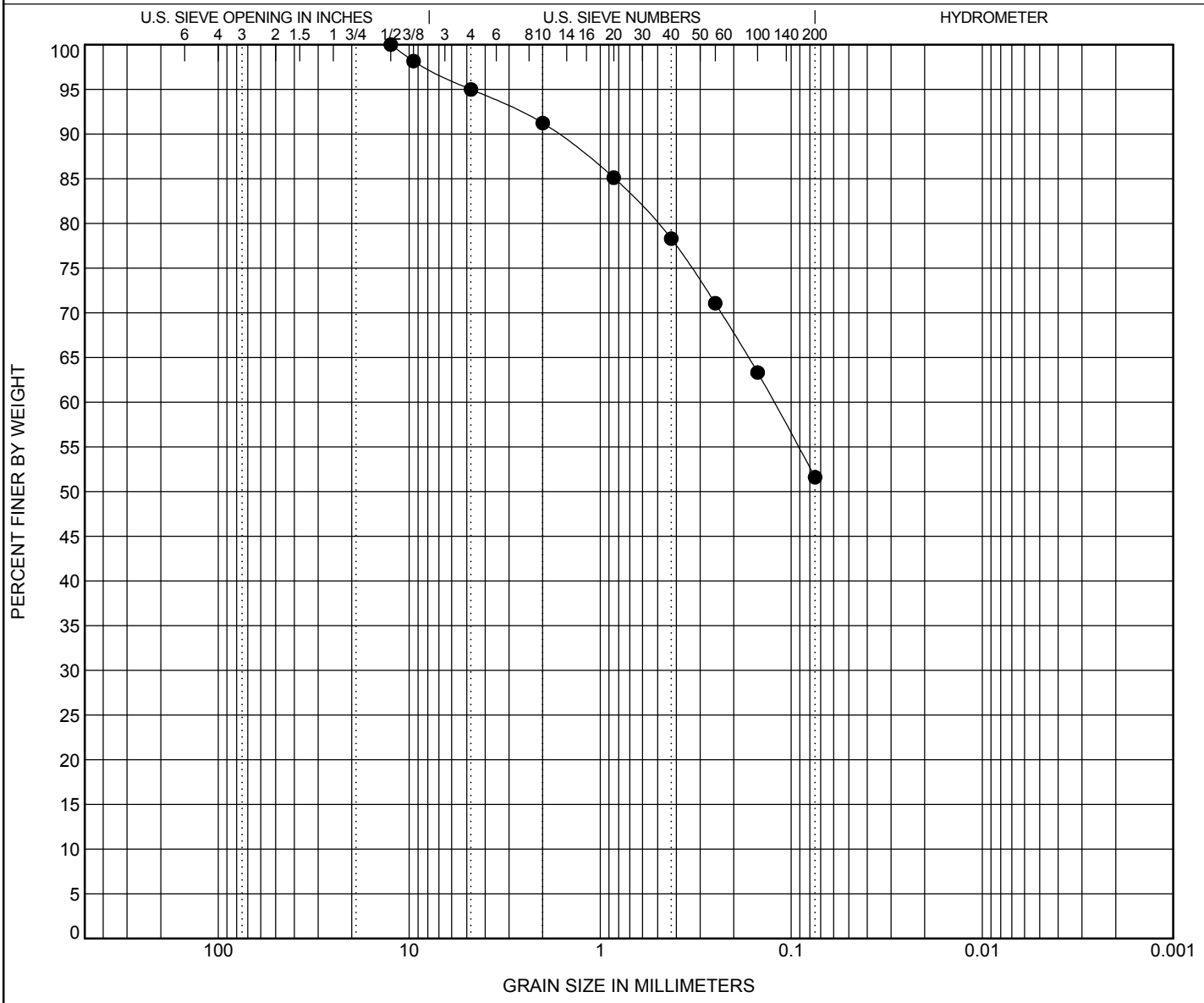
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**	

COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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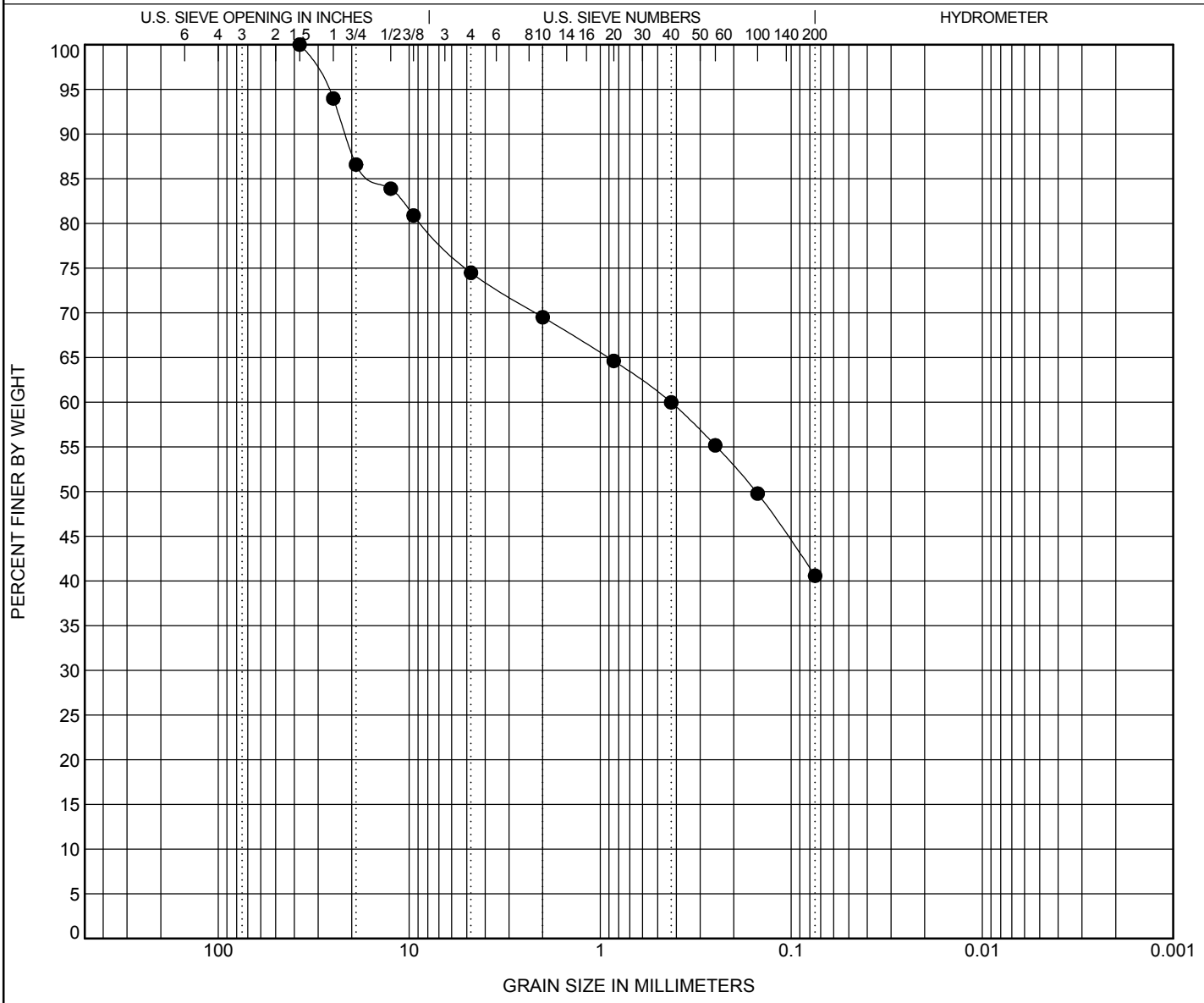
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**	

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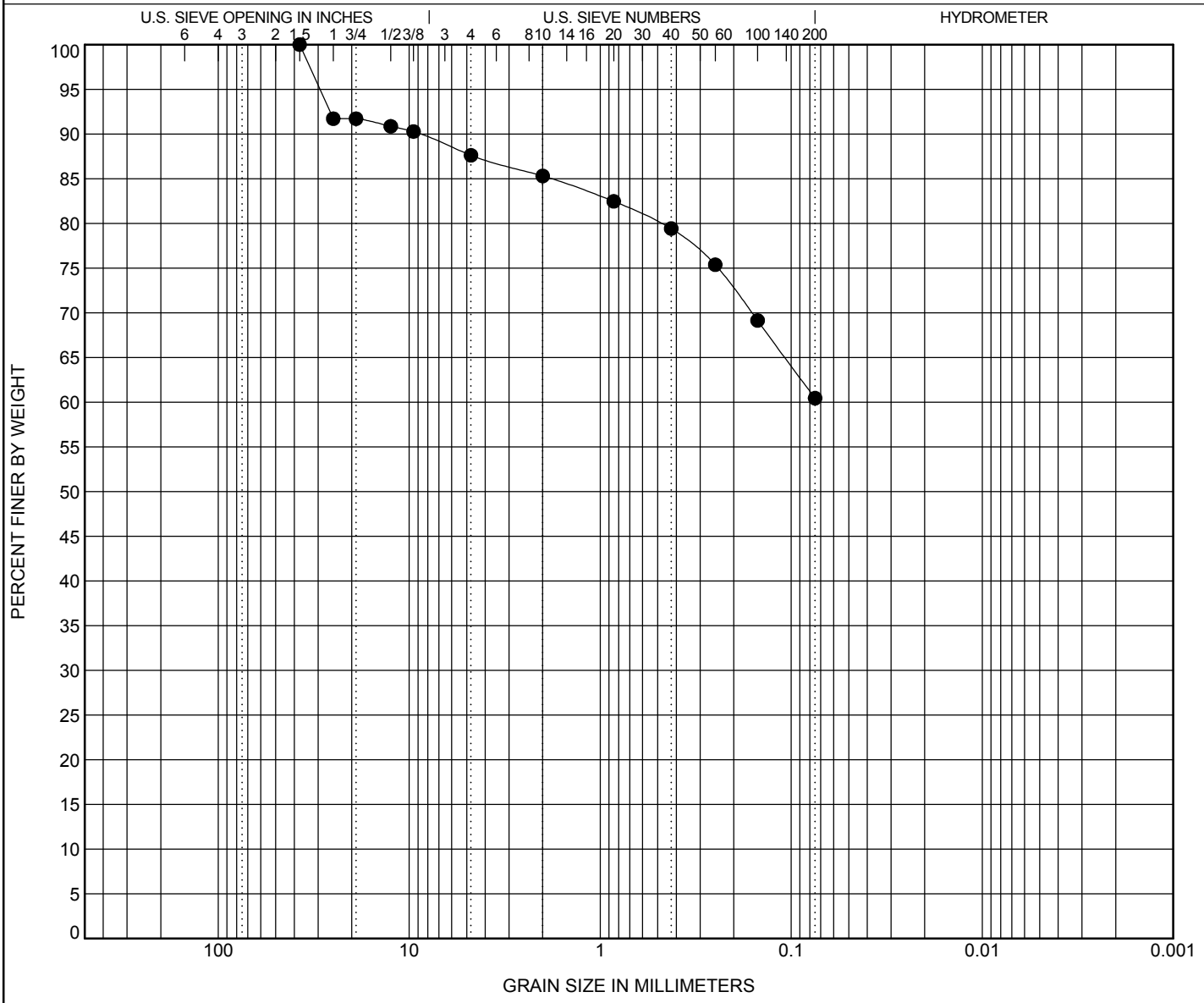
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**	

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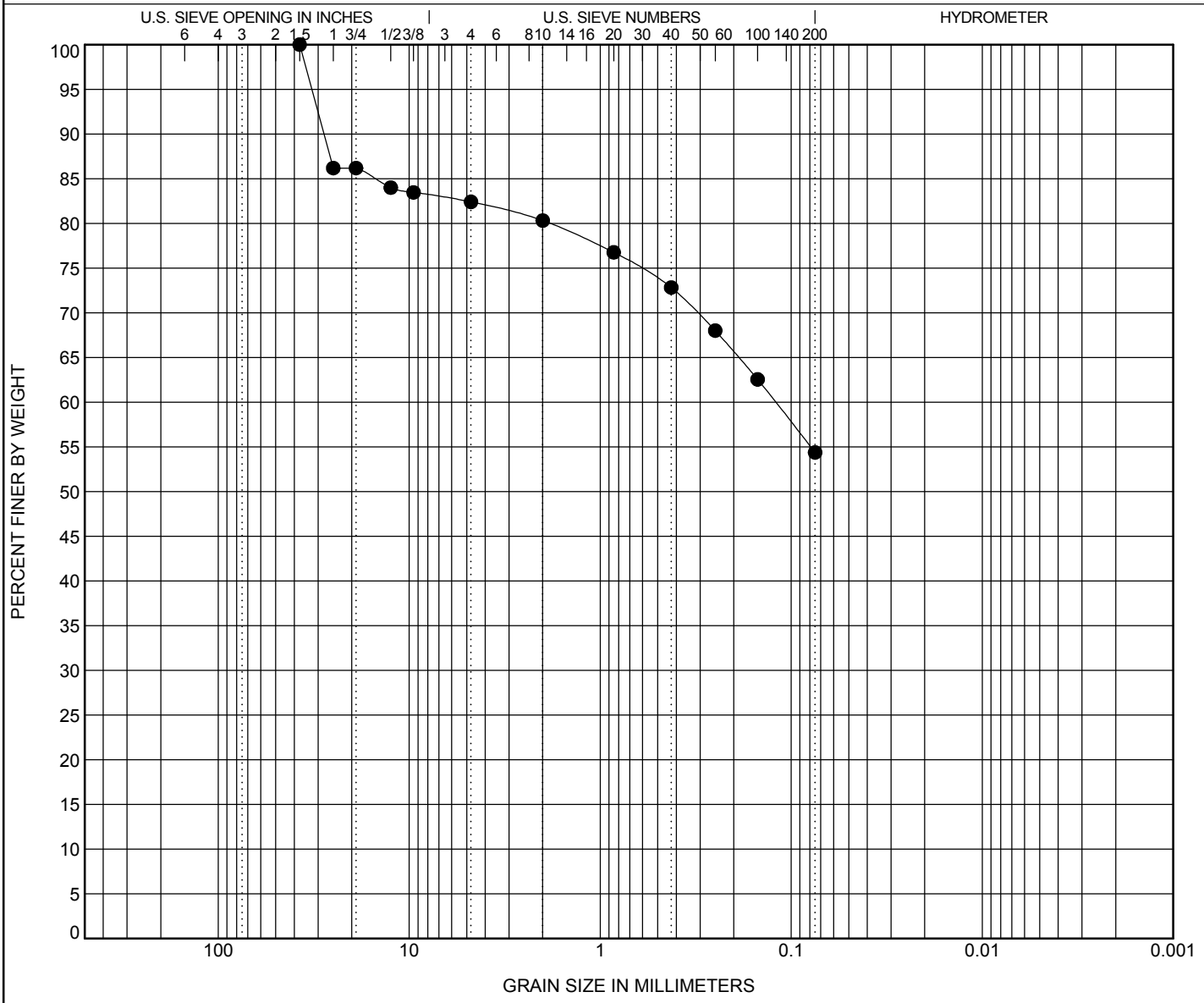
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**	

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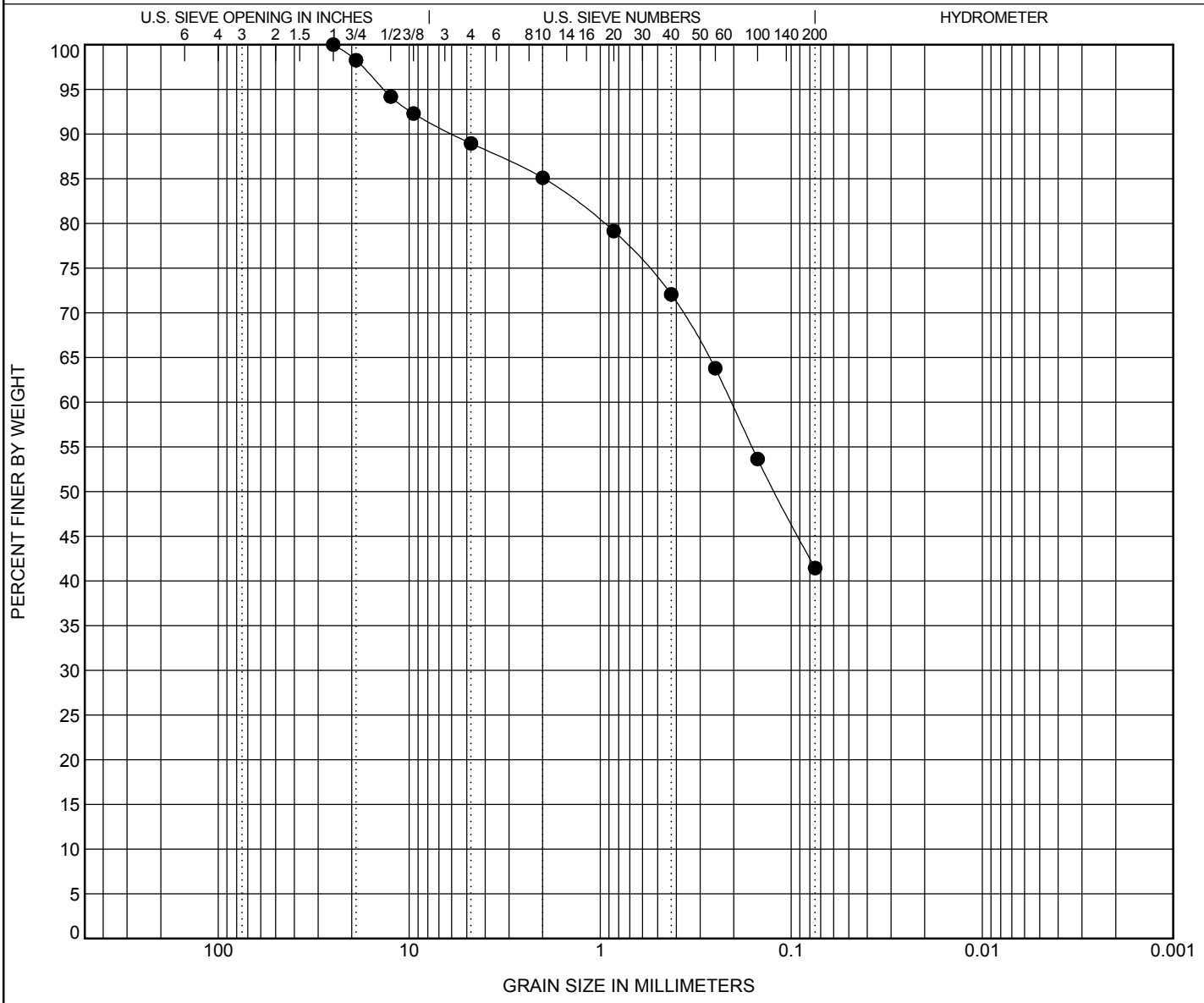
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	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**	

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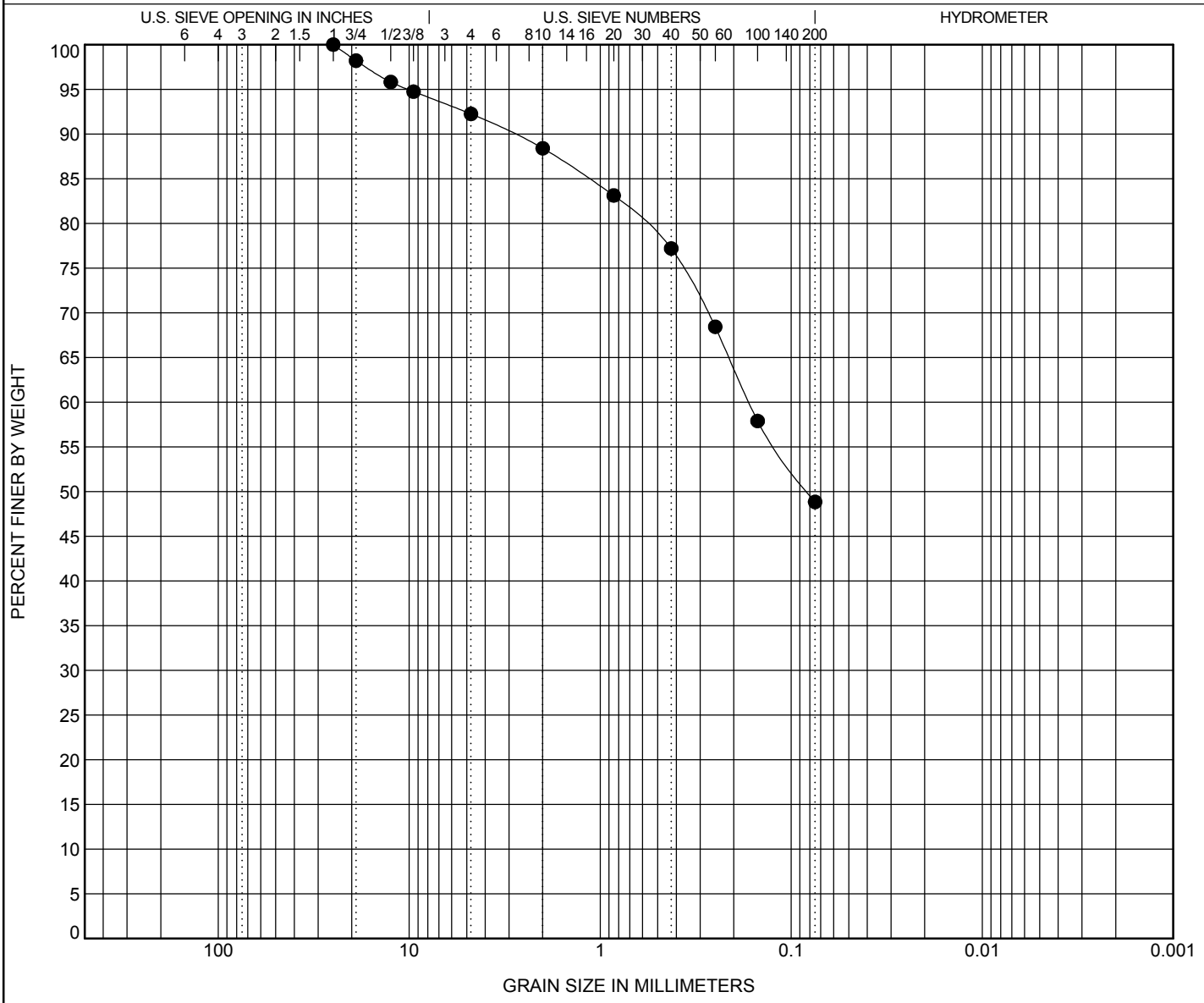
GRAIN SIZE DISTRIBUTION

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



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Classification	LL	PL	PI	Cc	Cu
●	**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**	

COPY OF GRAIN SIZE ASTM AND AASHTO 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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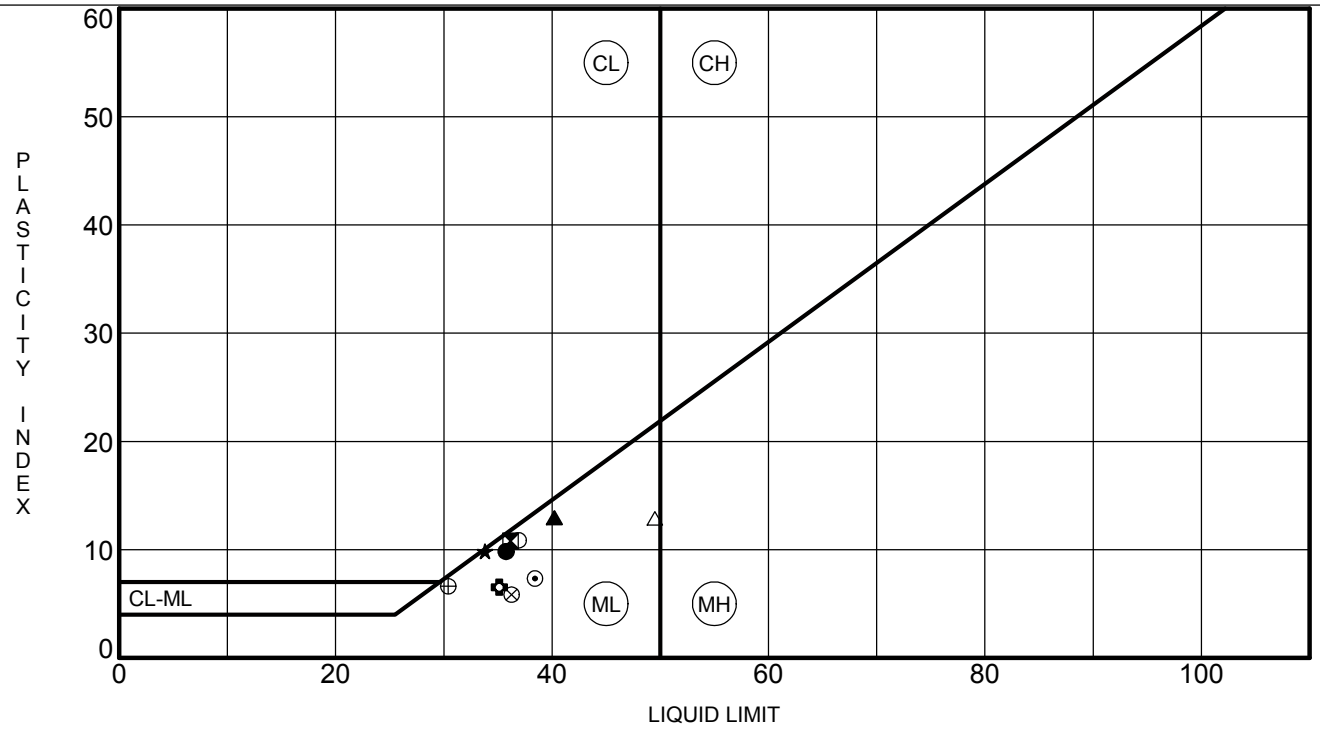
ATTERBERG LIMITS' RESULTS

TEST METHOD ASTM D4318

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/27/2018



	Specimen Identification	LL	PL	PI	Fines	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	71	Yellowish Red SILT with SAND(ML) {A-6, GI=9}
★	TP-231, BULK @ 0.0' - 2.0',	34	24	10	62	Yellowish Red SANDY SILT(ML) {A-4, GI=5}
⊙	TP-241, BULK @ 0.0' - 2.0',	38	31	7	52	Yellowish Red SANDY SILT(ML) {A-4, GI=2}
✿	TP-253, BULK @ 0.0' - 2.0',	35	29	6	41	Brown SILTY SAND with GRAVEL(SM) {A-4, GI=0}
○	TP-258, BULK @ 0.0' - 2.0',	37	26	11	60	Reddish Brown SANDY SILT(ML) {A-6, GI=5}
△	TP-259, BULK @ 0.0' - 2.0',	49	37	12	54	Brown SANDY SILT with GRAVEL(ML) {A-7-5, GI=5}
⊗	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	49	Red SILTY SAND(SM) {A-4, GI=1}

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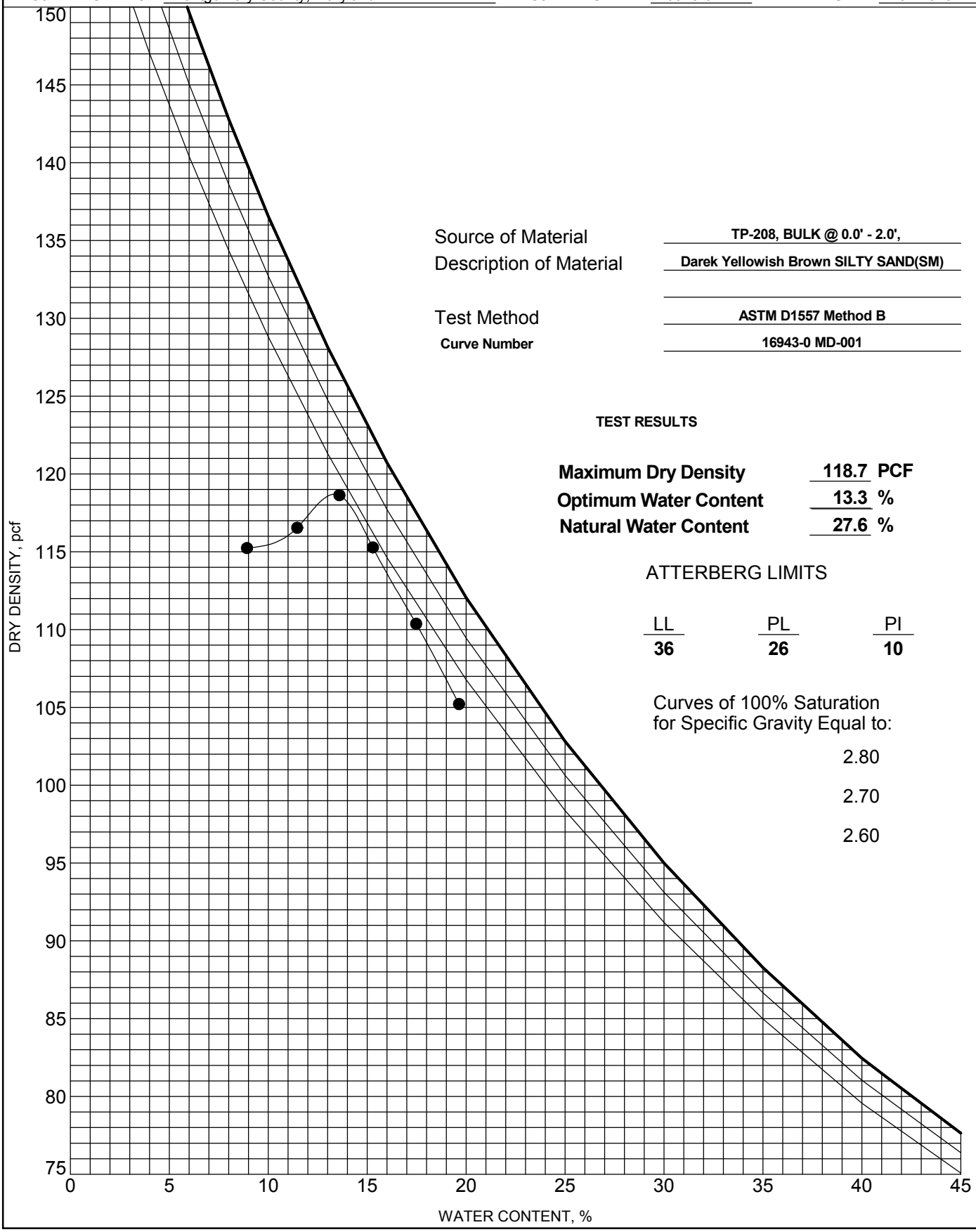
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/31/2018



Source of Material: **TP-208, BULK @ 0.0' - 2.0',**

Description of Material: **Darek Yellowish Brown SILTY SAND(SM)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-001**

TEST RESULTS

Maximum Dry Density	**118.7**	**PCF**
Optimum Water Content	**13.3**	**%**
Natural Water Content	**27.6**	**%**

ATTERBERG LIMITS

LL	PL	PI
36	**26**	**10**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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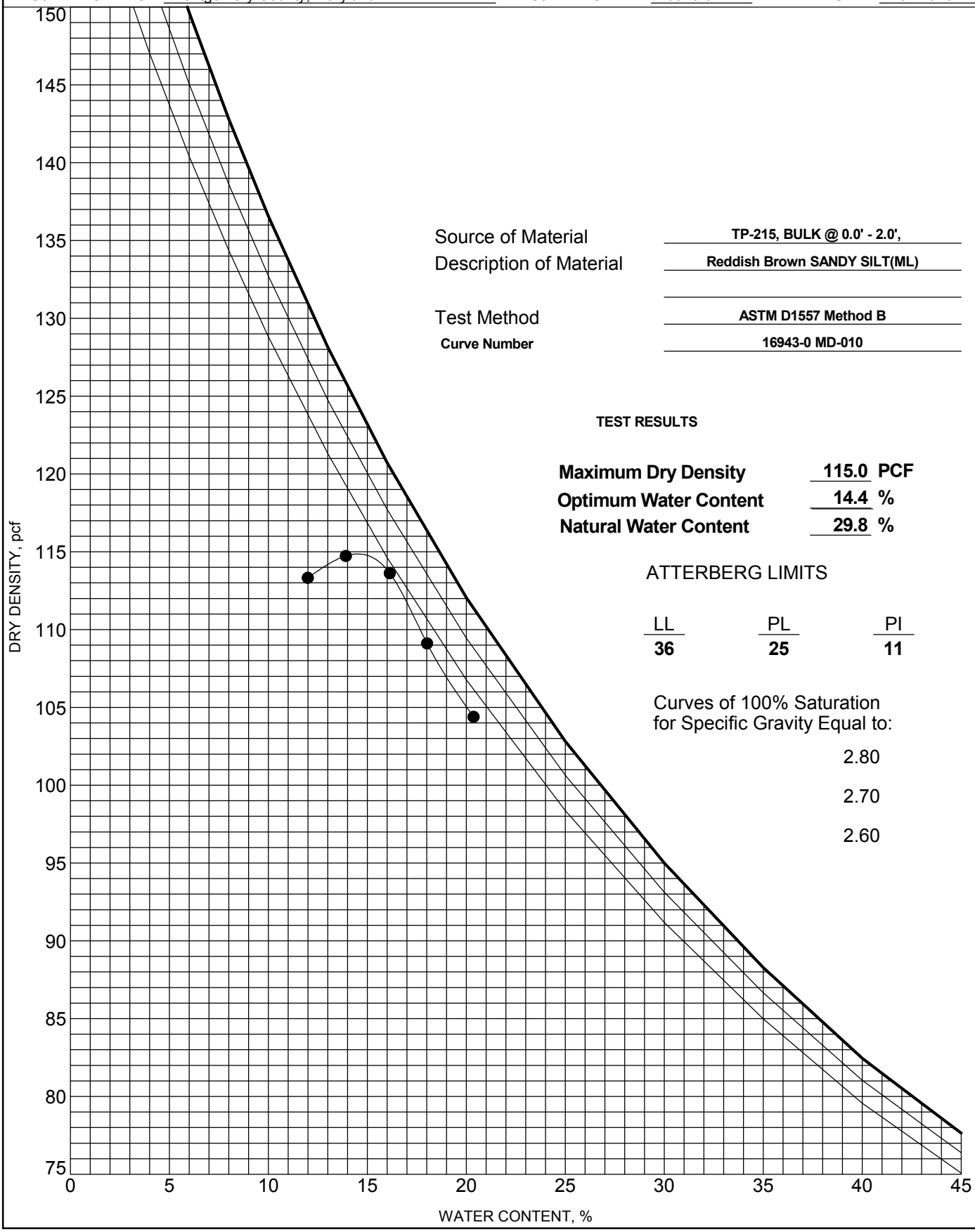
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/31/2018



Source of Material: **TP-215, BULK @ 0.0' - 2.0',**

Description of Material: **Reddish Brown SANDY SILT(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-010**

TEST RESULTS

Maximum Dry Density	**115.0**	**PCF**
Optimum Water Content	**14.4**	**%**
Natural Water Content	**29.8**	**%**

ATTERBERG LIMITS

LL	PL	PI
36	**25**	**11**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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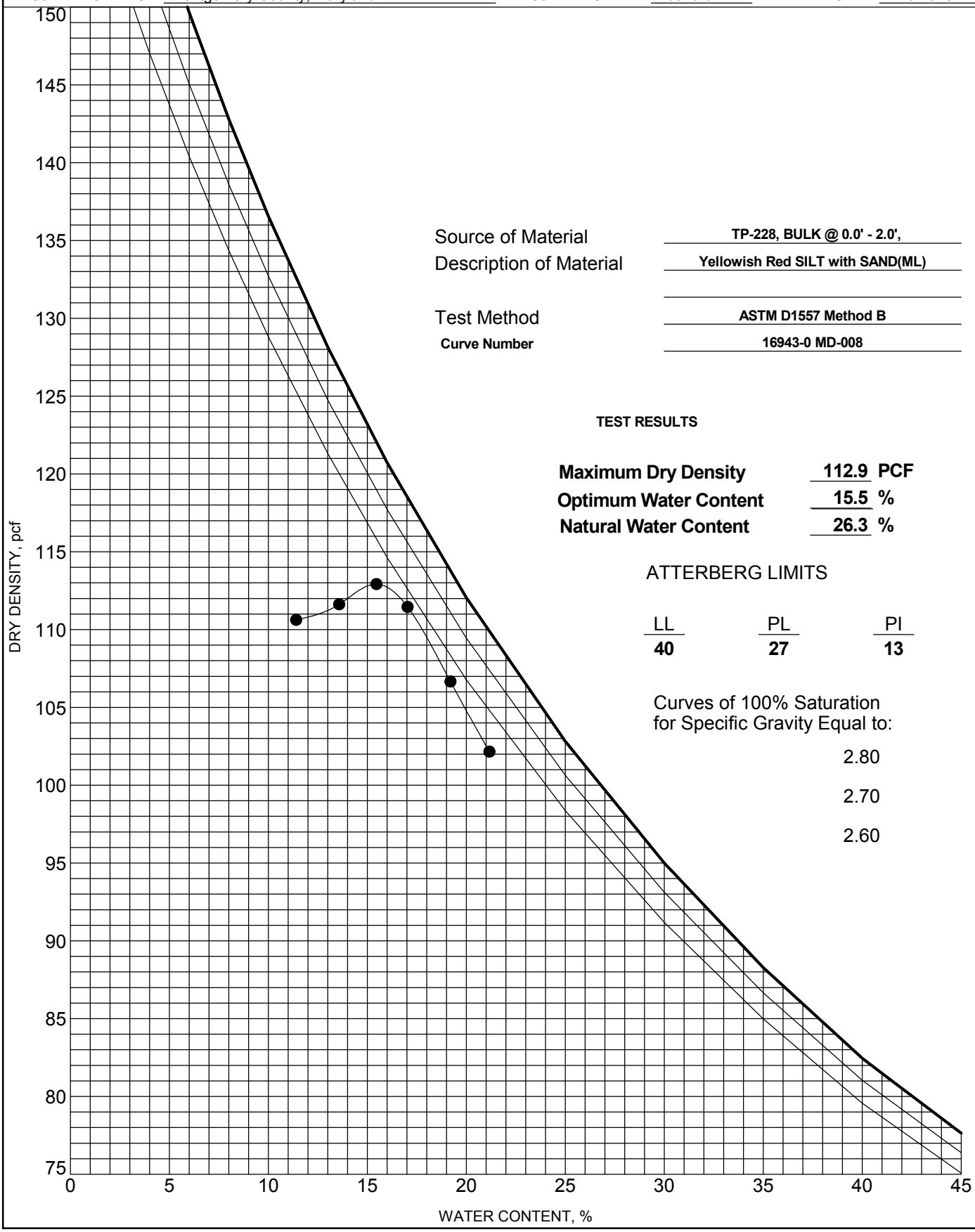
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/29/2018



Source of Material: **TP-228, BULK @ 0.0' - 2.0',**

Description of Material: **Yellowish Red SILT with SAND(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-008**

TEST RESULTS

Maximum Dry Density	**112.9**	**PCF**
Optimum Water Content	**15.5**	**%**
Natural Water Content	**26.3**	**%**

ATTERBERG LIMITS

LL	PL	PI
40	**27**	**13**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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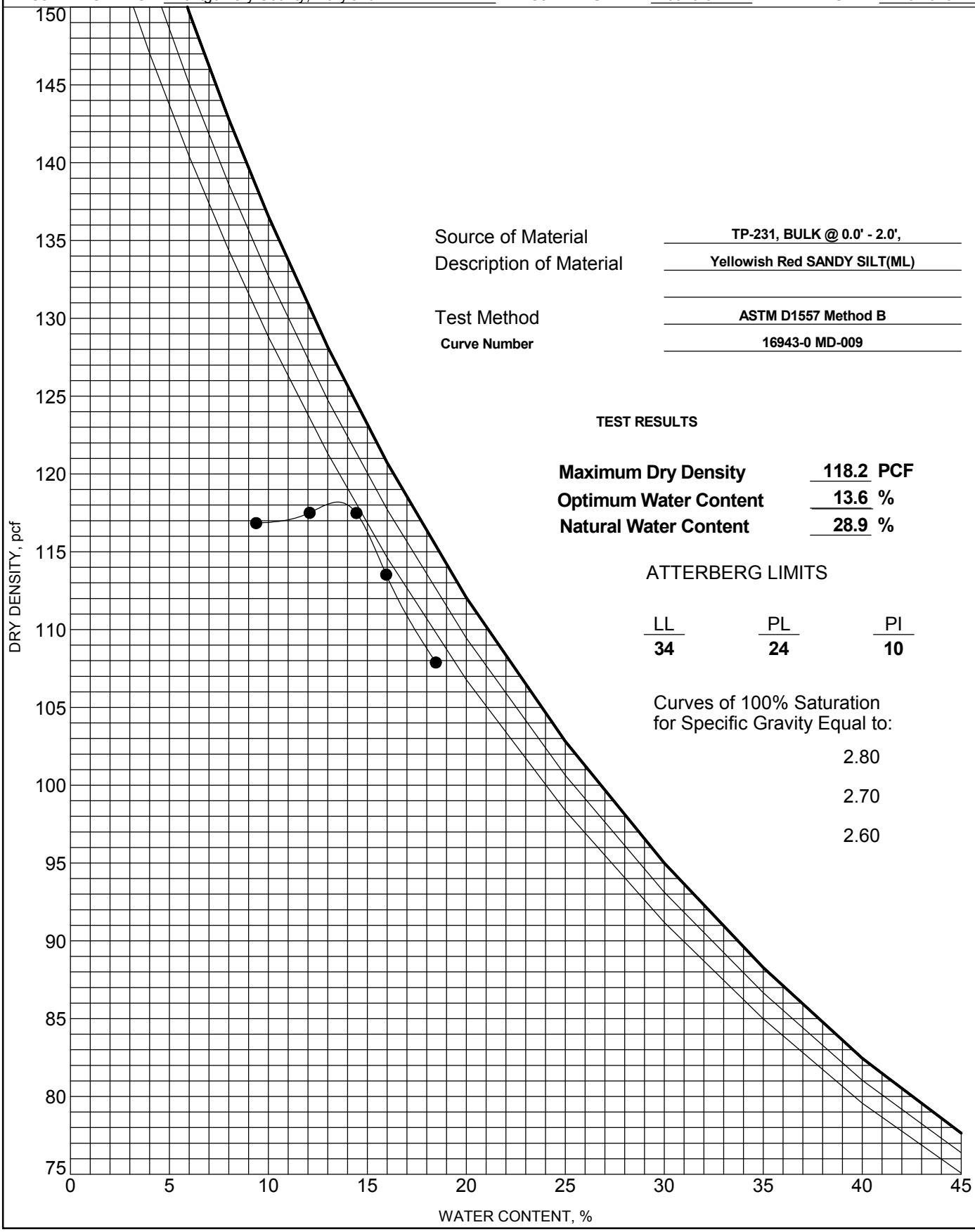
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/29/2018



Source of Material: **TP-231, BULK @ 0.0' - 2.0',**

Description of Material: **Yellowish Red SANDY SILT(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-009**

TEST RESULTS

Maximum Dry Density	**118.2**	**PCF**
Optimum Water Content	**13.6**	**%**
Natural Water Content	**28.9**	**%**

ATTERBERG LIMITS

LL	PL	PI
34	**24**	**10**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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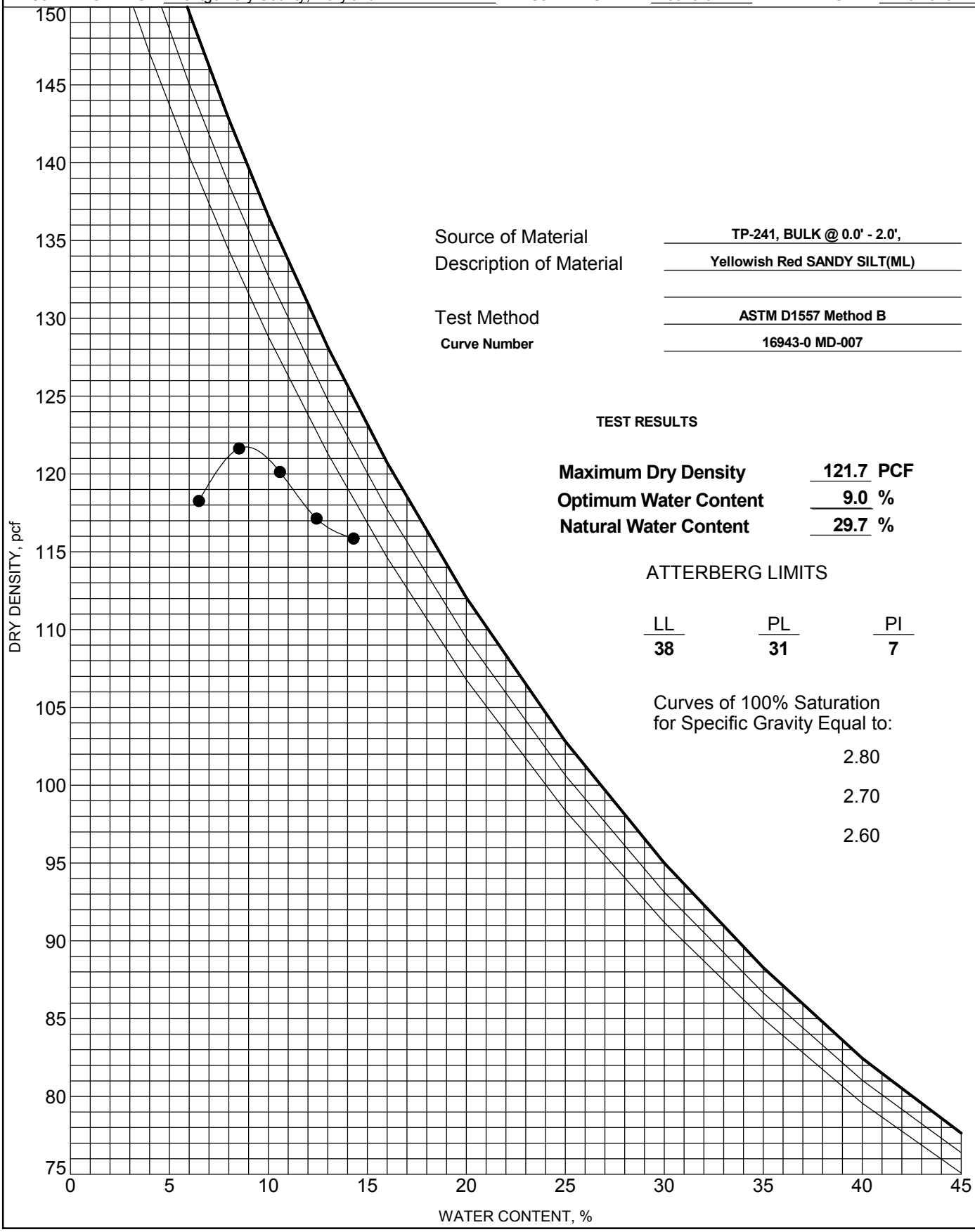
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/29/2018



Source of Material: **TP-241, BULK @ 0.0' - 2.0',**

Description of Material: **Yellowish Red SANDY SILT(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-007**

TEST RESULTS

Maximum Dry Density	**121.7**	**PCF**
Optimum Water Content	**9.0**	**%**
Natural Water Content	**29.7**	**%**

ATTERBERG LIMITS

LL	PL	PI
38	**31**	**7**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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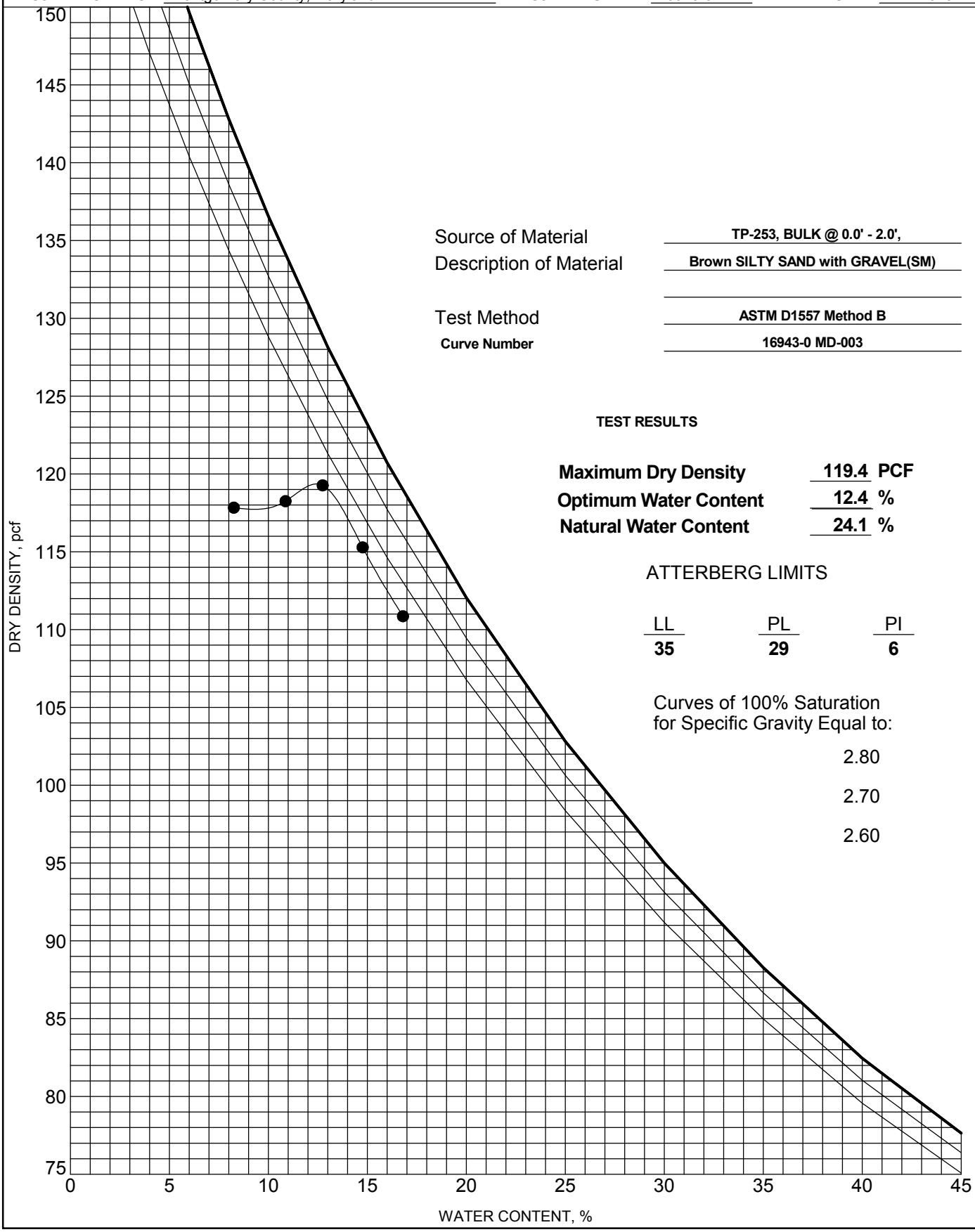
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/27/2018



Source of Material: **TP-253, BULK @ 0.0' - 2.0',**

Description of Material: **Brown SILTY SAND with GRAVEL(SM)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-003**

TEST RESULTS

Maximum Dry Density	**119.4**	**PCF**
Optimum Water Content	**12.4**	**%**
Natural Water Content	**24.1**	**%**

ATTERBERG LIMITS

LL	PL	PI
35	**29**	**6**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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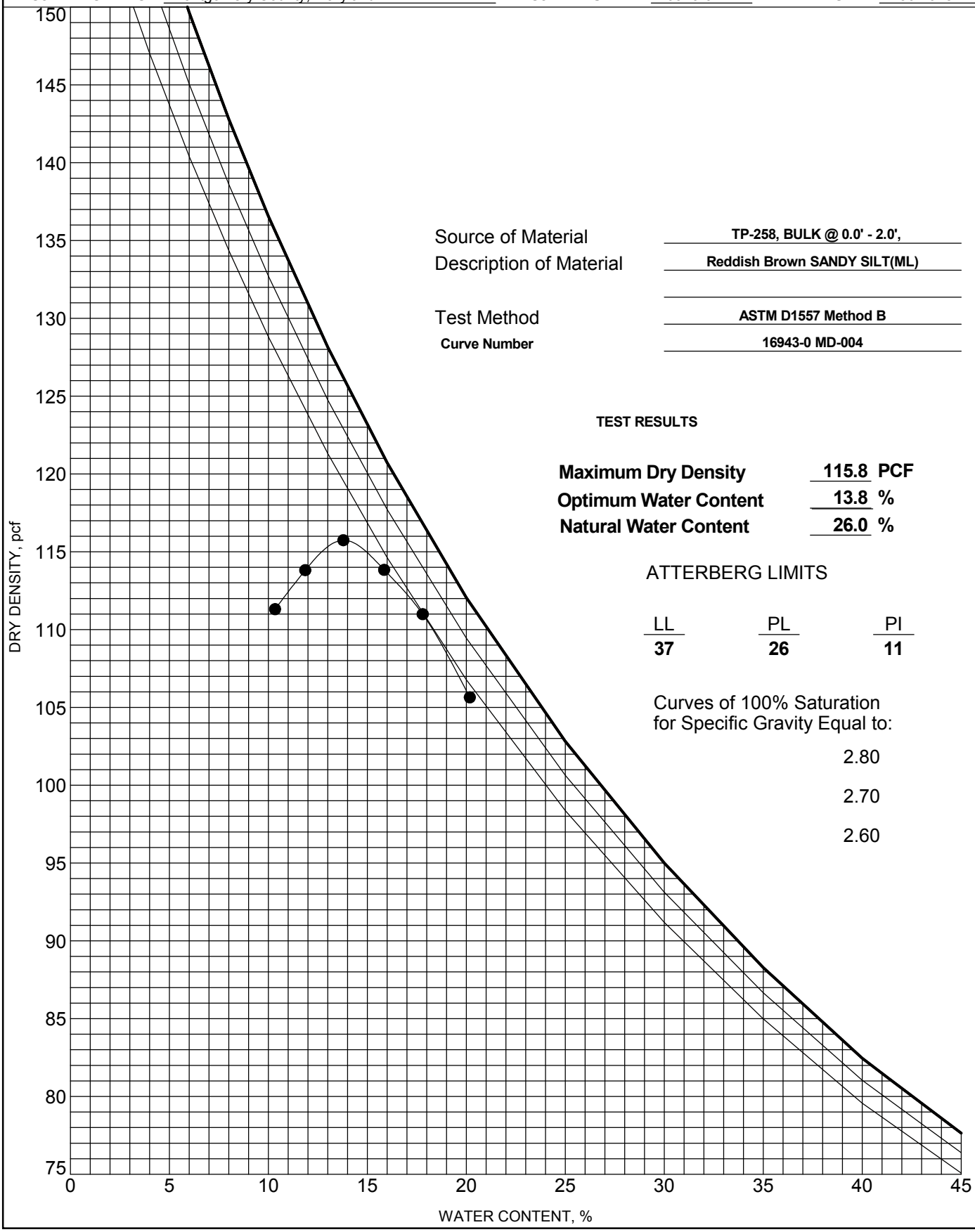
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/30/2018



Source of Material: **TP-258, BULK @ 0.0' - 2.0',**

Description of Material: **Reddish Brown SANDY SILT(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-004**

TEST RESULTS

Maximum Dry Density	**115.8**	**PCF**
Optimum Water Content	**13.8**	**%**
Natural Water Content	**26.0**	**%**

ATTERBERG LIMITS

LL	PL	PI
37	**26**	**11**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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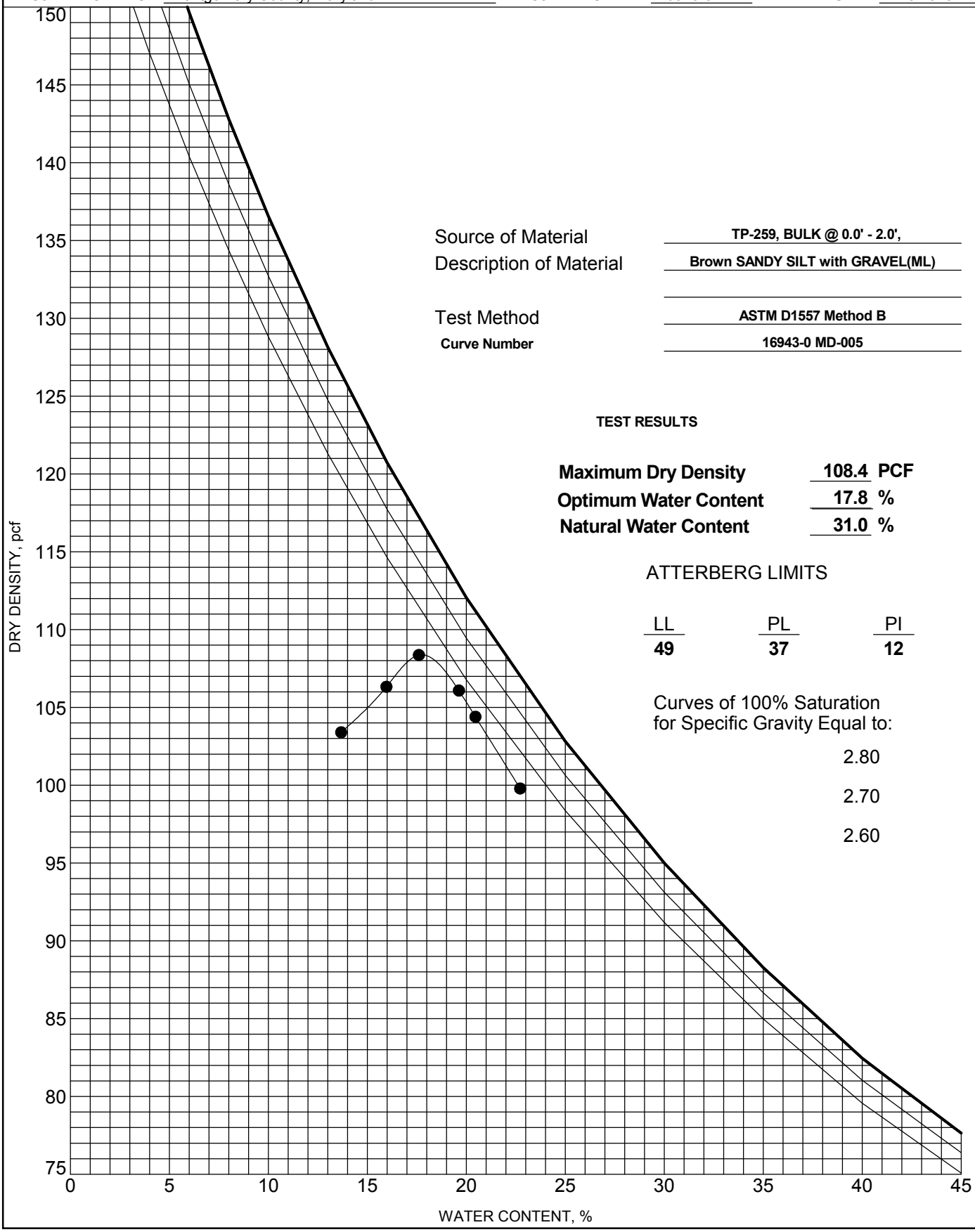
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/28/2018



Source of Material: **TP-259, BULK @ 0.0' - 2.0',**

Description of Material: **Brown SANDY SILT with GRAVEL(ML)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-005**

TEST RESULTS

Maximum Dry Density	**108.4**	**PCF**
Optimum Water Content	**17.8**	**%**
Natural Water Content	**31.0**	**%**

ATTERBERG LIMITS

LL	PL	PI
49	**37**	**12**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

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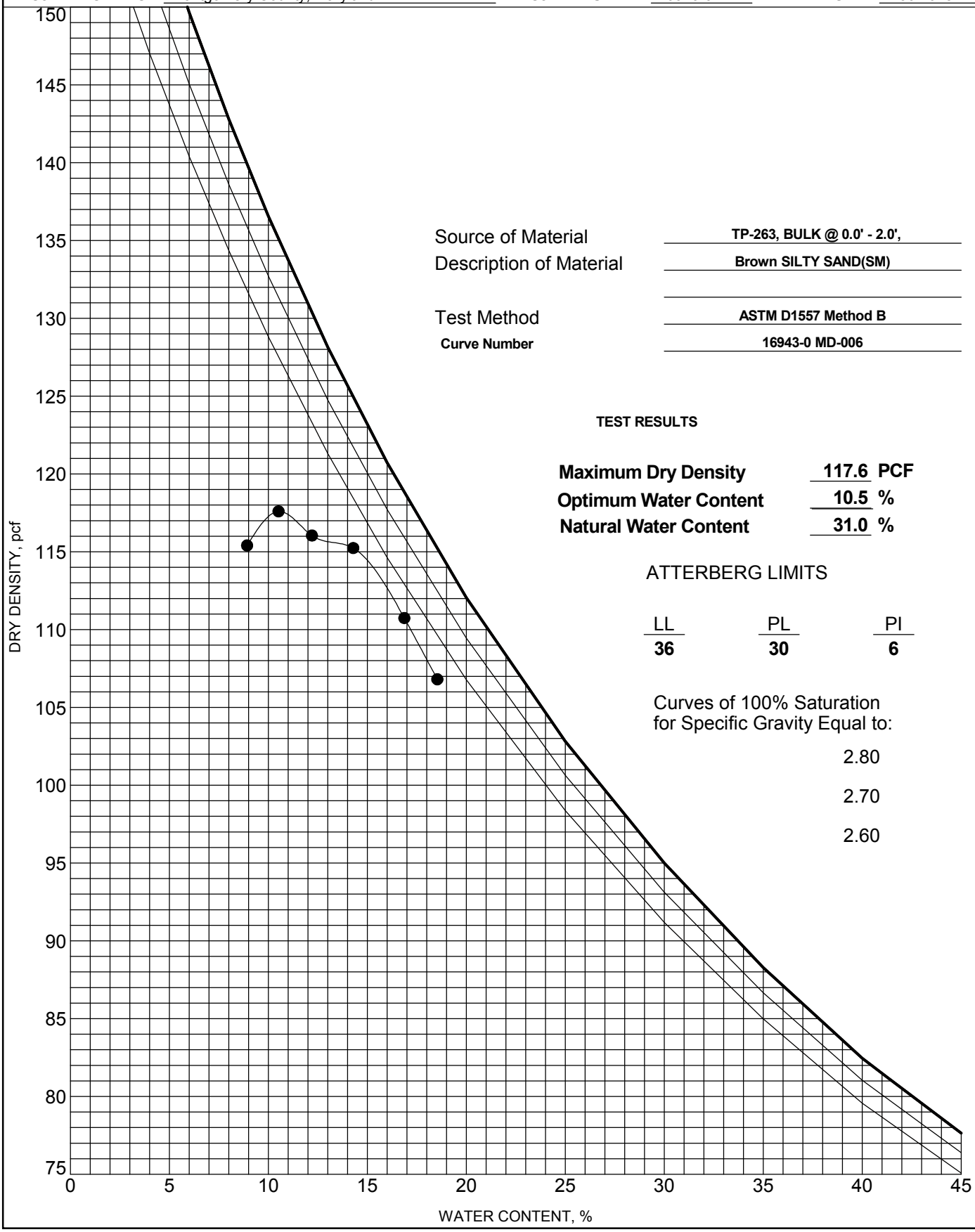
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/30/2018



Source of Material: **TP-263, BULK @ 0.0' - 2.0',**

Description of Material: **Brown SILTY SAND(SM)**

Test Method: **ASTM D1557 Method B**

Curve Number **16943-0 MD-006**

TEST RESULTS

Maximum Dry Density	**117.6**	**PCF**
Optimum Water Content	**10.5**	**%**
Natural Water Content	**31.0**	**%**

ATTERBERG LIMITS

LL	PL	PI
36	**30**	**6**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

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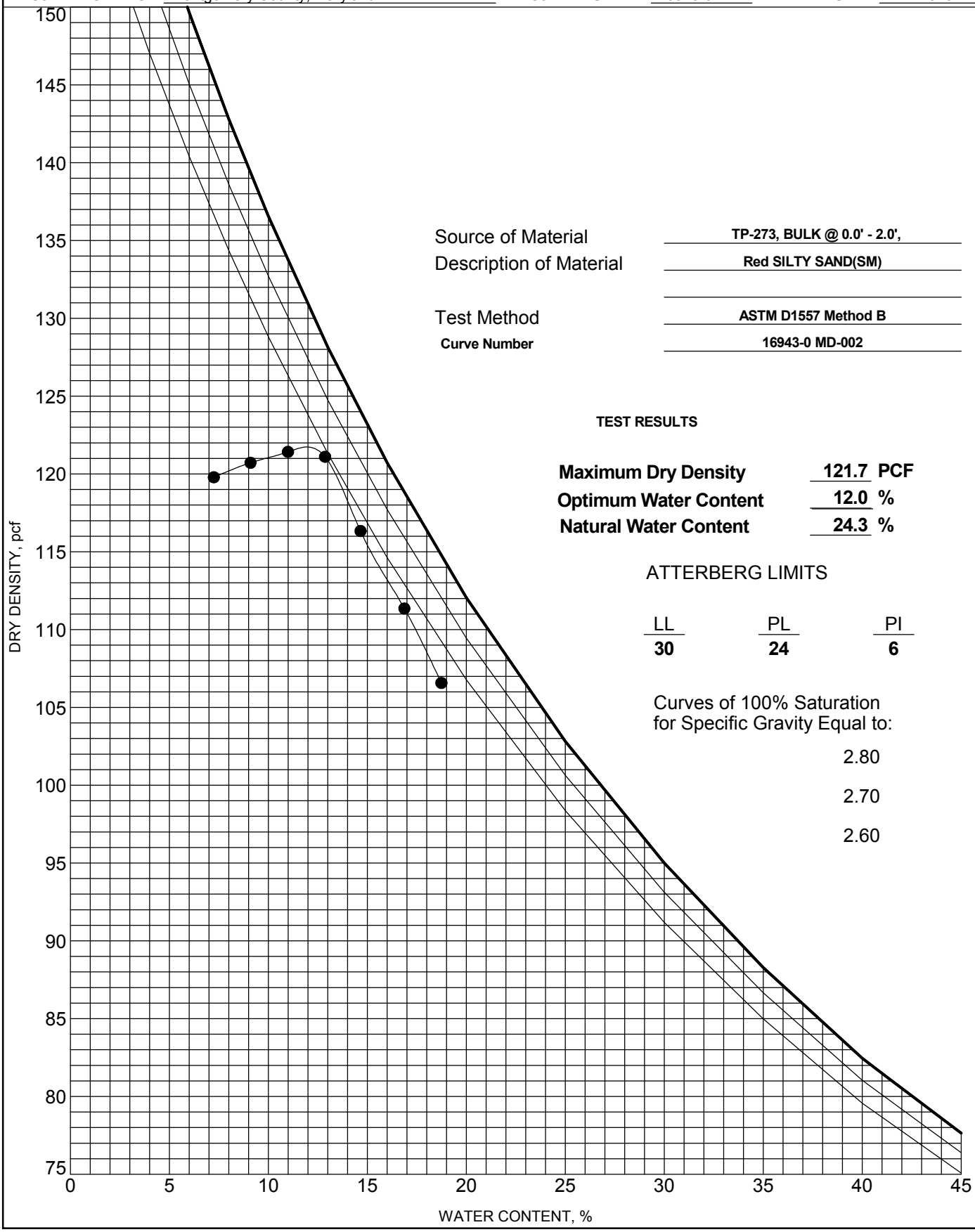
MOISTURE-DENSITY RELATIONSHIP

CLIENT EA Engineering, Inc. **PROJECT NAME** Gude Landfill

PROJECT LOCATION Montgomery County, Maryland **PROJECT NUMBER** 16943-0 MD **DATE TESTED** 7/27/2018



Source of Material: **TP-273, BULK @ 0.0' - 2.0',**

Description of Material: **Red SILTY SAND(SM)**

Test Method: **ASTM D1557 Method B**

Curve Number: **16943-0 MD-002**

TEST RESULTS

Maximum Dry Density	**121.7**	**PCF**
Optimum Water Content	**12.0**	**%**
Natural Water Content	**24.3**	**%**

ATTERBERG LIMITS

LL	PL	PI
30	**24**	**6**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION 16943-0 GUDE LANDFILL.GPJ MTA REDLINE.GDT 8/6/18

Attachment D

Forest Stand Delineation Report And Wetland Delineation Report

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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

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
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(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	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 seven-tenths (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

Soil Mapping Unit	Symbol	Hydric 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, 15 to 25 percent slopes	16D	Yes	Well drained
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, very rocky	116D	Yes	Well drained
Blocktown channery silt loam, 25 to 45 percent slopes, very rocky	116E	Yes	Well drained
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 ground-truth all potential wetlands, as described in the following sections of this report.

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.

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.

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.

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**).

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

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

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

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

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.

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

Cowardin, L.M., V. Carter, F. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

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

U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1 (Online Edition). Final Report. Waterways Experiment Station, Environmental Laboratory. January.

———. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*. Version 2.0. ERDC/EL TR-12-9. Final Report. Wetlands Regulatory Assessment Program, Engineer Research and Development Center, Vicksburg, Mississippi. April.

———. 2016. *NWPL – National Wetland Plant List.* http://wetland-plants.usace.army.mil/nwpl_static/home/home.html. Accessed on May 15, 2018.

U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2018a. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov. Accessed on May 22, 2018.

———. 2018b. *State Soil Data Access (SDA) Hydric Soils List*. https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316619.html. Accessed on May 15, 2018.

U.S. Fish and Wildlife Service. 2018. *National Wetlands Inventory*. https://www.fws.gov/wetlands/. Accessed on May 22, 2018.

Appendix A

Figures

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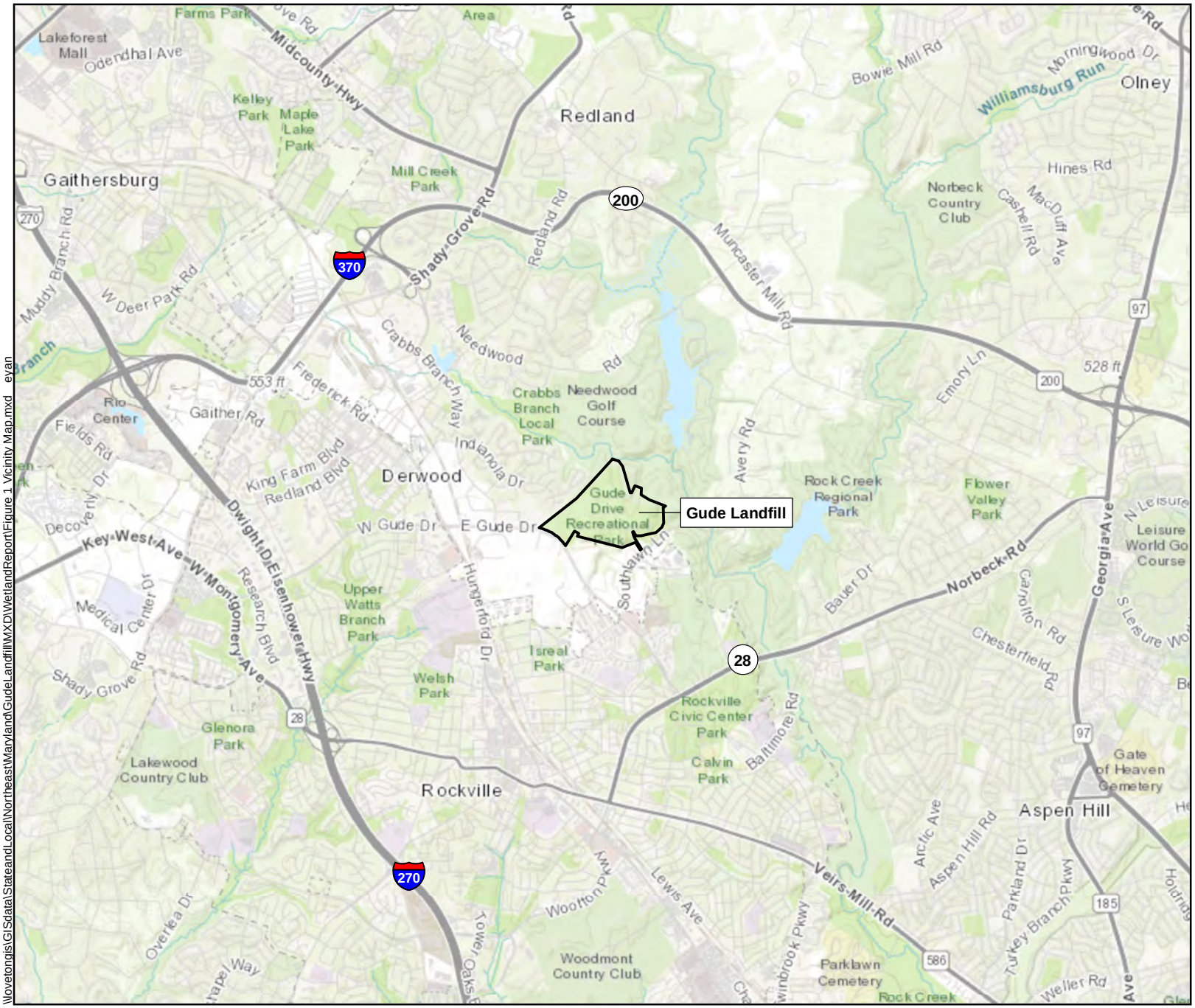

VICINITY MAP

Legend

Property Boundary

Map Date: 5/17/2018
Source: ESRI 2016
Projection: NAD 1983 State Plane Maryland US Feet

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Miles

Figure 1
Vicinity Map
Gude Landfill
Rockville, Maryland

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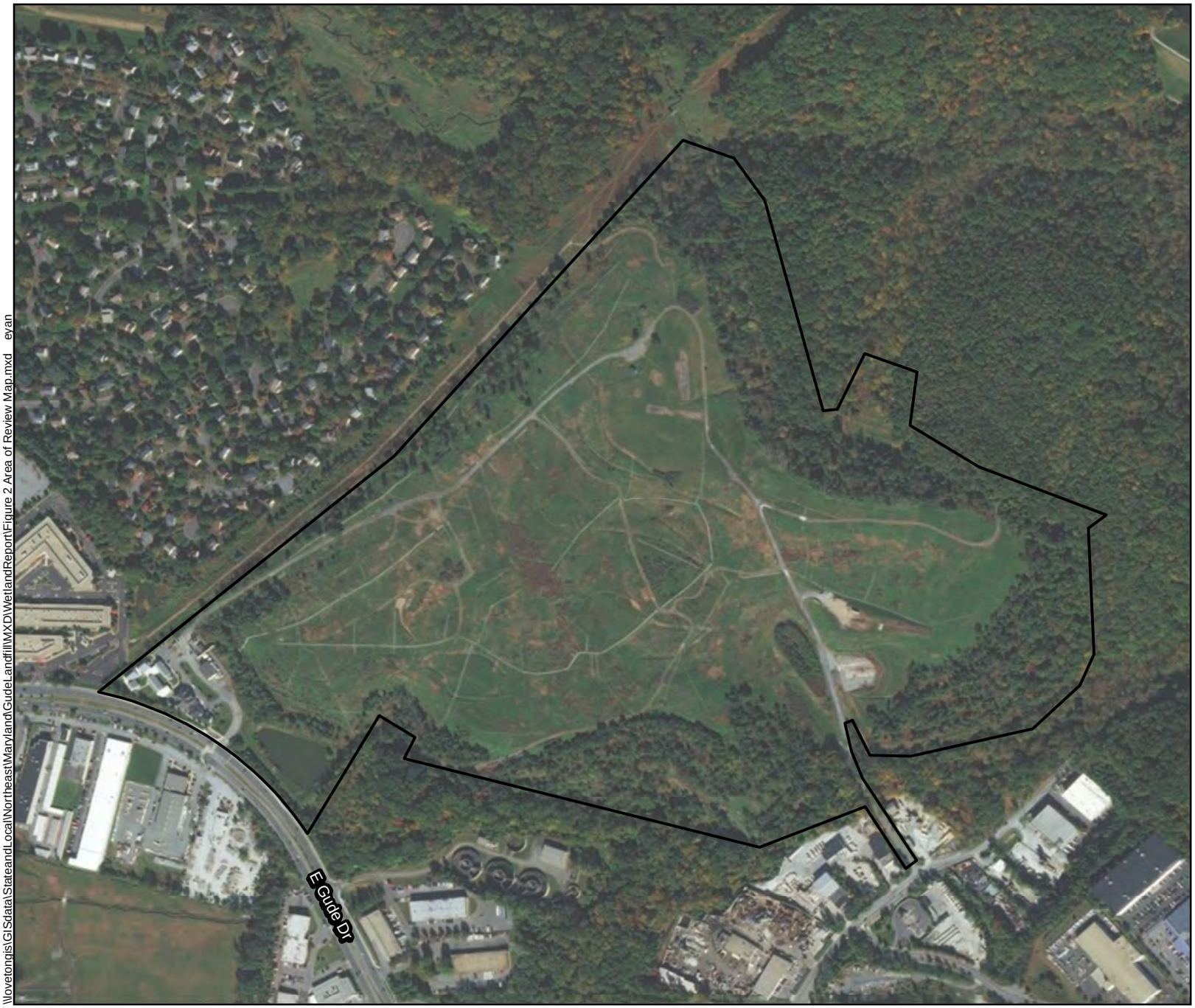

VICINITY MAP

Legend

Property Boundary

Map Date: 5/17/2018
Source: ESRI 2015
Projection: NAD 1983 State Plane Maryland US Feet

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Figure 2
Area of Review Map
Gude Landfill
Rockville, Maryland

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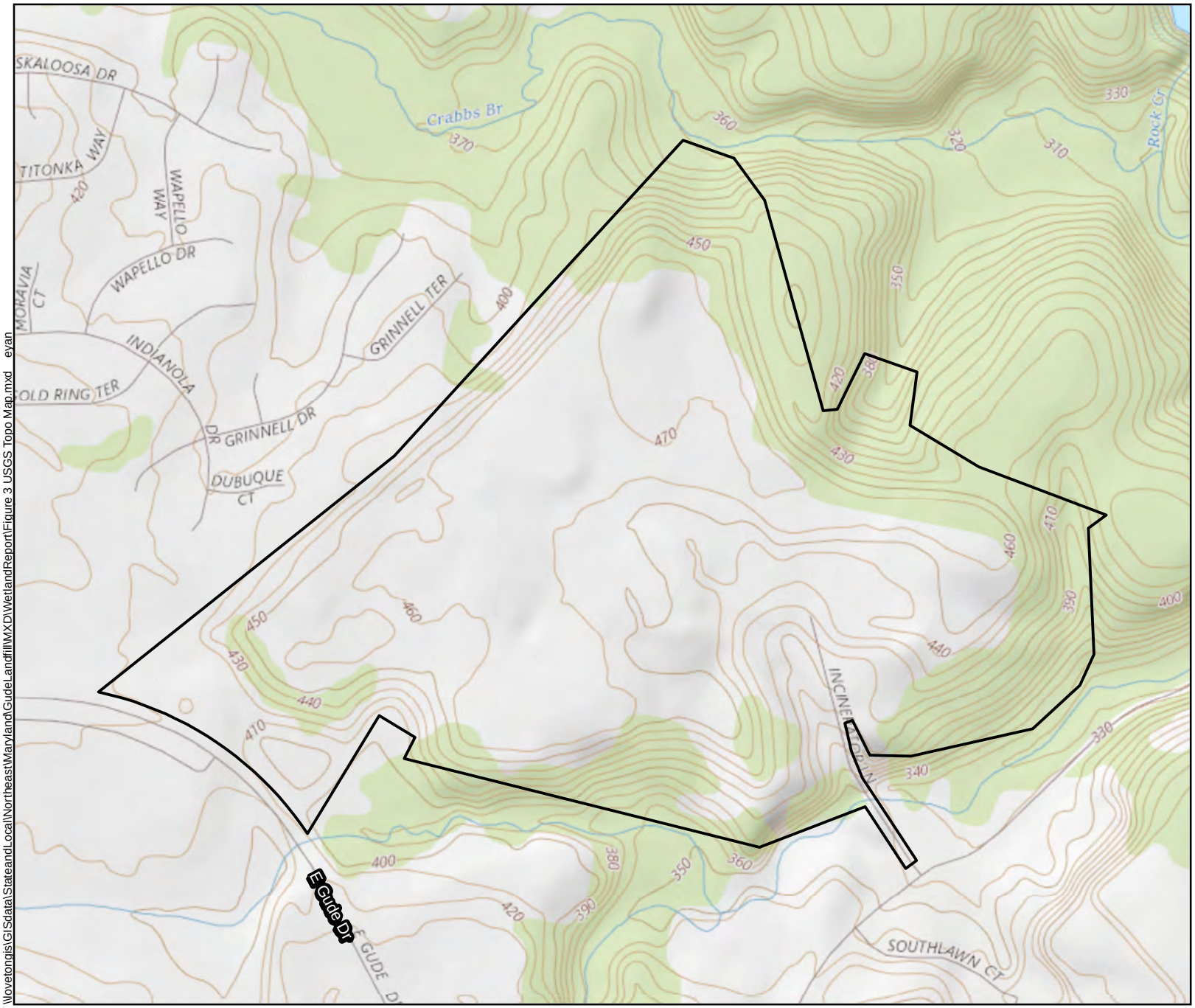

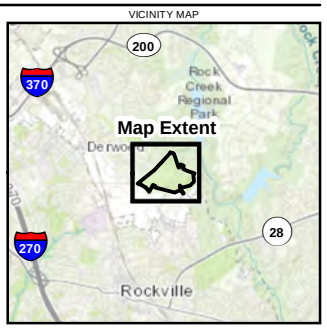

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Property Boundary

Map Date: 5/17/2018
Source: USGS 2016
Projection: NAD 1983 State Plane Maryland US Feet

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Figure 3
USGS Topographic Map
Gude Landfill Rockville, Maryland

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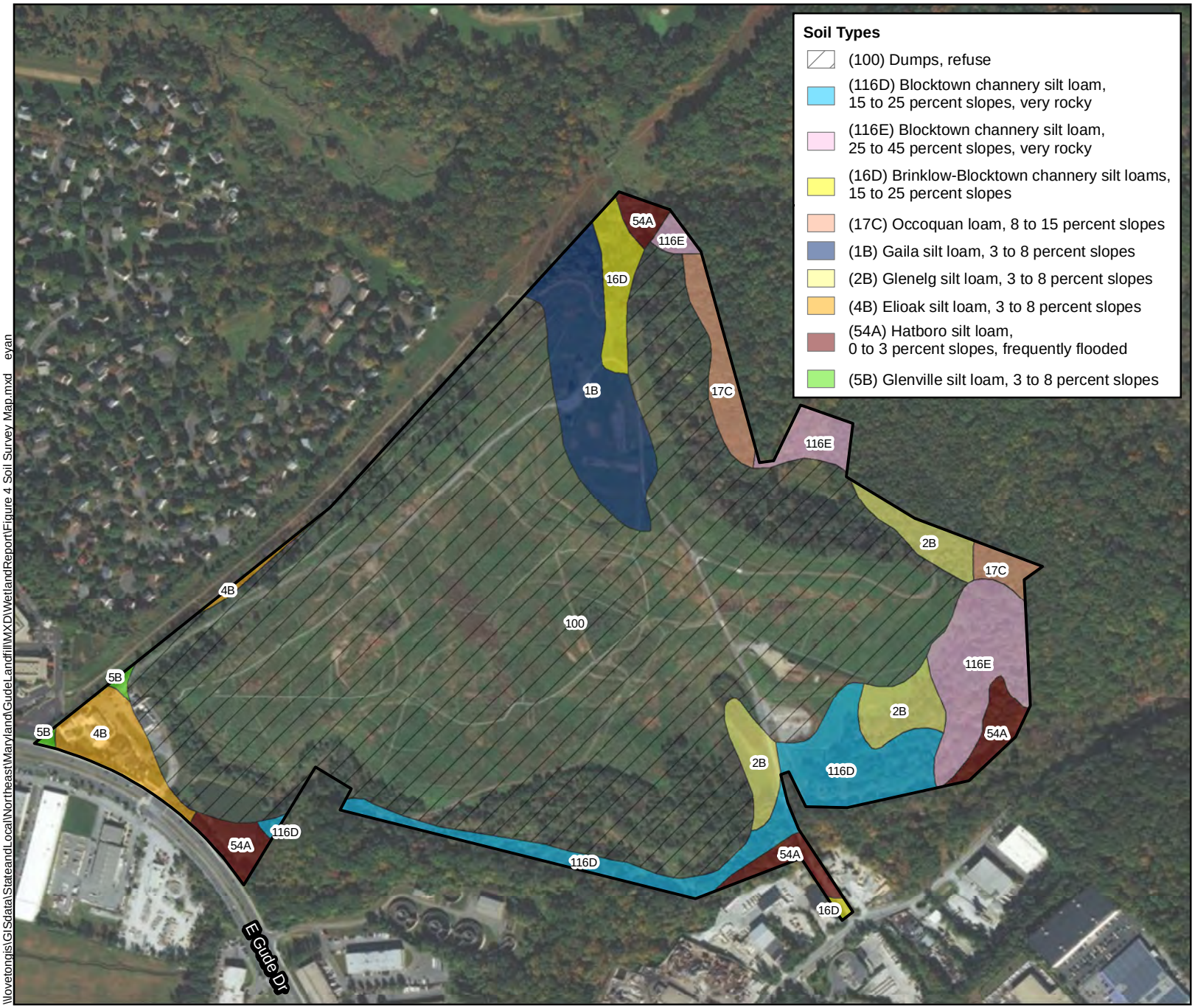

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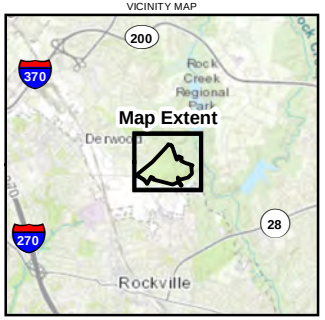

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Property Boundary

Map Date: 5/17/2018
Source: ESRI 2015, USDA 2013
Projection: NAD 1983 State Plane Maryland US Feet

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Figure 4
Soil Survey Map
Gude Landfill
Rockville, Maryland

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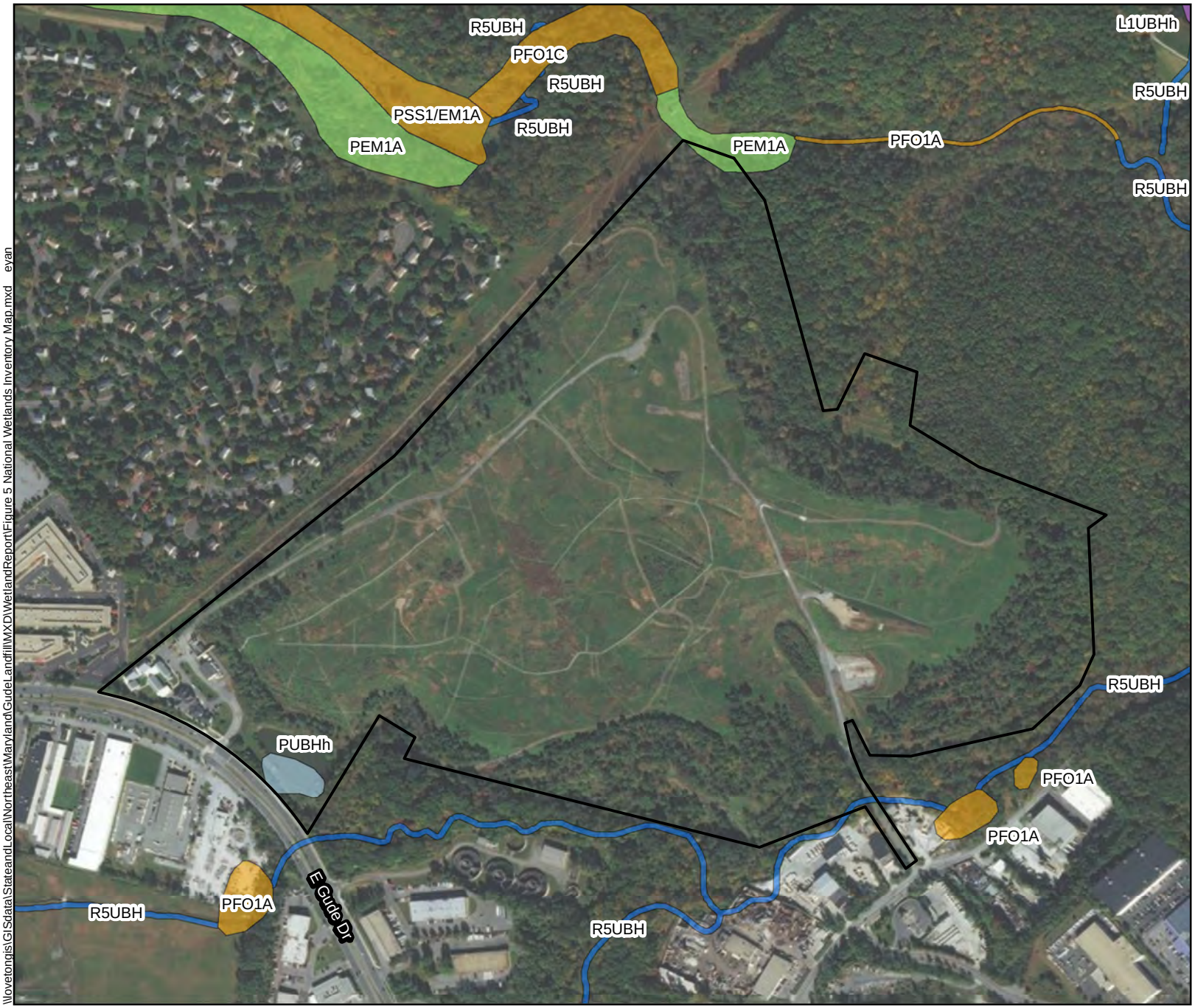

VICINITY MAP

Legend

- Property Boundary
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Map Date: 12/10/2018
Source: ESRI 2015, USFWS 2017
Projection: NAD 1983 State Plane Maryland US Feet

N

0 200 400

Feet

Figure 5
National Wetlands Inventory Map
Gude Landfill
Rockville, Maryland

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Appendix B

Wetland Delineation Data Forms

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WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Project/Site: Gude Landfill | City/County: Montgomery County | Sampling Date: 5/1/18

Applicant/Owner: DEP/DSWS | State: MD | Sampling Point: WETA

Investigator(s): TMK | Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain | Local Relief (concave, convex, none): concave

Slope %: <5% | Latitude: 39° 06' 29" N | Longitude: 77° 08' 16" W | Datum: NAD83 state plane

Soil Map Unit Name: Hatboro silt loam, 0-3% slopes | NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐ **Is the Sampled Area within a Wetland? Yes ☑ No ☐**

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐ If yes, optional Wetland Site ID: Wetland A

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Veg. Concave Surface(B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☑ No ☐ Depth (inches): 4 inches

Saturation Present? Yes ☑ No ☐ Depth (inches): surface

(includes capillary fringe)

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	15	YES	FAC
2			
3			
4			
5			
6			
7			
	15 = Total cover		
	7.5 = 50%	3 = 20%	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1 *Acer rubrum*	15	YES	FAC
2 *Liquidamber styraciflua*	10	YES	FAC
3 *Salix nigra*	15	YES	FACW
4			
5			
6			
7			
	40 = Total Cover		
	20 = 50%	8 = 20%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1
FACW species	x 2
FAC species	x 3
FACU species	x 4
UPL Species	x 5
Column Totals: (A)	(B)

Prevalance Index = B/A =

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Vegetation (continued)

Sampling Point: WETA

Herb Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Polystichun acrostichoides*	5	NO	FACU
2 *Symplocarpus foetidus*	25	YES	OBL
3 *Boehmeria cylindrica*	10	YES	FACW
4 *Juncus effusus*	10	YES	FACW
5 *Polygonum sagittatum*	10	YES	FACW
6			
7			
	60	= Total Cover	
	30	= 50% 12	= 20%

Woody Vine Stratum (Plot size: 30 ft)			
1			
2			
3			
4			
5			
6			
7			
	0	= Total Cover	
	0	= 50% 0	= 20%

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter 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 plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? 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.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR32/2	100					organic	
2-10	10YR 4/2	90	7.5YR 4/6	10	C	M	Silt loam	
10-20	10YR 5/1	80	10YR 4/6	20	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydron Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prarie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophtic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Project/Site: Gude Landfill | City/County: Montgomery County | Sampling Date: 5/1/18

Applicant/Owner: DEP/DSWS | State: MD | Sampling Point: WETB

Investigator(s): TMK | Section, Township, Range:

Landform (hillslope, terrace, etc.): floodplain | Local Relief (concave, convex, none): concave

Slope %: <5% | Latitude: 39° 06' 29" N | Longitude: 77° 08' 16" W | Datum: NAD83 state plane

Soil Map Unit Name: Blocktown channery silt loam, 15-25% slopes | NWI Classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐ **Is the Sampled Area within a Wetland? Yes ☑ No ☐**

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐ If yes, optional Wetland Site ID: WETLAND B

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Veg. Concave Surface(B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☑ No ☐ Depth (inches): surface

(includes capillary fringe)

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	15	YES	FAC
2 *Liquidambar styraciflua*	15	YES	FAC
3 *Quercus phellos*	10	YES	FACW
4			
5			
6			
7			
	40 = Total cover		
	20 = 50%	8 = 20%	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1 *Acer rubrum*	15	YES	FAC
2			
3			
4			
5			
6			
7			
	15 = Total Cover		
	7.5 = 50%	3 = 20%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1
FACW species	x 2
FAC species	x 3
FACU species	x 4
UPL Species	x 5
Column Totals: (A)	(B)

Prevalance Index = B/A =

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Vegetation (continued)

Sampling Point: WETB

Herb Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Juncus effusus*	10	YES	FACW
2 *Polygonum sagittatum*	10	YES	FACW
3			
4			
5			
6			
7			
	20 = Total Cover		
	10 = 50%	4 = 20%	
Woody Vine Stratum (Plot size: 30 ft)			
1			
2			
3			
4			
5			
6			
7			
	0 = Total Cover		
	0 = 50%	0 = 20%	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter 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 plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? 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.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	97	10YR 4/4	3	C	M	fine sandy loam	
6-20	10YR 5/1	90	10YR 4/6	10	C	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydron Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prarie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophtic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Project/Site: Gude Landfill City/County: Montgomery County Sampling Date: 5/1/18

Applicant/Owner: DEP/DSWS State: MD Sampling Point: WETC

Investigator(s): TMK Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope - drainage swale Local Relief (concave, convex, none): concave

Slope %: 5% Latitude: 39° 06' 29" N Longitude: 77° 08' 16" W Datum: NAD83 state plane

Soil Map Unit Name: Dump,refuse NWI Classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐ **Is the Sampled Area within a Wetland? Yes ☑ No ☐**

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐ If yes, optional Wetland Site ID: Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Veg. Concave Surface(B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☑ No ☐ Depth (inches): surface

(includes capillary fringe)

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0 = Total cover		
	0 = 50%	0 = 20%	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1			
2			
3			
4			
5			
6			
7			
	0 = Total Cover		
	0 = 50%	0 = 20%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1
FACW species	x 2
FAC species	x 3
FACU species	x 4
UPL Species	x 5
Column Totals: (A)	(B)

Prevalance Index = B/A =

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Vegetation (continued)

Sampling Point: WETC

Herb Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *schoenoplectus tabernaemontani*	25	YES	OBL
2 *Eleocharis obtusa*	35	YES	OBL
3			
4			
5			
6			
7			
	60 = Total Cover		
	30 = 50%	12	= 20%
Woody Vine Stratum (Plot size: 30 ft)			
1			
2			
3			
4			
5			
6			
7			
	0 = Total Cover		
	0 = 50%	0	= 20%

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter 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 plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? 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.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					organic	
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	C	M	Silt loam	fill material present

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydron Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prarie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophtic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Project/Site: Gude Landfill City/County: Montgomery County Sampling Date: 5/1/18

Applicant/Owner: DEP/DSWS State: MD Sampling Point: UPL1

Investigator(s): TMK Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): convex

Slope %: 5% -10% Latitude: 39° 06' 29" N Longitude: 77° 08' 16" W Datum: NAD83 state plane

Soil Map Unit Name: dump, refuse NWI Classification: upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑ **Is the Sampled Area within a Wetland? Yes ☐ No ☑**

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑ If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

on upland slope adjacent to wetland A

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Veg. Concave Surface(B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):

(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	10	YES	FAC
2 *Liquidambar styraciflua*	5	NO	FAC
3 *Quercus alba*	15	YES	FACU
4 *Liriodendron tulipfera*	20	YES	FACU
5			
6			
7			
	50 = Total cover		
	25 = 50%	10 = 20%	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1 *Ilex opaca*	10	YES	FAC
2 *Kalmia latifolia*	10	YES	FACU
3			
4			
5			
6			
7			
	20 = Total Cover		
	10 = 50%	4 = 20%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1
FACW species	x 2
FAC species	x 3
FACU species	x 4
UPL Species	x 5
Column Totals: (A)	(B)

Prevalance Index = B/A =

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Vegetation (continued)

Sampling Point: UPL1

Herb Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1			
2			
3			
4			
5			
6			
7			
	0 = Total Cover		
	0 = 50%	0 = 20%	

Woody Vine Stratum (Plot size: 30 ft)			
1			
2			
3			
4			
5			
6			
7			
	0 = Total Cover		
	0 = 50%	0 = 20%	

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter 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 plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? 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.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	100					silt loam	
4-18	10YR 6/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydron Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prarie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophtic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Project/Site: Gude Landfill | City/County: Montgomery County | Sampling Date: 5/1/18

Applicant/Owner: DEP/DSWS | State: MD | Sampling Point: UPL2

Investigator(s): TMK | Section, Township, Range:

Landform (hillslope, terrace, etc.): hillslope | Local Relief (concave, convex, none): convex

Slope %: 5% -10% | Latitude: 39° 06' 29" N | Longitude: 77° 08' 16" W | Datum: NAD83 state plane

Soil Map Unit Name: dump, refuse | NWI Classification: upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Upland slope located adjacent to Wetland B and Pond #4

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Veg. Concave Surface(B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):

(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	5	NO	FAC
2 *Liquidambar styraciflua*	5	NO	FAC
3 *Quercus alba*	15	YES	FACU
4 *Liriodendron tulipfera*	20	YES	FACU
5 *Fagus grandifolia*	2	NO	FACU
6			
7			
	47 = Total cover		
	23.5 = 50%	9.4 = 20%	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1 *Liriodendron tulipfera*	15	YES	FACU
2 *Nyssa sylvatica*	10	YES	FAC
3			
4			
5			
6			
7			
	25 = Total Cover		
	12.5 = 50%	5 = 20%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1
FACW species	x 2
FAC species	x 3
FACU species	x 4
UPL Species	x 5
Column Totals: (A)	(B)

Prevalance Index = B/A =

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region - Interim Version

Vegetation (continued)

Sampling Point: UPL2

Herb Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Polystichum acrostichoid*	10	YES	FACU
2			
3			
4			
5			
6			
7			
	10 = Total Cover		
	5 = 50%	2	= 20%
Woody Vine Stratum (Plot size: 30 ft)			
1 *Lonicera japonica*	15	YES	FAC
2			
3			
4			
5			
6			
7			
	15 = Total Cover		
	7.5 = 50%	3	= 20%

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter 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 plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? 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.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100					silt loam	
4-12	10YR 4/4	100					silt loam	
12+	rock refusal							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydron Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) **(LRR N)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ☐ Umbric Surface (F13) **(MLRA 136, 122)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(MLRA 147)**
- ☐ Coast Prarie Redox (A16) **(MLRA 147, 148)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophtic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Appendix C

Site Photographs

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Wetland Delineation Photographs
Gude Landfill
Photos Taken: October 2009 and April 2018

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

Photograph 2: Upstream portion of Stream Channel #2.

Photograph 3: Hydric Soils within Wetland A.

Photograph 4: Overview of Wetland A.

Wetland Delineation Photographs
Gude Landfill
Photos Taken: October 2009 and April 2018

Photograph 5: Overview of Wetland B.

Photograph 6: Overview of Pond #4.

Photograph 7: Overview of Wetland C.

Photograph 8: Wetland C, soil sample.

Wetland Delineation Photographs
Gude Landfill
Photos Taken: October 2009 and April 2018

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

Photograph 10: Overview of Gude Landfill, cleared plateau.

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

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

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Appendix D

Wetland Delineation Map

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NOTES

1. PROJECT NAME: GUDE LANDFILL
2. LOCATION: 600 EAST GUDE DRIVE, ROCKVILLE, MARYLAND
3. OWNER: MONTGOMERY COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF SOLID WASTER SERVICES (DEP/DSWS)
4. PLAN PREPARED BY: EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC., PBC 225 SCHILLING CIRCLE, SUITE 400, HUNT VALLEY, MARYLAND
5. TOTAL AREA OF REVIEW: 162.7 ACRES±
6. PROPERTY BOUNDARIES AND OWNER INFORMATION ARE BASED ON BASED ON A DRAWING ENTITLED "GUDE LANDFILL - PROPERTY EXCHANGE WITH M-NCPPC" PREPARED BY C.C. JOHNSON & MALHOTRA, P.C., DATED 05/23/2012.
7. THIS WETLAND DELINEATION PLAN WAS PREPARED FROM A BASE PLAN TITLED GUDE LANDFILL BOUNDARY COMPOSITE, DATED OCTOBER 8, 2009 PREPARED BY CCJM ENGINEERING INFRASTRUCTURE SOLUTIONS (CCJM).
8. THE WATERS OF THE U.S. INCLUDING FEDERALLY REGULATED WETLANDS WERE DELINEATED BY EA ENGINEERING ON OCTOBER 28TH, 30TH, AND NOVEMBER 2, 2009. FLAGS WERE LOCATED USING A TRIMBLE GEO XH GLOBAL POSITIONING SYSTEM INSTRUMENT. EA RE-VISITED THE SITE ON MAY 1, 2018 TO VERIFY THE BOUNDARIES AND CONDITIONS OF THE WATERWAYS. SLIGHT REVISIONS TO THE WETLAND BOUNDARIES WERE MADE AND RE-LOCATED USING A TRIMBLE GEO7X GLOBAL POSITIONING SYSTEM INSTRUMENT.
9. THE WATERS OF THE U.S. INCLUDING FEDERALLY REGULATED WETLANDS IDENTIFIED CONTRIBUTE TO ROCK CREEK. ALL TRIBUTARIES OF ROCK CREEK IN THIS AREA ARE LISTED IN THE CODE OF MARYLAND REGULATIONS (COMAR) STREAM USE CLASSIFICATION INDEX AS USE IV (RECREATIONAL TROUT WATERS).
10. THE RESULTS OF EA'S DELINEATION ARE BASED ON OBSERVATIONS OF EXISTING CONDITIONS, PROFESSIONAL EXPERIENCE IN THE AREA WITH SIMILAR PROJECTS, AND GENERALLY ACCEPTED PROFESSIONAL ENVIRONMENTAL PRACTICE UNDER SIMILAR CIRCUMSTANCES. SEASONAL FLUCTUATIONS IN PRECIPITATION OR WEATHER CONDITIONS CAN RESULT IN DIFFERENCES IN THE PERCEPTION OF HYDROLOGIC CONDITIONS, WHICH CAN ALTER EA'S EVALUATION OF WETLANDS/WATERWAYS.
11. IT IS IMPORTANT TO NOTE THE USACE IS THE FEDERAL AGENCY THAT DETERMINES THE OFFICIAL JURISDICTIONAL STATUS OF WETLANDS/WATERWAYS. FURTHERMORE, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) CAN REGULATE WETLANDS/WATERWAYS CONSIDERED NON-JURISDICTIONAL BY THE USACE. TO DETERMINE WHETHER THE USACE OR THE MDE WILL TAKE JURISDICTION OVER ANY AREAS OF THE SUBJECT PROPERTY, AN APPLICATION FOR A PERMIT OR JURISDICTIONAL DETERMINATION REQUEST SHOULD BE SUBMITTED JOINTLY TO THESE AGENCIES.

LEGEND

DESCRIPTION	EXISTING	PROPOSED
PROPERTY BOUNDARY AND AREA OF REVIEW		NA
ADJOINER BOUNDARY		NA
CONTOUR		NA
TREE LINE		NA
FENCE LINE		NA
DIRT ROAD		NA
APPROXIMATE STREAM CENTER LINE		NA
NONTIDAL WETLAND		NA
POND		NA

AREA OF WETLANDS/WATERS

DELINEATED FEATURE	RESOURCE	SIGNIFICANT NEXUS DETERMINATION	DIMENSIONS WITHIN PROJECT SITE
STREAM CHANNEL #1	PERENNIAL STREAM	RPW (YEAR ROUND)	67.43 L.F.
STREAM CHANNEL #2	PERENNIAL STREAM	RPW (YEAR ROUND)	452.21 L.F.
*STREAM CHANNEL #3	EPHEMERAL STREAM	NON-RPW	187.71 L.F.
WETLAND SYSTEM A	EMERGENT WETLAND	ABUTTING RPW	9,702.28 S.F. / 0.22 AC.
WETLAND SYSTEM B	FORESTED WETLAND	ABUTTING RPW	2,965.06 S.F. / 0.06 AC.
WETLAND SYSTEM C	EMERGENT WETLAND	ADJACENT RPW	1,342.46 S.F. / 0.03 AC.
POND #4	OPEN WATER POND W/ EMERGENT WETLAND	ADJACENT RPW	6,303.30 S.F. / 0.15 AC.**

* LOCATED OUTSIDE PROJECT SITE

** APPROXIMATE AREA DETERMINED FROM TOPOGRAPHY AND AERIAL PHOTOGRAPHY

0 100 200 400
GRAPHIC SCALE IN FEET

REVISIONS

NO.	DATE	BY	DESCRIPTION

DESIGN INFORMATION
DESIGNED BY: TK
DRAWN BY: SMB
CHECKED BY: TK
PROJECT MANAGER: LJO

SEAL

GUDE LANDFILL
REMEDIATION DESIGN
MONTGOMERY COUNTY, MARYLAND
WETLAND DELINEATION PLAN

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

DATE: MAY 2018

PROJECT NUMBER: 1564601

W-1

SHEET: 1 OF 1

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Attachment E

Traffic Impact Study

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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)

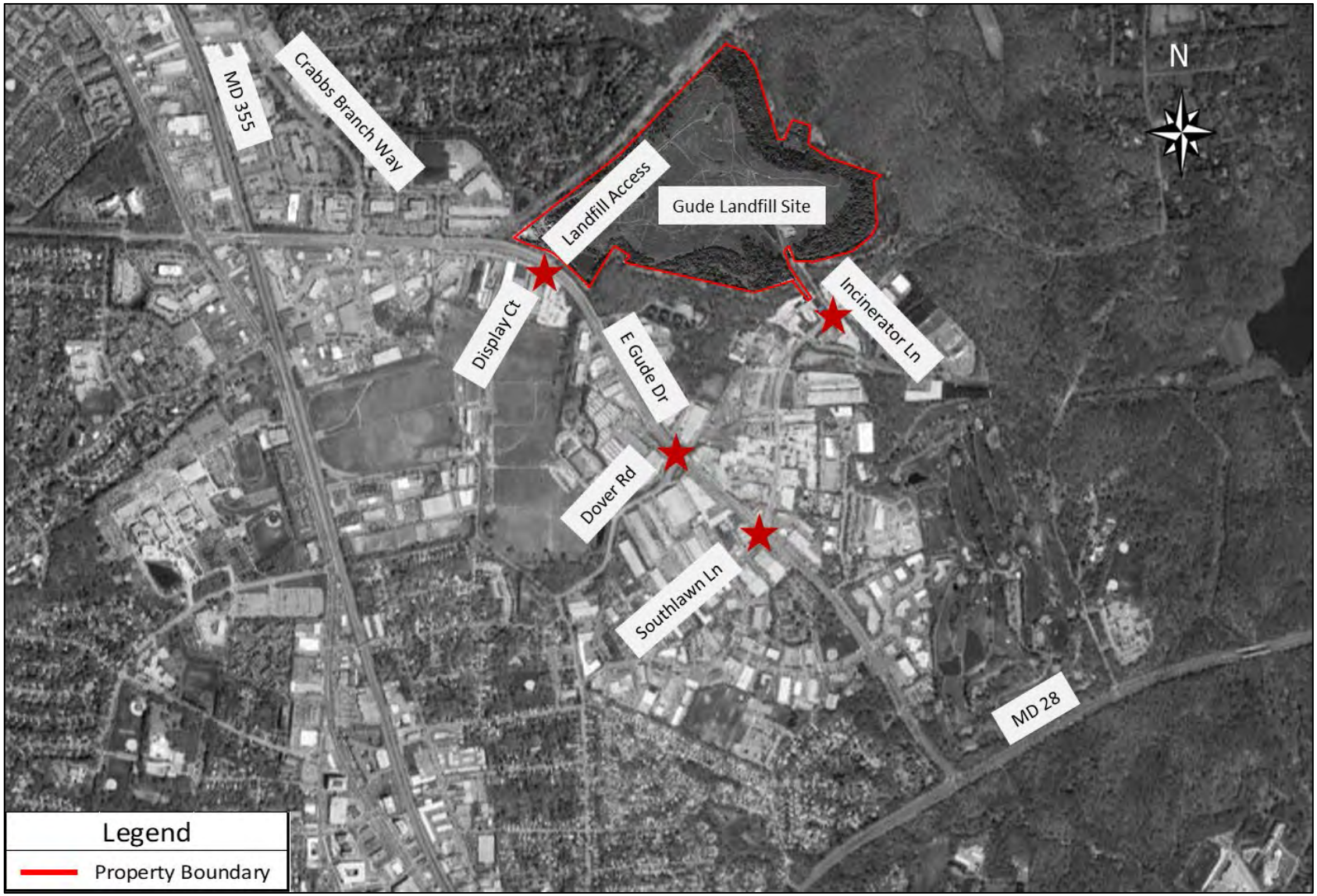
Although construction is expected to last for about four years (beginning in 2020 and finishing sometime in 2023) the background and total conditions analyses were conducted for 2022 when the background traffic is expected to be at maximum.

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.

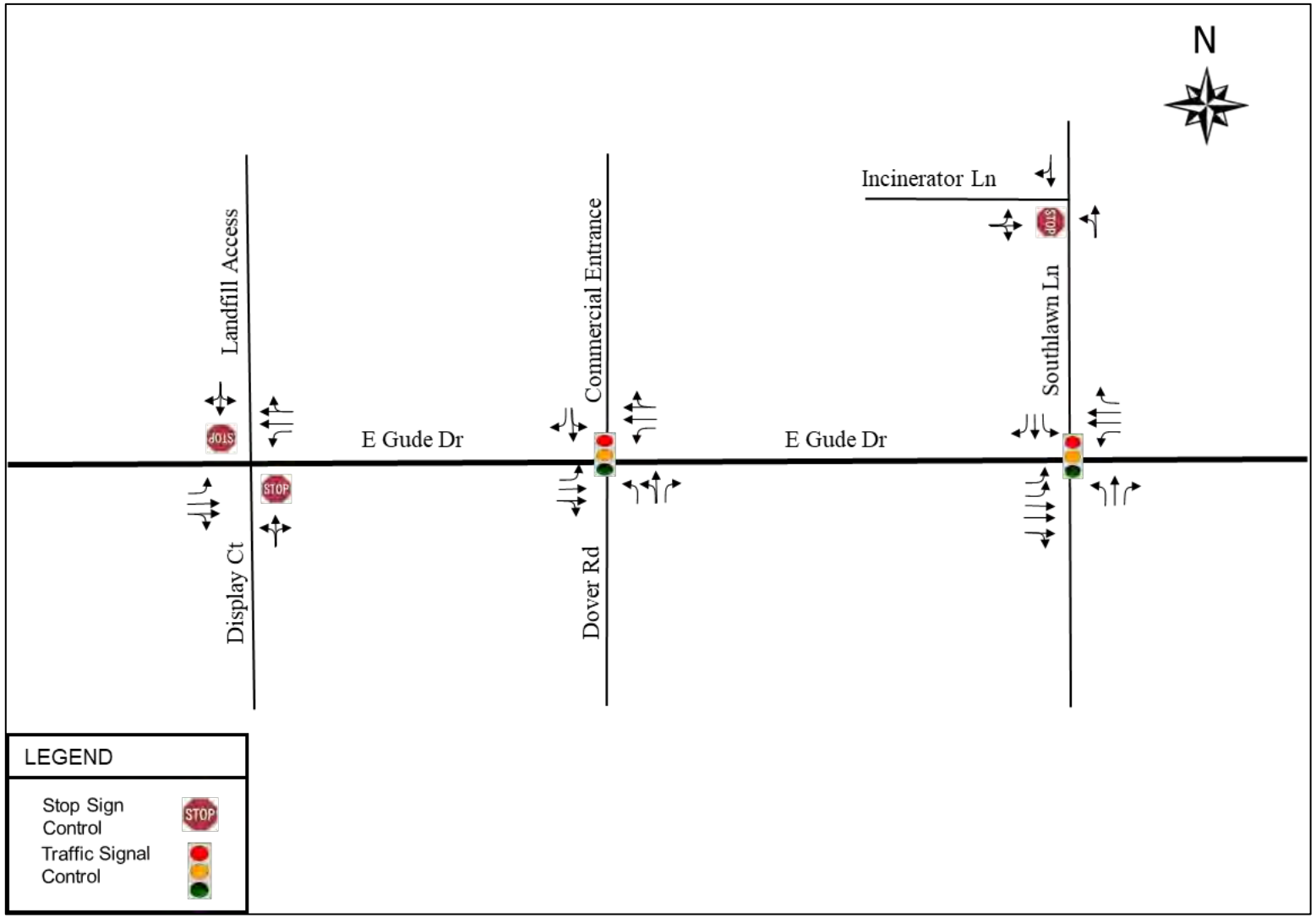
2. East Gude Drive at Dover Road – is a four-legged signalized intersection. The northbound and southbound approaches on Dover Road operate with "split" phases. There are marked pedestrian crosswalks on the east, west, and south sides of the intersection with pedestrian signal heads.

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.

4. Southlawn Lane and Incinerator Lane – 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

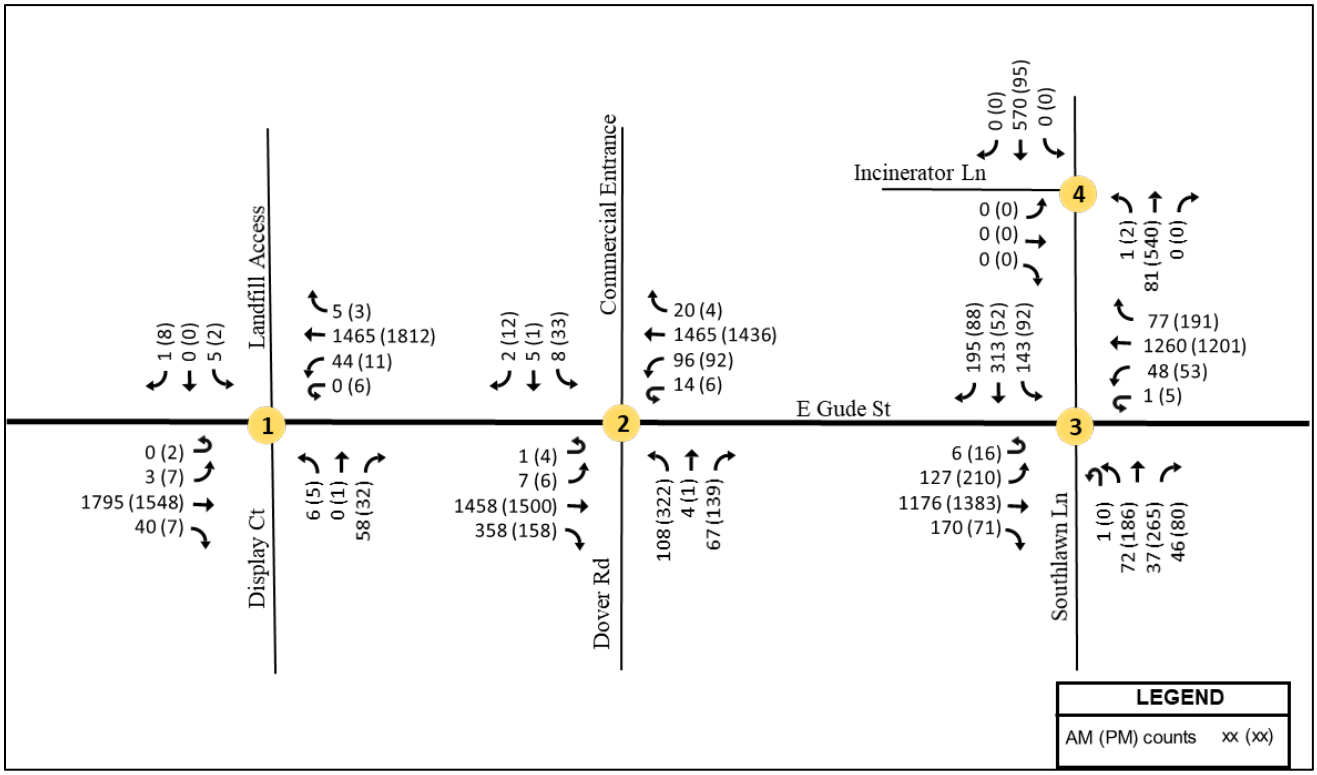


Table 1 displays the 2017 average annual daily traffic (AADT) volumes published by State Highway Administration (SHA) for roadways adjacent to the study site.

Table 1: 2017 AADT

Roadway	Vehicles per Day (vpd)
East Gude Drive	33,300
Dover Road	5,814
Southlawn Lane	8,065

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
A	≤	1000	0.63
B	≤	1150	0.72
C	≤	1300	0.81
D	≤	1450	0.91
E	≤	1600	1
F	>	1600	1

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

Table 3: LOS – Existing Conditions

Intersection #	Intersections	Existing Condition (2018)	
		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.

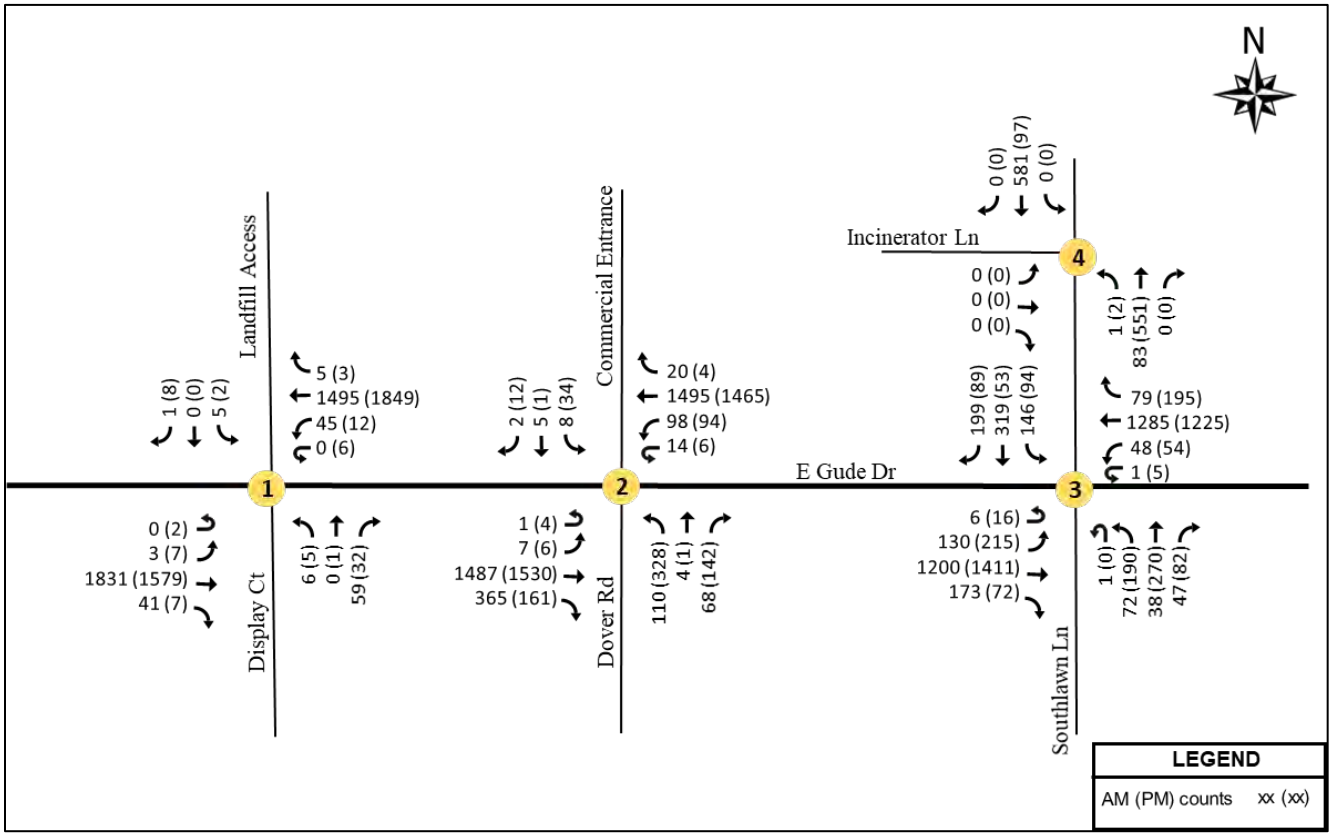
For long-range traffic improvements, the County indicated a future improvement planned at the intersection of East Gude Road at Crabbs Branch Way that is not likely to generate additional traffic impacting the study intersections.

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.

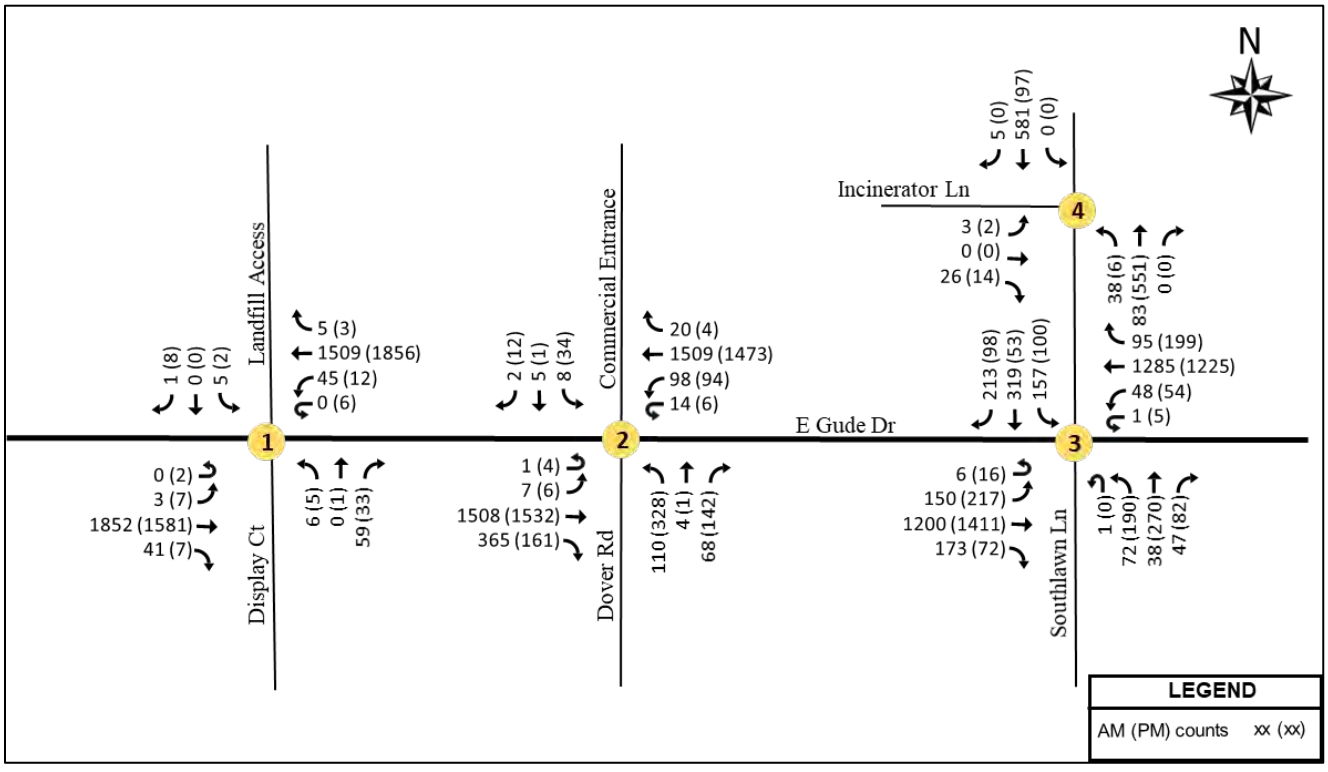
Table 4: Construction-Related Vehicle Trips Generated

Type	AM			PM		
	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

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

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Display Court at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3422				16:45	17:45	3444		

Street Name-->	Landfill Entrance					Display Court					E Gude Drive					E Gude Drive					GRAND TOTAL
HOUR	From North					From South					From East					From West					
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	
00:15					0					0					0					0	0
00:30					0					0					0					0	0
00:45					0					0					0					0	0
01:00					0					0					0					0	0
01:15					0					0					0					0	0
01:30					0					0					0					0	0
01:45					0					0					0					0	0
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02:15					0					0					0					0	0
02:30					0					0					0					0	0
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04:45					0					0					0					0	0
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05:15					0					0					0					0	0
05:30					0					0					0					0	0
05:45					0					0					0					0	0
06:00					0					0					0					0	0
06:15	0	0	0	0	0	0	0	0	6	6	0	8	147	0	155	0	0	139	3	142	303
06:30	0	0	0	0	0	0	0	0	5	5	0	10	171	0	181	1	0	176	8	185	371
06:45	0	0	0	0	0	0	0	0	5	5	0	14	187	0	201	0	1	233	6	240	446
07:00	0	0	0	0	0	0	1	0	11	12	0	11	243	0	254	0	1	333	9	343	609
07:15	0	0	0	0	0	0	2	0	7	9	0	10	229	0	239	0	0	317	2	319	567
07:30	0	0	0	0	0	0	0	0	15	15	0	11	316	1	328	2	0	367	6	375	718
07:45	**0**	**1**	**0**	**1**	**2**	**0**	**3**	**0**	**8**	**11**	**0**	**12**	**331**	**2**	**345**	**0**	**1**	**441**	**13**	**455**	**813**
08:00	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**18**	**20**	**0**	**10**	**403**	**2**	**415**	**0**	**1**	**505**	**8**	**514**	**949**
08:15	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**23**	**23**	**0**	**11**	**384**	**1**	**396**	**0**	**1**	**440**	**12**	**453**	**873**
08:30	**0**	**3**	**0**	**0**	**3**	**0**	**1**	**0**	**9**	**10**	**0**	**11**	**347**	**0**	**358**	**0**	**0**	**409**	**7**	**416**	**787**
08:45	0	1	0	1	2	0	3	0	7	10	0	11	349	0	360	3	4	398	13	418	790
09:00	0	0	0	0	0	0	0	0	9	9	2	12	310	2	326	0	2	388	11	401	736
09:15					0					0					0					0	0
09:30					0					0					0					0	0
09:45					0					0					0					0	0
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15:30	0	1	0	0	1	0	2	0	4	6	0	4	367	0	371	0	0	284	6	290	668
15:45	0	1	0	2	3	0	2	0	8	10	1	12	352	1	366	0	0	317	5	322	701
16:00	0	1	0	1	2	0	3	0	8	11	0	3	318	4	325	3	1	360	3	367	705
16:15	0	4	0	2	6	0	1	0	9	10	1	5	418	1	425	3	2	374	1	380	821
16:30	0	0	0	3	3	0	4	0	8	12	0	3	395	3	401	0	2	325	2	329	745
16:45	0	0	0	4	4	0	2	0	9	11	1	2	445	0	448	0	1	365	2	368	831
17:00	**0**	**0**	**0**	**4**	**4**	**0**	**3**	**1**	**4**	**8**	**3**	**0**	**404**	**1**	**408**	**1**	**5**	**397**	**1**	**404**	**824**
17:15	**0**	**1**	**0**	**2**	**3**	**0**	**1**	**0**	**17**	**18**	**1**	**8**	**483**	**0**	**492**	**0**	**0**	**414**	**4**	**418**	**931**
17:30	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**8**	**8**	**2**	**1**	**440**	**1**	**444**	**0**	**1**	**366**	**1**	**368**	**821**
17:45	**0**	**1**	**0**	**1**	**2**	**0**	**1**	**0**	**3**	**4**	**0**	**2**	**485**	**1**	**488**	**1**	**1**	**371**	**1**	**374**	**868**
18:00	0	0	0	1	1	0	2	0	5	7	0	8	388	0	396	2	0	373	4	379	783
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TOTAL	**0**	**15**	**0**	**24**	**39**	**0**	**38**	**1**	**211**	**250**	**11**	**184**	**8272**	**23**	**8490**	**17**	**26**	**8413**	**133**	**8589**	**17368**
AM Peak Vol	0	5	0	1	6	0	6	0	58	64	0	44	1465	5	1514	0	3	1795	40	1838	3422
PM Peak Vol	0	2	0	8	10	0	5	1	32	38	6	11	1812	3	1832	2	7	1548	7	1564	3444

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Display Court at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15
(In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3422				16:45	17:45	3444		

SCHOOL CHILDREN, PEDESTRIANS & BICYCLES

Hour	North Leg Landfill Entrance			South Leg Display Court			East Leg E Gude Drive			West Leg E Gude Drive		
Ending	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles
00:15												
00:30												
00:45												
01:00												
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06:45	0	0	1	0	0	0	0	0	0	0	1	0
07:00	0	0	0	0	1	0	0	0	0	0	2	0
07:15	0	1	0	0	0	0	0	0	0	0	3	0
07:30	0	0	0	0	2	1	0	0	0	0	1	0
07:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
08:00	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**
08:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
08:30	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**
08:45	0	0	0	0	0	0	0	0	0	0	1	0
09:00	0	0	0	0	0	0	0	0	0	0	2	0
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16:00	0	0	0	0	0	1	0	0	0	0	2	0
16:15	0	0	0	0	1	0	0	0	0	0	5	0
16:30	0	0	0	0	0	2	0	0	0	0	2	0
16:45	0	0	0	0	1	0	0	0	0	0	2	0
17:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
17:15	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
17:30	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
17:45	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00	0	0	0	0	0	0	0	0	0	0	2	0
18:15												
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23:45												
00:00												
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	0	2	0

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

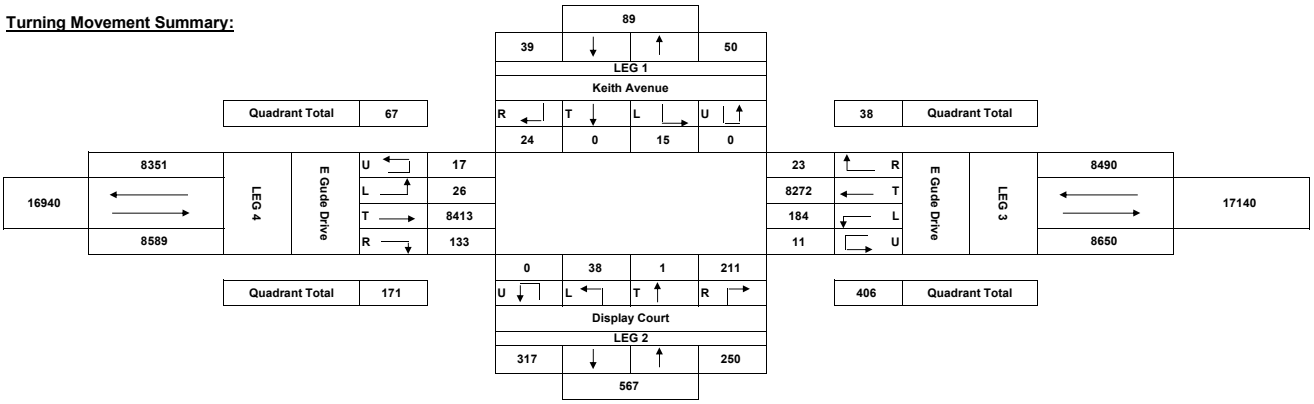
Job No.:

Location: Display Court at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

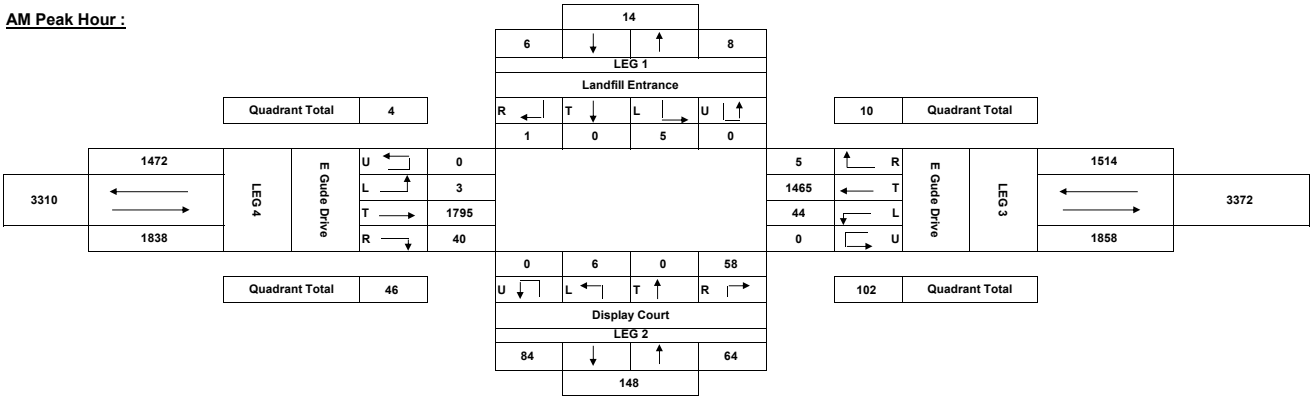
PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3422				16:45	17:45	3444		

Turning Movement Summary:

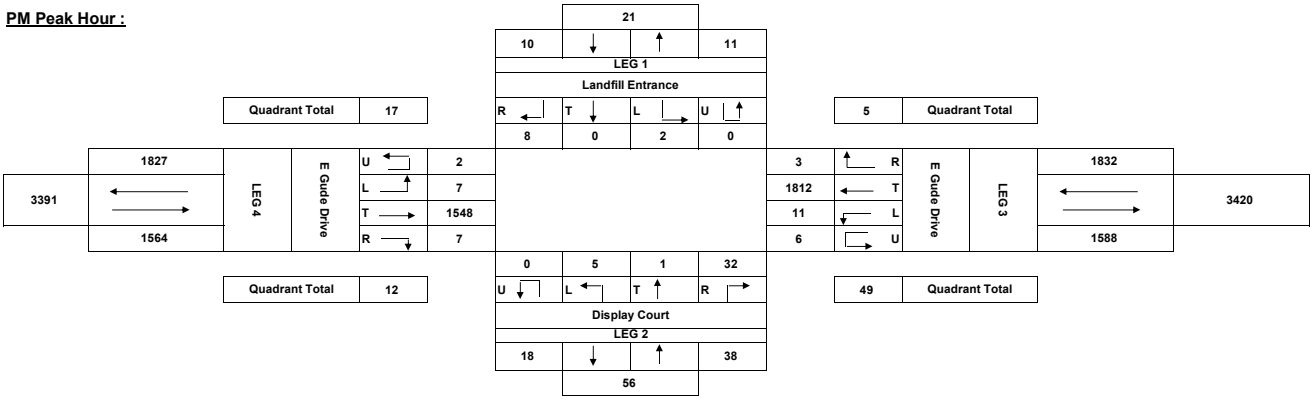


Comments:

AM Peak Hour :



PM Peak Hour :



Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Dover Road at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3613				16:45	17:45	3714		

Street Name-->	Unnamed Road					Dover Road					E Gude Drive					E Gude Drive					GRAND TOTAL
HOUR	From North					From South					From East					From West					
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	
00:15					0					0					0					0	0
00:30					0					0					0					0	0
00:45					0					0					0					0	0
01:00					0					0					0					0	0
01:15					0					0					0					0	0
01:30					0					0					0					0	0
01:45					0					0					0					0	0
02:00					0					0					0					0	0
02:15					0					0					0					0	0
02:30					0					0					0					0	0
02:45					0					0					0					0	0
03:00					0					0					0					0	0
03:15					0					0					0					0	0
03:30					0					0					0					0	0
03:45					0					0					0					0	0
04:00					0					0					0					0	0
04:15					0					0					0					0	0
04:30					0					0					0					0	0
04:45					0					0					0					0	0
05:00					0					0					0					0	0
05:15					0					0					0					0	0
05:30					0					0					0					0	0
05:45					0					0					0					0	0
06:00					0					0					0					0	0
06:15	0	0	0	2	2	0	5	0	11	16	4	10	146	1	161	1	6	115	18	140	319
06:30	0	1	0	0	1	0	9	2	10	21	5	14	174	0	193	0	2	140	26	168	383
06:45	0	1	0	1	2	2	20	1	6	29	0	25	195	0	220	0	2	188	33	223	474
07:00	0	0	0	0	0	0	16	0	10	26	2	20	241	1	264	0	2	256	49	307	597
07:15	0	1	0	0	1	0	20	1	19	40	1	22	238	0	261	1	2	253	49	305	607
07:30	0	1	1	3	5	0	31	3	23	57	5	13	297	5	320	0	1	295	54	350	732
07:45	**0**	**2**	**1**	**0**	**3**	**0**	**24**	**1**	**18**	**43**	**6**	**28**	**326**	**2**	**362**	**0**	**3**	**353**	**84**	**440**	**848**
08:00	**0**	**3**	**1**	**1**	**5**	**0**	**26**	**2**	**14**	**42**	**5**	**20**	**395**	**4**	**424**	**0**	**3**	**381**	**87**	**471**	**942**
08:15	**0**	**1**	**1**	**1**	**3**	**0**	**27**	**1**	**14**	**42**	**3**	**23**	**412**	**11**	**449**	**0**	**1**	**386**	**76**	**463**	**957**
08:30	**0**	**2**	**2**	**0**	**4**	**0**	**31**	**0**	**21**	**52**	**0**	**25**	**332**	**3**	**360**	**1**	**0**	**338**	**111**	**450**	**866**
08:45	0	5	0	1	6	0	38	2	14	54	6	20	337	6	369	0	0	318	89	407	836
09:00	0	4	3	3	10	0	26	0	28	54	4	16	309	12	341	0	2	320	67	389	794
09:15					0					0					0					0	0
09:30					0					0					0					0	0
09:45					0					0					0					0	0
10:00					0					0					0					0	0
10:15					0					0					0					0	0
10:30					0					0					0					0	0
10:45					0					0					0					0	0
11:00					0					0					0					0	0
11:15					0					0					0					0	0
11:30					0					0					0					0	0
11:45					0					0					0					0	0
12:00					0					0					0					0	0
12:15					0					0					0					0	0
12:30					0					0					0					0	0
12:45					0					0					0					0	0
13:00					0					0					0					0	0
13:15					0					0					0					0	0
13:30					0					0					0					0	0
13:45					0					0					0					0	0
14:00					0					0					0					0	0
14:15					0					0					0					0	0
14:30					0					0					0					0	0
14:45					0					0					0					0	0
15:00					0					0					0					0	0
15:15	0	5	0	0	5	0	51	0	22	73	3	12	315	3	333	0	0	286	30	316	727
15:30	0	2	0	2	4	0	50	1	13	64	2	15	313	4	334	1	1	271	26	299	701
15:45	0	8	2	0	10	0	38	2	25	65	3	16	329	3	351	0	1	291	39	331	757
16:00	0	5	1	0	6	0	53	0	22	75	4	19	274	3	300	1	5	323	36	365	746
16:15	0	8	4	4	16	0	68	0	14	82	6	17	398	5	426	2	1	336	23	362	886
16:30	0	6	1	3	10	0	33	1	12	46	8	29	360	3	400	5	2	325	38	370	826
16:45	0	5	1	4	10	0	80	0	14	94	3	10	380	5	398	2	0	328	30	360	862
17:00	**0**	**6**	**0**	**4**	**10**	**0**	**64**	**0**	**36**	**100**	**1**	**29**	**318**	**0**	**348**	**1**	**5**	**385**	**38**	**429**	**887**
17:15	**0**	**10**	**0**	**5**	**15**	**0**	**96**	**0**	**38**	**134**	**2**	**21**	**387**	**1**	**411**	**2**	**1**	**402**	**32**	**437**	**997**
17:30	**0**	**7**	**1**	**1**	**9**	**0**	**89**	**1**	**35**	**125**	**1**	**25**	**334**	**3**	**363**	**0**	**0**	**364**	**41**	**405**	**902**
17:45	**0**	**10**	**0**	**2**	**12**	**0**	**73**	**0**	**30**	**103**	**2**	**17**	**397**	**0**	**416**	**1**	**0**	**349**	**47**	**397**	**928**
18:00	0	7	0	0	7	0	86	1	21	108	1	19	311	0	331	0	2	350	34	386	832
18:15					0					0					0					0	0
18:30					0					0					0					0	0
18:45					0					0					0					0	0
19:00					0					0					0					0	0
19:15					0					0					0					0	0
19:30					0					0					0					0	0
19:45					0					0					0					0	0
20:00					0					0					0					0	0
20:15					0					0					0					0	0
20:30					0					0					0					0	0
20:45					0					0					0					0	0
21:00					0					0					0					0	0
21:15					0					0					0					0	0
21:30					0					0					0					0	0
21:45					0					0					0					0	0
22:00					0					0					0					0	0
22:15					0					0					0					0	0
22:30					0					0					0					0	0
22:45					0					0					0					0	0
23:00					0					0					0					0	0
23:15					0					0					0					0	0
23:30					0					0					0					0	0
23:45					0					0					0					0	0
00:00					0					0					0					0	0
TOTAL	**0**	**100**	**19**	**37**	**156**	**2**	**1054**	**19**	**470**	**1545**	**77**	**465**	**7518**	**75**	**8135**	**18**	**42**	**7353**	**1157**	**8570**	**18406**
AM Peak Vol	0	8	5	2	15	0	108	4	67	179	14	96	1465	20	1595	1	7	1458	358	1824	3613
PM Peak Vol	0	33	1	12	46	0	322	1	139	462	6	92	1436	4	1538	4	6	1500	158	1668	3714

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Dover Road at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15
(In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3613				16:45	17:45	3714		

SCHOOL CHILDREN, PEDESTRIANS & BICYCLES

Hour	North Leg Unnamed Road			South Leg Dover Road			East Leg E Gude Drive			West Leg E Gude Drive		
Ending	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles
00:15												
00:30												
00:45												
01:00												
01:15												
01:30												
01:45												
02:00												
02:15												
02:30												
02:45												
03:00												
03:15												
03:30												
03:45												
04:00												
04:15												
04:30												
04:45												
05:00												
05:15												
05:30												
05:45												
06:00												
06:15	0	0	0	0	0	2	0	0	0	0	0	0
06:30	0	0	2	0	1	0	0	0	0	0	0	0
06:45	0	0	0	0	1	1	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	1	0	0	0	0	0	0	0
07:30	0	0	0	0	2	0	0	0	0	0	1	0
07:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
08:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:15	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:30	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
08:45	0	1	0	0	2	0	0	0	0	0	1	0
09:00	0	1	1	0	0	0	0	1	2	0	0	0
09:15												
09:30												
09:45												
10:00												
10:15												
10:30												
10:45												
11:00												
11:15												
11:30												
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13:00												
13:15												
13:30												
13:45												
14:00												
14:15												
14:30												
14:45												
15:00												
15:15	0	0	0	0	0	0	0	0	0	0	1	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	4	0	0	4	0	0	0	0
16:00	0	0	0	0	2	1	0	0	0	0	0	0
16:15	0	2	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	3	2	0	1	0	0	0	0
16:45	0	0	0	0	2	0	0	1	0	0	0	0
17:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:45	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0
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	**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	0	0	0	0	0	0	0	0	0

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

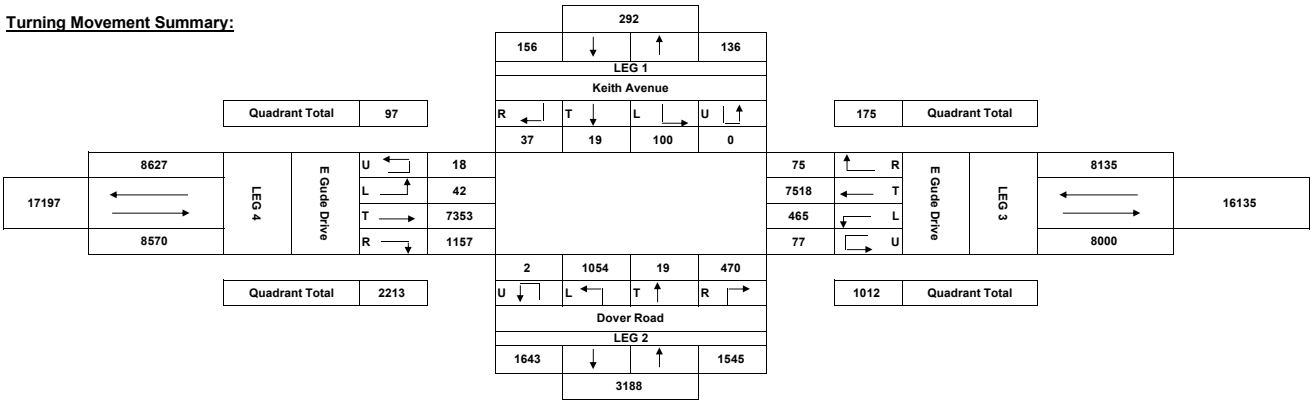
Job No.:

Location: Dover Road at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

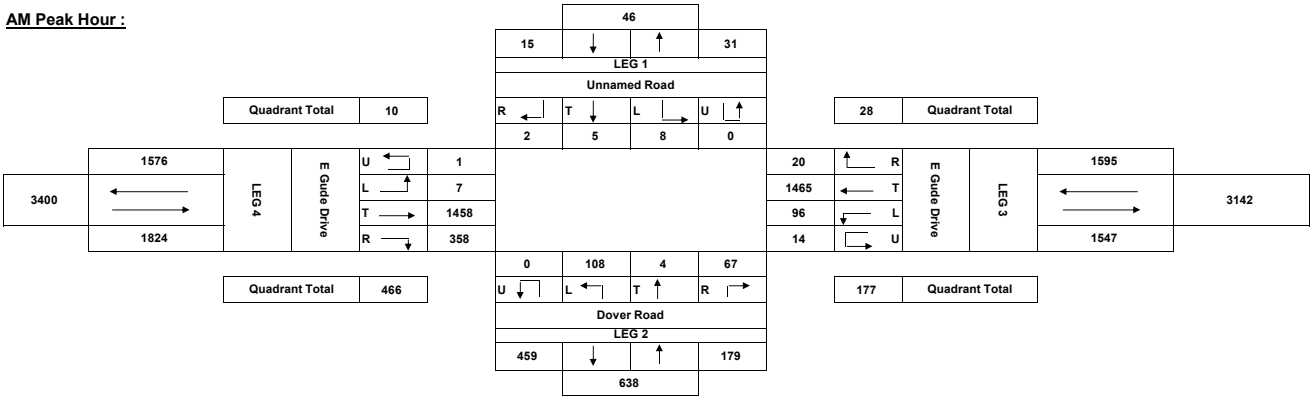
PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3613				16:45	17:45	3714		

Turning Movement Summary:

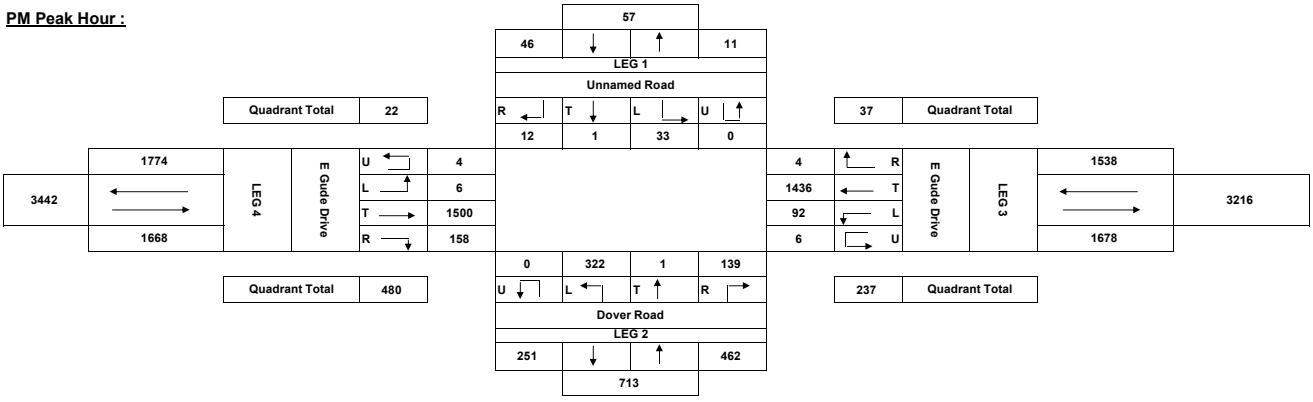


Comments:

AM Peak Hour :



PM Peak Hour :



Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Southlawn Lane at Incerator Lane
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:45	08:45	652				17:00	18:00	637		

Street Name-->	Southlawn Lane					Southlawn Lane					N/A					Incerator Lane					GRAND TOTAL
HOUR	From North					From South					From East					From West					
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	
00:15					0					0					0					0	0
00:30					0					0					0					0	0
00:45					0					0					0					0	0
01:00					0					0					0					0	0
01:15					0					0					0					0	0
01:30					0					0					0					0	0
01:45					0					0					0					0	0
02:00					0					0					0					0	0
02:15					0					0					0					0	0
02:30					0					0					0					0	0
02:45					0					0					0					0	0
03:00					0					0					0					0	0
03:15					0					0					0					0	0
03:30					0					0					0					0	0
03:45					0					0					0					0	0
04:00					0					0					0					0	0
04:15					0					0					0					0	0
04:30					0					0					0					0	0
04:45					0					0					0					0	0
05:00					0					0					0					0	0
05:15					0					0					0					0	0
05:30					0					0					0					0	0
05:45					0					0					0					0	0
06:00					0					0					0					0	0
06:15	0	0	21	0	21	0	0	5	0	5					0	0	0	0	0	0	26
06:30	0	0	48	0	48	0	0	13	0	13					0	0	0	0	0	0	61
06:45	0	0	49	0	49	0	0	13	0	13					0	0	0	0	0	0	62
07:00	0	0	77	0	77	0	0	14	0	14					0	0	0	0	0	0	91
07:15	0	0	82	0	82	0	0	12	0	12					0	0	0	0	0	0	94
07:30	0	0	116	0	116	0	0	13	0	13					0	0	0	0	0	0	129
07:45	0	0	143	0	143	0	0	10	0	10					0	0	0	0	0	0	153
08:00	**0**	**0**	**156**	**0**	**156**	**0**	**0**	**23**	**0**	**23**					**0**	**0**	**0**	**0**	**0**	**0**	**179**
08:15	**0**	**0**	**138**	**0**	**138**	**1**	**0**	**19**	**0**	**20**					**0**	**0**	**0**	**0**	**0**	**0**	**158**
08:30	**0**	**0**	**136**	**0**	**136**	**0**	**0**	**20**	**0**	**20**					**0**	**0**	**0**	**0**	**0**	**0**	**156**
08:45	**0**	**0**	**140**	**0**	**140**	**0**	**0**	**19**	**0**	**19**					**0**	**0**	**0**	**0**	**0**	**0**	**159**
09:00	0	0	136	0	136	0	0	15	0	15					0	0	0	0	0	0	151
09:15					0					0					0					0	0
09:30					0					0					0					0	0
09:45					0					0					0					0	0
10:00					0					0					0					0	0
10:15					0					0					0					0	0
10:30					0					0					0					0	0
10:45					0					0					0					0	0
11:00					0					0					0					0	0
11:15					0					0					0					0	0
11:30					0					0					0					0	0
11:45					0					0					0					0	0
12:00					0					0					0					0	0
12:15					0					0					0					0	0
12:30					0					0					0					0	0
12:45					0					0					0					0	0
13:00					0					0					0					0	0
13:15					0					0					0					0	0
13:30					0					0					0					0	0
13:45					0					0					0					0	0
14:00					0					0					0					0	0
14:15					0					0					0					0	0
14:30					0					0					0					0	0
14:45					0					0					0					0	0
15:00					0					0					0					0	0
15:15	0	0	23	0	23	0	0	51	0	51					0	0	0	0	0	0	74
15:30	0	0	27	0	27	0	0	46	0	46					0	0	0	0	0	0	73
15:45	0	0	30	0	30	0	0	62	0	62					0	0	0	0	0	0	92
16:00	0	0	25	0	25	0	0	46	0	46					0	0	0	0	0	0	71
16:15	0	0	26	0	26	0	0	74	0	74					0	0	0	0	0	0	100
16:30	0	0	20	0	20	0	0	106	0	106					0	0	0	0	0	0	126
16:45	0	0	23	0	23	0	0	92	0	92					0	0	0	0	0	0	115
17:00	0	0	34	0	34	0	0	97	0	97					0	0	0	0	0	0	131
17:15	**0**	**0**	**23**	**0**	**23**	**1**	**0**	**143**	**0**	**144**					**0**	**0**	**0**	**0**	**0**	**0**	**167**
17:30	**0**	**0**	**24**	**0**	**24**	**0**	**0**	**136**	**0**	**136**					**0**	**0**	**0**	**0**	**0**	**0**	**160**
17:45	**0**	**0**	**24**	**0**	**24**	**1**	**0**	**141**	**0**	**142**					**0**	**0**	**0**	**0**	**0**	**0**	**166**
18:00	**0**	**0**	**24**	**0**	**24**	**0**	**0**	**120**	**0**	**120**					**0**	**0**	**0**	**0**	**0**	**0**	**144**
18:15					0					0					0	0	0	0	0	0	0
18:30					0					0					0					0	0
18:45					0					0					0					0	0
19:00					0					0					0					0	0
19:15					0					0					0					0	0
19:30					0					0					0					0	0
19:45					0					0					0					0	0
20:00					0					0					0					0	0
20:15					0					0					0					0	0
20:30					0					0					0					0	0
20:45					0					0					0					0	0
21:00					0					0					0					0	0
21:15					0					0					0					0	0
21:30					0					0					0					0	0
21:45					0					0					0					0	0
22:00					0					0					0					0	0
22:15					0					0					0					0	0
22:30					0					0					0					0	0
22:45					0					0					0					0	0
23:00					0					0					0					0	0
23:15					0					0					0					0	0
23:30					0					0					0					0	0
23:45					0					0					0					0	0
00:00					0					0					0					0	0
TOTAL	**0**	**0**	**1545**	**0**	**1545**	**3**	**0**	**1290**	**0**	**1293**	**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	652
PM Peak Vol	0	0	95	0	95	2	0	540	0	542	0	0	0	0	0	0	0	0	0	0	637

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Southlawn Lane at Incerator Lane
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15
(In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:45	08:45	**652**				17:00	18:00	**637**		

SCHOOL CHILDREN, PEDESTRIANS & BICYCLES

Hour Ending	North Leg Southlawn Lane			South Leg Southlawn Lane			East Leg N/A			West Leg Incerator Lane		
	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles
00:15												
00:30												
00:45												
01:00												
01:15												
01:30												
01:45												
02:00												
02:15												
02:30												
02:45												
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04:00												
04:15												
04:30												
04:45												
05:00												
05:15												
05:30												
05:45												
06:00												
06:15	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0
08:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
09:00	0	0	0	0	0	0	0	0	0	0	0	0
09:15												
09:30												
09:45												
10:00												
10:15												
10:30												
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14:00												
14:15												
14:30												
14:45												
15:00												
15:15	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0
17:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
17:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
18:15	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0
19:15												
19:30												
19:45												
20:00												
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22:00												
22:15												
22:30												
22:45												
23:00												
23:15												
23:30												
23:45												
00:00												
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
AM Peak Vol	0	0	0	0	0	0	0	0	0	0	0	0
PM Peak Vol	0	0	0	0	0	0	0	0	0	0	0	0

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

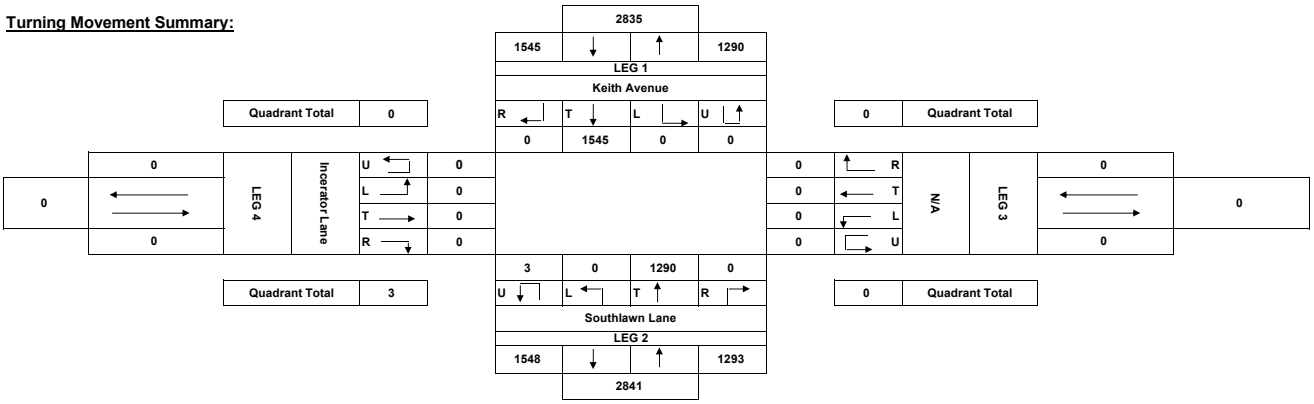
Job No.:

Location: Southlawn Lane at Incerator Lane
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15
(In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

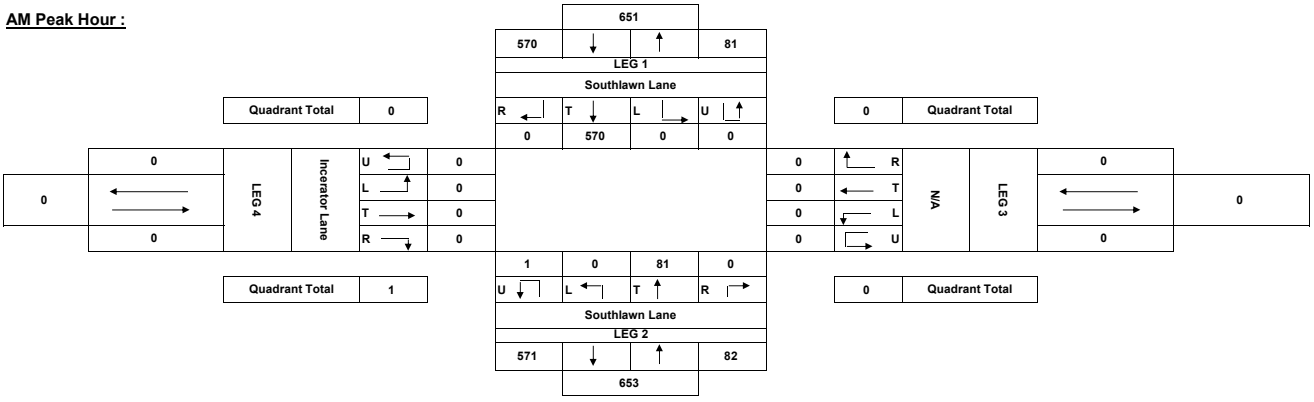
PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:45	08:45	652				17:00	18:00	637		

Turning Movement Summary:

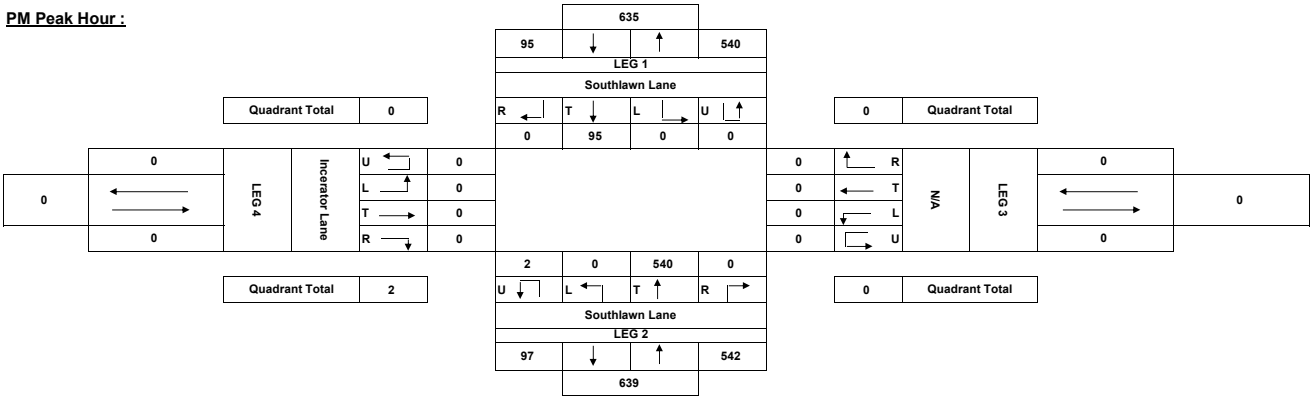


Comments:

AM Peak Hour :



PM Peak Hour :



Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Southlawn Lane at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

	AM PERIOD	Start	End	Volume	LOS	V/C	PM PERIOD	Start	End	Volume	LOS	V/C
PEAK HOURS	6:00AM-12:00PM	07:30	08:30	3671			12:00PM-7:00PM	16:45	17:45	3893		

Street Name-->	Southlawn Lane					Southlawn Lane					E Gude Drive					E Gude Drive					GRAND
HOUR	From North					From South					From East					From West					
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
00:15					0					0					0					0	0
00:30					0					0					0					0	0
00:45					0					0					0					0	0
01:00					0					0					0					0	0
01:15					0					0					0					0	0
01:30					0					0					0					0	0
01:45					0					0					0					0	0
02:00					0					0					0					0	0
02:15					0					0					0					0	0
02:30					0					0					0					0	0
02:45					0					0					0					0	0
03:00					0					0					0					0	0
03:15					0					0					0					0	0
03:30					0					0					0					0	0
03:45					0					0					0					0	0
04:00					0					0					0					0	0
04:15					0					0					0					0	0
04:30					0					0					0					0	0
04:45					0					0					0					0	0
05:00					0					0					0					0	0
05:15					0					0					0					0	0
05:30					0					0					0					0	0
05:45					0					0					0					0	0
06:00					0					0					0					0	0
06:15	0	18	9	16	43	0	5	4	3	12	0	3	131	30	164	0	23	84	18	125	344
06:30	0	18	27	15	60	0	6	10	1	17	0	1	149	29	179	0	31	99	21	151	407
06:45	1	26	25	15	67	0	11	3	8	22	0	4	171	38	213	0	25	160	22	207	509
07:00	0	21	30	25	76	0	11	9	9	29	0	10	226	24	260	1	37	200	41	279	644
07:15	0	43	41	32	116	0	8	10	12	30	0	6	199	32	237	0	29	214	31	274	657
07:30	0	37	80	43	160	0	7	12	12	31	0	14	261	18	293	6	32	259	17	314	798
07:45	**0**	**36**	**76**	**53**	**165**	**0**	**19**	**10**	**16**	**45**	**1**	**12**	**296**	**24**	**333**	**3**	**27**	**299**	**37**	**366**	**909**
08:00	**0**	**33**	**84**	**58**	**175**	**0**	**17**	**13**	**9**	**39**	**0**	**10**	**313**	**15**	**338**	**1**	**32**	**303**	**63**	**399**	**951**
08:15	**0**	**38**	**75**	**49**	**162**	**1**	**18**	**7**	**10**	**36**	**0**	**12**	**339**	**21**	**372**	**2**	**38**	**287**	**41**	**368**	**938**
08:30	**0**	**36**	**78**	**35**	**149**	**0**	**18**	**7**	**11**	**36**	**0**	**13**	**312**	**17**	**342**	**0**	**30**	**287**	**29**	**346**	**873**
08:45	1	35	75	43	154	0	21	9	9	39	0	5	297	24	326	2	28	278	25	333	852
09:00	0	30	64	37	131	0	12	7	12	31	2	14	272	20	308	5	32	287	30	354	824
09:15					0					0					0					0	0
09:30					0					0					0					0	0
09:45					0					0					0					0	0
10:00					0					0					0					0	0
10:15					0					0					0					0	0
10:30					0					0					0					0	0
10:45					0					0					0					0	0
11:00					0					0					0					0	0
11:15					0					0					0					0	0
11:30					0					0					0					0	0
11:45					0					0					0					0	0
12:00					0					0					0					0	0
12:15					0					0					0					0	0
12:30					0					0					0					0	0
12:45					0					0					0					0	0
13:00					0					0					0					0	0
13:15					0					0					0					0	0
13:30					0					0					0					0	0
13:45					0					0					0					0	0
14:00					0					0					0					0	0
14:15					0					0					0					0	0
14:30					0					0					0					0	0
14:45					0					0					0					0	0
15:00					0					0					0					0	0
15:15	1	23	11	23	58	0	26	21	10	57	1	16	249	34	300	7	39	236	33	315	730
15:30	0	19	8	25	52	0	26	22	16	64	2	8	273	33	316	2	38	224	16	280	712
15:45	0	27	14	21	62	0	40	21	13	74	1	11	262	31	305	2	38	252	20	312	753
16:00	0	25	12	29	66	0	26	20	14	60	2	12	234	25	273	9	41	308	19	377	776
16:15	1	25	12	29	67	0	34	33	15	82	2	11	316	43	372	8	43	313	16	380	901
16:30	0	16	9	21	46	0	37	42	21	100	5	15	312	31	363	5	42	267	17	331	840
16:45	0	15	11	33	59	0	52	46	17	115	1	13	305	45	364	2	43	300	24	369	907
17:00	**0**	**23**	**12**	**27**	**62**	**0**	**42**	**43**	**25**	**110**	**0**	**16**	**260**	**40**	**316**	**1**	**47**	**343**	**29**	**420**	**908**
17:15	**0**	**22**	**13**	**24**	**59**	**0**	**42**	**66**	**20**	**128**	**3**	**12**	**312**	**51**	**378**	**5**	**58**	**397**	**14**	**474**	**1039**
17:30	**0**	**22**	**13**	**24**	**59**	**0**	**51**	**75**	**15**	**141**	**1**	**11**	**303**	**54**	**369**	**6**	**56**	**308**	**18**	**388**	**957**
17:45	**0**	**25**	**14**	**13**	**52**	**0**	**51**	**81**	**20**	**152**	**1**	**14**	**326**	**46**	**387**	**4**	**49**	**335**	**10**	**398**	**989**
18:00	0	16	13	14	43	0	26	64	13	103	0	8	261	42	311	3	42	306	13	364	821
18:15					0					0					0					0	0
18:30					0					0					0					0	0
18:45					0					0					0					0	0
19:00					0					0					0					0	0
19:15					0					0					0					0	0
19:30					0					0					0					0	0
19:45					0					0					0					0	0
20:00					0					0					0					0	0
20:15					0					0					0					0	0
20:30					0					0					0					0	0
20:45					0					0					0					0	0
21:00					0					0					0					0	0
21:15					0					0					0					0	0
21:30					0					0					0					0	0
21:45					0					0					0					0	0
22:00					0					0					0					0	0
22:15					0					0					0					0	0
22:30					0					0					0					0	0
22:45					0					0					0					0	0
23:00					0					0					0					0	0
23:15					0					0					0					0	0
23:30					0					0					0					0	0
23:45					0					0					0					0	0
00:00					0					0					0					0	0
TOTAL	**4**	**629**	**806**	**704**	**2143**	**1**	**606**	**635**	**311**	**1553**	**22**	**251**	**6379**	**767**	**7419**	**74**	**900**	**6346**	**604**	**7924**	**19039**
AM Peak Vol	0	143	313	195	651	1	72	37	46	156	1	47	1260	77	1385	6	127	1176	170	1479	3671
PM Peak Vol	0	92	52	88	232	0	186	265	80	531	5	53	1201	191	1450	16	210	1383	71	1680	3893

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

Job No.:

Location: Southlawn Lane at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15
(In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3671				16:45	17:45	3893		

SCHOOL CHILDREN, PEDESTRIANS & BICYCLES

Hour Ending	North Leg Southlawn Lane			South Leg Southlawn Lane			East Leg E Gude Drive			West Leg E Gude Drive		
	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles	School Children	Pedestrians	Bicycles
00:15												
00:30												
00:45												
01:00												
01:15												
01:30												
01:45												
02:00												
02:15												
02:30												
02:45												
03:00												
03:15												
03:30												
03:45												
04:00												
04:15												
04:30												
04:45												
05:00												
05:15												
05:30												
05:45												
06:00												
06:15	0	0	0	0	0	1	0	3	0	0	0	0
06:30	0	2	1	0	1	0	0	4	0	0	0	0
06:45	0	1	0	0	2	0	0	0	0	0	0	0
07:00	0	2	0	0	0	0	0	3	0	0	1	0
07:15	0	1	0	0	1	0	0	0	0	0	0	0
07:30	0	1	0	0	1	0	0	1	0	0	0	0
07:45	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:00	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**
08:15	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
08:30	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**
08:45	0	2	0	0	2	1	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0
09:15												
09:30												
09:45												
10:00												
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13:45												
14:00												
14:15												
14:30												
14:45												
15:00												
15:15	0	1	0	0	1	0	0	1	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	2	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	1	0	1	0	0	3	0
16:15	0	1	0	0	10	0	0	0	0	0	0	0
16:30	0	1	0	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	4	2	0	0	1	0	0	0
17:00	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**
17:15	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
17:30	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**	**0**
17:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
18:00	0	0	0	0	1	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0
19:15												
19:30												
19:45												
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23:15												
23:30												
23:45												
00:00												
TOTAL	**0**	**20**	**2**	**0**	**27**	**7**	**0**	**18**	**1**	**0**	**9**	**0**
AM Peak Vol	0	3	1	0	2	1	0	1	0	0	1	0
PM Peak Vol	0	3	0	0	2	1	0	4	0	0	3	0

Maryland State Highway Administration
Data Services Engineering Division
Turning Movement Counts - Field Sheet

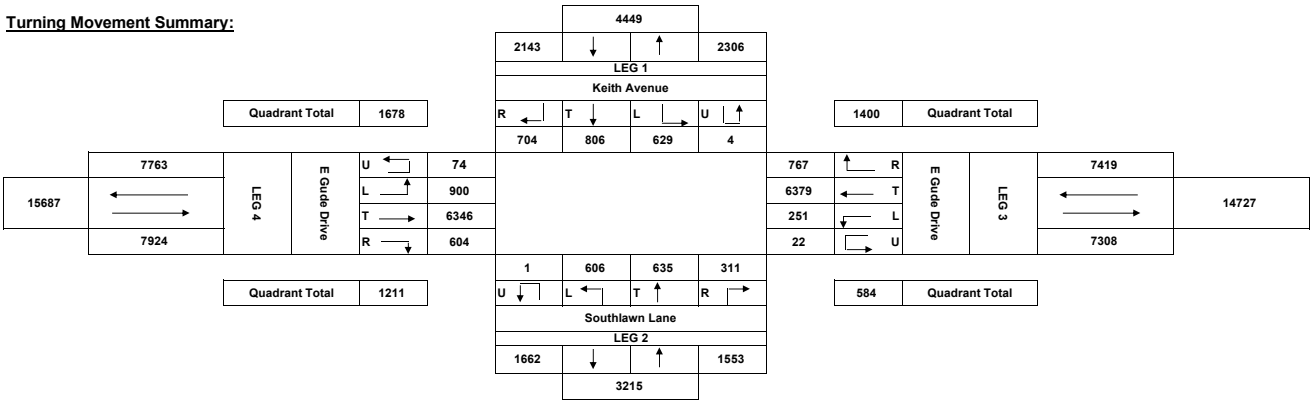
Job No.:

Location: Southlawn Lane at E Gude Drive
Date: 5/30/2018 Wednesday
Recorder: T3D
Interval (dd) : 15 (In Minutes)

County: Montgomery
Town: Rockville
Weather: Clear

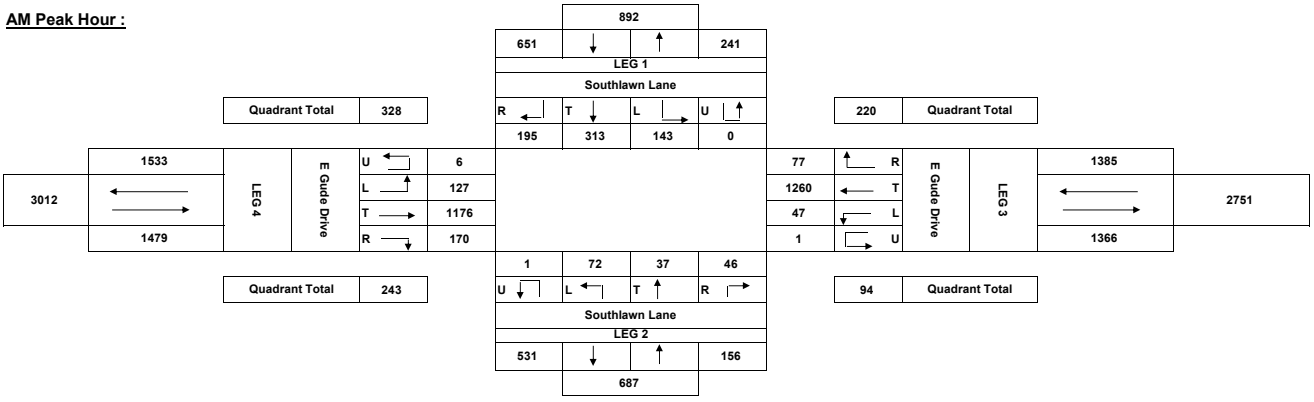
PEAK HOURS	AM PERIOD 6:00AM-12:00PM	Start	End	Volume	LOS	V/C	PM PERIOD 12:00PM-7:00PM	Start	End	Volume	LOS	V/C
		07:30	08:30	3671				16:45	17:45	3893		

Turning Movement Summary:

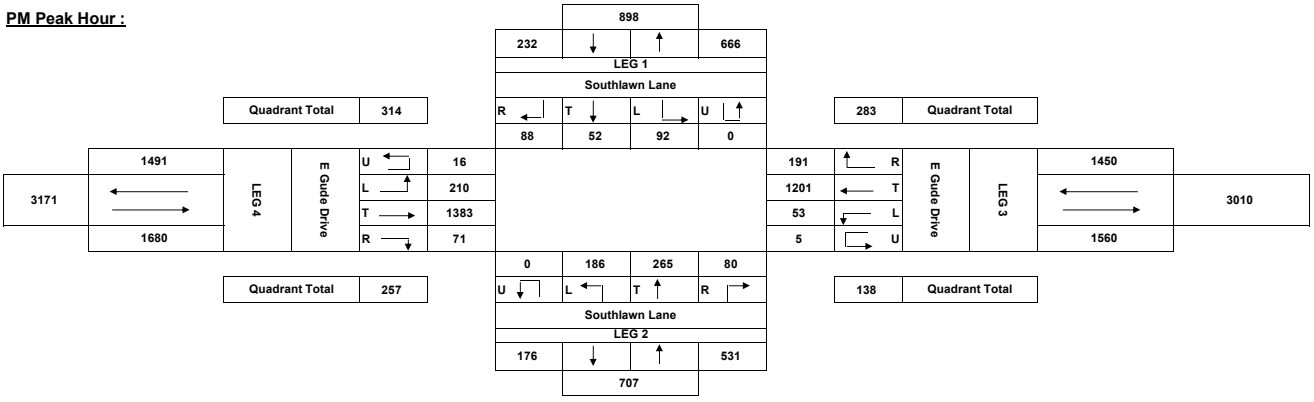


Comments:

AM Peak Hour :



PM Peak Hour :



Appendix B – CLV Results - Existing Conditions

T3 design
Fairfax, VA 22030

TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

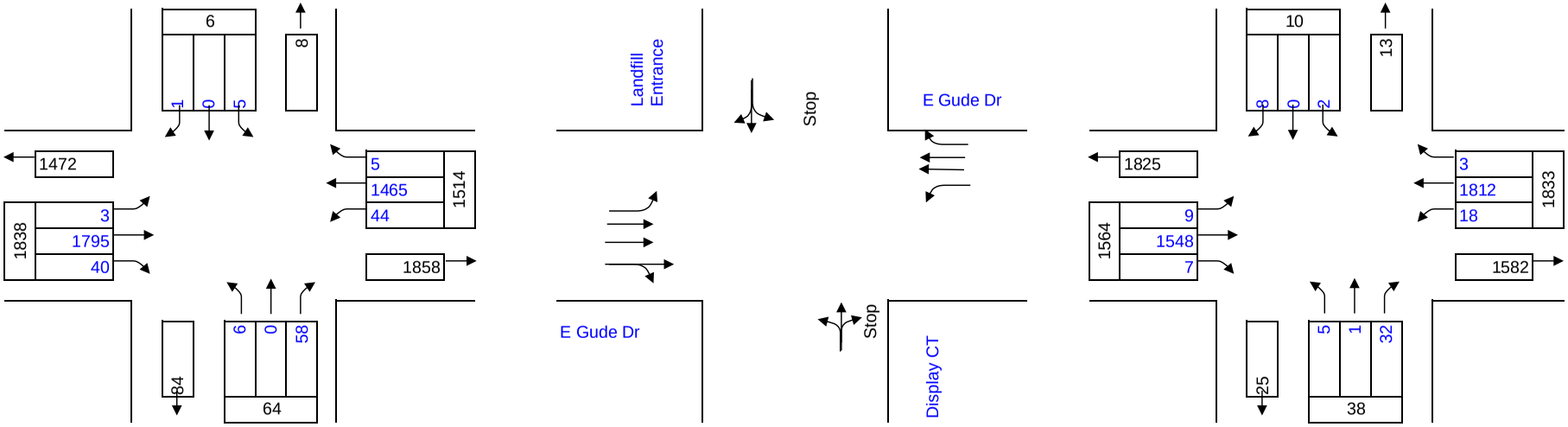
COUNT DATE:
CONDITIONS: Existing
DESIGN YEAR: 2018
COMPUTED BY: ASM DATE: 11/20/2018
CHECKED BY: AA DATE: 12/3/2018

LOCATION: E. Gude Dr
Landfill Entrance

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal
Stop X Ways 1

No. of Lanes		Lane Use Factor
1	=	1.00
2	=	0.55
3	=	0.40
4	=	0.30
Dble. Left	=	0.60
Trpl. Left	=	0.45

Level of Service	Critical Lane Volumes Total	Opposing Volume (vph)	PCE
A	≤ 1000	≤ 199	1.1
B	≤ 1150	≤ 599	2.0
C	≤ 1300	≤ 799	3.0
D	≤ 1450	≤ 999	4.0
E	≤ 1600	> 1000	5.0
F	> 1600		

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1835	0.55	1009	44	1.00	44	1053	*
	WB	1465	0.55	806	3	1.00	3	809	
	NB	65	1.00	65	0	1.00	0	65	*
	SB	7	1.00	7	0	1.00	0	7	*

REMARKS

* Critical Volume **AM TOTAL** **1124**

V/C = **0.70** **LEVEL OF SERVICE** **B**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1555	0.55	855	18	1.00	18	873	
	WB	1812	0.55	997	9	1.00	9	1006	*
	NB	39	1.00	39	0	1.00	0	39	*
	SB	10	1.00	10	0	1.00	0	10	*

REMARKS
NBR is a free movement.

* Critical Volume **PM TOTAL** **1055**

V/C = **0.66** **LEVEL OF SERVICE** **B**

T3 design
Fairfax, VA 22030

TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

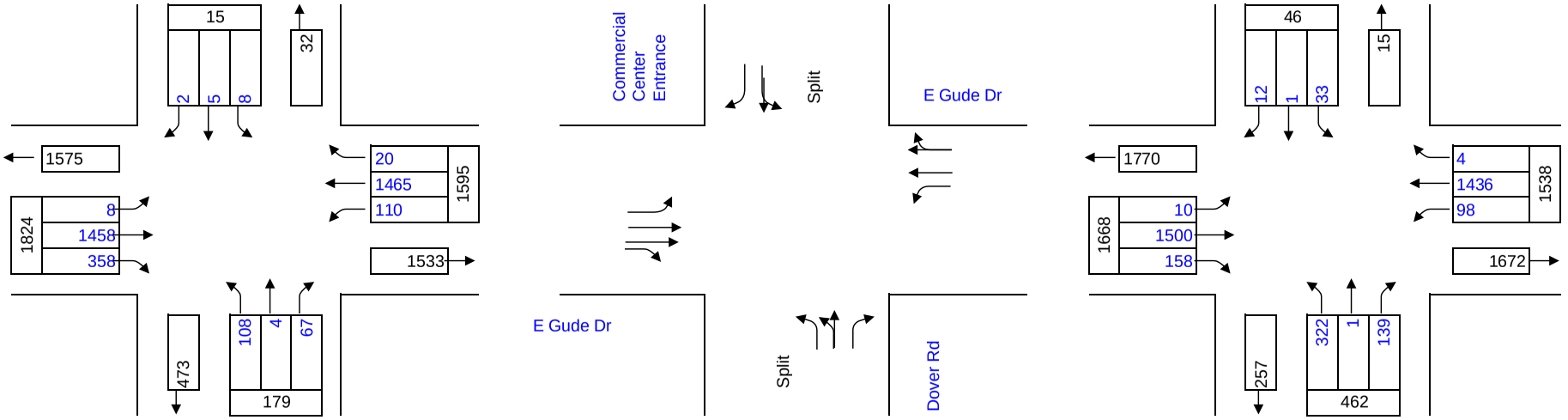
COUNT DATE:
CONDITIONS: Existing
DESIGN YEAR: 2018
COMPUTED BY: ASM DATE: 11/20/2018
CHECKED BY: AA DATE: 12/3/2018

LOCATION: E. Gude Dr at Dover Rd

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal x
Stop
Ways

Side street: split
LT: pt+pm

No. of Lanes		Lane Use Factor
1	=	1.00
2	=	0.55
3	=	0.40
4	=	0.30
Dble. Left	=	0.60
Trpl. Left	=	0.45

Level of Service		Critical Lane Volumes Total
A	≤	1000
B	≤	1150
C	≤	1300
D	≤	1450
E	≤	1600
F	>	1600

Opposing Volume (vph)		PCE
≤ 199		1.1
≤ 599		2.0
≤ 799		3.0
≤ 999		4.0
> 1000		5.0

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1816	0.55	999	110	1.00	110	1109	*
	WB	1485	0.55	817	8	1.00	8	825	
	NB	123	0.55	68	0	1.00	0	68	*
	SB	14	1.00	14	0	1.00	0	14	*

REMARKS

* Critical Volume **AM TOTAL** **1190**

V/C = **0.74** **LEVEL OF SERVICE** **C**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1658	0.55	912	98	1.00	98	1010	*
	WB	1440	0.55	792	10	1.00	10	802	
	NB	355	0.40	142	0	1.00	0	142	*
	SB	79	0.55	43	0	1.00	0	43	*

REMARKS

* Critical Volume **PM TOTAL** **1195**

V/C = **0.75** **LEVEL OF SERVICE** **C**

T3 design
Fairfax, VA 22030

TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

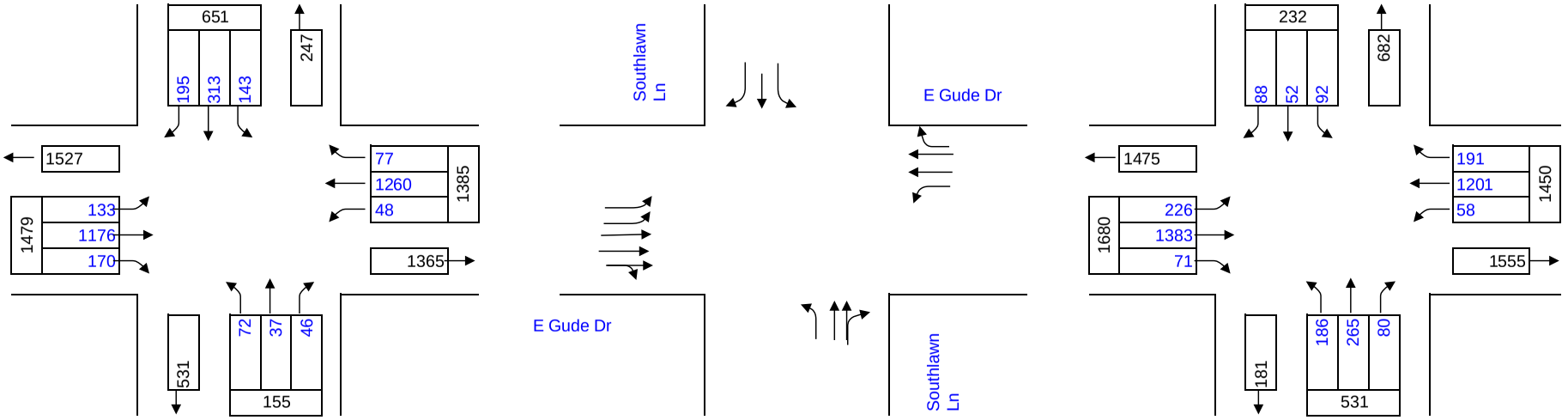
COUNT DATE:
CONDITIONS: EXISTING
DESIGN YEAR: 2018
COMPUTED BY: ASM DATE: 8/20/2018
CHECKED BY: AA DATE: 8/25/2018

LOCATION: E. Gude Dr
11 at Southlawn

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



NBL&SBL pm+pt
NBR & EBL OL
EB&WB exclusive LT

Intersection Control:
Signal x
Stop ____ Ways ____

	No. of Lanes		Lane Use Factor
	1	=	1.00
	2	=	0.55
	3	=	0.40
	4	=	0.30
	Dble. Left	=	0.60
	Trpl. Left	=	0.45

Critical Lane Level of Service		Volumes Total
A	≤	1000
B	≤	1150
C	≤	1300
D	≤	1450
E	≤	1600
F	>	1600

Opposing Volume (vph)		PCE
≤	199	1.1
≤	599	2.0
≤	799	3.0
≤	999	4.0
>	1000	5.0

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1346	0.40	538	48	1.00	48	586	
	WB	1260	0.55	693	133	0.60	80	773	*
	NB	216	1.00	216	143	1.00	143	359	*
	SB	375	0.55	206	72	1.00	72	278	

REMARKS

* Critical Volume **AM TOTAL** **1132**

V/C = **0.71** **LEVEL OF SERVICE** **B**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1454	0.40	582	59	1.00	59	641	
	WB	1201	0.55	661	226	0.60	136	797	*
	NB	345	0.55	190	92	1.00	92	282	
	SB	184	1.00	184	186	1.00	186	370	*

REMARKS

* Critical Volume **PM TOTAL** **1167**

V/C = **0.73** **LEVEL OF SERVICE** **C**

T3 design
Fairfax, VA 22030

TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

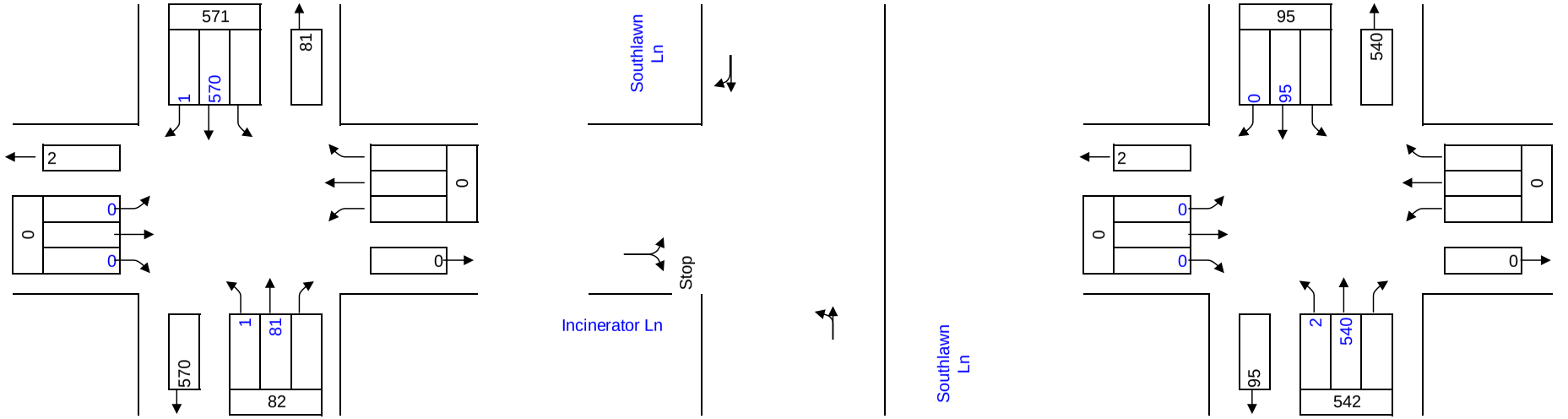
COUNT DATE:
CONDITIONS: EXISTING
DESIGN YEAR: 2018
COMPUTED BY: ASM DATE: 8/20/2018
CHECKED BY: AA DATE: 8/25/2018

LOCATION: Southlawn Ln
21 at Incinerator Ln

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal
Stop X Ways 1

	No. of Lanes		Lane Use Factor
1	=		1.00
2	=		0.55
3	=		0.40
4	=		0.30
Dble. Left	=		0.60
Trpl. Left	=		0.45

Level of Service	Critical Lane Volumes Total		Opposing Volume (vph)	PCE
A	≤	1000	≤ 199	1.1
B	≤	1150	≤ 599	2.0
C	≤	1300	≤ 799	3.0
D	≤	1450	≤ 999	4.0
E	≤	1600	> 1000	5.0
F	>	1600		

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	NB	83	1.00	83	0	1.00	0	83	
	SB	571	1.00	571	1	1.00	1	572	*
	EB	0	1.00	0	0	1.00	0	0	*

REMARKS

* Critical Volume **AM TOTAL** 572

V/C = **0.36** **LEVEL OF SERVICE** **A**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	NB	542	1.00	542	0	1.00	0	542	*
	SB	95	1.00	95	2	1.00	2	97	
	EB	0	1.00	0	0	1.00	0	0	*

REMARKS

* Critical Volume **PM TOTAL** 542

V/C = **0.34** **LEVEL OF SERVICE** **A**

Appendix C – Traffic Growth Rate Calculations

E Gude Dr From MD 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>

WSSC
Where Water Matters

14501 Sweitzer Lane • Laurel, Maryland 20707-5901

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

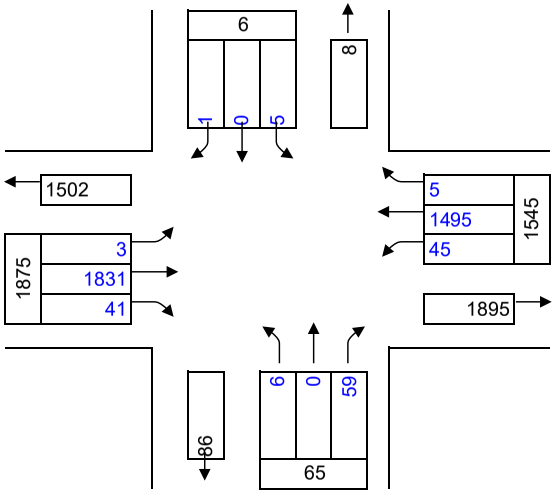
Appendix D – CLV Results - Background and Total Traffic Conditions

T3 design
Fairfax, VA 22030

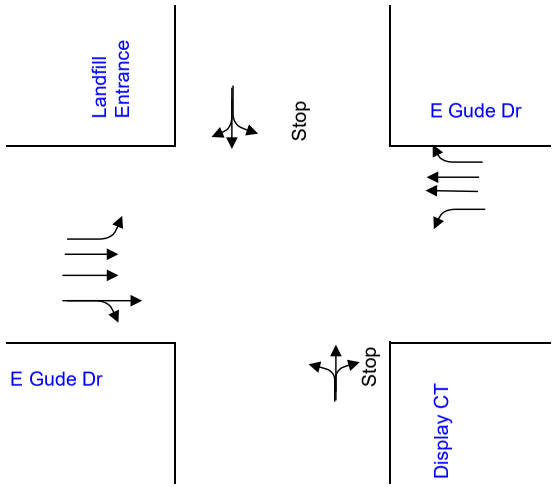
TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

COUNT DATE:		LOCATION:	E. Gude Dr
CONDITIONS:	Background	24	Landfill Entrance
DESIGN YEAR:	2022		
COMPUTED BY:	ASM	DATE:	11/20/2018
CHECKED BY:	AA	DATE:	12/3/2018

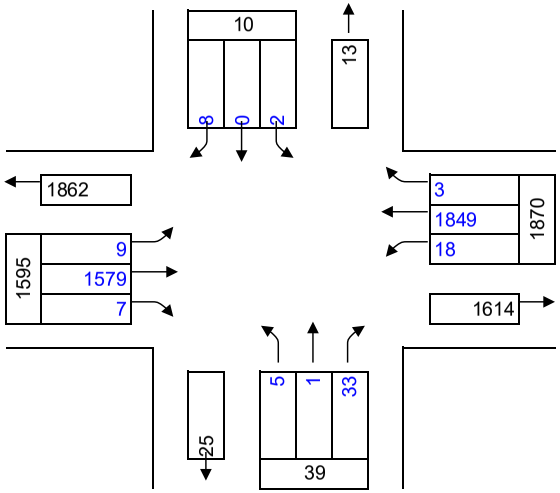
AM PEAK HOUR: 7:30 - 8:30



LANE CONFIGURATION



PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal
Stop X Ways 1

No. of Lanes		Lane Use Factor
1	=	1.00
2	=	0.55
3	=	0.40
4	=	0.30
Dble. Left	=	0.60
Trpl. Left	=	0.45

Level of Service	Critical Lane Volumes Total	Opposing Volume (vph)	PCE
A	≤ 1000	≤ 199	1.1
B	≤ 1150	≤ 599	2.0
C	≤ 1300	≤ 799	3.0
D	≤ 1450	≤ 999	4.0
E	≤ 1600	> 1000	5.0
F	> 1600		

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1872	0.55	1030	45	1.00	45	1075	*
	WB	1495	0.55	822	3	1.00	3	825	
	NB	66	1.00	66	0	1.00	0	66	*
	SB	7	1.00	7	0	1.00	0	7	*

REMARKS

* Critical Volume **AM TOTAL** **1147**

V/C = **0.72** **LEVEL OF SERVICE** **B**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1586	0.55	872	18	1.00	18	890	
	WB	1849	0.55	1017	9	1.00	9	1026	*
	NB	40	1.00	40	0	1.00	0	40	*
	SB	10	1.00	10	0	1.00	0	10	*

REMARKS
NBR is a free movement.

* Critical Volume **PM TOTAL** **1076**

V/C = **0.67** **LEVEL OF SERVICE** **B**

T3 design
Fairfax, VA 22030

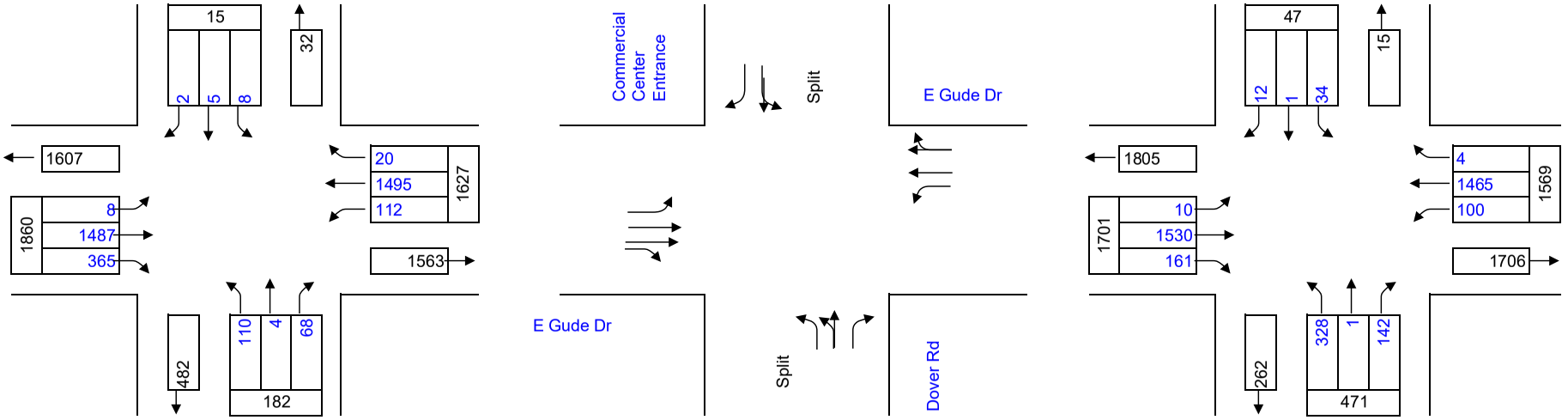
TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

COUNT DATE:		LOCATION:	E. Gude Dr
CONDITIONS:	Background	11	at Dover Rd
DESIGN YEAR:	2022		
COMPUTED BY:	ASM	DATE:	11/20/2018
CHECKED BY:	AA	DATE:	12/3/2018

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal x
Stop
Ways

Side street: split
LT: pt+pm

No. of Lanes		Lane Use Factor
1	=	1.00
2	=	0.55
3	=	0.40
4	=	0.30
Dble. Left	=	0.60
Trpl. Left	=	0.45

Level of Service		Critical Lane Volumes Total
A	≤	1000
B	≤	1150
C	≤	1300
D	≤	1450
E	≤	1600
F	>	1600

Opposing Volume (vph)		PCE
199	≤	1.1
599	≤	2.0
799	≤	3.0
999	≤	4.0
1000	>	5.0

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1852	0.55	1019	112	1.00	112	1131	*
	WB	1515	0.55	833	8	1.00	8	841	
	NB	125	0.55	69	0	1.00	0	69	*
	SB	14	1.00	14	0	1.00	0	14	*

REMARKS

* Critical Volume **AM TOTAL** 1214

V/C = **0.76** **LEVEL OF SERVICE** **C**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1691	0.55	930	100	1.00	100	1030	*
	WB	1469	0.55	808	10	1.00	10	818	
	NB	362	0.40	145	0	1.00	0	145	*
	SB	81	0.55	45	0	1.00	0	45	*

REMARKS

* Critical Volume **PM TOTAL** 1220

V/C = **0.76** **LEVEL OF SERVICE** **C**

T3 design
Fairfax, VA 22030

TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

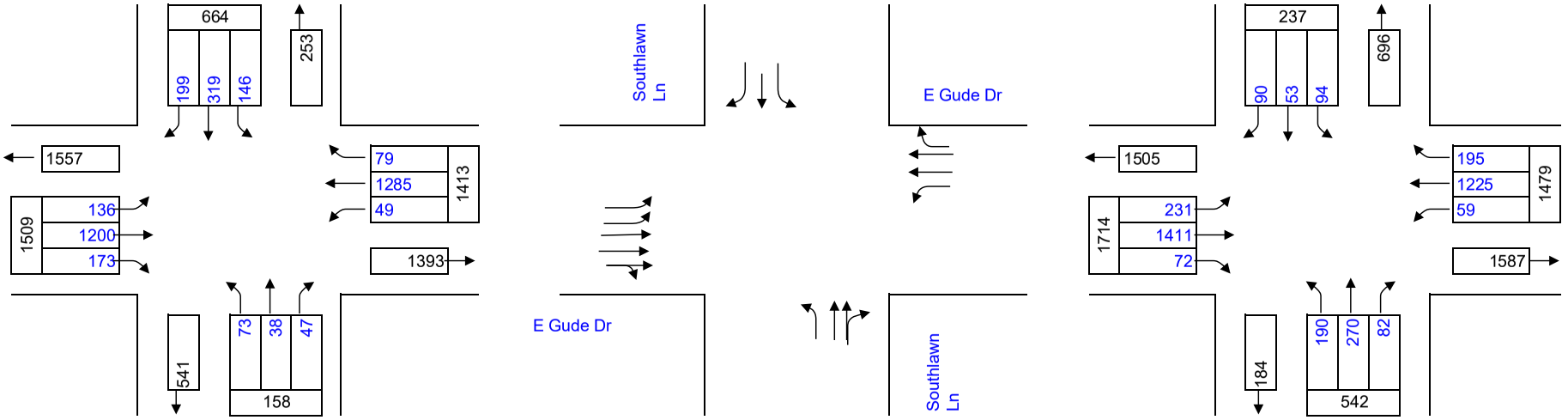
COUNT DATE:
CONDITIONS: Background
DESIGN YEAR: 2022
COMPUTED BY: ASM DATE: 11/20/2018
CHECKED BY: AA DATE: 12/3/2018

LOCATION: E. Gude Dr at Southlawn 11

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



NBL&SBL pm+pt
NBR & EBL OL
EB&WB exclusive LT

Intersection Control:
Signal x
Stop ____ Ways ____

	No. of Lanes		Lane Use Factor
	1	=	1.00
	2	=	0.55
	3	=	0.40
	4	=	0.30
	Dble. Left	=	0.60
	Trpl. Left	=	0.45

Critical Lane Level of Service		Volumes Total
A	≤	1000
B	≤	1150
C	≤	1300
D	≤	1450
E	≤	1600
F	>	1600

Opposing Volume (vph)		PCE
≤ 199		1.1
≤ 599		2.0
≤ 799		3.0
≤ 999		4.0
> 1000		5.0

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1373	0.40	549	49	1.00	49	598	
	WB	1285	0.55	707	136	0.60	82	789	*
	NB	219	1.00	219	146	1.00	146	365	*
	SB	382	0.55	210	73	1.00	73	283	

REMARKS

* Critical Volume **AM TOTAL** 1154

V/C = **0.72** **LEVEL OF SERVICE** **C**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1483	0.40	593	59	1.00	59	652	
	WB	1225	0.55	674	231	0.60	139	813	*
	NB	352	0.55	194	94	1.00	94	288	
	SB	188	1.00	188	190	1.00	190	378	*

REMARKS

* Critical Volume **PM TOTAL** 1191

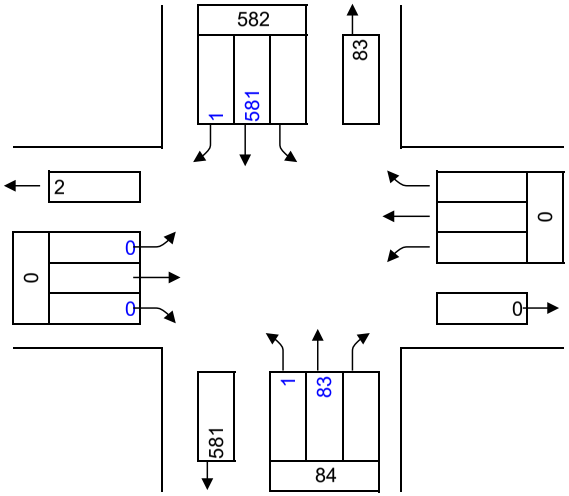
V/C = **0.74** **LEVEL OF SERVICE** **C**

T3 design
Fairfax, VA 22030

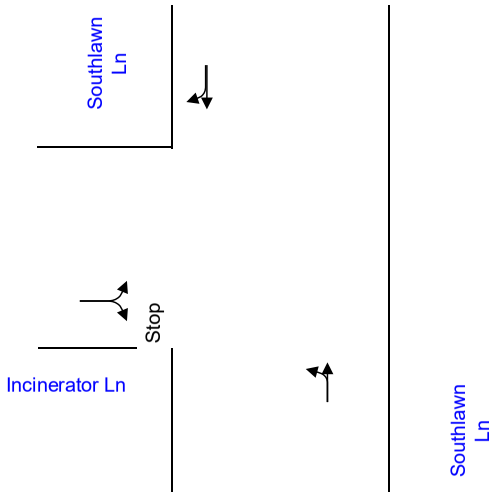
TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

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

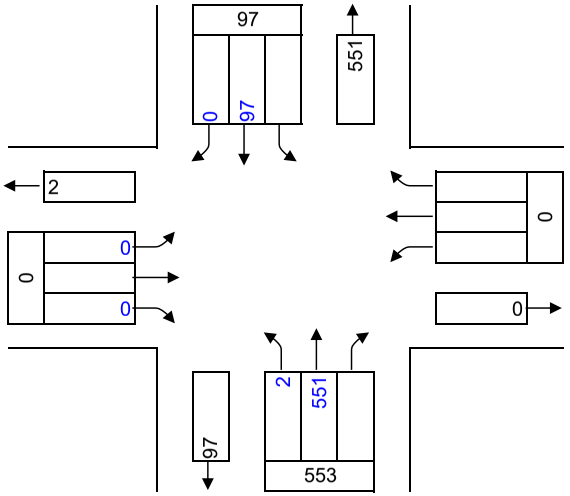
AM PEAK HOUR: 7:30 - 8:30



LANE CONFIGURATION



PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal
Stop X Ways 1

	No. of Lanes		Lane Use Factor
1	=		1.00
2	=		0.55
3	=		0.40
4	=		0.30
Dble. Left	=		0.60
Trpl. Left	=		0.45

Level of Service	Critical Lane Volumes Total		Opposing Volume (vph)	PCE
A	≤	1000	≤ 199	1.1
B	≤	1150	≤ 599	2.0
C	≤	1300	≤ 799	3.0
D	≤	1450	≤ 999	4.0
E	≤	1600	> 1000	5.0
F	>	1600		

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	NB	85	1.00	85	0	1.00	0	85	
	SB	582	1.00	582	1	1.00	1	583	*
	EB	0	1.00	0	0	1.00	0	0	*

REMARKS

* Critical Volume **AM TOTAL** 583

V/C = **0.36** **LEVEL OF SERVICE** **A**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	NB	553	1.00	553	0	1.00	0	553	*
	SB	97	1.00	97	2	1.00	2	99	
	EB	0	1.00	0	0	1.00	0	0	*

REMARKS

* Critical Volume **PM TOTAL** 553

V/C = **0.35** **LEVEL OF SERVICE** **A**

T3 design
Fairfax, VA 22030

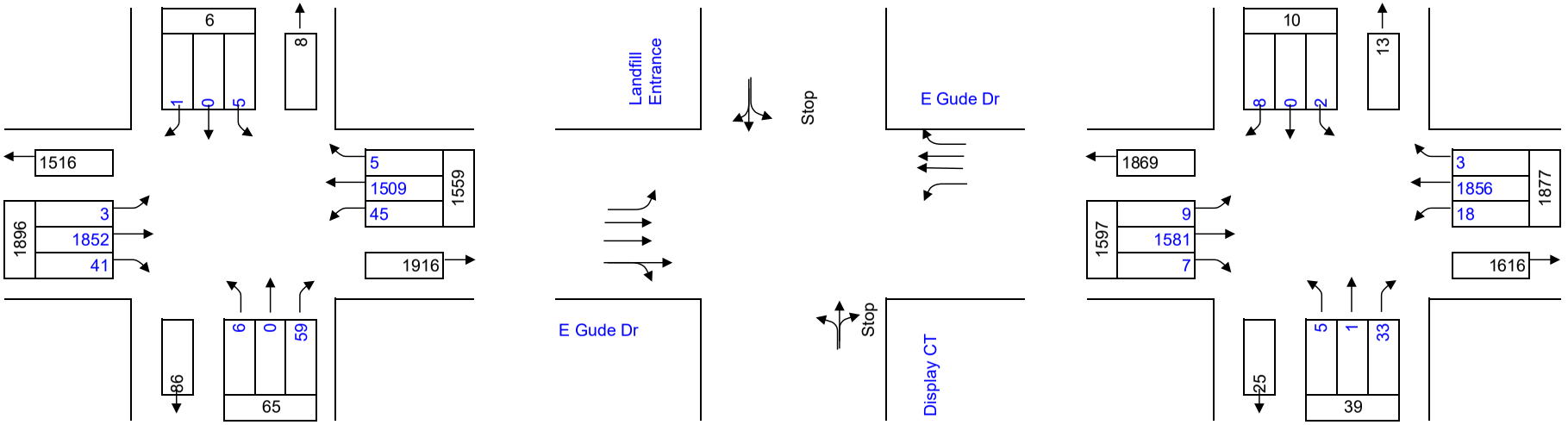
TURNING MOVEMENT & LEVEL OF SERVICE SUMMARY

COUNT DATE:		LOCATION:	E. Gude Dr
CONDITIONS:	Total	24	Landfill Entrance
DESIGN YEAR:	2022		
COMPUTED BY:	ASM	DATE:	11/30/2018
CHECKED BY:	AA	DATE:	12/3/2018

AM PEAK HOUR: 7:30 - 8:30

LANE CONFIGURATION

PM PEAK HOUR: 4:45 - 5:45



Intersection Control:
Signal
Stop X Ways 1

No. of Lanes		Lane Use Factor
1	=	1.00
2	=	0.55
3	=	0.40
4	=	0.30
Dble. Left	=	0.60
Trpl. Left	=	0.45

Level of Service	Critical Lane Volumes Total	Opposing Volume (vph)	PCE
A	≤ 1000	≤ 199	1.1
B	≤ 1150	≤ 599	2.0
C	≤ 1300	≤ 799	3.0
D	≤ 1450	≤ 999	4.0
E	≤ 1600	> 1000	5.0
F	> 1600		

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1893	0.55	1041	45	1.00	45	1086	*
	WB	1509	0.55	830	3	1.00	3	833	
	NB	66	1.00	66	0	1.00	0	66	*
	SB	7	1.00	7	0	1.00	0	7	*

REMARKS

* Critical Volume **AM TOTAL** **1158**

V/C = **0.72** **LEVEL OF SERVICE** **C**

Ø	Movement	Volume (1)	Lane Use Factor (2)	Lane Volume (1)*(2)=(3)	Opposing Lefts (4)	Lane Use Factor (5)	Lane Volume (4)*(5)=(6)	CLV (3)+(6)	*
	EB	1588	0.55	873	18	1.00	18	891	
	WB	1856	0.55	1021	9	1.00	9	1030	*
	NB	40	1.00	40	0	1.00	0	40	*
	SB	10	1.00	10	0	1.00	0	10	*

REMARKS
NBR is a free movement.

* Critical Volume **PM TOTAL** **1080**

V/C = **0.68** **LEVEL OF SERVICE** **B**