PHASE II ENVIRONMENTAL SITE ASSESSMENT

DEDEDO SOLID WASTE TRANSFER STATION
DEDEDO, GUAM

Prepared for:

Receiver for the U.S. District Court on behalf of the

Guam Solid Waste Authority

Prepared by:

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PHASE II ENVIRONMENTAL SITE ASSESSMENT, DEDEDO SOLID WASTE TRANSFER STATION, DEDEDO, GUAM

CERTIFICATION STATEMENT

I certify, under penalty of law, that I have examined and am familiar with the information submitted in this document and all attachments and that this document and its attachments were prepared either by me personally or under direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gathered and presented the information contained therein. I further certify, based on my personal knowledge or on my inquiry of those individuals immediately responsible for obtaining the information, that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing and willful submission.

Reviewed and Certified by:

Jaquay Soriano
Project Manager
EA Engineering, Science, and Technology, Inc.

03/07/14
Date

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Acronyms and Abbreviations

ARC	ARC Environmental Services
AST	Aboveground Storage Tank
ASTM	ASTM International
bcy	bank cubic yards
bgs	below ground surface
CLTC	Chamorro Land Trust Commission
COC	chain-of-custody
DSI	detailed site inventory
DSWTS	Dededo Solid Waste Transfer Station
DU	Decision Unit
EA	EA Engineering, Science, and Technology, Inc.
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
Ft	feet
GAR	Guam Administrative Rules and Regulations
GSWA	Guam Solid Waste Authority
GWA	Guam Waterworks Authority
Lb	pound
lcy	loose cubic yards
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MI	Multi-Incremental
ppm	parts per million
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
QA	quality assurance
QC	quality control

RAO	Remedial Action Objective
REC	Recognized Environmental Condition
SAPWP	Sampling and Analysis Plan and Work Plan
SVOC	Semi-volatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TPH-DRO	total petroleum hydrocarbons as diesel range organics
TPH-GRO	total petroleum hydrocarbons as gasoline range organics
TPH-RRO	total petroleum hydrocarbons as residual range organics
TSCA	Toxic Substances Control Act
USDA	United States Department of Agriculture
VOC	volatile organic compound

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1. EXECUTIVE SUMMARY

EA Engineering, Science, and Technology, Inc. has performed a Phase II Environmental Site Assessment (ESA) of the Dededo Solid Waste Transfer Station (DSWTS) Lot No. 10122-3-R1 Dededo, Guam. The location of the property is shown on Figure 1. This report presents the results of the Phase II ESA and was prepared on behalf of the Receiver, Gershman, Brickner, & Bratton, Inc., for the Guam Solid Waste Authority (GSWA) in accordance with the requirements under the Consent Decree Order (US District Court of Guam, Civil Case No. 01 00022).

The purpose of this report is to summarize the Phase II ESA findings and comprehensively evaluate findings of the soil investigation performed at the subject site. This evaluation was completed to assess current conditions of soil on the subject site in relation to the Phase I ESA-identified recognized environmental concerns (RECs) and to provide a format that compares these impacts to the Guam Environmental Protection Agency (EPA) Pacific Basin Environmental Screening Levels (ESLs) for soil.

The DSWTS is described as a portion of Lot No. 10122-3-R1 in Dededo, Guam. The DSWTS is located in a rural setting on the eastern edge of the island's largest village of Dededo. This subject site is owned by the Chamorro Land Trust Commission (CLTC). It is bordered by a Guam Power Authority complex to the west which includes transmission, distribution, and power generation facilities. To the northwest is the Guam International Country Club golf course. Directly north of the subject site is the Global Recycling Center Inc. solid waste management facility. Batulo Street and Marine Corps Drive border the eastern and southern edges of the subject site, respectively. The subject site is a solid waste transfer station. The subject site is approximately 600 feet (ft) long and 300 ft wide. The DSWTS operates from two structures that serve as offices positioned at the entrance to the facility. These structures are composed of a combination of pre-fabricated metal and concrete with wood and tin roofing. Both structures comprise approximately 2,000 square ft of total enclosed area. Most of the internal vehicle circulation path is paved within the DSWTS area. Sewer disposal is handled through a septic tank and leach field system.

Approximately two-thirds of the site is actively being used for GSWA solid waste transfer activities. The northern third of the subject site is currently not being used but has been used by a recycling vendor in the past. The DSWTS opened in 1984. Prior to 1984, the land was undeveloped.

A Phase I ESA was conducted in September 2011.

The following RECs were identified:

- The northern third of the subject site, historically used by a series of solid waste recycling entities, is under a current Guam EPA compliance action related to solid and potential hazardous waste and petroleum product contamination. The site appears abandoned and vulnerable to unauthorized access by looters and others looking for a place to illegally dump waste.

- Portions of the western edge of the surveyed property limits within the current transfer station contain a mixture of vegetation, soil, and co-mingled solid waste of various types including metallic waste, a derelict vehicle, garbage and numerous tires.

- Historic use of the site and surrounding areas for typhoon debris staging, solid waste stockpiling, tire and white goods storage, garbage transfer and private recycling operations, and for the household hazardous waste collection program may have resulted in some level of soil and/or groundwater impacts. The magnitude of these impacts would likely vary depending on location within the area assessed and include the possibility of only de minimus concentrations.

The DSWTS is not currently constrained by land use controls related to environmental conditions. Possible human receptors for site contaminants at the DSWTS are commercial workers and occasional users/trespassers. Possible exposure pathways are through inhalation, ingestion, and dermal contact. Groundwater beneath the site is considered a complete pathway, because in northern Guam the permeable limestone that supports a groundwater aquifer is a potable water source; however, the elevation of the subject site is approximately 370 ft above the aquifer making groundwater contamination unlikely.

A chain-link fence surrounds the DSWTS operations, which are located in the southern portion of the property. The waste debris is largely found in the northern portion of the subject site. The surface debris associated with the site extends beyond the property's boundary. A 25-foot buffer area extending to the west of the property boundary and a 50-foot buffer area extending to the north of the property boundary were included in the field investigations. Although the 50-foot buffer area extending to the north of the property boundary was included within this detailed site inventory (DSI) field investigation, only the area 25 ft to the north of the property line will be included in the remedial actions. The debris piles were sectioned off within and near the Decision Unit (DU) areas, then surveyed. DU 1 is located in the southern portion of the property, DU 2 is located in the middle of the property, and DU 3 is located north of DU 2. The mixed debris/soil piles located to the north and tire pile located to the west of DU 3 were further split up into Areas 1 through 5, then surveyed.

Waste debris encountered across the site was largely comprised of solid waste debris (including metal, plastic, wood, foam insulation), house-hold appliances (e.g., washing machines, refrigerators, water heaters), and electronic waste (e.g., televisions, computer monitors, PC

towers). Also noted throughout the site were automotive tires and parts, 5-pound (lb) compressed gas cylinders, 5- to10-lb fire extinguishers, broken glass, and shredded miscellaneous metallic and plastic debris. Several intact and deteriorated battery remnants were discovered, as was a large steel crate of batteries.

Two waste oil aboveground storage tanks (ASTs), one 500-gallon and one 1,000-gallon, are present on site and contain petroleum product. Liquid was observed overflowing from the 500-gallon tank secondary containment berm. Surface stained soil was observed in several locations in DU 3 and north of DU 3.

A total of 38 test pits were excavated within areas where surface debris was identified to evaluate the presence of buried waste and the extent of the mounded mixed debris/soil piles at the subject site. Test pits allowed a visual description of the material and access within the mound for subsurface soil sampling.

Fourteen test pits were initially excavated to depths just below the mounded debris/soil piles, where native soil was encountered. The mixed debris/soil piles are located in the northern portion of the subject site. The debris consists of soil mixed with shredded automotive parts, scrap metal, plastic, wood, intact compressed gas cylinders, electronic waste (e-waste), and white goods. The depth of the debris observed extended 1 to 3.5 ft below grade. In general, the buried debris was less than 2 ft deep in most areas.

Following a review of analytical results for soil samples collected from the initial test pits, 24 additional test pits were excavated to better define the type and extent of debris and contaminated soil. The additional test pits were excavated to depths within the mounded debris/soil piles, just above where native soil would be encountered. These test pits were also excavated in the northern portion of the subject site. The debris also consisted of soil mixed with shredded automotive parts, scrap metal, plastic, wood, intact compressed gas cylinders, electronic waste (e-waste), and white goods.

Discrete (grab) surface soil samples were collected from selected locations. A total of five discrete surface soil samples were collected at the base of each ramp where the solid waste roll-off containers are staged at the DWTS. Because there were no observations or evidence of spills, or reports of historical operations that may have impacted the area, no discrete surface soil samples were collected in DU 2. A total of 23 discrete surface soil samples (including two field duplicate samples) were collected in DU 3 and in the area north and west of DU 3. The discrete surface soil samples were analyzed for the following:

- Total petroleum hydrocarbons diesel range organics (TPH-DRO),
- Total petroleum hydrocarbons residual range organics (TPH-RRO),
- Polycyclic aromatic hydrocarbons (PAHs),

- Organochlorine pesticides,
- Polychlorinated biphenyls (PCBs), and
- Total metals.

Discrete waste characterization soil samples were collected and analyzed for the following:

- TPH fuel fingerprint,
- PCBs,
- Total metals (arsenic, cadmium, chromium, lead),
- Toxicity characteristic leaching procedure (TCLP) volatile organic compounds (VOCs),
- TCLP semivolatile organic compounds (SVOCs),
- TCLP pesticides,
- TCLP metals, and
- Ignitability.

Multi-Incremental (MI) surface soil samples were collected at DU 1, DU 2, and DU 3. Each DU was divided into 30 grid cells and one increment of the sample was collected from each cell. One MI surface soil sample was collected from each DU. In addition a duplicate and triplicate sample was collected at one of the DUs to ensure that the initial sample approach was representative of site conditions.

The MI surface soil samples were collected and analyzed for the following:

- TPH-DRO,
- TPH-RRO,
- PAHs,
- Organochlorine pesticides,
- PCBs, and
- Total metals.

Analytical results were compared to the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) and regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24) for TCLP.

The following analytes were detected in surface soil samples at concentrations exceeding the ESLs:

- TPH-DRO exceeded the ESL in samples DTSS024A [at a concentration of 108 milligrams per kilogram (mg/kg)], DTSS031A (166 mg/kg), DTSS032A (381 mg/kg), DTSS033A (duplicate of DTSS032A at 414 mg/kg), DTSS034A (274 mg/kg), DTSS035A (138 mg/kg), DTSS036A (11,000 mg/kg), DTSS037A (8,150 mg/kg), DTSS038 (209 mg/kg), DTSS041 (359 mg/kg), DTSS042 (102 mg/kg), DTSS043 (110 mg/kg), DTSS048 (150 mg/kg), and DTSS049 (10,100 mg/kg). MI samples at DU 3 also exceeded the TPH-DRO ESL in samples DTSS046 and DTSS047 at concentrations of 161 mg/kg and 217 mg/kg, respectively.

- TPH-RRO exceeded the ESL in samples DTSS032A (3,220 mg/kg), DTSS033A (3,280 mg/kg), DTSS034A (1,440 mg/kg), DTSS036A (92,500 mg/kg), DTSS037A (67,300 mg/kg), DTSS038 (1,430 mg/kg), DTSS041 (1,250 mg/kg), and DTSS049 (72,800 mg/kg).

- The MI sample at DU 3, sample DTSS045, exceeded the lead ESL at a concentration of 969 mg/kg. Waste characterization samples collected in the mixed debris/soil piles also exceeded the lead ESL in samples DTSS050 (972 mg/kg), DTSS051 (5,840 mg/kg), and DTSS052 (3,570 mg/kg).

- A waste characterization sample collected in the mixed debris/soil pile exceeded the PCB ESL in sample DTSS051 at concentration of 15.6 mg/kg.

Sixteen subsurface soil samples were collected from 14 test pits. The subsurface soil samples were analyzed for the following parameters:

- Total petroleum hydrocarbons gasoline range organics (TPH-GRO)
- TPH-DRO,
- TPH-RRO,
- VOCs,
- PAHs,
- Organochlorine pesticides,
- PCBs, and
- Total metals.

Only metals were detected at concentrations exceeding the ESLs in subsurface soil samples, as follows:

- Chromium exceeded the ESL in samples DTSS011 and DTSS016 at concentrations of 1,540 mg/kg and 1,110 mg/kg, respectively.

- Lead exceeded the ESL in sample DTSS001 at a concentration of 1,480 mg/kg.

Analytical results from waste characterization sample DTSS051 collected from the mounded debris/soil piles indicated that PCBs were detected at a concentration that exceeded the ESL limits. However, the PCB concentration in the sample does not exceed the Toxics Substances Control Act (TSCA) hazardous level of 50 ppm and it is considered non-hazardous.

The lead concentration in sample DTSS051 was 5,840 mg/kg and sample DTSS052 was 3,570 mg/kg. The lead concentrations for both samples DTSS051 and DTSS052 are above the screening level of 800 mg/kg. However, the lead concentrations in these samples do not exceed the TCLP metal regulatory level for lead.

It was recommended that additional soil samples be collected and analyzed for PCBs and lead to confirm and delineate the extent of contaminants of concern in the soil, and to classify the waste material as hazardous or non-hazardous for disposal.

Thirty one composite soil samples were collected within the mixed debris/soil piles in the northern portion of the site. Field investigations in the northern portion of the site included the 25-foot buffer area extending to the west of the property boundary and the 25-foot buffer area extending to the north of the property boundary. Samples were collected from 24 test pits excavated to the limit of buried waste and above where native bedrock is located. The composite soil samples were analyzed for the following parameters:

- PCBs,
- Total metals,
- TCLP metals.

PCBs and metals were detected at concentrations exceeding the ESLs in the composite soil samples, as follows:

- Total PCBs exceeded the ESL in samples DTSS057 (at a concentration of 10.3 mg/kg), DTSS059 (12.7 mg/kg), DTSS063 (7.60 mg/kg), DTSS075 (96.6 mg/kg), DTSS078 (10.9 mg/kg), DTSS079 (8.70 mg/kg), and DTSS080 (9.11 mg/kg).

- Lead exceeded the ESL in 30 samples, including all except two of the locations sampled, at concentrations up to 151,000 mg/kg (in sample DTSS078).

- Chromium exceeded the ESL in sample DTSS067 at a concentration of 1,110 mg/kg.

- Barium exceeded the ESL in sample DTSS068 at a concentration of 2,950 mg/kg.

Of the additional 31 composite soil samples collected in the area north of DU3, 18 were also analyzed for TCLP metals to determine the leaching properties of the metals in the soil. TCLP lead was detected at concentrations exceeding the Resource Conservation and Recovery Act (RCRA) regulatory levels for the Toxicity Characteristic as follows:

- TCLP lead equaled or exceeded the regulatory level in samples DTSS057 [5.7 milligrams per liter (mg/L)], DTSS071 (6.3 mg/L), and DTSS075 (5.0 mg/L).

Solid waste disposal at the northern portion of the subject site does not conform to Guam EPA solid waste disposal regulations, 22 Guam Administrative Rules and Regulations (GAR), Division 4, Chapter 20, section 20101. Section 20101 regulation states "that open dumping and improperly operated landfills foster the creation of public nuisances, environmental pollution, health hazards, and safety hazards including, but not limited: to insect and rodent breeding; dust; fire; explosion; smoke; odors; and danger of physical, chemical and bacteriological contamination of potable drinking water and groundwater. Also, improperly operated landfills further create environmental pollution which is obnoxious to the human senses and which degrades and depletes natural resources. The objective of the regulation is to protect the population of Guam by requiring adequate planning for solid waste disposal and by requiring that the disposal of solid waste be accomplished in such a manner as to create a healthful, aesthetically desirable and useful environment".

The estimated volume of surface waste at the site is approximately 20,825 bank cubic yards (bcy), which is equivalent to approximately 24,990 loose cubic yards (lcy). The estimated area of buried fill at the subject site is approximately 72 bcy or 87 lcy of mixed soil and debris.

Based on the near future design to renovate the facility that includes modifying the site layout of the current facility operations, building an office, upgrading the solid waste staging areas, and excavating and installing a storm water ponding basin, the Soil and Solid Waste Removal (Commercial/Industrial Land Use) Alternative 6 has been selected as the preferred alternative. Alternative 6: Soil and Solid Waste Removal (Commercial/Industrial Land Use) is protective of residential, commercial worker, and occasional user/trespasser receptors, and the environment. This alternative addresses Guam EPA solid waste disposal regulation criteria and would allow the property to be useable for upgrading the DSWTS facility and expanding the current operations. The community and the environment would be protected from exposure to both contaminants of concern and solid waste. Treatment of contaminated soil from both a thermal desorption unit and using Triple Super Phosphate will bring the soil concentration levels below the ESL limit (remedial goal). This alternative will allow the option of transporting the soil to an on island disposal facility or used as beneficial reuse either onsite or offsite.

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2. INTRODUCTION

2.1. Terms of Reference

This report presents the results of the Phase II Environmental Site Assessment (ESA) for the Dededo Solid Waste Transfer Station (DSWTS) on Lot No. 10122-3-R1. This report was prepared by EA Engineering, Science, and Technology, Inc. (EA), on behalf of the Receiver, Gershman, Brickner & Bratton, Inc., for the Guam Solid Waste Authority (GSWA) in accordance with the requirements under the Consent Decree Order (US District Court of Guam, Civil Case No. 01 00022).

2.2. Purpose

The purpose of this report is to summarize the Phase II ESA findings and comprehensively evaluate findings of the soil investigation performed at the subject site. This evaluation was completed to assess current conditions of soil on the subject site in relation to the Phase I ESA-identified recognized environmental concerns (RECs) and to provide a format that compares these impacts to the Guam Environmental Protection Agency (EPA) Pacific Basin Environmental Screening Levels (ESLs) for soil.

The purpose of the Phase II ESA is to evaluate, to the extent feasible pursuant to the process prescribed in ASTM International (ASTM) E-1903-11, the RECs identified in the Phase I ESA (ARC Environmental Services [ARC] 2012) for the purpose of providing sufficient information regarding the nature and extent of contamination to assist in making informed decisions about the property. Field activities were conducted from July through August of 2013. This Phase II ESA report provides a detailed account of the data obtained during this investigation.

2.3. Detailed Scope of Services

The Phase II ESA was performed in accordance with ASTM E-1903-11 (*Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process*). Groundwater conditions near the site were assessed through the review of analytical results from water supply wells within a one mile radius of the subject site, because groundwater is considered a potable water source and the geologic formation is considered an aquifer source. Details regarding the scope of services for the site are included in Section 5. The Phase II ESA was performed under the contract Receiver-SW-09-05, dated 22 December 2009.

2.4. Limitations and Exceptions

EA does not warrant that there are no toxic or hazardous materials or contamination, nor does EA accept any liability if such are found at some future time, or could have been found if additional sampling or studies were conducted. EA does not assume responsibility for other environmental issues that may be associated with this subject property.

In view of the rapidly changing status of environmental laws, regulations, and guidelines, EA cannot be responsible for changes in laws, regulations, or guidelines that occur after the study has been completed and that may affect the subject property.

This report was prepared for the Receiver, Gershman, Brickner, & Bratton, Inc., for the GSWA by EA and is based in part on third party information not within the control of the Receiver or EA. While it is believed that the third party information contained herein will be reliable under the conditions and subject to the limitations set forth herein, neither the Receiver nor EA guarantee the accuracy thereof.

2.5. Special Terms and Conditions

Groundwater quality beneath the site was not directly assessed during these investigations; however, groundwater analytical results from water supply wells within a one mile radius of the subject site were used to assess if any contaminants of concern on site have been identified in the nearby water supply wells.

2.6. User Reliance

This report is exclusively for the use and benefit of the Receiver as shown on the cover page of this report. This report is not for the use or benefit of, nor may it be relied upon by, any other person or entity without the advance written consent of EA.

3. BACKGROUND INFORMATION

The following section presents background information on the two properties including site descriptions, operational histories, a summary of the findings of the previous investigation, physical settings, and the potential source(s) of contamination at the sites.

3.1. Site Location

The DSWTS is described as a portion of Lot No. 10122-3-R1 in Dededo, Guam (Figure 1). The subject site is located on the Northwest corner of the intersection of Route 1 Marine Corps Drive and Batulo Street.

3.2. Site Area Description

The DSWTS is located in a rural setting on the eastern edge of the island's largest village of Dededo. This subject site is owned by the Chamorro Land Trust Commission (CLTC). It is bordered by a Guam Power Authority complex to the west which includes transmission, distribution, and power generation facilities. To the northwest is the Guam International Country Club golf course. Directly north of the subject site is the Global Recycling Center Inc. solid waste management facility. Batulo Street and Marine Corps Drive border the eastern and southern edges of the subject site, respectively (ARC 2012). The subject site is a solid waste transfer station. Solid waste is sorted for recyclable materials and materials not appropriate for disposal at the municipal landfill. Land use around the subject site is mixed commercial and residential.

The DSWTS operates from two structures that serve as offices positioned at the entrance to the facility. These structures are composed of a combination of pre-fabricated metal and concrete with wood and tin roofing. Both structures comprise approximately 2,000 square feet (ft) of total enclosed area. Sewer disposal is via a septic tank and leach field system (ARC 2012).

3.3. Site Operational History

The DSWTS opened in 1984. Prior to 1984, the land was undeveloped. Approximately two-thirds of the site is actively being used for government solid waste transfer activities. The northern third of the subject site is currently not being used but has been used by a recycling vendor in the past.

3.4. Previous Investigation

A Phase I ESA was conducted in September 2011. The Phase I ESA included a combination of historical research activities, such as personal interviews, site observations, and database records searches that were used to develop an understanding of the history and current environmental condition of the subject property (ARC 2012).

The following RECs were identified (ARC 2012):

- The northern third of the subject site, historically used by a series of solid waste recycling entities, is under a current Guam EPA compliance action related to solid and potential hazardous waste and petroleum product contamination. The site appears abandoned and vulnerable to unauthorized access by looters and others looking for a place to illegally dump waste.

- Portions of the western edge of the surveyed property limits within the current transfer station contain a mixture of vegetation, soil, and co-mingled solid waste of various types including metallic waste, a derelict vehicle, garbage and numerous tires.

- Historic use of the site and surrounding areas for typhoon debris staging, solid waste stockpiling, tire and white goods storage, garbage transfer and private recycling operations, and for the household hazardous waste collection program may have resulted in some level of soil and/or groundwater impacts. The magnitude of these impacts would likely vary depending on location within the area assessed and include the possibility of only de minimus concentrations.

3.5. Physical Setting

Guam consists of two geologically distinct areas. Northern Guam is comprised of undulating limestone plateau and southern Guam is volcanic highland with some limestone outlier (University of Guam 2007). The subject site is located in northern Guam.

Review of the U.S. Department of Agriculture (USDA) Soil Survey of Guam, dated 1988, indicates that the subject site is located in an area of the Guam urban land complex with slopes between 0 and 3 percent. The Guam urban land complex is characterized as comprising mostly disturbed areas in urban settings with streets, buildings, air strips, and parking lots (USDA 1988). Unpaved areas are Guam cobbly clay loam, which is listed as moderately permeable.

The elevation of the subject site is approximately 370 ft above mean sea level. There are no surface water features on or near the subject site. Northern Guam is underlain by a permeable limestone that supports a groundwater aquifer. Groundwater is relatively deep at approximately 360 to 370 ft below ground surface. The groundwater flows in a general easterly direction.

3.6. Human Health and Potential Exposure Pathways and Potential Ecological Receptors

The DSWTS is not currently constrained by land use controls related to environmental conditions. Possible human receptors at the DSWTS are commercial workers and occasional

users/trespassers. Possible exposure pathways are through inhalation, ingestion, and dermal contact with soil. Groundwater beneath the site is considered a complete pathway, because in northern Guam the permeable limestone that supports a groundwater aquifer is a potable water source; however, the elevation of the subject site is approximately 370 ft above the aquifer.

3.7. Environmental and/or Human Impact

The RECs defined in the Phase I ESA and described in Section 3.4 have potential impact to site workers, occasional users/trespassers, and the environment at the DSWTS. Historic release of petroleum products to soil has been observed and solid waste associated with the recycling yard operations may have impacted soil as well.

Groundwater is considered a completed pathway for potential contaminants however; the depth to water is relatively deep.

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4. FIELD METHODOLOGY

The purpose of this section is to describe the methodology used for the field investigations. The field investigations included preparatory activities as well as surface soil sampling, test pit excavating, subsurface soil sampling, location surveying, and equipment decontamination. The work was performed using the project-specific Sampling and Analysis Plan and Work Plan (SAPWP) (EA 2013).

4.1. Preparatory Activities

Prior to conducting field work, site access and permits were obtained. A Department of Public Works permit for clearing and grading (Permit No. G13000072) was obtained for utility clearance on the property.

4.1.1. Record Search

Prior to conducting any field activities, Guam EPA, Guam Waterworks Authority (GWA), and Andersen Air Force Base were contacted regarding groundwater analytical results from water supply wells within a one mile radius of the subject site. The data were used to assess if any contaminants of concern on site have been identified in nearby water supply wells. Analytical data obtained by GWA shows lead was detected in three wells (M-06, M-07, and Y-22) within the one mile radius: wells M-06 and M-07 are located to the southwest of the DSWTS approximately 4,733 ft and 5,601 ft, respectively; well Y-22 is located to the northeast of the DSWTS approximately 5,280 ft. The groundwater flows in a general easterly direction. Based on groundwater's easterly flow and the distance between the DSWTS and the three wells, it is unlikely that lead would have migrated to these wells from the DSWTS. No other metals exceeded the EPA Maximum Contaminant Level for drinking water. Additionally, PCBs were not detected in any of the well sample data provided by GWA (GWA 2011-2012). The data report provided by Andersen Air Force Base, Environmental office shows no data collection for metals, TPH-DRO, TPH-RRO, and PCBs (Department of the Navy 2012).

4.1.2. Utility Marking

Prior to initiation of sampling, local utilities were contacted. Local utilities conducted a site visit and marked the utility lines in the area. The procedures followed for utility clearance are presented in the SAPWP.

4.1.3. Site Reconnaissance

A site reconnaissance survey was conducted prior to commencing field work. The property boundary coordinates were gathered from a professional land surveyor. The property boundary was then marked in the field. The subject site is approximately 600 ft long by 300 ft wide and

located at the northwest corner of the intersection of Marine Corps Drive and Batulo Street in the village of Dededo. A 25-ft buffer area was marked on the west side of the property boundary. A 50-ft buffer area was marked on the north side of the property boundary. These buffer areas were included in the site investigation activities. In general, the grid lines trend north-south and east-west. Grid nodes were set at 100-foot intervals. The grid lines were established by field personnel.

The site reconnaissance identified and confirmed the following environmental concerns associated with historic activities conducted at the site (Figure 2):

- Two areas of solid waste debris associated with the former location of the metal shredder/grinder were located along the northern boundary of the site.
- Petroleum fuel stained soil associated with the former location of both the engine and generator located in the previous (crushed metal) conveyor area.
- 1,000-gallon waste oil aboveground storage tank (AST) located near the northeast corner solid waste debris area.
- 500-gallon waste oil AST and secondary waste oil containment berm located between the northern solid waste debris areas.
- The former location of twelve 55-gallon drums with used oil filters and waste oil, where stained soil was observed around the former drums location.
- A debris area containing vehicle tires located near the central western boundary of the site.
- Five ramps located on the southern portion of the site used to stage solid waste roll-off containers.

4.1.4. Vegetation Clearing

The site is mostly cleared but a few areas of vegetation located in the northern portion of the property required light to moderate manual hand clearing. The cut vegetation was left onsite for decomposition.

4.2. Detailed Site Inventory

After the grid lines were established across the subject site, field personnel conducted a detailed site inventory (DSI) to verify the extent of surface debris and identify the locations and quantities of potential contamination (i.e., drums, stained soil, distressed vegetation, sanitary waste, etc.). Surface debris found in each DSI area was described by type, extent and volume, and condition of material encountered. Descriptions of material found in each DSI area were recorded in the

field notes, included in Appendix B. Information gathered during the DSI was used to select locations for test pits.

4.3. Test Pits

Test pits were excavated within areas where surface debris had been identified and near the perimeter of the surface debris to determine if buried waste was present at the site and to evaluate the extent of buried waste at the subject site. Test pits allowed a visual description of buried material and provided access for subsurface and composite soil sampling. Fourteen test pits were initially excavated to collect subsurface soil samples at depths just below the mounded debris/soil piles, where native soil was encountered. Following a review of analytical results for soil samples collected from the initial test pits, 24 additional test pits were excavated to better define the type and extent of debris and contaminated soil. The additional test pits were excavated to collect composite soil samples at depths within the mounded debris/soil piles, just above where native soil would be encountered. A total of 38 test pits were excavated within the mixed debris/soil piles located in the northern portion of the subject site. Test pit excavation logs are presented in Appendix C.

4.4. Soil Samples

The laboratory results from the soil samples collected were compared to Guam EPA 2013 Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) (GEPA 2013) to determine whether impacts exist at concentrations at or above levels found to be protective of human health and the environment. These screening levels were selected based upon consideration of the potentially complete exposure pathways.

4.4.1. Surface Soil Sampling

Discrete (grab) surface (less than 6 inches below ground surface [bgs]) soil samples were collected following the specifications presented in the SAPWP. A dedicated stainless steel spoon and stainless steel bowl were used to collect each surface soil sample. Debris including rocks, twigs, and vegetation was removed prior to collecting the sample.

4.4.2. Multi Incremental Soil Sampling

Multi-Incremental (MI) surface soil samples were prepared by clearing the area to be sampled of vegetation then collecting a minimum of 30 small increments of soil from the specified Decision Unit (DU) using a dedicated EasyDraw Syringe®. The 30 increments of soil were combined into a single sample consisting of a wide mouth 1-liter glass jar, referred to as the MI sample. Individual soil increments weighed approximately 30 grams, with the field MI sample weighing approximately 900 grams. This provided mass sufficient to minimize fundamental error for sample collection after sieving soil samples to the target particle size. Sieving the soil samples to the less than 2 millimeter particle size was performed in the laboratory during the sample preparation process.

A systematic-random sample collection scheme was used for the collected samples. Each DU was divided into 30 equally sized cells. The ends of each row and column were marked with flags to help establish approximate lines for the collection of increments. Thirty individual increment samples were then collected at the start of each row and column, to make one MI sample.

One additional duplicate and one triplicate MI surface soil samples were collected at a randomly selected subset (33 percent) of the three DUs. The duplicate and triplicate MI surface soil samples from the same DU were collected following a different path, following the specifications presented in the SAPWP.

4.4.3. Subsurface Soil Sampling

Discrete (grab) subsurface soil samples were collected following the specifications presented in the SAPWP. Subsurface soil samples were collected from test pit excavations. Subsurface soil samples were collected beneath the interface of native soil and debris, if debris was encountered.

4.4.4. Composite Soil Sampling

A composite soil sample was collected from (within the mounded mixed debris/soil piles) each test pit excavation. Four grab samples were collected within each test pit to make one composite soil sample. Test pits (TP) identified as TP29 through TP33 were advanced within the mounded mixed debris/soil piles to approximately 20 feet in total depth above ground surface (Figure 5). One composite sample was collected from within the mound up to 10 feet in depth, and a second composite sample was collected from within the mound up to 20 feet in depth within the same test pit. A dedicated stainless steel spoon and stainless steel bowl were used to collect each composite soil sample.

4.4.5. Petroleum Product Samples

Petroleum product samples were collected from the two waste oil ASTs. Petroleum product samples were collected following the specifications presented in the SAPWP.

4.5. Survey

A hand-held global positioning system instrument was used to survey the position of surface and subsurface soil samples, test pits, and the location and extent of the solid waste debris piles.

4.6. Equipment Decontamination

Non-dedicated equipment that came into contact with potentially contaminated soil was decontaminated. Dedicated equipment intended for one time use was not decontaminated. Decontamination occurred prior to and after soil sample collection. The procedures followed for equipment decontamination were as presented in the SAPWP.

Equipment was decontaminated by thoroughly scrubbing and rinsing the equipment in soapy water and de-ionized water solution, then rinsing three times with de-ionized water, in accordance with the SAPWP.

Decontamination fluids that were generated during the sampling event consisted of deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluids were low enough to allow disposal at the site.

4.7. Sample Custody and Documentation

The sampling information was recorded on a chain-of-custody (COC) record and in a permanently-bound field logbook. The procedures for completing the COC record were as presented in the SAPWP.

4.8. Sample Identification

Sample identification numbers were affixed to each sample container and entered on the COC record. The sample number uniquely identified the sample to a specified location.

Soil Description Sample

For example: DTS S001

- The first three characters (DTS) represent the site name (Dededo Transfer Station).
- The next character (S) represents a soil medium
- The next three digits (**001**) represent the sequential sample number.

Product Description Sample

For example: DTS P001

- The first three characters (DTS) represent the site name (Dededo Transfer Station).
- The next character (P) represents a petroleum product medium
- The next three digits (**001**) represent the sequential sample number.

For samples requiring multiple containers, a single sample number was applied to every container for that sample. The sample number, along with the date and time of sample collection, was recorded in the field logbook, on the sample log sheet, and on the sample label affixed to every container and entered on the COC record.

4.9. Sample Packaging and Shipping

Samples were placed into laboratory-supplied sample containers with appropriate preservation additives, if required. After the appropriate labeling and COC records were completed, the sample containers were placed in coolers and cooled for transport to the laboratory. The procedures followed for sample packaging and shipping were as presented in the SAPWP.

Environmental samples from this project were packaged and shipped in a manner that ensured the safety and accountability of each sample, and all procedures were in accordance with applicable federal and local requirements (i.e., USDA permit requirements for shipping soil samples).

The samples were shipped to the analytical lab in insulated containers and were accompanied by a COC record that identified the sample bottles, date and time of sample collection, and analyses requested. The samples were packaged and shipped in accordance with Department of Transportation standards. The original COC record was given to the lab with the samples and a copy was retained in the project records. Once received by the laboratory, a sample receipt and storage record was generated.

5. DEDEDO SOLID WASTE TRANSFER STATION ACTIVITIES AND RESULTS

The following sections describe the field activities performed at the subject site.

5.1. Detailed Site Inventory

In July and August of 2013, field personnel conducted a DSI to verify the extent of surface debris and identify the locations and quantities of potential contaminated materials (i.e. stained soil, distressed vegetation, solid waste debris, etc). Surface debris observed in each DSI area was described by type, extent and volume, and condition of material encountered. Information gathered during the DSI was used to determine locations of test pits and sampling activities. The photograph log presented in Appendix A documents the typical waste encountered and the extent of mounded debris.

A chain-link fence surrounds the DSWTS operations, which are located in the southern portion of the property. The waste debris is largely found in the northern portion of the subject site. The surface debris associated with the site extends beyond the property's boundary. A 25-foot buffer area extending to the west of the property boundary and a 50-foot buffer area extending to the north of the property boundary were included in the field investigations. Although the 50-foot buffer area extending to the north of the property boundary was included within this DSI field investigation, only 25 ft to the north from the property line will be included in the remedial actions. The debris piles were sectioned off within and near the DU areas, then surveyed. DU 1 is located in the southern portion of the property, DU 2 is located in the middle of the property, and DU 3 is located north of DU 2 (Figure 2). The mixed debris/soil piles located to the north and tire pile located to the west of DU 3 were further split up into Areas 1 through 5, then surveyed (Figure 2).

The debris pile observed in DU 1 was approximately 25 ft by 25 ft by 8 ft in height and the DU 2 debris pile was approximately 50 ft by 25 ft by 3 ft in height. For the mixed debris/soil piles observed to the north and west of DU 3, in Areas 1 through 5, the dimensions of the piles are as follows: Area 1 was approximately 80 ft by 80 ft by 6.5 ft in height, and included a steel crate of batteries that measured 3 ft by 3 ft by 2 ft in height; Area 2 was approximately 175 ft by 120 ft by 12 ft (average height) and 17 ft at the highest point of the mound; Area 3 was approximately 125 ft by 130 ft by 9 ft (average height) and 10 ft at the highest point of the mound; Area 4 was approximately 82 ft by 65 ft by 10 ft at the highest point of the mound; Area 5 was comprised of tires that were further divided into sections by the average height of the tire piles observed within the area as illustrated in Appendix B. Figure 2 illustrates the location, type, and approximate extent of debris encountered at the mixed debris/soil piles and tire piles. The photograph log is presented in Appendix A.

Appendix B provides a detailed description of solid debris and soil material encountered within each area. Waste debris encountered across the site was largely comprised of solid waste debris

(including metal, plastic, wood, foam insulation), house-hold appliances (e.g., washing machines, refrigerators, water heaters), and electronic waste (e.g., televisions, computer monitors, PC towers). Also noted throughout the site were automotive tires and parts, 5-pound (lb) compressed gas cylinders, 5- to10-lb fire extinguishers, broken glass, and shredded miscellaneous metallic and plastic debris. Several intact and deteriorated battery remnants were discovered, as was a large steel crate of batteries.

Two waste oil ASTs, one 500-gallon and one 1,000-gallon, are present on site and contain petroleum product. Liquid was observed overflowing from the 500-gallon tank secondary containment berm. Surface stained soil was observed in several locations in DU 3 and north of DU 3.

5.2. Test Pits

Thirty eight test pits (TP1 through TP38) were excavated within areas where surface debris was identified to evaluate the presence of buried waste and the extent of the mounded mixed debris/soil piles at the subject site. All test pits were excavated in the area located north of DU3. Test pits allowed a visual description of the material and access within the mound for subsurface and composite soil sampling.

Initially, fourteen test pits (TP01 through TP14) were excavated to depths just below the mounded debris/soil piles, where native soil was encountered. The debris consists of soil mixed with shredded automotive parts, scrap metal, plastic, wood, intact compressed gas cylinders, electronic waste (e-waste), and white goods. The depth of the debris observed extended 1 to 3.5 ft below grade. In general, the buried debris was less than 2 ft deep in most areas. Figure 2 illustrates TP01 through TP14 locations.

Following a review of the initial soil sample data, twenty four (TP15 through TP38) additional test pits were excavated to better define the type and extent of waste debris and contaminated soil. TP15 through TP38 were excavated to depths within the mounded debris/soil piles, just above where native soil was encountered. The debris identified within the theses test pits consisted of the same solid waste materials found in the initial fourteen test pit excavations. Photographs of the test pits are provided in Appendix A. Test pit excavation logs are presented in Appendix C.

5.3. Volume of Surface and Subsurface Waste

Based on the results of the DSI and test pitting activities, estimated volumes of waste were generated for the site.

Volume of Surface Waste

To estimate the volume of surface waste requiring removal from the site, each area of waste found within DU 1, DU 2, DU 3, and area north of DU 3 were surveyed. The areas north and west of DU 3 were divided into measurable Areas 1 through 5, as shown in Figure 2. Approximate dimensions of these areas were measured in the field and multiplied by the estimated average height of each area (Appendix B). Based on these results, the estimated volume of surface waste at the site is approximately 20,825 bank cubic yards (bcy), which is equivalent to approximately 24,990 loose cubic yards (lcy) (assuming an average expansion factor of 20%).

Volume of Subsurface Waste

Test pits TP01 through TP14 were excavated in areas where the DSI identified surface debris, and at locations near the lateral extent of surface debris, to determine the lateral and vertical extent of debris (Figure 2). Buried debris coincides with the area of surface debris. The subsurface debris is located in the northern portion of the property. Subsurface debris is mixed with soil in all areas. In most areas the debris is less than 2 ft deep. No subsurface debris was found at TP01, TP02, TP03, TP04, TP05, TP06, TP09, or TP12. In TP07 and TP08, located in Area 3 and Area 4, respectively, debris (i.e., plastic, metal pieces, and aluminum) mixed with soil was encountered between approximately 1 and 2 ft bgs. In TP10, located in Area 4, small pieces of glass and metal mixed with soil were encountered between approximately 2 and 4 ft bgs. In TP11, located to the west of Area 4, small pieces of glass, plastic, and metal mixed with soil were encountered up to 1 ft bgs. In TP13, located in Area 3, shredded debris and small pieces of metal mixed with soil were encountered up to 2 ft bgs. In TP14, located in Area 3, shredded debris mixed with soil was encountered up to 6 ft bgs. The estimated area of buried fill at the subject site is approximately 72 bcy or 87 lcy of mixed soil and debris (assuming an average expansion factor of 20%). Test pit excavation logs are presented in Appendix C.

5.4. Surface Soil Sample Results

Discrete (grab) surface soil samples were collected from selected locations. A total of five discrete surface soil samples were collected at the base of each ramp where the solid waste roll-off containers are staged at the DWTS (Figure 3). Because there were no observations or evidence of spills, or reports of historical operations that may have impacted the area, no discrete surface soil samples were collected in DU 2.A total of 23 discrete surface soil samples (including two field duplicate samples) were collected in DU 3 and in the area north and west of DU 3 (Figure 3). The locations of the samples are as follows:

- Discrete surface soil samples DTSS038, DTSS039, DTSS040, DTSS041, DTSS042, DTSS043, DTSS044, and DTSS048 were collected around a spill associated with the former locations of a diesel generator and a former 10,000 gallon AST associated with a former metal shredder/grinder machine (Figure 3).

- Discrete surface soil samples DTSS029A, DTSS030A were collected from a spill associated with the former location of twelve 55-gallon drums that was previously stored onsite (Figure 3).

- Discrete surface soil samples DTSS031A, DTSS032A, DTSS033A, DTSS034A, and DTSS035A were collected around the secondary containment berm associated with the 500-gallon waste oil AST to determine the extent of observed impacts (Figure 3).

- Additional discrete waste characterization soil samples DTSS050, DTSS051, DTSS052, DTSS053, and DTSS054 were collected in DU 3 and in the area north and west of DU 3 (Figure 3).

The discrete surface soil samples were analyzed for the following (Table 1):

- Total petroleum hydrocarbons diesel range organics (TPH-DRO),
- Total petroleum hydrocarbons residual range organics (TPH-RRO),
- Polycyclic aromatic hydrocarbons (PAHs),
- Organochlorine pesticides,
- Polychlorinated biphenyls (PCBs), and
- Total metals.

Discrete waste characterization soil samples were collected and analyzed for the following (Table 2):

- TPH fuel fingerprint,
- PCBs,
- Total metals (arsenic, cadmium, chromium, lead),
- Toxicity characteristic leaching procedure (TCLP) volatile organic compounds (VOCs),
- TCLP semivolatile organic compounds (SVOCs),
- TCLP pesticides,
- TCLP metals, and
- Ignitability.

MI surface soil samples were collected at DU 1, DU 2, and DU 3. Each DU was divided into 30 grid cells and one increment of the MI sample was collected from each cell. The grid cells excluded areas where soil contamination was evident or where discrete samples were collected. One MI surface soil sample was collected from each DU. In addition a duplicate and triplicate sample were collected at one of the DUs to ensure that the initial sample approach was representative of site conditions.

The MI surface soil samples were collected and analyzed for the following (Table 3):

- TPH-DRO,
- TPH-RRO,
- PAHs,
- Organochlorine pesticides,
- PCBs, and
- Total metals.

Analytical results were compared to the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) and regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24) for TCLP. Analytical results for surface, waste characterization, and MI soil samples are provided in Table 1, Table, 2 and Table 3. Sample locations associated with these results that exceed ESLs are indicated on Figure 3. No pesticides, PAH, TCLP VOCs, TCLP SVOCs, TCLP pesticides, or TCLP metals were detected at concentrations that equaled or exceeded their respective ESLs or regulatory levels.

The following analytes were detected in surface soil samples at concentrations exceeding the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) (Figure 3):

- The Pacific Basin ESL soil screening level for TPH-DRO is 100 milligrams per kilogram (mg/kg). TPH-DRO exceeded the ESL in samples DTSS024A (at a concentration of 108 mg/kg), DTSS031A (166 mg/kg), DTSS032A (381 mg/kg), DTSS033A (duplicate of DTSS032A at 414 mg/kg), DTSS034A (274 mg/kg), DTSS035A (138 mg/kg), DTSS036A (11,000 mg/kg), DTSS037A (8,150 mg/kg), DTSS038 (209 mg/kg), DTSS041 (359 mg/kg), DTSS042 (102 mg/kg), DTSS043 (110 mg/kg), DTSS048 (150 mg/kg), and DTSS049 (10,100 mg/kg). MI samples at DU 3 also exceeded the TPH-DRO ESL in samples DTSS046 and DTSS047 at concentrations of 161 mg/kg and 217 mg/kg, respectively.

- The Pacific Basin ESL soil screening level for TPH-RRO is 1,000 mg/kg. TPH-RRO exceeded the ESL in samples DTSS032A (3,220 mg/kg), DTSS033A (duplicate of DTSS032A at 3,280 mg/kg), DTSS034A (1,440 mg/kg), DTSS036A (92,500 mg/kg), DTSS037A (67,300 mg/kg), DTSS038 (1,430 mg/kg), DTSS041 (1,250 mg/kg), and DTSS049 (72,800 mg/kg).

- The Pacific Basin ESL soil screening level for lead is 800 mg/kg. The MI sample at DU 3 exceeded the lead ESL in sample DTSS045 at concentration of 969 mg/kg. Waste

characterization samples collected in the mixed debris/soil piles also exceeded the lead ESL in samples DTSS050 (972 mg/kg), DTSS051 (5,840 mg/kg), and DTSS052 (3,570 mg/kg).

- The Pacific Basin ESL soil screening level for total PCBs is 7.4 mg/kg. A waste characterization sample collected in mixed debris/soil pile Area 2 exceeded the PCB ESL in sample DTSS051 at concentration of 15.6 mg/kg.

5.5. Subsurface Soil Sample Results

Sixteen subsurface soil samples (DTSS01 through DTSS016), including two field duplicate samples, were collected from 14 test pits (TP01 through TP14) used to characterize the extent of buried waste. Test pits were excavated to the limit of buried waste or until native bedrock was encountered. Test pit locations are illustrated in Figure 2. Subsurface soil sample locations are shown on Figure 4.

The subsurface soil samples were analyzed for the following parameters (Table 4):

- Total petroleum hydrocarbons gasoline range organics (TPH-GRO)
- TPH-DRO,
- TPH-RRO,
- VOCs
- PAHs,
- Organochlorine pesticides,
- PCBs, and
- Total metals.

Subsurface soil analytical results were compared to the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource). Analytical results are provided in Table 4. Sample locations associated with these results that exceed Pacific Basin ESLs are indicated on Figure 4. No TPH-GRO, TPH-DRO, TPH-RRO, VOCs, PAHs, pesticides, or PCBs, were detected at concentrations that equaled or exceeded their respective ESLs.

Only metals were detected at concentrations exceeding the ESLs, as follows:

- The Pacific Basin ESL soil screening level for chromium is 1,100 mg/kg. Chromium exceeded the ESL in samples DTSS011 and DTSS016 at concentrations of 1,540 mg/kg and 1,110 mg/kg, respectively.

- The Pacific Basin ESL soil screening level for lead is 800 mg/kg. Lead exceeded the ESL in sample DTSS001 at a concentration of 1,480 mg/kg.

5.6. Composite Soil Sample Results

Analytical results from waste characterization sample DTSS051, collected from the mounded debris/soil pile, Area 2, indicated that PCBs were detected at a concentration that exceeded the ESL limits. The Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) was used to determine the screening levels for all soil analytical results. The PCB concentration for sample DTSS051 was 15.6 mg/kg or parts per million (ppm). The PCB concentration for DTSS051 is above the screening level of 7.4 mg/kg or ppm. However, the sample concentration does not exceed the Toxics Substances Control Act (TSCA) hazardous level of 50 mg/kg or ppm and is considered non-hazardous.

The lead concentration for sample DTSS050 was 972 mg/kg, DTSS051 was 5,840 mg/kg and for sample DTSS052 was 3,570 mg/kg. The lead concentrations for samples DTSS050, DTSS051, and DTSS052 are above the screening level of 800 mg/kg. However, results for these samples did not exceed the TCLP metal regulatory level for lead of 5.0 mg/Liter.

It was recommended that further delineation soil samples be collected in Areas 2 and 3 and analyzed for PCBs and lead to confirm and delineate the extent of contaminants of concern in the soil, and to classify the waste material as hazardous or non-hazardous for disposal.

Thirty three composite soil samples, including three field duplicate samples, were collected within the mixed debris/soil piles (Area 2 and Area 3) in the area north of DU3, to further assess the site and determine the extent of contaminants of concern in soil (Figure 5). Field investigations in Area 2 and Area 3 included the 25-foot buffer area extending to the west of the property boundary and only 25-foot buffer area extending to the north of the property boundary.

Samples were collected from 24 test pits (TP15 through TP38) excavated to the limit of buried waste and above where native bedrock is located. TP15 through TP38 locations are illustrated in Figure 5. One composite sample was collected from the surface were the mixed debris/soil pile had a soil depth of up to 1.5 ft (toe of sloping pile). DTSS087 is a surface composite soil sample collected at a depth of 6 inches. 4 random grab samples were collected at the toe of the slope and combined to make one composite sample. Composite soil sample locations (DTSS055 through DTSS087) are shown on Figure 5.

The composite soil samples were analyzed for the following parameters (Table 5):

- PCBs,

- Total metals,
- TCLP metals.

Analytical results were compared to the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource). Analytical results are provided in Table 5. Sample locations associated with these results that exceed Pacific Basin ESLs are indicated on Figure 5.

PCBs and metals collected from the mixed debris/soil piles in Areas 2 and 3 were detected at concentrations exceeding the ESLs, as follows:

- The Pacific Basin ESLs screening level for total PCBs is 7.4 mg/kg. Total PCBs exceeded the ESLs in samples DTSS057 (at a concentration of 10.3 mg/kg), DTSS059 (12.7 mg/kg), DTSS063 (7.60 mg/kg), DTSS075 (96.6 mg/kg), DTSS078 (10.9 mg/kg), DTSS079 (8.70 mg/kg), and DTSS080 (9.11 mg/kg).

- The Pacific Basin ESLs screening level for lead is 800 mg/kg. Lead exceeded the ESL in samples DTSS055 (3,410 mg/kg), DTSS057 (4,520 mg/kg), DTSS058 (1,360 mg/kg), DTSS059 (12,300 mg/kg), DTSS060 (2,650 mg/kg), DTSS061 (4,760 mg/kg), DTSS062 (3,370 mg/kg), DTSS063 (4,180 mg/kg), DTSS064 (7,920 mg/kg), DTSS065 (3,390 mg/kg), DTSS066 (2,500 mg/kg), DTSS067 (954 mg/kg), DTSS068 (1,960 mg/kg), DTSS069 (3,060 mg/kg), DTSS070 (4,130 mg/kg), DTSS071 (20,200 mg/kg), DTSS072 (5,120 mg/kg), DTSS073 (5,780 mg/kg), DTSS074 (2,100 mg/kg), DTSS075 (3,830 mg/kg), DTSS076 (5,150 mg/kg), DTSS077 (1,450 mg/kg), DTSS078 (151,000 mg/kg), DTSS079 (2,630 mg/kg), DTSS080 (2,460 mg/kg), DTSS082 (1,830 mg/kg) DTSS083 (834 mg/kg), DTSS084 (923 mg/kg), DTSS085 (905 mg/kg), and DTSS086 (974 mg/kg).

- The Pacific Basin ESLs screening level for chromium is 1,100 mg/kg. Chromium exceeded the ESL in the sample DTSS067 at a concentration of 1,110 mg/kg.

- The Pacific Basin ESLs screening level for barium is 2,500 mg/kg. Barium exceeded the ESL in the sample DTSS068 at a concentration of 2,950 mg/kg.

Of the additional 33 composite soil samples, including three field duplicate samples, collected in the area north of DU3, 18 (including two duplicates) were also analyzed for TCLP metals to determine the leaching properties of the metals in the soil. Composite soil sample analytical results were compared to the RCRA regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24). Analytical results are provided in Table 5. Sample locations associated with these results that exceed regulatory levels are indicated on Figure 5.

TCLP lead was detected at concentrations exceeding the regulatory levels, as follows:

- The RCRA regulatory level for TCLP lead is 5.0 milligrams per liter (mg/L). TCLP lead equaled or exceeded the regulatory level in samples DTSS057 (5.7 mg/L), DTSS071 (6.3 mg/L), and DTSS075 (5.0 mg/L).

5.7. Petroleum Product Results

One petroleum product sample was collected from each of the two waste oil ASTs located north of the DU 3 area. The petroleum product samples were collected and analyzed to determine waste characteristics for disposal options.

The waste characteristic petroleum product samples were analyzed for the following (Table 6):

- TPH fuel fingerprint
- PCBs,
- Total metals (arsenic, cadmium, chromium, lead), and
- Ignitability (flashpoint).

The petroleum product sample analytical results were compared to the Used Oil Specifications presented in 40 Code of Federal Regulations, Part 279.11. Analytical results are provided in Table 6. No PCBs or metals were detected at concentrations that equaled or exceeded their respective criteria limits. The fuel fingerprint for both samples was analyzed in the laboratory. The laboratory used a tiered analytical strategy that captures a full spectrum of chemical compositional information that allows for the quantitative measurement of a large number of gasoline-range (volatile) and diesel range (semi-volatile) hydrocarbons and non-hydrocarbons. Sample DTSP001 taken from 1,000 gallon AST had a fuel fingerprint of a partial match for Fuel oil #6 (ranging from C11-C26). Sample DTSP002 taken from 500 gallon AST had a fuel fingerprint of a match for Fuel oil #6 (ranging from C11-C26).

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6. QUALITY CONTROL

6.1. Quality Assurance/Quality Control

A quality assurance (QA)/quality control (QC) program was implemented during the field and laboratory activities to ensure the generation of data of known and defensible quality. The requirements for the QA/QC program are outlined in the SAPWP (EA 2013). The QA/QC program was designed to minimize error, provide early identification and correction of potential problems, control the data acquisition process, and evaluate the performance of the sampling program.

This section summarizes the results of the data quality assessment and the analytical results for the field QC samples collected during the Phase II field investigation.

6.2. Field Quality Control Samples

Field QC samples, including field duplicates and trip blanks, were collected in accordance with the SAPWP (EA 2013). The results of the field QC samples are discussed in the sections below.

6.2.1. Field Duplicates

The field duplicate (replicate) sample results provide precision information for the entire measurement system, including sample collection, homogeneity, preparation, and analysis, as well as the variability of the sample matrix. The field duplicate samples are numbered, preserved, handled, stored, and analyzed using the same protocols and equipment as the associated original field sample. The identity of a sample as a field duplicate is not provided to the analytical laboratory. The goal for field duplicate sample collection is a minimum sampling frequency of ten percent to normal field samples for each sample matrix for the overall project. The results for field duplicate precision are generally indicative of a consistent sampling program. The results for field duplicate precision that do not meet the project data quality objectives have been flagged with a J qualifier, indicating that these are estimated values. Soil sample DTSS007 is a duplicate sample for DTSS006, DTSS014 is a duplicate sample for DTSS013, DTSS026 is a duplicate sample for DTSS025, DTSS033A is a duplicate sample for DTSS032A, DTSS044 is a duplicate sample for DTSS043, DTSS061 is a duplicate sample for DTSS060, DTSS071 is a duplicate sample for DTSS070, and DTSS084 is a duplicate sample for DTSS083. Soil MI sample DTSS018A is a duplicate sample and DTSS019A is a triplicate sample for DTSS017A; DTSS021A is a duplicate sample and DTSS022A is a triplicate sample for DTSS020A; and DTSS046 is a duplicate sample and DTSS047 is a triplicate sample for DTSS045.

6.3. Data Quality Indicators

This section presents a qualitative and quantitative assessment of the analytical data quality. The quantitative assessment of the analytical data was measured using the parameters of precision, accuracy, and completeness. The qualitative assessment of the analytical data quality was measured by assessing the representativeness and comparability of the data. In addition, the sensitivity of the analytical methodology was evaluated.

6.3.1. Precision

Precision is defined as the degree of agreement among repeated measurement of the same parameter. Precision is evaluated through the use of field duplicate samples to assess the potential bias of field and laboratory conditions on the results, and also through the use of matrix spike pairs and blank spike samples (also known as laboratory control samples) to assess the laboratory's precision. Precision also characterizes the natural variation of the matrix. The project objectives for precision were achieved based on a review of the field and laboratory QC results.

6.3.2. Accuracy

Accuracy is a measure of the closeness of an observed value to the "true" value. Accuracy is evaluated by the laboratory through the use of blank spike sample (also known as laboratory control samples) recoveries, which are compared to control limits. The project objectives for accuracy were achieved based on the results of the laboratory QC results.

6.3.3. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of the population that is sampled. The results of the evaluation of field duplicate sample results demonstrate that the data collected are representative.

6.3.4. Completeness

Analytical completeness is a measure of the amount of usable data obtained versus the total possible planned data. Completeness was calculated for each analyte, method, and matrix. The evaluation includes a comparison of the number of valid results divided by the possible number of individual results, expressed in a percentage. Usable analytical data were available for the analyses reported; therefore, the total analytical completeness was 100 percent. Analytical completeness was calculated by reviewing the number of acceptable analytical results against the total number of analytical results. The entire set of the planned field samples were collected, resulting in a field completeness of 100 percent. The completeness goal was met.

6.3.5. Comparability

Comparability is a qualitative indicator that expresses the confidence with which one data set can be compared to another. This goal is achieved by using standard operating procedures to collect and analyze representative samples and reporting data in standardized formats. Sampling and testing were conducted in accordance with the specification of the SAPWP (EA 2013) and are, therefore, deemed to be comparable.

6.3.6. Sensitivity

The sensitivity of the methodology used for the analysis of project samples allowed quantitation of target analytes below the applicable screening levels.

6.4. Data Quality Assessment

The analytical results for project samples are acceptable as reported and usable for the intended purpose; none of these data have been qualified, unless noted above. None of these data have been rejected. The data collected as part of the Phase II investigation were found to meet the standards established in the SAPWP (EA 2013).

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7. CONCLUSIONS

Surface and subsurface debris was encountered during the DSI and test pit excavations at the subject site. The waste debris is mostly found in the northern portion of the subject site. The surface debris associated with the site extends beyond the property's boundary. A 25-foot buffer area extending to the west of the property boundary and a 50-foot buffer area extending to the north of the property boundary were included in the field investigations. Although the 50-foot buffer area extending to the north of the property boundary was included within the DSI field investigation only 25 ft to the north from the property line will be included in the remedial actions. The debris piles were sectioned off within and near the DU areas, then surveyed. DU 1 is located in the southern portion of the property, DU 2 is located in the middle of the property, and DU 3 is located north of DU 2. The mixed debris/soil piles located to the north and tire pile located to the west of DU 3 were further split up into Areas 1 through 5, then surveyed.

Debris encountered in the northern portion of the property was largely comprised of metal, plastic, wood, foam insulation, house-hold appliances (e.g., washing machines, refrigerators, water heaters), and electronic waste (e.g., televisions, computer monitors, PC towers). Also noted throughout the site were automotive parts and tires, 5-lb compressed gas cylinders, 5-to10-lb fire extinguishers, broken glass, and shredded miscellaneous metallic and plastic debris. Several intact and deteriorated battery remnants were discovered, as was a large steel crate of batteries.

Two waste oil ASTs, one 500-gallon and one 1,000-gallon, are present on site and contain petroleum product. Surface stained soil was observed in several locations in DU 3 and north of DU 3.

Solid waste disposal at the northern portion of the subject site does not conform to Guam EPA solid waste disposal regulations, 22 GAR, Division 4, Chapter 20, section 20101. Section 20101 regulation states that "open dumping and improperly operated landfills foster the creation of public nuisances, environmental pollution, health hazards, and safety hazards including, but not limited to: insect and rodent breeding; dust; fire; explosion; smoke; odors; and danger of physical, chemical and bacteriological contamination of potable drinking water and groundwater. Also, improperly operated landfills further create environmental pollution which is obnoxious to the human senses and which degrades and depletes natural resources. The objective of the regulation is to protect the population of Guam by requiring adequate planning for solid waste disposal and by requiring that the disposal of solid waste be accomplished in such a manner as to create a healthful, aesthetically desirable and useful environment".

The estimated volume of surface waste at the site is approximately 20,825 bcy, which is equivalent to approximately 24,990 lcy. The estimated area of buried fill at the subject site is approximately 72 bcy or 87 lcy of mixed soil and debris.

The following analytes were detected in surface soil samples at concentrations exceeding the Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource):

- TPH-DRO exceeded the ESL in samples DTSS024A, DTSS031A, DTSS032A, DTSS033A, DTSS034A, DTSS035A, DTSS036A, DTSS037A, DTSS038, DTSS041, DTSS042, DTSS043, DTSS048, and DTSS049. MI samples at DU 3 also exceeded the TPH-DRO ESL in samples DTSS046 and DTSS047.

- TPH-RRO exceeded the ESLs in samples DTSS032A, DTSS033A, DTSS034A, DTSS036A, DTSS037A, DTSS038, DTSS041, and DTSS049.

- The MI sample at DU 3 exceeded the lead ESL in sample DTSS045. Waste characterization samples collected in the mixed debris/soil piles also exceeded the lead ESL in samples DTSS050, DTSS051, and DTSS052.

- A waste characterization sample, DTSS051, collected in the mixed debris/soil pile, Area 2 exceeded the PCB ESL.

PCBs and metals were detected in the composite soil samples collected from the mixed debris/soil piles in Areas 2 and 3 at concentrations exceeding the ESLs, as follows:

- Total PCBs exceeded the ESL in samples DTSS057, DTSS059, DTSS063, DTSS075, DTSS078, DTSS079, and DTSS080.

- Lead exceeded the ESL in all except two of the samples collected, including DTSS055, DTSS057, DTSS058, DTSS059, DTSS060, DTSS061, DTSS062, DTSS063, DTSS064, DTSS065, DTSS066, DTSS067, DTSS068, DTSS069, DTSS070, DTSS071, DTSS072, DTSS073, DTSS074, DTSS075, DTSS076, DTSS077, DTSS078, DTSS079, DTSS080, DTSS082, DTSS083, DTSS084, DTSS085, and DTSS086.

- Chromium exceeded the ESL in the sample DTSS067.

- Barium exceeded the ESL in the sample DTSS068.

TCLP lead was detected in the composite soil samples analyzed for TCLP metals at concentrations exceeding the RCRA regulatory level, as follows:

- TCLP lead exceeded the regulatory level in samples DTSS057, DTSS071, and DTSS075.

Only metals were detected in subsurface soil samples at concentrations exceeding the ESLs, as follows:

- Chromium exceeded the ESL in samples DTSS011 and DTSS016 and lead exceeded the ESL in sample DTSS001.

Of the two product samples collected from the waste oil ASTs, sample DTSP001 had a fuel fingerprint of a partial match for Fuel oil #6 and sample DTSP002 had a fuel fingerprint of a match for Fuel oil #6. No PCBs or metals were detected at concentrations that equaled or exceeded their respective criteria limits in the product samples.

The target receptors at the DSWTS are commercial workers, occasional users/trespassers, and the environment. Pacific Basin ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource) were the screening criteria used for the DSWTS evaluation.

Surface and subsurface soil at the subject site has hot spots of TPH-DRO, TPH-RRO, PCBs lead, chromium, and barium that pose a risk to commercial workers at the site, occasional users/trespassers, and the environment. Likely sources of contamination at the site include: solid waste debris and the shredded debris mixed with soil such as metal, plastic, foam insulation, components within house-hold appliances, electronic waste, automotive parts and tires, and shredded miscellaneous metallic and plastic debris, and other equipment previously operated/used on the site that contain hydraulic oil or other petroleum hydrocarbons.

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8. RECOMMENDATIONS FOR DEDEDO SOLID WASTE TRANSFER STATION

GSWA plans to upgrade the DSWTS. The upgrade involves plans to modify the site layout of the current facility operations, build an office, upgrade the solid waste staging areas, and excavate and install a storm water ponding basin at the DSWTS. The proposed locations of the upgrades are in the areas where surface and subsurface solid waste debris were identified in this investigation. Current and future land use at the facility is commercial/industrial use.

Soil samples identified surface soil hotspots of TPH-DRO, TPH-RRO and lead; hotspots within the mounded mixed debris/soil piles of PCBs, lead, chromium, and barium; and subsurface soil hotspots of lead and chromium that should be remediated to protect commercial workers and occasional users/trespasser, and to prevent potential environmental exposure at the subject site. The northern portion of the subject site was previously used as a recycling yard. Intact solid waste debris and shredded (mixed) solid waste debris mixed with soil from the previous recycling operation were left onsite. Solid waste debris mixed with soil at the facility should be either transported to a recycling facility or shipped to a licensed waste disposal facility.

8.1. Remedial Action Objectives

Based on the results of the Phase II ESA, the following remedial action objectives (RAOs) for the subject site are recommended:

- Prevent current commercial workers and occasional users/trespassers, and the environment from exposure to TPH-DRO and TPH-RRO in surface soil; PCBs, lead, chromium, and barium in the mounded mixed debris/soil piles; and lead and chromium in subsurface soil.

- Prevent potential environmental exposure by mitigating the potential migration pathway.

- Address solid waste debris disposed at the subject site in accordance with Guam EPA solid waste disposal regulations.

The above RAOs address unacceptable risk for both human and environmental receptors and non-compliance with Guam EPA solid waste regulations. In addition, the removal of solid waste from the subject property will reduce the source of soil contamination.

8.2. Remedial Goals

Remedial goals will be established to achieve the RAO objective to protect commercial workers and occasional users/trespassers, and to prevent potential environmental exposure to the contaminants of concern in surface soil (TPH-DRO and TPH-RRO), in the mounded mixed debris/soil piles (PCBs, lead, chromium, and barium) and in subsurface soil (lead and chromium). If the concentrations of the contaminants of concern are below the Pacific Basin

ESLs for Commercial/Industrial Land Use (potentially impacted groundwater is a current or potential drinking water resource), then the RAO will be met. The following contaminants and their ESLs will be the recommended remedial goals:

- TPH-DRO in surface soil at concentrations less than 100 mg/kg.
- TPH-RRO in surface soil at concentrations less than 1,000 mg/kg.
- PCBs in the mounded mixed debris/soil pile (Area 2) at concentrations less than 7.4 mg/kg.
- Lead in the mounded mixed debris/soil piles (Areas 2 and 3) and subsurface soil at concentrations less than 800 mg/kg.
- Chromium in the mounded mixed debris/soil pile (Area 2) and subsurface soil at concentrations less than 1,100 mg/kg.
- Barium in the mounded mixed debris/soil pile (Area 2) at concentrations less than 2,500 mg/kg.

There is no concentration for the removal of solid waste. The remedial goal for solid waste is to remove the debris in soil to a depth where no solid waste is encountered.

8.3. Property Description

The waste debris is largely found in the northern portion of the subject site. The 25-foot buffer area extending to the west of the property boundary and the 25-foot buffer area extending to the north of the property boundary will be included in the remedial actions. Although a 50-foot buffer area extending to the north of the property boundary was included in the DSI field investigations, only 25 ft to the north from the property line will be remediated. The debris piles were sectioned off within and near the DU areas, then surveyed. DU 1 is located in the southern portion of the property, DU 2 is located in the middle of the property, and DU 3 is located north of DU 2 (Figure 2). The mixed debris/soil piles located to the north and tire pile located to the west of DU 3 were further split up into areas, then surveyed (Figure 2).

The debris pile observed in DU 1 was approximately 25 ft by 25 ft by 8 ft in height and the DU 2 debris pile was approximately 50 ft by 25 ft by 3 ft in height. For the mixed debris/soil piles observed to the north and west of DU 3, in Areas 1 through 5, the dimensions of the piles are as follows: Area 1 was approximately 80 ft by 80 ft by 6.5 ft in height, and included a steel crate of batteries that measured 3 ft by 3 ft by 2 ft in height; Area 2 was approximately 175 ft by 120 ft by 12 ft (average height) and 17 ft at the highest point of the mound; Area 3 was approximately 125 ft by 130 ft by 9 ft (average height) and 10 ft at the highest point of the mound; Area 4 was approximately 82 ft by 65 ft by 10 ft at the highest point of the mound; Area 5 was comprised of tires stacked at various heights.

The TPH-DRO and TPH-RRO hot spots are located at the surface and are found throughout the property, but primarily in and north of DU3 as described in Section 5.4 and illustrated in Figure

3. PCB hot spots are located in the mounded mixed debris/soil pile (Area 2) as described in Sections 5.4 and 5.6 and illustrated in Figures 3 and 5. Lead hot spots are located in one MI surface soil, also within the mounded mixed debris/soil piles (Areas 2 and 3), and one hotspot subsurface soil location in the northern portion of the property, as described in Sections 5.4, 5.5, and 5.6 and illustrated in Figures 3, 4, and 5. The barium hot spot is located in the mounded mixed debris/soil pile (Area 2) as described in Section 5.6 and illustrated in Figure 5. The chromium hot spots are located in both the mounded mixed debris/soil piles (Area 2) and subsurface soil in the northern portion of the property as described in Sections 5.5 and 5.6 and illustrated in Figures 4 and 5.

Solid waste debris encountered across the site was largely comprised of metal, plastic, wood, foam insulation, house-hold appliances (e.g., washing machines, refrigerators, water heaters), and electronic waste (e.g., televisions, computer monitors, PC towers). Also noted throughout the site were automotive parts and tires, 5-lb compressed gas cylinders, 5- to10-lb fire extinguishers, broken glass, and shredded miscellaneous metallic and plastic debris. Several intact and deteriorated battery remnants were discovered, as was a large steel crate of batteries.

Two waste oil ASTs, one 500-gallon and one 1,000-gallon, are present on site and contain petroleum product identified by sampling and analysis as a match (500 gal AST) and a partial match (1,000 gal AST) for Fuel oil #6.

8.4. General Response Actions

The following General Response Actions were considered appropriate for the subject site.

Alternative 1:

The *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* and *Land Use Controls (Commercial Worker and Occasional User/Trespasser)* alternative, consists of the following:

- Removal of TPH impacted soil throughout the site that exceeds the ESLs
- Removal of solid waste debris within DU1, DU2, and DU3 areas
- Place a cap on Area 2 with concrete or asphalt
- Install a chain-link fence with signage around Area 2 and Area 3
- Maintain Land Use Controls

Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris within DU1, DU2, and DU3 areas would be removed and transported to an on island disposal facility for proper disposal.

GSWA would use a uniform placement of concrete, asphalt, or similar material of minimum thickness spread over the PCB and lead (that exceeded the TCLP) in the mounded mixed debris/soil areas where waste was left in place north of DU3, in order to prevent or minimize human exposure, infiltration of water, and erosion. The concrete or asphalt cap shall have a minimum thickness of 15 centimeters (6 inches). A fence would be constructed and signs posted around the perimeter of the PCBs, lead, chromium, and barium hot spots to prevent commercial workers and occasional users/trespassers from contact with the contaminated soil. The land use controls would require maintenance of the fence and signs. Any land use change would require additional assessment and risk assessment prior to development. As a protective measure, GSWA would notify nearby residents about the site status through newspaper advertisement and letters in the mail in order to prevent disturbance of site soil.

Alternative 2:

This *Soil and Solid Waste Removal (Commercial/Industrial Use)* alternative would allow current workers and occasional users/trespassers access to the subject property without risk of exposure and includes the following components to achieve the RAOs:

- Removal of TPH impacted soil throughout the site that exceeds the ESLs
- Removal of solid waste debris throughout the site
- Removal of PCB impacted mixed debris/soil that exceeds the ESL limit of 7.4 mg/kg, chromium and barium impacted mixed debris/soil that exceeds the ESL limit, and lead impacted mixed debris/soil that exceeds the TCLP limit of 5.0 mg/L to be shipped off island to a certified facility for disposal.
- Removal of lead impacted mixed debris/soil above the remedial goal but below the TCLP limit to be transported to an on island disposal facility.

Excavation to remove TPH-DRO, TPH-RRO, PCBs, lead, chromium, and barium contaminated mixed debris/soil at concentrations above the commercial/industrial ESLs (remedial goal) would be conducted for this alternative. Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Approximately 1,844 bcy, or 2,397 lcy, of PCBs, lead (that exceeds TCLP limit), chromium, and barium contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified off island disposal facility for proper disposal. Approximately 3,935 bcy, or 5,116 lcy, of lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris throughout the site would be removed and transported to an on island disposal facility for proper disposal. These estimated volumes were based on best professional judgment and experience gained from the Phase II ESA. The estimated volume of mixed debris/soil for

removal was calculated based on the area of the mounded mixed debris/soil piles and delineation of the hotspots by performing investigative sampling (analytical results).

Confirmation samples would be collected after soil removal to confirm that the average concentration of TPH-DRO and TPH-RRO is less than the remedial goal. Confirmation samples would be collected after soil removal to confirm that the average concentration of PCBs, lead, chromium, and barium in the mounded mixed debris/soil piles across the hot spots is less than the remedial goal.

Alternative 3:

This *Soil and Solid Waste Removal (Commercial/Industrial Use)* alternative would allow current workers and occasional users/trespassers access to the subject property without risk of exposure and include the following components to achieve the RAOs:

- Removal of TPH impacted soil throughout the site that exceeds the ESLs
- Removal of solid waste debris throughout the site
- Removal of PCB impacted mixed debris/soil that exceeds the TSCA limit of 50 mg/kg, chromium and barium impacted mixed debris/soil that exceeds the ESL limit, and lead impacted mixed debris/soil that exceeds the TCLP limit to be shipped off island to a certified facility for disposal.
- Removal of PCB impacted mixed debris/soil that exceeds the ESL limit of 7.4 mg/kg but is below the TSCA limit, and lead impacted mixed debris/soil that exceeds the ESL limit but is below the TCLP limit to be transported to an on island disposal facility.

Excavation to remove TPH-DRO, TPH-RRO, PCBs, lead, chromium, and barium contaminated mixed debris/soil at concentrations above the commercial/industrial ESLs (remedial goal) would be conducted for this alternative. Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Approximately 403 bcy, or 524 lcy, of PCB (that exceeds TSCA limit), lead (that exceeds TCLP limit), chromium, and barium contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified off island disposal facility for proper disposal. Approximately 5,376 bcy, or 6,989 lcy, of non-hazardous PCBs contaminated soil with concentrations above the remedial goal but not exceeding the TSCA limit, and lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit, would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris throughout the site would be removed and transported to an on island disposal facility for proper disposal. These estimated volumes were based on best professional judgment and experience gained from the Phase II ESA. The estimated

volume of mixed debris/soil for removal was calculated based on the area of the mounded debris/soil piles and delineation of the hotspots by performing investigative sampling (analytical results).

Confirmation samples would be collected after soil removal to confirm that the average concentration of TPH-DRO and TPH-RRO is less than the remedial goal. Confirmation samples would be collected after soil removal to confirm that the average concentration of PCBs, lead, chromium, and barium in the mounded mixed debris/soil piles across the hot spots is less than the remedial goal.

Alternative 4:

This *Soil and Solid Waste Removal (Commercial/Industrial Use)* alternative would allow current workers and occasional users/trespassers access to the subject property without risk of exposure and include the following components to achieve the RAOs:

- Removal of TPH impacted soil throughout the site that exceeds the ESLs
- Removal of solid waste debris throughout the site
- Removal of PCB impacted mixed debris/soil that exceeds 1 mg/kg or 1 ppm, chromium and barium that exceeds the ESLs limit, and lead impacted mixed debris/soil that exceeds the ESL limit to be shipped off island.
- Removal of lead mixed debris/soil below the TCLP limit but above the ESL to be transported to an on island disposal facility.

Excavation to remove TPH-DRO, TPH-RRO, lead, chromium, and barium contaminated mixed debris/soil at concentrations above the commercial/industrial ESLs (remedial goal), and PCBs above 1 mg/kg or 1 ppm, would be conducted for this alternative. Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Approximately 5,654 bcy, or 7,350 lcy, of PCB that exceed 1 mg/kg or 1 ppm, lead (that exceeds TCLP limit), chromium, and barium (found within the same pile) contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified off island disposal facility for proper disposal. Approximately 125 bcy, or 163 lcy, of lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris throughout the site would be removed and transported to an on island disposal facility for proper disposal. These estimated volumes were based on best professional judgment and experience gained from the Phase II ESA. The estimated volume of surface soil for removal

was calculated based on the area of the mounded debris/soil piles and delineation of the hotspots by performing investigative sampling (analytical results).

Confirmation samples would be collected after soil removal to confirm that the average concentration of TPH-DRO and TPH-RRO is less than the remedial goal. Confirmation samples would be collected after soil removal to confirm that the average concentration of PCBs, lead, chromium, and barium in the mounded mixed debris/soil piles across the hot spots is less than the remedial goal.

Alternative 5:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* and *Land Use Controls (Commercial Worker and Occasional User/Trespasser)* alternative, consists of the following:

- Removal of TPH impacted soil throughout the site that exceeds the ESLs
- Removal of solid waste debris within DU1, DU2, and DU3 areas
- Removal of PCB impacted mixed debris/soil that exceeds the TSCA limit of 50 mg/kg, chromium and barium impacted mixed debris/soil that exceeds the ESL limit, and lead impacted mixed debris/soil that exceeds the TCLP limit to be shipped off island to a certified facility for disposal.
- PCB impacted mixed debris/soil below the TSCA limit, and lead impacted mixed debris/soil below the TCLP limit will be left in place.
- Install a chain-link fence with signage around Area 2 and Area 3
- Maintain Land Use Controls

Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris within DU1, DU2, and DU3 areas would be removed and transported to an on island disposal facility for proper disposal. Approximately 403 bcy, or 524 lcy, of PCB (that exceeds TSCA limit), lead (that exceeds TCLP limit), chromium, and barium contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified off island disposal facility for proper disposal. Following the soil removal activities, approximately 5,376 bcy, or 6,989 lcy, of non-hazardous PCB contaminated soil with concentrations above the remedial goal but not exceeding the TSCA limit, and lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit would be left in place. A fence would be constructed and signs posted around the perimeter of the remaining PCBs, lead, chromium, and barium contaminated soil left onsite to prevent commercial workers and occasional users/trespassers from contact with the contaminated soil. The land use controls would require maintenance of the fence and signs. Any land use

change would require additional assessment and risk assessment prior to development. As a protective measure, GSWA would notify nearby residents about the site status through newspaper advertisement and letters in the mail in order to prevent disturbance of site soil. These estimated volumes were based on best professional judgment and experience gained from the Phase II ESA. The estimated volume of mixed debris/soil for removal was calculated based on the area of the mounded debris/soil piles and delineation of the hotspots by performing investigative sampling (analytical results).

Alternative 6:

This *Soil and Solid Waste Removal (Commercial/Industrial Use)* alternative would allow current workers and occasional users/trespassers access to the subject property without risk of exposure and include the following components to achieve the RAOs:

- Removal of solid waste debris throughout the site
- PCB impacted mixed debris/soil over 1 mg/kg or 1 ppm and TPH-DRO and TPH-RRO impacted soil that exceeds the ESL limit will be treated onsite using a thermal desorption unit.
- Lead impacted mixed debris/soil that exceeds the ESL limit will be treated onsite using Triple Super Phosphate.
- Chromium and barium that exceeds the ESLs limit will to be transported to an on island disposal facility.
- All treated soil with analytical results below the ESL limit will be transported to an on island disposal facility or used as beneficial reuse either onsite or offsite

Thermal desorption involves excavating the contaminated mounded mixed debris/soil piles for treatment in a thermal desorber unit. The desorber unit will be assembled at the site for onsite treatment. The soil will be prepared for treatment by segregating out large rocks and debris. Segregated solid waste will be decontaminated then transported to an on island disposal facility for proper disposal. Approximately 1,029 bcy, or 1,338 lcy, of TPH-DRO and TPH-RRO contaminated soil with concentrations above the remedial goal would be treated in the thermal desorber unit. Approximately 5,654 bcy, or 7,350 lcy, of PCB that exceed 1 mg/kg or 1 ppm (lead, chromium, and barium are collocated within the same piles) contaminated soil would be excavated and treated in the thermal desorber unit. Once thermal treatment is complete the collocated lead impacted soil along with 163 lcy of non-collocated lead contaminated soil at concentrations above the remedial goal will be stockpiled and stabilized using Triple Super Phosphate. Chromium and barium contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. Solid waste debris throughout the site will be removed and transported to an on island disposal

facility for proper disposal. These estimated volumes were based on best professional judgment and experience gained from the Phase II ESA. The estimated volume of surface soil for removal was calculated based on the area of the mounded debris/soil piles and delineation of the hotspots by performing investigative sampling (analytical results).

Confirmation samples would be collected from treated soil and after soil removal to confirm that the average concentration of TPH-DRO and TPH-RRO is less than the remedial goal. Confirmation samples would be collected after soil treatment and removal to confirm that the average concentration of PCBs, lead, chromium, and barium in the mounded mixed debris/soil piles across the hot spots is less than the remedial goal.

8.5. Screening of Remedial Actions

Alternative 1:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use) with Land Use Controls (Commercial Worker and Occasional User/Trespasser)* alternative would control exposure to commercial workers and occasional users/trespassers by removing the exposure pathway of direct contact and potential environmental exposure. For this alternative, the TPH-DRO and TPH-RRO impacted soil and solid waste debris would be excavated and removed from the subject site. A 6-inch layer of concrete or asphalt or similar material would be placed over the PCB, lead, chromium and barium hot spots in Area 2 and a fence would be installed around the impacted area to reduce access. This alternative protects the target receptors but does not comply with Guam EPA solid waste disposal regulations. In addition, this alternative conflicts with GSWA future plans to renovate the facility.

This alternative is protective of human health and the environment as it would eliminate the exposure pathway for commercial worker and occasional user/trespasser receptors by placing concrete or asphalt or similar material cover over the hot spots and fencing off access to the site. This alternative requires ongoing administrative effort. The administrative feasibility of implementing the alternative would be relatively simple, as there would be moderate coordination of resources and materials, except for the concrete or asphalt or similar material and the installation of fencing associated with the alternative. Periodic site reviews, to be conducted in conjunction with the Five-Year Review process, would be necessary to ensure that land use controls remain protective of human health and the environment, and to evaluate future remedial technologies that may be applicable for the site. This alternative would not significantly reduce the volume of contaminated soil or treat the contaminated soil. Therefore, there would be residual risks to human receptors from leaving untreated contaminated soil hot spots on the subject property. As long as the GSWA maintains the institutional controls, exposure pathways will not be complete. In addition, this alternative does not address Guam EPA solid waste

disposal regulations. The cost associated with implementing Alternative 1 is estimated at $1,212,873.

Alternative 2:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* alternative would have lower short-term effectiveness due to the disturbance of contaminated soils. This alternative, however, would provide a high degree of long-term effectiveness in mitigating human health and potential environmental exposure. For this alternative, the TPH-DRO, TPH-RRO, PCBs, lead, chromium, and barium impacted soil, mixed debris/soil, and solid waste debris would be excavated and removed from the subject site. Upon completion of the remedial action, no restrictions on site exposure or future land use would be required. This alternative would require minimal administrative effort. Mixed debris/soil with both hazardous and non-hazardous concentration levels of PCBs would be excavated and transported to a certified off island disposal facility for proper disposal. Lead (that exceeds the TCLP limit), chromium, and barium contaminated soil with concentrations above the remedial goal would also be excavated and transported to a certified off island disposal facility for proper disposal. Lead contaminated soil at concentrations that exceed the ESL (but do not exceed the TCLP limit) will be transported to a certified on island disposal facility for proper disposal. The cost associated with implementing Alternative 2 is estimated at $10,780,633. This alternative would not be associated with long-term costs. The alternative also complies with Guam EPA solid waste disposal regulations.

Alternative 3:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* alternative would have lower short-term effectiveness due to the disturbance of contaminated soils. This alternative, however, would provide a high degree of long-term effectiveness in mitigating human health and potential environmental exposure. For this alternative, the TPH-DRO, TPH-RRO, PCBs, lead, chromium, and barium impacted soil, mixed debris/soil, and solid waste debris would be excavated and removed from the subject site. Upon completion of the remedial action, no restrictions on site exposure or future land use would be required. This alternative would require minimal administrative effort. Mixed debris/soil with hazardous concentration levels of PCBs (that exceeds the TSCA limit) would be transported to a certified off island disposal facility for proper disposal. Lead (that exceeds the TCLP limit), chromium, and barium contaminated soil with concentrations above the remedial goal would be transported to a certified off island disposal facility for proper disposal. Mixed debris/soil with non-hazardous concentration levels of PCBs, and lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit, would be transported to a certified on island disposal facility. The cost associated with implementing Alternative 3 is estimated at $5,417,874. This alternative would not be associated with long-term costs. The alternative also complies with Guam EPA solid waste disposal regulations.

Alternative 4:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* alternative is a worst case scenario and would also have lower short-term effectiveness due to the disturbance of contaminated soils. This alternative, however, would provide a high degree of long-term effectiveness in mitigating human health and potential environmental exposure. For this alternative, the TPH-DRO, TPH-RRO, PCBs, lead, chromium, and barium impacted soil, mixed debris/soil, and solid waste debris would be excavated and removed from the subject site. Upon completion of the remedial action, no restrictions on site exposure or future land use would be required. This alternative would require minimal administrative effort. Mixed debris/soil with concentrations of PCB that exceed 1 mg/kg or 1 ppm, lead that exceeds the TCLP limit, and chromium and barium (collocated within the same pile) above the remedial goal would be excavated and transported to a certified off island disposal facility. Lead contaminated mixed debris/soil with concentrations that exceed the ESL but do not exceed the TCLP limit will be transported to a certified on island disposal facility for proper disposal. The cost associated with implementing Alternative 4 is estimated at $24,851,047. This alternative also complies with Guam EPA solid waste disposal regulations. This alternative would not be associated with long-term costs, however, the short term cost associated with this alternative may not be a feasible due to the high cost.

Alternative 5:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use) with Land Use Controls (Commercial Worker and Occasional User/Trespasser)* alternative is protective of human health and the environment as it would eliminate the exposure pathway for commercial worker and occasional user/trespasser receptors by removing the hazardous concentration level of the PCB hot spot and lead exceeding TCLP limit hotspots and includes fencing off access to the site. Following the soil removal activities, non-hazardous PCB contaminated soil with concentrations above the remedial goal but not exceeding the TSCA limit, and lead contaminated soil with concentrations above the remedial goal but not exceeding the TCLP limit would be left in place. A fence would be constructed and signs posted around the perimeter of the remaining PCBs, lead, chromium, and barium contaminated soil left onsite to prevent commercial workers and occasional users/trespassers from contact with the contaminated soil. For this alternative, the TPH-DRO and TPH-RRO impacted soil would be excavated and removed from the subject site. This alternative requires ongoing administrative effort. The administrative feasibility of implementing the alternative would be relatively simple, as there would be moderate coordination of resources and materials, except for the mixed debris/soil removal and the installation of fencing associated with the alternative.

Periodic site reviews, to be conducted in conjunction with the Five-Year Review process, would be necessary to ensure that land use controls remain protective of human health and the environment, and to evaluate future remedial technologies that may be applicable for the site.

This alternative would not significantly reduce the volume of contaminated soil or treat the contaminated soil. Therefore, there would be residual risks to human receptors from leaving untreated contaminated soil hot spots on the subject property. As long as the GSWA maintains the institutional controls, exposure pathways will not be complete. The alternative protects the human target receptors but does not comply with Guam EPA solid waste disposal regulations. In addition, the alternative conflicts with GSWA future plans to renovate the facility. The cost associated with implementing Alternative 5 is estimated at $2,810,145.

Alternative 6:

This *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* alternative would have lower short-term effectiveness due to the disturbance of contaminated soils. This alternative, however, would provide a high degree of long-term effectiveness in mitigating human health and potential environmental exposure. For this alternative, the TPH-DRO, TPH-RRO, PCBs and lead contaminated soil would be treated onsite; chromium and barium impacted mixed debris/soil would be removed from the subject site. Upon completion of the remedial action, no restrictions on site exposure or future land use would be required. This alternative would require minimal administrative effort. PCB contaminated soil that exceed 1 mg/kg or 1 ppm (lead, chromium, and barium are collocated within the same piles) would be excavated and treated in the thermal desorber unit. Once thermal treatment is complete the lead contaminated soil at concentrations above the remedial goal will be stockpiled and stabilized using Triple Super Phosphate. Chromium and barium contaminated soil with concentrations above the remedial goal would be excavated and transported to a certified on island disposal facility for proper disposal. The cost associated with implementing Alternative 6 is estimated at $8,962,331. This alternative would not be associated with long-term costs. This alternative also complies with Guam EPA solid waste disposal regulations. All treated soil analytical results below the ESL limit will be transported to an on island disposal facility or used as beneficial reuse either onsite or offsite.

8.6. Preferred Remedial Alternative

Based on the near future design to renovate the facility that includes modifying the site layout of the current facility operations, building an office, upgrading the solid waste staging areas, and excavating and installing a storm water ponding basin where solid waste debris and mounded mixed debris/soil piles are currently located, Alternative 6 has been selected as the preferred alternative. Alternative 6: *Soil and Solid Waste Removal (Commercial/Industrial Land Use)* is protective of residential, commercial worker, and occasional user/trespasser receptors, and the environment. This alternative is compliant with Guam EPA solid waste disposal regulations. This alternative would allow the property to be useable for upgrading the DSWTS facility and expanding the current operations. The community and the environment would be protected from exposure to both contaminants of concern and solid waste.

An excavator will be used to excavate both solid waste and mixed debris/soil. The excavator will remove materials in the previously identified areas to the bottom of the buried debris, no more than 4 ft bgs. Care will be taken to minimize the volume of clean fill removed from the subject site. The volume of solid waste to be excavated is estimated at approximately 15,763 lcy (Appendix B). The excavated solid waste and soil will be temporarily stockpiled at a staging area on the site. The desorber unit will be assembled at the site for onsite treatment. The soil will be prepared for treatment by segregating out large rocks and debris. Segregated solid waste will be decontaminated then separated for recyclable material and for non-recyclable materials. The non-recyclable material will be transported to an on island disposal facility for proper disposal. The recyclable material will be sent to a recycling facility. Approximately 15-20 percent of the solid waste is estimated as recyclable material based on best professional judgment. PCB impacted mixed debris/soil with concentrations over 1 mg/kg or 1 ppm, and TPH-DRO and TPH-RRO impacted soil that exceeds the ESL limit, will be treated onsite using the thermal desorption unit. Lead impacted mixed debris/soil that exceeds the ESL limit will be treated onsite using Triple Super Phosphate. Chromium and barium contaminated soil that exceeds the ESLs limit will be transported to an on island disposal facility. Treatment of contaminated soil both by using the thermal desorption unit and using Triple Super Phosphate will bring the soil concentration levels below the ESL limit (remedial goal) allowing for the option of transporting the soil to an on island disposal facility or used as beneficial reuse either onsite or offsite.

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9. REFERENCES

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Figures

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N

Legend

Project Site Area

Streets

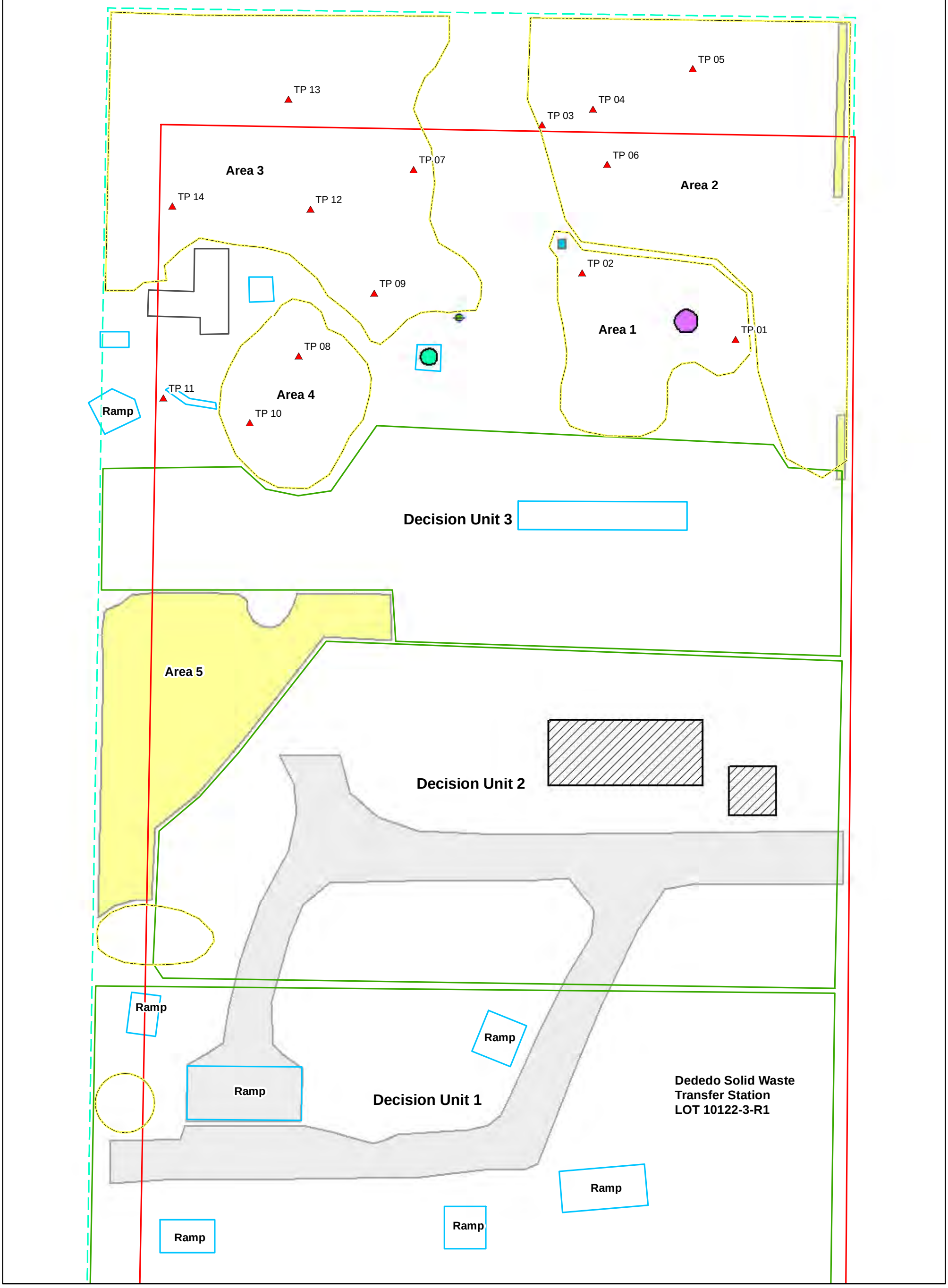
110 55 0 110 220 Feet

N

EA Project No. 62392.10

Phase II Environmental Site Assessment
Portion of Lot No. 10122-3-R1
Guam Solid Waste Authority
Dededo Solid Waste Transfer Station

Figure 1
Site Location Map



Legend

- Test Pit (TP) Location
- Mixed Debris Pile
- Property Boundary
- Buffer Line
- Tire Pile
- Utility Pole
- Decision Unit
- Grinder Pad
- Concrete Pad
- Building
- Asphalt Road
- 500 gal Waste Oil Aboveground Storage Tank (AST)
- 1000 Gallon Waste Oil AST
- Large Battery Box

N

40 20 0 40 80 Feet

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N

EA Project No. 62392.10

Phase II Environmental Site Assessment
Portion of Lot No. 10122-3-R1
Guam Solid Waste Authority
Dededo Solid WasteTransfer Station

Figure 2
Detailed Site Inventory Features

DTSS054
0.08-0.33 ft
Analytical Results
BAL

DTSS039
0.25-0.33 ft
Analytical Results
BAL

DTSS043
0.08-0.25 ft
Analytical Results
TPH - DRO 110 mg/kg

51

DTSS051
0.08-0.33 ft
Analytical Results
PCB 15,600 µg/kg
Lead 5,840 mg/kg

54

DTSS048
0.08-0.33 ft
Analytical Results
TPH - DRO 150 mg/kg

DTSS044
0.08-0.25 ft
Analytical Results
BAL

52

DTSS052
0.08-0.33 ft
Analytical Results
Lead 3,570 mg/kg

DTSS036A
0.08-0.25 ft
Analytical Results
TPH - DRO 11,000 mg/kg
TPH - RRO 92,500 mg/kg

DTSS034A
0.08-0.25 ft
Analytical Results
TPH - DRO 274 mg/kg
TPH - RRO 1,440 mg/kg

DTSS033A
0.08-0.25 ft
Analytical Results
TPH - DRO 414 mg/kg
TPH - RRO 3,280 mg/kg

39

43 / 44

42

DTSS042
0.08-0.25 ft
Analytical Results
TPH - DRO 102 mg/kg

48

53

41

DTSS037A
0.08-0.25 ft
Analytical Results
TPH - DRO 8,150 mg/kg
TPH - RRO 67,300 mg/kg

36A

40

DTSS032A
0.08-0.25 ft
Analytical Results
TPH - DRO 381 mg/kg
TPH - RRO 3,220 mg/kg

38

37A

34A

32A / 33A

DTSS041
0.25-0.33 ft
Analytical Results
TPH - DRO 359 mg/kg
TPH - RRO 1,250 mg/kg

49

35A

31A

DTSS038
0.08-0.25 ft
Analytical Results
TPH - DRO 209 mg/kg
TPH - RRO 1,430 mg/kg

Ramp

DTSS053
0.08-0.33 ft
Analytical Results
BAL

DTSS031A
0.08-0.25 ft
Analytical Results
TPH - DRO 166 mg/kg

DTSS035A
0.08-0.25 ft
Analytical Results
TPH - DRO 138 mg/kg

DTSS049
0.08-0.33 ft
Analytical Results
TPH - DRO 10,100 mg/kg
TPH - RRO 72,800 mg/kg

DTSS040
0.16-0.25 ft
Analytical Results
BAL

45 / 46 / 47

Decision Unit 3

DTSS030A
0.08-0.16 ft
Analytical Results
BAL

DTSS029A
0.08-0.16 ft
Analytical Results
BAL

DTSS045
0.08-0.25 ft
Analytical Results
Lead 969 mg/kg

DTSS046
0.08-0.25 ft
Analytical Results
TPH - DRO 161 mg/kg

DTSS047
0.08-0.25 ft
Analytical Results
TPH - DRO 217 mg/kg

30A

29A

50

DTSS050
0.08-0.33 ft
Analytical Results
Lead 972 mg/kg

DTSS017A
0.16-0.25 ft
Analytical Results
BAL

DTSS018A
0.16-0.25 ft
Analytical Results
BAL

17A / 18A / 19A

Batulo Street

Decision Unit 2

DTSS019A
0.16-0.25 ft
Analytical Results
BAL

Ramp

25A / 26A

Ramp

DTSS025A
0.25-0.33 ft
Analytical Results
BAL

DTSS026A
0.25-0.33 ft
Analytical Results
BAL

DTSS027A
0.16-0.25 ft
Analytical Results
BAL

Ramp

27A

Decision Unit 1

20A / 21A / 22A

Ramp

23A

DTSS023A
0.16-0.25 ft
Analytical Results
BAL

28A

Ramp

Ramp

24A

DTSS028A
0.08-0.16 ft
Analytical Results
BAL

DTSS022A
0.08-0.25 ft
Analytical Results
BAL

DTSS020A
0.08-0.25 ft
Analytical Results
BAL

DTSS024A
0.16-0.33 ft
Analytical Results
TPH - DRO 108 mg/kg

DTSS021A
0.08-0.25 ft
Analytical Results
BAL

40 20 0 40 80
Feet

Legend

- Surface Soil Sample Location
- Multi-Incremental Surface Soil Sample Location
- Waste Charaterization Soil Sample Location
- Decision Unit
- Buffer Line
- Property Boundary
- Utility Pole
- Building
- Grinder Pad
- Concrete Pad
- Asphalt Road
- 500 gal Waste Oil Aboveground Storage Tank (AST)
- 1000 Gallon Waste Oil AST
- Streets

DTSS000
0.0 ft
Analytical Results
above the ESL

Sample ID
Depth Feet Below Ground Surface
mg/kg

N

ESL - Pacific Basin Environmental Screening Level for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).
mg/kg - milligrams per kilograms
µg/kg - micrograms per kilograms
BAL - Below Action Level

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N

EA Project No. 62392.10

Phase II Environmental Site Assessment
Portion of Lot No. 10122-3-R1
Guam Solid Waste Authority
Dededo Solid WasteTransfer Station

Figure 3
Dededo Solid Waste Transfer Station
Surface Soil Sample Analytical Results
Exceeding Commercial/Industrial ESLs

DTSS015
4.0
Analytical Results
BAL

DTSS014
4.0
Analytical Results
BAL

DTSS013
4.0
Analytical Results
BAL

DTSS008
2.5
Analytical Results
BAL

DTSS003
1.5
Analytical Results
BAL

DTSS004
5.0
Analytical Results
BAL

DTSS005
7.8
Analytical Results
BAL

DTSS016
6.0
Analytical Results
Chromium 1,110 mg/kg

DTSS006
15.0
Analytical Results
BAL

DTSS007
15.0
Analytical Results
BAL

DTSS002
0.5
Analytical Results
BAL

DTSS010
2.0
Analytical Results
BAL

DTSS001
0.5
Analytical Results
Lead 1,480 mg/kg

DTSS009
1.5
Analytical Results
BAL

DTSS012
2.0
Analytical Results
BAL

DTSS011
6.0
Analytical Results
Chromium 1,540 mg/kg

15 [TP13]
05 [TP05]
04 [TP04]
03 [TP03]
08 [TP07]
06 / 07 [TP06]
16 [TP14]
13 / 14 [TP12]
02 [TP02]
10 [TP09]
01 [TP01]
09 [TP08]
12 [TP11]
11 [TP10]

Ramp

Decision Unit 3

Decision Unit 2

Ramp

30 15 0 30 60 Feet

Legend

- Subsurface Sample Location [Test Pit (TP)]
- Property Boundary
- Decision Unit
- Buffer Line
- Utility Pole
- Building
- Grinder Pad
- Concrete Pad
- Asphalt Road
- 500 gal Waste Oil Aboveground Storage Tank (AST)
- 1000 Gallon Waste Oil AST
- Streets

DTSS000
0.0 ft
Analytical Results
above the ESL

Sample ID
Depth Feet Below Ground Surface
mg/kg

N

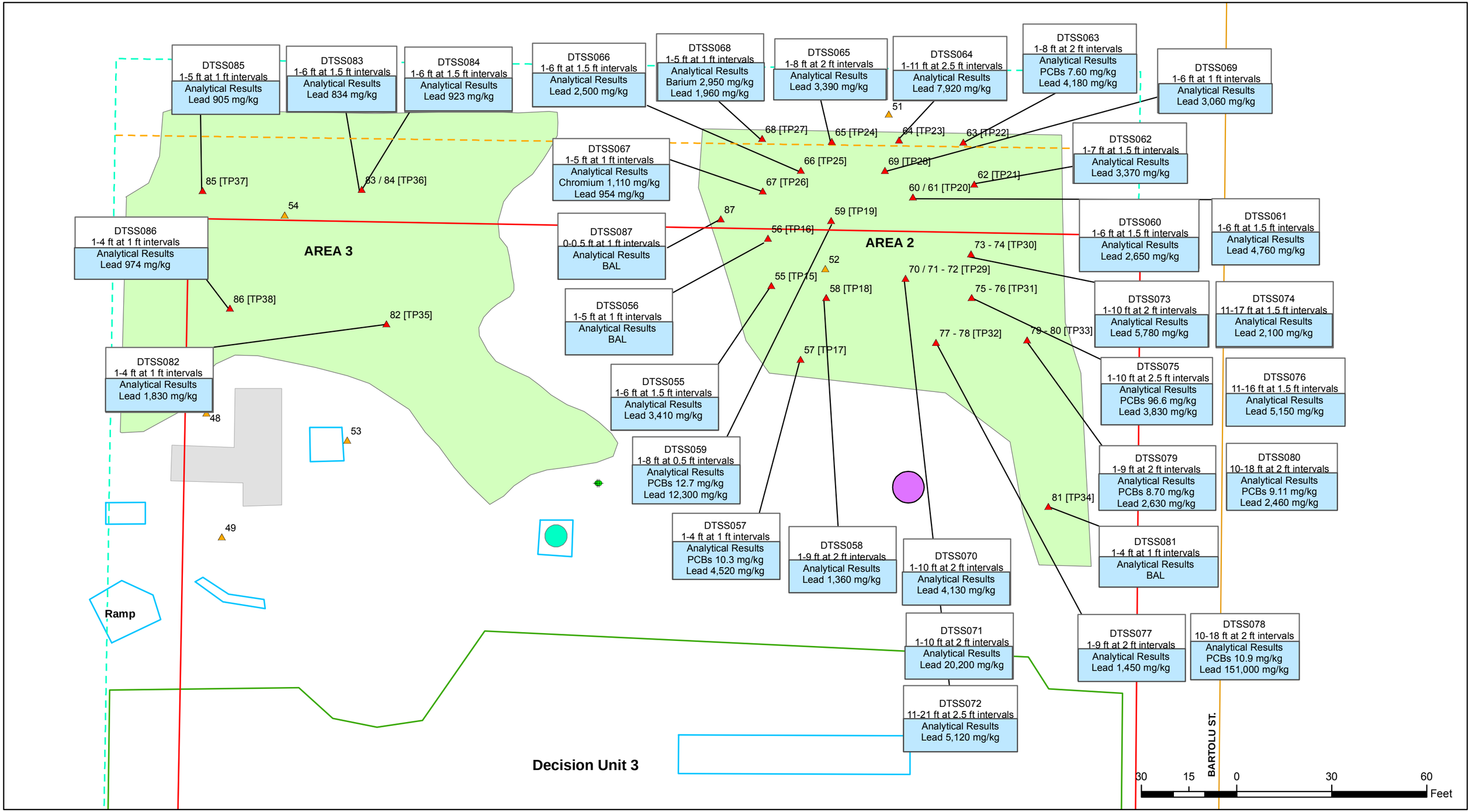
COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N

ESL - Pacific Basin Environmental Screening Level for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).
mg/kg - milligrams per kilograms
BAL - Below Action Level

EA Project No. 62392.10

Phase II Environmental Site Assessment
Portion of Lot No. 10122-3-R1
Guam Solid Waste Authority
Dededo Solid WasteTransfer Station

Figure 4
Dededo Solid Waste Transfer Station
Subsurface Soil Sample Analytical Results
Exceeding Commercial/Industrial ESLs



Legend

- Composite Sample Location [Test Pit (TP)]
- Waste Charaterization Sample Location
- Property Boundary
- Buffer Line
- Northern Buffer Line (25 feet)
- Area A and Area B
- Desicion Unit
- 1000 Gallon Waste Oil Tank
- 500 Gallon Waste Oil Tank
- Grinder Pad
- Concrete Pad
- Utility Pole

DTSS000
0.0 ft
Analytical Results
above the ESL

Sample ID
Depth Feet within Mound Above Ground Surface
mg/kg or µg/kg

ESL - Pacific Basin Environmental Screening Level for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).
mg/kg - milligrams per kilograms
BAL - Below Action Level

N

COORDINATE/REFERENCE: WGS_1984_UTM_Zone_55N

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Phase II Environmental Site Assessment
Dededo Solid WasteTransfer Station

Figure 5
Dededo Solid Waste Transfer Station
Composite Soil Sample Analytical Results
Exceeding Commercial/Industrial ESLs

Drawing No. Fig_5_Composite Sample Analytical Results	Date: 02/26/14	Drawn By: JSoriano	EA Project No. 62392.10

Tables

TABLE 1. SURFACE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Analyte	Analytical Method	CASRN	Units	PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]	Sample Identifier	DTSS023A		DTSS024A		DTSS025A		DTSS026A Field Duplicate of DTSS025A		DTSS027A		DTSS028A		DTSS029A		DTSS030A		DTSS031A		DTSS032A		DTSS033A Field Duplicate of DTSS032A		DTSS034A	
					Sample Date	17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013		17-Aug-2013	
					Sample Depth (feet)	0.16 - 0.25		0.16 - 0.33		0.25 - 0.33		0.25 - 0.33		0.16 - 0.25		0.08 - 0.16		0.08 - 0.16		0.08 - 0.16		0.08 - 0.25		0.08 - 0.25		0.08 - 0.25		0.08 - 0.25		0.08 - 0.25	
						Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Total Petroleum Hydrocarbons (TPH)																													
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100		11.4		**108**		22.2	J	21.5	J	68.1		12.0	J	32.0	J	66.6		**166**	J	**381**		**414**		**274**	
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000		60.2		445		88.3		84.6		263		60.8		147		356		978		**3,220**		**3,280**		**1,440**	
Polycyclic Aromatic Hydrocarbons																													
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000		3.8	U	10	U	10	U	10	U	21	U	9.3	U	4.1	U	15	U	210	U	190	U	200	U	30	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000		3.8	U	10	U	10	U	10	U	21	U	9.3	U	4.1	U	15	U	210	U	190	U	200	U	30	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300		3.8	U	10	U	10	U	10	U	21	U	9.3	U	4.1	U	15	U	210	U	190	U	200	U	30	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000		6.2	J	5.1	U	163		125		16.9	J	4.6	U	9.6		12.2	J	110	U	95	U	99	U	15	U
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400		10.2		5.9	J	246		202		15.8	J	4.7	J	11.3		15.4	J	84	U	76	U	79	U	17.7	J
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000		8.4		7.1	J	235		203		13.7	J	4.3	U	10.9		16	J	105	J	88	U	91	U	16.3	J
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000		6.9	J	10.9	J	135		123		13.4	J	5.0	J	8.3		10.3	J	132	J	162	J	166	J	41.2	J
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100		10.0		5.5	J	220		188		12.5	J	3.2	J	11.4		14.9	J	75.8	J	65	U	67	U	20.9	J
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000		8.7		7.6	J	231		189		19.3	J	4.3	J	12.6		17	J	91.8	J	76	U	79	U	13.4	J
Dibenz(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100		2.1	U	5.8	U	57.7		27.1		12	U	5.2	U	2.3	U	8.6	U	120	U	110	U	110	U	17	U
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000		9.1	J	10	U	135		102		21	U	9.3	U	10.5	J	15.1	J	210	U	190	U	200	U	30	U
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000		3.8	U	10	U	10	U	10	U	21	U	9.3	U	4.1	U	15	U	210	U	190	U	200	U	30	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600		8.4		5.4	J	145		125		24.6	J	6.5	J	8.9		12.6	J	110	U	95	U	99	U	25.2	J
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790		7.7	U	35.6	J	21	U	21	U	42	U	19	U	8.2	U	31	U	420	U	380	U	390	U	61	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870		7.7	U	50.8	J	21	U	21	U	42	U	19	U	8.2	U	31	U	420	U	380	U	390	U	61	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700		7.7	U	30.9	J	21	U	21	U	42	U	19	U	8.2	U	31	U	420	U	380	U	390	U	61	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000		3.8	U	10	U	14.8	J	12.5	J	21	U	9.3	U	4.1	U	15	U	210	U	190	U	200	U	30	U
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000		7.8	J	10	U	161		131		21	U	9.3	U	12.2	J	17.8	J	210	U	190	U	200	U	30	U
Organochlorine Pesticides																													
Aldrin	SW8081A	309-00-2	µg/kg	8,400		2.3	U	9.8	U	9.9	U	10	U	10	U	8.9	U	2.5	U	2.5	U	250	U	230	U	240	U	9.7	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS		2.1	U	9.0	U	9.1	U	9.3	U	9.2	U	8.2	U	2.2	U	2.3	U	230	U	210	U	220	U	8.9	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS		4.6	U	20	U	20	U	20	U	20	U	18	U	4.9	U	4.9	U	500	U	460	U	470	U	19	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS		2.3	U	9.8	U	9.9	U	10	U	10	U	8.9	U	2.5	U	2.5	U	250	U	230	U	240	U	9.7	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37		2.3	U	9.8	U	9.9	U	10	U	10	U	8.9	U	2.5	U	2.5	U	250	U	230	U	240	U	9.7	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000		3.4	U	278		48.2	J	29.6	J	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000		3.4	U	276		57.2	J	37.3	J	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
4,4-DDD	SW8081A	72-54-8	µg/kg	7,200		4.0	U	154		37.5	J	18	U	18	U	16	U	4.3	U	4.3	U	440	U	400	U	410	U	17	U
4,4-DDE	SW8081A	72-55-9	µg/kg	5,100		3.4	U	15	U	41.2	J	15	U	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
4,4-DDT	SW8081A	50-29-3	µg/kg	5,600		2.9	U	12	U	12	U	13	U	13	U	11	U	3.1	U	3.1	U	320	U	290	U	300	U	12	U
Dieldrin	SW8081A	60-57-1	µg/kg	11,000		3.4	U	15	U	15	U	15	U	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000		3.3	U	14	U	14	U	14	U	14	U	13	U	3.5	U	3.5	U	360	U	320	U	340	U	14	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000		3.4	U	15	U	15	U	15	U	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS		3.3	U	14	U	14	U	14	U	14	U	13	U	3.5	U	3.5	U	360	U	320	U	340	U	14	U
Endrin	SW8081A	72-20-8	µg/kg	30,000		3.4	U	15	U	15	U	15	U	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS		3.4	U	15	U	15	U	15	U	15	U	13	U	3.7	U	3.7	U	380	U	340	U	360	U	15	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS		3.3	U	14	U	14	U	14	U	14	U	13	U	3.5	U	3.5	U	360	U	320	U	340	U	14	U
Heptachlor	SW8081A	76-44-8	µg/kg	380		2.7	U	11	U	12	U	12	U	12	U	10	U	2.9	U	2.9	U	290	U	270	U	280	U	11	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190		2.9	U	12	U	12	U	13	U	13	U	11	U	3.1	U	3.1	U	320	U	290	U	300	U	12	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000		3.1	U	13	U	13	U	14	U	13	U	12	U	3.3	U	3.3	U	340	U	310	U	320	U	13	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600		38	U	160	U	170	U	170	U	170	U	150	U	41	U	41	U	4,200	U	3,800	U	3,900	U	160	U
Polychlorinated Biphenyls (PCBs)																													
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS		0.0076	U	0.041	U	0.033	U	0.025	U	0.025	U	0.022	U	0.0082	U	0.0082	U	0.34	U	0.31	U	0.32	U	0.0081	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS		0.019	U	0.10	U	0.083	U	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.020	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS		0.019	U	0.10	U	0.083	U	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.020	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS		0.019	U	0.10	U	0.083	U	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.020	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS		0.019	U	0.10	U	0.083	U	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.020	U
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS		0.019	U	0.10	U	0.083	U	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.020	U
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS		0.0076	U	0.041	U	0.0576	J	0.025	U	0.025	U	0.022	U	0.0082	U	0.0082	U	0.34	U	0.31	U	0.32	U	0.0111	J
Total PCBs	SW8082	1336-36-3	mg/kg	7.4		0.019	U	0.10	U	0.0576	J	0.063	U	0.063	U	0.056	U	0.020	U	0.021	U	0.84	U	0.76	U	0.79	U	0.0111	J
Total Metals																													
Arsenic	SW6020	7440-38-2	mg/kg	95		6.3		5.8		22.0		27.1		1.3	J	3.0	J	8.7		12.5		4.8	J	5.4	J	1.3	J	0.97	J
Barium	SW6020	7440-39-3	mg/kg	2,500		6.0		41.4		26.4		33.4		17.4		7.0		26.8		21.9		19.5		15.5		14.2		11.7	
Cadmium	SW6020	7440-43-9	mg/kg	120		0.67	J	0.74	J	2.0	J	2.9	J	0.53	J	0.48	J	1.1	J	1.4	J	0.50	J	0.65	J	0.57	J	0.55	J
Chromium	SW6020	7440-47-3	mg/kg	1,100		99.5		95.3		210		232		20.9		71.1		159		159		52.9		25.6		21.1		21.5	
Lead	SW6020	7439-92-1	mg/kg	800		17.4		58.9		72.6		92.1		43.2		19.8		393		437		53.7		70.0		57.1		38.3	
Mercury	SW7471A	7439-97-6	mg/kg	61		0.031	J	0.48		0.097		0.12		0.018	J	0.027	J	0.038	J	0.045		0.020	J	0.038		0.033	J	0.014	J
Selenium	SW6020	7782-49-2	mg/kg	1,000		0.30	U	0.30	U	0.51	J	0.83	J	0.46	J	0.28	U	1.3	J	0.79	J	0.73	J	3.6		0.32	U	0.33	U
Silver	SW6020	7440-22-4	mg/kg	1,000		0.48	J	0.26	J	0.24	J	0.35	J	0.17	J	0.11	U	0.17	J	0.22	J	0.12	U	0.13	U	0.40	J	14.5	

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Number
NA = not applicable
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 1. SURFACE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Analyte	Analytical Method	CASRN	Units	PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]	Sample Identifier	DTSS035A		DTSS036A		DTSS037A		DTSS038		DTSS039		DTSS040		DTSS041		DTSS042		DTSS043		DTSS044 Field Duplicate of DTSS043		DTSS048		DTSS049	
					Sample Date	17-Aug-2013		17-Aug-2013		17-Aug-2013		3-Aug-2013		3-Aug-2013		3-Aug-2013		3-Aug-2013		3-Aug-2013		3-Aug-2013		3-Aug-2013		8-Aug-2013		8-Aug-2013	
					Sample Depth (feet)	0.08 - 0.25		0.08 - 0.25		0.08 - 0.25		0.08 - 0.25		0.25 - 0.33		0.16 - 0.25		0.25 - 0.33		0.08 - 0.25		0.08 - 0.25		0.08 - 0.25		0.08 - 0.33		0.08 - 0.33	
						Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Total Petroleum Hydrocarbons (TPH)																													
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100		**138**		**11,000**		**8,150**		**209**	J	40.3	J	13.3		**359**		**102**		**110**	J	70	J	**150**		**10,100**	J
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000		378		**92,500**		**67,300**		**1,430**		240		48.1		**1,250**		655		553		344		549		**72,800**	
Polycyclic Aromatic Hydrocarbons																													
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000		27	U	91	U	91	U	17	U	31	U	1.8	U	110	U	100	U	100	U	190	U	190	U	97	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000		27	U	91	U	91	U	17	U	31	U	1.8	U	110	U	100	U	100	U	190	U	190	U	97	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300		27	U	91	U	91	U	17	U	31	U	1.8	U	110	U	100	U	100	U	190	U	190	U	97	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000		14	U	147	J	46	U	8.4	U	26.6	J	2.4	J	57	U	52	U	270		97.8	J	94	U	48	U
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400		12.4	J	37	U	37	U	6.7	U	23.3	J	4.4		45	U	47.1	J	197	J	133	J	75	U	39	U
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000		12	U	42	U	42	U	7.7	U	20.8	J	3.6		52	U	48	U	178	J	108	J	86	U	44	U
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000		18.6	J	40	U	40	U	8.9	J	21	J	6.0		50	U	65.5	J	134	J	145	J	83	U	43	U
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100		9.5	J	31	U	31	U	5.7	U	23.7	J	4.9		38	U	35	U	209		131	J	64	U	33	U
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000		11	U	37	U	37	U	6.7	U	24.8	J	3.1	J	45	U	46.3	J	330		151	J	75	U	39	U
Dibenz(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100		15	U	51	U	51	U	9.4	U	17	U	1.0	U	63	U	58	U	56	U	110	U	110	U	54	U
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000		27	U	180	J	91	U	17	U	31	U	1.8	J	110	U	100	U	411	J	190	U	190	U	97	U
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000		27	U	91	U	91	U	17	U	31	U	1.8	U	110	U	100	U	100	U	190	U	190	U	97	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600		14	U	46	U	46	U	8.4	U	18.6	J	4.6		57	U	57.2	J	121	J	130	J	94	U	48	U
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790		54	U	180	U	180	U	34	U	62	U	3.6	U	230	U	210	U	200	U	380	U	380	U	190	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870		54	U	180	U	180	U	34	U	62	U	3.6	U	230	U	210	U	200	U	380	U	380	U	190	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700		54	U	180	U	180	U	34	U	62	U	3.6	U	230	U	210	U	200	U	380	U	380	U	190	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000		27	U	91	U	91	U	17	U	31	U	1.8	U	110	U	100	U	130	J	190	U	190	U	97	U
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000		27	U	216	J	91	U	17	U	31.4	J	2.4	J	110	U	100	U	427	J	190	U	190	U	97	U
Organochlorine Pesticides																													
Aldrin	SW8081A	309-00-2	µg/kg	8,400		8.7	U	220	U	440	U	13	U	12	U	8.5	U	27	U	25	U	24	U	23	U	23	U	23	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS		7.9	U	200	U	400	U	12	U	11	U	7.7	U	25	U	23	U	22	U	21	U	21	U	21	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS		17	U	440	U	880	U	27	U	25	U	17	U	54	U	49	U	48	U	46	U	45	U	46	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS		8.7	U	220	U	440	U	13	U	12	U	8.5	U	27	U	25	U	24	U	23	U	23	U	23	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37		8.7	U	220	U	440	U	13	U	12	U	8.5	U	27	U	25	U	24	U	23	U	23	U	23	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
4,4-DDD	SW8081A	72-54-8	µg/kg	7,200		15	U	380	U	770	U	23	U	21	U	15	U	47	U	43	U	42	U	40	U	39	U	41	U
4,4-DDE	SW8081A	72-55-9	µg/kg	5,100		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
4,4-DDT	SW8081A	50-29-3	µg/kg	5,600		11	U	270	U	550	U	17	U	15	U	11	U	34	U	31	U	30	U	29	U	28	U	29	U
Dieldrin	SW8081A	60-57-1	µg/kg	11,000		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000		12	U	310	U	620	U	19	U	17	U	12	U	38	U	35	U	34	U	32	U	32	U	33	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS		12	U	310	U	620	U	19	U	17	U	12	U	38	U	35	U	34	U	32	U	32	U	33	U
Endrin	SW8081A	72-20-8	µg/kg	30,000		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS		13	U	330	U	660	U	20	U	18	U	13	U	40	U	37	U	36	U	34	U	34	U	35	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS		12	U	310	U	620	U	19	U	17	U	12	U	38	U	35	U	34	U	32	U	32	U	33	U
Heptachlor	SW8081A	76-44-8	µg/kg	380		10	U	260	U	510	U	16	U	14	U	9.9	U	31	U	29	U	28	U	27	U	26	U	27	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190		233		270	U	550	U	17	U	15	U	11	U	34	U	31	U	30	U	29	U	28	U	29	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000		12	U	290	U	580	U	18	U	16	U	11	U	36	U	33	U	32	U	31	U	30	U	31	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600		140	U	3,700	U	7,300	U	220	U	200	U	140	U	450	U	410	U	400	U	380	U	380	U	390	U
Polychlorinated Biphenyls (PCBs)																													
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS		0.0072	U	0.59	U	0.58	U	0.0089	U	0.0082	U	0.021	U	0.089	U	0.041	U	0.040	U	0.038	U	0.038	U	0.077	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS		0.018	U	1.5	U	1.5	U	0.022	U	0.020	U	0.053	U	0.22	U	0.10	U	0.099	U	0.095	U	0.094	U	0.19	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS		0.018	U	1.5	U	1.5	U	0.022	U	0.020	U	0.053	U	0.22	U	0.10	U	0.099	U	0.095	U	0.094	U	0.19	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS		0.018	U	1.5	U	1.5	U	0.022	U	0.020	U	0.053	U	0.22	U	0.10	U	0.099	U	0.095	U	0.094	U	0.19	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS		0.018	U	1.5	U	1.5	U	0.022	U	0.020	U	0.187		0.22	U	0.172	J	0.189	J	0.214		0.108	J	0.19	U
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS		0.018	U	1.5	U	1.5	U	0.022	U	0.020	U	0.053	U	0.22	U	0.149	J	0.223		0.214		0.197		0.19	U
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS		0.0072	U	0.59	U	0.58	U	0.0293	J	0.0082	U	0.021	U	0.089	U	0.0735	J	0.176	J	0.101	J	0.252		0.077	U
Total PCBs	SW8082	1336-36-3	mg/kg	7.4		0.018	U	1.5	U	1.5	U	0.0293	J	0.020	U	0.187		0.22	U	0.395	J	0.588	J	0.529	J	0.557	J	0.19	U
Total Metals																													
Arsenic	SW6020	7440-38-2	mg/kg	95		3.6	J	12.0		14.2		32.1		13.4		2.0	J	3.2	J	6.6		5.9		5.7		5.3		5.0	J
Barium	SW6020	7440-39-3	mg/kg	2,500		114		135		172		59.7		18.0		10.0		55.2		99.4		73.5		53.2		179		40.0	
Cadmium	SW6020	7440-43-9	mg/kg	120		0.83	J	5.1	J	3.7	J	6.0	J	0.97	J	0.45	J	2.3	J	3.3	J	3.3	J	2.8	J	4.0	J	2.8	J
Chromium	SW6020	7440-47-3	mg/kg	1,100		70.4		144		226		654		145		35.7		92.5		120		90.5		73.0		78.5		43.7	
Lead	SW6020	7439-92-1	mg/kg	800		272		373		304		85.5		489		20.0		354		345		326		241		352		186	
Mercury	SW7471A	7439-97-6	mg/kg	61		0.017	J	0.12		0.23		0.18		0.067		0.019	J	0.11		0.79		0.64		0.75		0.13		0.097	
Selenium	SW6020	7782-49-2	mg/kg	1,000		0.30	U	0.45	J	0.47	J	1.1	J	0.34	U	0.28	U	0.38	J	0.33	J	0.31	U	0.29	U	0.27	U	0.32	U
Silver	SW6020	7440-22-4	mg/kg	1,000		0.12	J	0.46	J	0.30	J	0.32	J	0.16	J	0.11	U	0.18	J	0.34	J	0.27	J	0.16	J	0.29	J	0.13	U

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Number
NA = not applicable
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 2. WASTE CHARACTERIZATION SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

						Sample Identifier		DTSS050		DTSS051		DTSS052	
						Sample Date		8-Aug-2013		8-Aug-2013		8-Aug-2013	
						Sample Depth (feet)		0.08 - 0.33		0.08 - 0.33		0.08 - 0.33	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]**	*** Regulatory Levels**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Fuel Fingerprint													
Gasoline (C4-C12)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Turpentine (C9-C11)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Mineral Spirits (C9-C12)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Kerosene (C9-C18)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Diesel/Fuel Oil #2 (C9-C22)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Fuel Oil #4 (C11-C24)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Fuel Oil #6 (C11-C26)	SW8015B	NS	mg/kg	NS	NS	No match		No match		No match			
Other	SW8015B	NS	mg/kg	NS	NS	MATCH (Motor oil range)		MATCH (Motor oil range)		MATCH (Motor oil range)			
Polychlorinated Biphenyls (PCBs)													
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	NS	0.42	U	0.45	U	0.18	U		
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	NS	1.0	U	1.1	U	0.46	U		
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	NS	1.0	U	1.1	U	0.46	U		
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	NS	1.0	U	1.1	U	0.46	U		
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	NS	1.0	U	12.7		4.42			
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	NS	1.0	U	2.91		1.92			
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	NS	0.42	U	0.45	U	0.758	J		
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	NS	1.0	U	**15.6**		7.10			
Total Metals													
Arsenic	SW6010B	7440-38-2	mg/kg	95	NS	7.7		30.3		15.9			
Cadmium	SW6010B	7440-43-9	mg/kg	120	NS	0.88	J	20.8		19.1			
Chromium	SW6010B	7440-47-3	mg/kg	1,100	NS	146		263		178			
Lead	SW6010B	7439-92-1	mg/kg	800	NS	**972**		**5,840**		**3,570**			
TCLP VOLATILE ORGANIC COMPOUNDS													
1,4-Dichlorobenzene	1311/8260B	106-46-7	mg/L	NS	7.5	0.0020	U	0.0020	U	0.0020	U		
1,2-Dichloroethane	1311/8260B	107-06-2	mg/L	NS	0.50	0.0022	U	0.0022	U	0.0022	U		
Chlorobenzene	1311/8260B	108-90-7	mg/L	NS	100	0.0020	U	0.0020	U	0.0020	U		
Tetrachloroethene (PCE)	1311/8260B	127-18-4	mg/L	NS	0.70	0.0032	U	0.0032	U	0.0032	U		
Carbon tetrachloride	1311/8260B	56-23-5	mg/L	NS	0.50	0.0031	U	0.0031	U	0.0031	U		
Chloroform	1311/8260B	67-66-3	mg/L	NS	6.0	0.0026	U	0.0026	U	0.0026	U		
Benzene	1311/8260B	71-43-2	mg/L	NS	0.50	0.0021	U	0.0021	U	0.0021	U		
Vinyl chloride	1311/8260B	75-01-4	mg/L	NS	0.20	0.0044	U	0.0044	U	0.0044	U		
1,1-Dichloroethene	1311/8260B	75-35-4	mg/L	NS	0.70	0.0020	U	0.0020	U	0.0020	U		
Methyl ethyl ketone (2-Butanone)	1311/8260B	78-93-3	mg/L	NS	200	0.031	U	0.031	U	0.031	U		
Trichloroethene (TCE)	1311/8260B	79-01-6	mg/L	NS	0.50	0.0031	U	0.0031	U	0.0031	U		
TCLP SEMIVOLATILE ORGANIC COMPOUNDS													
Pyridine	1311/8270C	110-86-1	mg/L	NS	5.0	0.0040	U	0.0040	U	0.0040	U		
Hexachlorobenzene	1311/8270C	118-74-1	mg/L	NS	0.13	0.0057	U	0.0057	U	0.0057	U		
2,4-Dinitrotoluene	1311/8270C	121-14-2	mg/L	NS	0.13	0.0052	U	0.0052	U	0.0052	U		
3- & 4-Methylphenols (m- & p-Cresols)	1311/8270C	1319-77-3	mg/L	NS	200	0.0063	U	0.0063	U	0.0063	U		
Hexachloroethane	1311/8270C	67-72-1	mg/L	NS	3.0	0.0048	U	0.0048	U	0.0048	U		
Hexachlorobutadiene	1311/8270C	87-68-3	mg/L	NS	0.50	0.0066	U	0.0066	U	0.0066	U		
Pentachlorophenol	1311/8270C	87-86-5	mg/L	NS	100	0.0068	U	0.0068	U	0.0068	U		
2,4,6-Trichlorophenol	1311/8270C	88-06-2	mg/L	NS	2.0	0.0040	U	0.0040	U	0.0040	U		
2-Methylphenol (o-Cresol)	1311/8270C	95-48-7	mg/L	NS	200	0.0067	U	0.0067	U	0.0067	U		
2,4,5-Trichlorophenol	1311/8270C	95-95-4	mg/L	NS	400	0.0040	U	0.0040	U	0.0040	U		
Nitrobenzene	1311/8270C	98-95-3	mg/L	NS	2.0	0.0040	U	0.0040	U	0.0040	U		
TCLP PESTICIDES													
Heptachlor epoxide	SW1311/8081A	1024-57-3	mg/L	NS	0.00080	0.000070	U	0.000014	U	0.000014	U		
Chlordane (technical)	SW1311/8081A	12789-03-6	mg/L	NS	0.030	0.00020	U	0.000040	U	0.000040	U		
gamma-BHC (Lindane)	SW1311/8081A	58-89-9	mg/L	NS	0.40	0.000050	U	0.000010	U	0.000010	U		
Endrin	SW1311/8081A	72-20-8	mg/L	NS	0.020	0.000064	U	0.000013	U	0.000013	U		
Methoxychlor	SW1311/8081A	72-43-5	mg/L	NS	10	0.000040	U	0.0000080	U	0.0000080	U		
Heptachlor	SW1311/8081A	76-44-8	mg/L	NS	0.00080	0.000056	U	0.000011	U	0.000011	U		
Toxaphene	SW1311/8081A	8001-35-2	mg/L	NS	0.50	0.0012	U	0.00024	U	0.00024	U		
TCLP METALS													
Arsenic	1311/6010B	7440-38-2	mg/L	NS	5.0	0.0075	J	0.0080	J	0.0040	J		
Barium	1311/6010B	7440-39-3	mg/L	NS	100	0.18	J	3.0		1.4			
Cadmium	1311/6010B	7440-43-9	mg/L	NS	1.0	0.0075	J	0.17		0.081			
Chromium	1311/6010B	7440-47-3	mg/L	NS	5.0	0.027	J	0.0025	J	0.0070	J		
Lead	1311/6010B	7439-92-1	mg/L	NS	5.0	0.60		4.4		1.4			
Mercury	1311/7470A	7439-97-6	mg/L	NS	0.20	0.00040	U	0.00040	U	0.00040	U		
Selenium	1311/6010B	7782-49-2	mg/L	NS	1.0	0.011	U	0.011	U	0.011	U		
Silver	1311/6010B	7440-22-4	mg/L	NS	5.0	0.0024	U	0.0024	U	0.0024	U		
Waste Characteristics													
Ignitability	SW1010	NS	degrees Fahrenheit	NS	<140	>200		>200		>200			

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

* Regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
mg/L = milligram(s) per liter
CASRN = Chemical Abstracts Service Registry Number
NA = not applicable
SIM = selected ion monitoring
TCLP = Toxicity Characteristic Leaching Procedure

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 2. WASTE CHARACTERIZATION SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

						Sample Identifier	DTSS053		DTSS054	
						Sample Date	8-Aug-2013		8-Aug-2013	
						Sample Depth (feet)	0.08 - 0.33		0.08 - 0.33	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]**	*** Regulatory Levels**		**Results**	**Q**	**Results**	**Q**
Fuel Fingerprint										
Gasoline (C4-C12)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Turpentine (C9-C11)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Mineral Spirits (C9-C12)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Kerosene (C9-C18)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Diesel/Fuel Oil #2 (C9-C22)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Fuel Oil #4 (C11-C24)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Fuel Oil #6 (C11-C26)	SW8015B	NS	mg/kg	NS	NS		No match		No match	
Other	SW8015B	NS	mg/kg	NS	NS		MATCH (Motor oil range)		MATCH (Motor oil range)	
Polychlorinated Biphenyls (PCBs)										
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	NS		0.41	U	0.041	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	NS		1.0	U	0.10	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	NS		1.0	U	0.10	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	NS		1.0	U	0.10	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	NS		1.0	U	0.369	
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	NS		1.0	U	0.368	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	NS		0.41	U	0.416	
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	NS		1.0	U	1.15	
Total Metals										
Arsenic	SW6010B	7440-38-2	mg/kg	95	NS		4.2		11.5	
Cadmium	SW6010B	7440-43-9	mg/kg	120	NS		5.3		4.7	
Chromium	SW6010B	7440-47-3	mg/kg	1,100	NS		115		163	
Lead	SW6010B	7439-92-1	mg/kg	800	NS		429		746	
TCLP VOLATILE ORGANIC COMPOUNDS										
1,4-Dichlorobenzene	1311/8260B	106-46-7	mg/L	NS	7.5		0.0020	U	0.0020	U
1,2-Dichloroethane	1311/8260B	107-06-2	mg/L	NS	0.50		0.0022	U	0.0022	U
Chlorobenzene	1311/8260B	108-90-7	mg/L	NS	100		0.0020	U	0.0020	U
Tetrachloroethene (PCE)	1311/8260B	127-18-4	mg/L	NS	0.70		0.0032	U	0.0032	U
Carbon tetrachloride	1311/8260B	56-23-5	mg/L	NS	0.50		0.0031	U	0.0031	U
Chloroform	1311/8260B	67-66-3	mg/L	NS	6.0		0.0026	U	0.0026	U
Benzene	1311/8260B	71-43-2	mg/L	NS	0.50		0.0021	U	0.0021	U
Vinyl chloride	1311/8260B	75-01-4	mg/L	NS	0.20		0.0044	U	0.0044	U
1,1-Dichloroethene	1311/8260B	75-35-4	mg/L	NS	0.70		0.0020	U	0.0020	U
Methyl ethyl ketone (2-Butanone)	1311/8260B	78-93-3	mg/L	NS	200		0.031	U	0.031	U
Trichloroethene (TCE)	1311/8260B	79-01-6	mg/L	NS	0.50		0.0031	U	0.0031	U
TCLP SEMIVOLATILE ORGANIC COMPOUNDS										
Pyridine	1311/8270C	110-86-1	mg/L	NS	5.0		0.0040	U	0.0040	U
Hexachlorobenzene	1311/8270C	118-74-1	mg/L	NS	0.13		0.0057	U	0.0057	U
2,4-Dinitrotoluene	1311/8270C	121-14-2	mg/L	NS	0.13		0.0052	U	0.0052	U
3- & 4-Methylphenols (m- & p-Cresols)	1311/8270C	1319-77-3	mg/L	NS	200		0.0063	U	0.0063	U
Hexachloroethane	1311/8270C	67-72-1	mg/L	NS	3.0		0.0048	U	0.0048	U
Hexachlorobutadiene	1311/8270C	87-68-3	mg/L	NS	0.50		0.0066	U	0.0066	U
Pentachlorophenol	1311/8270C	87-86-5	mg/L	NS	100		0.0068	U	0.0068	U
2,4,6-Trichlorophenol	1311/8270C	88-06-2	mg/L	NS	2.0		0.0040	U	0.0040	U
2-Methylphenol (o-Cresol)	1311/8270C	95-48-7	mg/L	NS	200		0.0067	U	0.0067	U
2,4,5-Trichlorophenol	1311/8270C	95-95-4	mg/L	NS	400		0.0040	U	0.0040	U
Nitrobenzene	1311/8270C	98-95-3	mg/L	NS	2.0		0.0040	U	0.0040	U
TCLP PESTICIDES										
Heptachlor epoxide	SW1311/8081A	1024-57-3	mg/L	NS	0.00080		0.000042	U	0.000014	U
Chlordane (technical)	SW1311/8081A	12789-03-6	mg/L	NS	0.030		0.00010	U	0.000040	U
gamma-BHC (Lindane)	SW1311/8081A	58-89-9	mg/L	NS	0.40		0.000030	U	0.000010	U
Endrin	SW1311/8081A	72-20-8	mg/L	NS	0.020		0.000038	U	0.000013	U
Methoxychlor	SW1311/8081A	72-43-5	mg/L	NS	10		0.000024	U	0.0000080	U
Heptachlor	SW1311/8081A	76-44-8	mg/L	NS	0.00080		0.000034	U	0.000011	U
Toxaphene	SW1311/8081A	8001-35-2	mg/L	NS	0.50		0.00072	U	0.00024	U
TCLP METALS										
Arsenic	1311/6010B	7440-38-2	mg/L	NS	5.0		0.0033	U	0.0033	U
Barium	1311/6010B	7440-39-3	mg/L	NS	100		0.43	J	1.2	
Cadmium	1311/6010B	7440-43-9	mg/L	NS	1.0		0.045		0.041	
Chromium	1311/6010B	7440-47-3	mg/L	NS	5.0		0.0090	J	0.0040	J
Lead	1311/6010B	7439-92-1	mg/L	NS	5.0		0.058		1.4	
Mercury	1311/7470A	7439-97-6	mg/L	NS	0.20		0.00040	U	0.00040	U
Selenium	1311/6010B	7782-49-2	mg/L	NS	1.0		0.11	U	0.11	U
Silver	1311/6010B	7440-22-4	mg/L	NS	5.0		0.0024	U	0.0024	U
Waste Characteristics										
Ignitability	SW1010	NS	degrees Fahrenheit	NS	<140		>200		>200	

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

* Regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
mg/L = milligram(s) per liter
CASRN = Chemical Abstracts Service Registry Number
NA = not applicable
SIM = selected ion monitoring
TCLP = Toxicity Characteristic Leaching Procedure

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 3. MULTI-INCREMENTAL SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

				Sample Identifier	DTSS017A		DTSS018A		DTSS019A	
				Sample Date	17-Aug-2013		17-Aug-2013		17-Aug-2013	
				Sample Depth (feet)	0.16 - 0.25		0.16 - 0.25		0.16 - 0.25	
					DU2 Multi-incremental Soil Sample		DU2 Duplicate		DU2 Triplicate	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source)** [1]	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Total Petroleum Hydrocarbons (TPH)										
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100	91.6	J	80.9	J	85.2	J
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000	571		511		517	
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000	8.3	U	8.3	U	8.3	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000	8.3	U	8.3	U	8.3	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300	8.3	U	8.3	U	8.3	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000	48		42		42	
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400	64		60		59	
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000	54		53		47	
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000	50		47		42	
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100	61		57		54	
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000	64		57		55	
Dibenzo(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100	8.1	J	8.1	J	6.4	J
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000	57	J	50	J	47	J
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000	8.3	U	8.3	U	8.3	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600	48		45		43	
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790	17	U	17	U	17	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870	17	U	17	U	17	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700	17	U	17	U	17	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000	10	J	11	J	8.3	U
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000	65	J	60	J	58	J
Organochlorine Pesticides										
Aldrin	SW8081A	309-00-2	µg/kg	8,400	8.0	U	8.0	U	8.0	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS	7.3	U	7.3	U	7.3	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS	16	U	16	U	16	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS	8.0	U	8.0	U	8.0	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37	8.0	U	8.0	U	8.0	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000	12	U	12	U	12	U
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000	12	U	12	U	12	U
4,4'-DDD	SW8081A	72-54-8	µg/kg	7,200	14	U	14	U	14	U
4,4'-DDE	SW8081A	72-55-9	µg/kg	5,100	12	U	12	U	12	U
4,4'-DDT	SW8081A	50-29-3	µg/kg	5,600	10	U	10	U	10	U
Dieldrin	SW8081A	60-57-1	µg/kg	11,000	12	U	12	U	12	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000	11	U	11	U	11	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000	12	U	12	U	12	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS	11	U	11	U	11	U
Endrin	SW8081A	72-20-8	µg/kg	30,000	12	U	12	U	12	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS	12	U	12	U	12	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS	11	U	11	U	11	U
Heptachlor	SW8081A	76-44-8	µg/kg	380	9.3	U	9.3	U	9.3	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190	10	U	10	U	10	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000	11	U	11	U	11	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600	130	U	130	U	130	U
Polychlorinated Biphenyls (PCBs)										
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	0.0067	U	0.0066	U	0.0066	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	0.035		0.017	U	0.019	J
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	0.043		0.036		0.069	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	0.040		0.026	J	0.044	
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	0.118		0.062	J	0.133	J
Total Metals										
Arsenic	SW6020	7440-38-2	mg/kg	95	11.8		15.6		9.6	
Barium	SW6020	7440-39-3	mg/kg	2,500	34		33		16	
Cadmium	SW6020	7440-43-9	mg/kg	120	2.0	J	2.6	J	1.4	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	231		315		193	
Lead	SW6020	7439-92-1	mg/kg	800	225		326		157	
Mercury	SW7471A	7439-97-6	mg/kg	61	0.11		0.14		0.11	
Selenium	SW6020	7782-49-2	mg/kg	1,000	0.47	J	0.55	J	0.51	J
Silver	SW6020	7440-22-4	mg/kg	1,000	0.35	J	0.28	J	0.15	J

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Number
NS = not specified
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 3. MULTI-INCREMENTAL SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

				Sample Identifier	DTSS020A		DTSS021A		DTSS022A	
				Sample Date	17-Aug-2013		17-Aug-2013		17-Aug-2013	
				Sample Depth (feet)	0.08 - 0.25		0.08 - 0.25		0.08 - 0.25	
					DU1 Multi-incremental Soil Sample		DU1 Duplicate		DU1 Triplicate	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source)** [1]	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Total Petroleum Hydrocarbons (TPH)										
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100	50.3	J	62.1	J	72.6	J
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000	343		374		322	
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000	1.7	U	3.3	U	3.3	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000	3.5	J	3.3	U	3.3	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300	2.5	J	3.3	U	3.3	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000	19		14		7.6	
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400	46		20		13	
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000	25		18		9.0	
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000	22		14		9.4	
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100	31		18		10	
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000	29		20		11	
Dibenzo(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100	3.8		4.5	J	2.5	J
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000	21		15	J	9.4	J
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000	1.7	U	3.3	U	3.3	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600	23		13		9.2	
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790	3.3	U	6.7	U	6.7	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870	3.3	U	6.7	U	6.7	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700	3.3	U	6.7	U	6.7	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000	2.7	J	3.3	U	3.3	U
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000	40		21	J	12	J
Organochlorine Pesticides										
Aldrin	SW8081A	309-00-2	µg/kg	8,400	7.9	U	8.0	U	7.9	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS	7.3	U	7.3	U	7.3	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS	16	U	16	U	16	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS	7.9	U	8.0	U	7.9	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37	7.9	U	8.0	U	7.9	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000	12	U	12	U	12	U
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000	12	U	12	U	12	U
4,4'-DDD	SW8081A	72-54-8	µg/kg	7,200	14	U	14	U	14	U
4,4'-DDE	SW8081A	72-55-9	µg/kg	5,100	12	U	12	U	12	U
4,4'-DDT	SW8081A	50-29-3	µg/kg	5,600	9.9	U	10	U	9.9	U
Dieldrin	SW8081A	60-57-1	µg/kg	11,000	12	U	12	U	12	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000	11	U	11	U	11	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000	12	U	12	U	12	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS	11	U	11	U	11	U
Endrin	SW8081A	72-20-8	µg/kg	30,000	12	U	12	U	12	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS	12	U	12	U	12	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS	11	U	11	U	11	U
Heptachlor	SW8081A	76-44-8	µg/kg	380	9.3	U	9.3	U	9.3	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190	9.9	U	10	U	9.9	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000	11	U	11	U	11	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600	130	U	130	U	130	U
Polychlorinated Biphenyls (PCBs)										
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	0.0066	U	0.0067	U	0.0066	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	0.017	U	0.017	U	0.017	U
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	0.0067	J	0.0067	U	0.0066	U
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	0.0067	J	0.017	U	0.017	U
Total Metals										
Arsenic	SW6020	7440-38-2	mg/kg	95	14.4		7.1		8.1	
Barium	SW6020	7440-39-3	mg/kg	2,500	21		17		13	
Cadmium	SW6020	7440-43-9	mg/kg	120	1.7	J	1.2	J	1.1	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	349		158		172	
Lead	SW6020	7439-92-1	mg/kg	800	71		79		65	
Mercury	SW7471A	7439-97-6	mg/kg	61	0.089		0.046		0.053	
Selenium	SW6020	7782-49-2	mg/kg	1,000	0.55	J	0.27	U	0.31	J
Silver	SW6020	7440-22-4	mg/kg	1,000	0.54	J	0.85	J	0.18	J

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Number
NS = not specified
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection lin

TABLE 3. MULTI-INCREMENTAL SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

				Sample Identifier	DTSS045		DTSS046		DTSS047	
				Sample Date	8-Aug-2013		8-Aug-2013		8-Aug-2013	
				Sample Depth (feet)	0.08 - 0.25		0.08 - 0.25		0.08 - 0.25	
					DU3 Multi-incremental Soil Sample		DU3 Duplicate		DU3 Triplicate	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source)** [1]	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Total Petroleum Hydrocarbons (TPH)										
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100	69.6		**161**		**217**	
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000	244		607		838	
Polycyclic Aromatic Hydrocarbons										
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000	8.3	U	8.2	U	8.2	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000	8.3	U	8.2	U	8.2	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300	8.3	U	8.2	U	8.2	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000	18.6		31.5		83.4	
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400	24.0		45.2		99.0	
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000	16.8	J	35.2		80.8	
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000	22.4		46.4		87.4	
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100	20.5		42.3		102	
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000	23.6		41.1		108	
Dibenzo(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100	4.6	U	5.2	J	11.7	J
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000	16.6	J	35.5	J	86.1	
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000	8.3	U	8.2	U	8.2	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600	21.8		48.8		96.9	
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790	17	U	16	U	16	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870	17	U	16	U	16	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700	17	U	16	U	16	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000	8.3	U	8.2	U	18.5	J
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000	25.0	J	47.3	J	127	
Organochlorine Pesticides										
Aldrin	SW8081A	309-00-2	µg/kg	8,400	1.6	U	1.6	U	4.0	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS	1.5	U	1.5	U	3.7	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS	3.2	U	3.2	U	8.0	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS	1.6	U	1.6	U	4.0	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37	1.6	U	1.6	U	4.0	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000	2.4	U	2.4	U	20.4	J
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000	2.6	J	2.5	J	6.8	J
4,4'-DDD	SW8081A	72-54-8	µg/kg	7,200	2.8	U	2.8	U	7.0	U
4,4'-DDE	SW8081A	72-55-9	µg/kg	5,100	2.4	U	2.4	U	6.0	U
4,4'-DDT	SW8081A	50-29-3	µg/kg	5,600	5.1	J	3.4	J	10.4	J
Dieldrin	SW8081A	60-57-1	µg/kg	11,000	2.4	U	2.4	U	6.0	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000	2.2	U	2.2	U	5.6	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000	2.4	U	2.4	U	6.0	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS	2.2	U	2.2	U	5.6	U
Endrin	SW8081A	72-20-8	µg/kg	30,000	2.4	U	2.4	U	6.0	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS	2.4	U	2.4	U	6.0	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS	2.2	U	2.2	U	5.6	U
Heptachlor	SW8081A	76-44-8	µg/kg	380	1.9	U	1.8	U	4.7	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190	2.0	U	2.0	U	5.0	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000	2.1	U	2.1	U	5.3	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600	26	U	26	U	66	U
Polychlorinated Biphenyls (PCBs)										
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	0.0066	U	0.0066	U	0.0066	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	0.017	U	0.016	U	0.017	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	0.017	U	0.016	U	0.017	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	0.017	U	0.016	U	0.017	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	0.017	U	0.016	U	0.017	U
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	0.017	U	0.016	U	0.017	U
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	0.0322	J	0.0278	J	0.0650	
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	0.0322	J	0.0278	J	0.0650	
Total Metals										
Arsenic	SW6020	7440-38-2	mg/kg	95	5.4		3.7	J	2.0	J
Barium	SW6020	7440-39-3	mg/kg	2,500	43.2		27.4		24.5	
Cadmium	SW6020	7440-43-9	mg/kg	120	2.2	J	1.6	J	1.3	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	80.6		64.8		32.9	
Lead	SW6020	7439-92-1	mg/kg	800	**969**		249		112	
Mercury	SW7471A	7439-97-6	mg/kg	61	0.16		0.048		0.016	J
Selenium	SW6020	7782-49-2	mg/kg	1,000	0.43	J	0.26	U	0.26	U
Silver	SW6020	7440-22-4	mg/kg	1,000	0.12	J	0.10	U	0.10	U

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Number
NS = not specified
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection lin

TABLE 4. SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Analyte	Analytical Method	CASRN	Units	PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]	Sample Identifier	DTSS001		DTSS002		DTSS003		DTSS004		DTSS005		DTSS006		DTSS007 Field Duplicate of DTSS006		DTSS008		DTSS009		DTSS010		DTSS011		DTSS012		DTSS013		DTSS014 Field Duplicate of DTSS013		DTSS015		DTSS016	
					Sample Date	24-Jul-2013		24-Jul-2013		24-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		26-Jul-2013		26-Jul-2013		26-Jul-2013		26-Jul-2013		29-Jul-2013		29-Jul-2013		29-Jul-2013		29-Jul-2013	
					Sample Depth (feet)	0.5		0.5		1.5		0.5		1.0		1.0		1.0		2.5		1.5		2.0		6.0		2.0		1.0		1.0		4.0		6.0	
						Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Total Petroleum Hydrocarbons (TPH)																																					
TPH as Gasoline Range Organics	SW8015B	NS	mg/kg	100		0.051	U	0.057	U	0.057	U	0.047	U	0.049	U	0.049	U	0.049	U	0.051	U	0.057	U	0.060	U	0.064	U	0.054	U	0.047	U	0.051	U	0.056	U	0.062	U
TPH as Diesel Range Organics	SW8015B	NS	mg/kg	100		11.5	J	53.5		7.99	J	34.9		2.7	U	3.63	J	2.7	U	3.35	J	4.61	J	3.0	U	38.9		12.6		2.72	J	14.6	J	3.21	J	6.44	J
TPH as Residual Range Organics	SW8015B	NS	mg/kg	1,000		50.5		228		40.3		130		5.3	U	5.3	U	5.3	U	5.9	U	6.33	J	6.0	U	64.3		80.3		7.5	J	77.0		18.2	J	18.4	J
Volatile Organic Compounds																																					
Acetone	SW8260B	67-64-1	µg/kg	1,000		12	U	10	U	13	U	12	U	15	U	13	U	13	U	28	U	15	U	14	U	15	U	12	U	15	U	94	J	19	U	16	U
Benzene	SW8260B	71-43-2	µg/kg	300		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Bromobenzene	SW8260B	108-86-1	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Bromochloromethane	SW8260B	74-97-5	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Bromodichloromethane	SW8260B	75-27-4	µg/kg	2.2		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Bromoform	SW8260B	75-25-2	µg/kg	860		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Bromomethane (Methyl bromide)	SW8260B	74-83-9	µg/kg	360		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
2-Butanone (Methyl ethyl ketone)	SW8260B	78-93-3	µg/kg	7,700		2.3	U	2.1	U	2.6	U	2.5	U	2.9	U	2.7	U	2.5	U	5.5	U	2.9	U	2.9	U	3.0	U	2.3	U	3.0	U	16	U	3.8	U	3.2	U
n-Butylbenzene	SW8260B	104-51-8	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
sec-Butylbenzene	SW8260B	135-98-8	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
t-Butylbenzene	SW8260B	98-06-6	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Carbon tetrachloride	SW8260B	56-23-5	µg/kg	240		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Chlorobenzene	SW8260B	108-90-7	µg/kg	1,500		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Chloroethane (Ethyl chloride)	SW8260B	75-00-3	µg/kg	280		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
Chloroform	SW8260B	67-66-3	µg/kg	63		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Chloromethane (Methyl chloride)	SW8260B	74-87-3	µg/kg	100		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.60	U
2-Chlorotoluene	SW8260B	95-49-8	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
4-Chlorotoluene	SW8260B	106-43-4	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	96-12-8	µg/kg	0.47		1.6	U	1.5	U	1.8	U	1.7	U	2.0	U	1.9	U	1.8	U	3.9	U	2.0	U	2.0	U	2.1	U	1.6	U	2.1	U	11	U	2.7	U	2.2	U
Dibromochloromethane (Chlorodibromomethane)	SW8260B	124-48-1	µg/kg	1.6		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dibromoethane (Ethylene dibromide [EDB])	SW8260B	106-93-4	µg/kg	0.47		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Dibromomethane (Methylene bromide)	SW8260B	74-95-3	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dichlorobenzene	SW8260B	95-50-1	µg/kg	750		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,3-Dichlorobenzene	SW8260B	541-73-1	µg/kg	7,400		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,4-Dichlorobenzene	SW8260B	106-46-7	µg/kg	130		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Dichlorodifluoromethane	SW8260B	75-71-8	µg/kg	NS		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
1,1-Dichloroethane	SW8260B	75-34-3	µg/kg	97		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dichloroethane	SW8260B	107-06-2	µg/kg	56		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1-Dichloroethene	SW8260B	75-35-4	µg/kg	1,200		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dichloroethene (cis)	SW8260B	156-59-2	µg/kg	730		1.3	U	1.1	U	1.5	U	1.4	U	1.6	U	1.5	U	1.4	U	3.0	U	1.6	U	1.6	U	1.7	U	1.3	U	1.6	U	8.7	U	2.1	U	1.8	U
1,2-Dichloroethene (trans)	SW8260B	156-60-5	µg/kg	6,200		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2-Dichloropropane	SW8260B	78-87-5	µg/kg	140		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,3-Dichloropropane	SW8260B	142-28-9	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
2,2-Dichloropropane	SW8260B	594-20-7	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1-Dichloropropene	SW8260B	563-58-6	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,3-Dichloropropene (cis)	SW8260B	10061-01-5	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,3-Dichloropropene (trans)	SW8260B	10061-02-6	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,3-Dichloropropene (total)	SW8260B	542-75-6	µg/kg	150		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	8.0	U	1.9	U	1.6	U
Ethylbenzene	SW8260B	100-41-4	µg/kg	3,700		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Hexachlorobutadiene	SW8260B	87-68-3	µg/kg	180		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
2-Hexanone	SW8260B	591-78-6	µg/kg	NS		2.3	U	2.1	U	2.6	U	2.5	U	2.9	U	2.7	U	2.5	U	5.5	U	2.9	U	2.9	U	3.0	U	2.3	U	3.0	U	16	U	3.8	U	3.2	U
Isopropylbenzene (Cumene)	SW8260B	98-82-8	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
p-Isopropyltoluene	SW8260B	99-87-6	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
4-Methyl-2-pentanone (Methyl isobutyl ketone [MIBK])	SW8260B	108-10-1	µg/kg	500		2.3	U	2.1	U	2.6	U	2.5	U	2.9	U	2.7	U	2.5	U	5.5	U	2.9	U	2.9	U	3.0	U	2.3	U	3.0	U	16	U	3.8	U	3.2	U
Methylene chloride	SW8260B	75-09-2	µg/kg	110		5.8	U	5.2	U	6.6	U	6.1	U	7.3	U	6.7	U	6.4	U	14	U	7.3	U	7.2	U	7.5	U	5.8	U	7.4	U	40	U	9.5	U	8.0	U
Methyl-tertiary-butyl ether (MtBE)	SW8260B	1634-04-4	µg/kg	28		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
Naphthalene	SW8260B	91-20-3	µg/kg	1,700		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
n-Propylbenzene	SW8260B	103-65-1	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Styrene	SW8260B	100-42-5	µg/kg	910		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1,1,2-Tetrachloroethane	SW8260B	630-20-6	µg/kg	15		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1,2,2-Tetrachloroethane	SW8260B	79-34-5	µg/kg	1.2		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Tetrachloroethene (PCE)	SW8260B	127-18-4	µg/kg	250		0.69	U	0.63	U	0.79	U	0.74	U	0.87	U	0.81	U	0.76	U	1.7	U	0.88	U	0.86	U	0.90	U	0.70	U	0.89	U	4.7	U	1.1	U	0.96	U
Toluene	SW8260B	108-88-3	µg/kg	3,200		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2,3-Trichlorobenzene	SW8260B	87-61-6	µg/kg	NS		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,2,4-Trichlorobenzene	SW8260B	120-82-1	µg/kg	310		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1,1-Trichloroethane	SW8260B	71-55-6	µg/kg	7,000		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
1,1,2-Trichloroethane	SW8260B	79-00-5	µg/kg	21		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Trichloroethene (TCE)	SW8260B	79-01-6	µg/kg	350		0.58	U	0.52	U	0.66	U	0.61	U	0.73	U	0.67	U	0.64	U	1.4	U	0.73	U	0.72	U	0.75	U	0.58	U	0.74	U	4.0	U	0.95	U	0.80	U
Trichlorofluoromethane	SW8260B	75-69-4	µg/kg	NS		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	2.3	J	1.6	U
1,2,3-Trichloropropane	SW8260B	96-18-4	µg/kg	0.0085		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
1,2,4-Trimethylbenzene	SW8260B	95-63-6	µg/kg	NS		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
1,3,5-Trimethylbenzene	SW8260B	108-67-8	µg/kg	NS		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
Vinyl chloride	SW8260B	75-01-4	µg/kg	330		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U
Xylenes (total)	SW8260B	1330-20-7	µg/kg	2,100		1.2	U	1.0	U	1.3	U	1.2	U	1.5	U	1.3	U	1.3	U	2.8	U	1.5	U	1.4	U	1.5	U	1.2	U	1.5	U	7.9	U	1.9	U	1.6	U

TABLE 4. SUBSURFACE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Analyte	Analytical Method	CASRN	Units	PBESL Soil Screening Levels for Commercial/Industrial Land Use (Groundwater Potential Drinking Water Source) [1]	Sample Identifier	DTSS001		DTSS002		DTSS003		DTSS004		DTSS005		DTSS006		DTSS007 Field Duplicate of DTSS006		DTSS008		DTSS009		DTSS010		DTSS011		DTSS012		DTSS013		DTSS014 Field Duplicate of DTSS013		DTSS015		DTSS016	
					Sample Date	24-Jul-2013		24-Jul-2013		24-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		25-Jul-2013		26-Jul-2013		26-Jul-2013		26-Jul-2013		26-Jul-2013		29-Jul-2013		29-Jul-2013		29-Jul-2013		29-Jul-2013	
					Sample Depth (feet)	0.5		0.5		1.5		0.5		1.0		1.0		1.0		2.5		1.5		2.0		6.0		2.0		1.0		1.0		4.0		6.0	
						Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Polycyclic Aromatic Hydrocarbons																																					
Acenaphthene	SW8270C SIM	83-32-9	µg/kg	120,000		1.9	U	1.9	U	2.0	U	3.5	U	1.8	U	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	2.3	U	1.9	U	1.8	U	1.8	U	1.9	U	2.2	U
Acenaphthylene	SW8270C SIM	208-96-8	µg/kg	13,000		1.9	U	1.9	U	2.0	U	3.5	U	1.8	U	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	2.3	U	1.9	U	1.8	U	1.8	U	1.9	U	2.2	U
Anthracene	SW8270C SIM	120-12-7	µg/kg	4,300		1.9	U	1.9	U	2.0	U	3.5	U	3.7	J	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	2.3	U	1.9	U	1.8	U	1.8	U	1.9	U	2.2	U
Benzo(a)anthracene	SW8270C SIM	56-55-3	µg/kg	10,000		1.1	J	1.8	J	0.99	U	3.5	J	11.6		0.88	U	0.89	U	5.5		3.9	J	1.0	U	3.2	J	0.97	U	1.8	J	0.88	U	9.6		1.1	U
Benzo(b)fluoranthene	SW8270C SIM	205-99-2	µg/kg	5,400		2.6	J	2.8	J	0.79	U	6.8	J	14.6		0.71	J	2.8	J	3.4	J	3.8	J	0.81	U	5.3		1.2	J	1.9	J	0.70	U	8.6		0.89	J
Benzo(k)fluoranthene	SW8270C SIM	207-08-9	µg/kg	29,000		1.9	J	1.8	J	0.91	U	6.9	J	7.3		0.82	J	1.0	J	4.2		6.5		0.93	U	3.2	J	1.1	J	2.2	J	0.81	U	7.5		1.0	U
Benzo(g,h,i)perylene	SW8270C SIM	191-24-2	µg/kg	27,000		2.7	J	4.7		1.4	J	14.5		6.7		1.4	J	3.6		2.6	J	5.4		0.89	U	4.9		0.85	U	1.9	J	1.2	J	6.2		1.6	J
Benzo(a)pyrene	SW8270C SIM	50-32-8	µg/kg	2,100		1.5	J	2.9	J	0.67	U	6.3	J	9.6		0.60	U	0.62	J	4.5		5.6		0.68	U	3.3	J	0.66	U	1.8	J	0.60	U	8.9		0.74	U
Chrysene	SW8270C SIM	218-01-9	µg/kg	10,000		1.5	J	2.8	J	0.79	U	6.0	J	13		0.70	U	1.8	J	6.9		5.1		0.81	U	5.6		0.89	J	2.0	J	0.70	U	9.5		0.98	J
Dibenz(a,h)anthracene	SW8270C SIM	53-70-3	µg/kg	2,100		1.0	U	1.1	U	1.1	U	2.0	U	1.8	J	0.98	U	1.0	U	1.1	U	1.2	J	1.1	U	1.3	U	1.1	U	1.0	U	0.99	U	2.4	J	1.2	U
Fluoranthene	SW8270C SIM	206-44-0	µg/kg	87,000		1.9	U	1.9	U	2.0	U	8.9	J	31.4		1.8	U	1.8	U	5.5	J	3.7	J	2.0	U	2.8	J	1.9	U	2.0	J	1.8	U	10.8	J	2.2	U
Fluorene	SW8270C SIM	86-73-7	µg/kg	100,000		1.9	U	1.9	U	2.0	U	3.5	U	1.8	U	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	2.3	U	1.9	U	1.8	U	1.8	U	1.9	U	2.2	U
Indeno(1,2,3-cd)pyrene	SW8270C SIM	193-39-5	µg/kg	9,600		1.9	J	3.2	J	1.0	J	7.4		6.3		1.0	J	2.1	J	3.2	J	4.0	J	1.0	U	3.6	J	0.97	U	1.8	J	0.88	U	6.6		1.1	U
1-Methylnaphthalene	SW8270C SIM	90-12-0	µg/kg	790		3.7	U	3.8	U	4.0	U	7.0	U	3.5	U	3.5	U	3.6	U	4.0	U	4.1	U	4.0	U	6.6	J	3.9	U	3.6	U	3.5	U	3.8	U	4.4	U
2-Methylnaphthalene	SW8270C SIM	91-57-6	µg/kg	870		3.7	U	3.8	U	4.0	U	7.0	U	3.5	U	3.5	U	3.6	U	4.0	U	4.1	U	4.0	U	5.9	J	3.9	U	3.6	U	3.5	U	3.8	U	4.4	U
Naphthalene	SW8270C SIM	91-20-3	µg/kg	1,700		3.7	U	3.8	U	4.0	U	7.0	U	3.5	U	3.5	U	3.6	U	4.0	U	4.1	U	4.0	U	4.6	U	3.9	U	3.6	U	3.5	U	3.8	U	4.4	U
Phenanthrene	SW8270C SIM	85-01-8	µg/kg	69,000		1.9	U	1.9	U	2.0	U	3.5	U	24.6		1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	4.9	J	1.9	U	1.8	U	1.8	U	3.8	J	2.2	U
Pyrene	SW8270C SIM	129-00-0	µg/kg	44,000		1.9	U	2.0	J	2.0	U	8.1	J	23.3		1.8	U	1.8	U	8.3	J	4.8	J	2.0	U	8.7	J	1.9	U	2.5	J	1.8	U	10.6	J	2.2	U
Organochlorine Pesticides																																					
Aldrin	SW8081A	309-00-2	µg/kg	8,400		0.45	U	0.46	U	0.47	U	0.42	U	0.42	U	0.42	U	4.3	U	0.47	U	0.49	U	0.48	U	0.55	U	0.46	U	0.42	U	0.42	U	0.46	U	1.0	U
alpha-BHC	SW8081A	319-84-6	µg/kg	NS		0.41	U	0.42	U	0.43	U	0.39	U	0.39	U	0.38	U	3.9	U	0.43	U	0.45	U	0.44	U	0.51	U	0.43	U	0.39	U	0.39	U	0.42	U	0.96	U
beta-BHC	SW8081A	319-85-7	µg/kg	NS		0.89	U	0.92	U	0.95	U	0.84	U	0.85	U	0.83	U	8.5	U	0.94	U	0.98	U	0.96	U	1.1	U	0.93	U	0.85	U	0.85	U	0.91	U	2.1	U
delta-BHC	SW8081A	319-86-8	µg/kg	NS		0.45	U	0.46	U	0.47	U	0.42	U	0.42	U	0.42	U	4.3	U	0.47	U	0.49	U	0.48	U	0.55	U	0.46	U	0.42	U	0.42	U	0.46	U	1.0	U
gamma-BHC (Lindane)	SW8081A	58-89-9	µg/kg	37		0.45	U	0.46	U	0.47	U	0.42	U	0.42	U	0.42	U	4.3	U	0.47	U	0.49	U	0.48	U	0.55	U	0.46	U	0.42	U	0.42	U	0.46	U	1.0	U
alpha-Chlordane	SW8081A	5103-71-9	µg/kg	29,000		3.5	J	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.86	J	0.68	U	12.6	
gamma-Chlordane	SW8081A	5103-74-2	µg/kg	29,000		4.6		0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	7.1	J	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.67	J	0.68	U	18.8	
4,4-DDD	SW8081A	72-54-8	µg/kg	7,200		0.78	U	0.80	U	0.83	U	0.74	U	0.74	U	0.73	U	7.5	U	0.82	U	0.86	U	0.84	U	0.97	U	0.81	U	0.74	U	0.74	U	0.80	U	1.8	U
4,4-DDE	SW8081A	72-55-9	µg/kg	5,100		0.67	U	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.63	U	0.68	U	1.6	U
4,4-DDT	SW8081A	50-29-3	µg/kg	5,600		0.56	U	0.57	U	0.59	J	3.5		1.4	J	0.52	U	5.3	U	0.59	U	0.61	U	0.60	U	0.69	U	0.58	U	0.53	U	0.53	U	0.57	U	2.5	J
Dieldrin	SW8081A	60-57-1	µg/kg	11,000		0.67	U	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.63	U	0.68	U	1.6	U
Endosulfan I	SW8081A	959-98-8	µg/kg	18,000		0.63	U	0.65	U	0.67	U	0.60	U	0.60	U	0.59	U	6.1	U	0.66	U	0.69	U	0.68	U	0.78	U	0.66	U	0.60	U	0.60	U	0.65	U	1.5	U
Endosulfan II	SW8081A	33213-65-9	µg/kg	18,000		0.67	U	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.63	U	0.68	U	1.6	U
Endosulfan sulfate	SW8081A	1031-07-8	µg/kg	NS		0.63	U	0.65	U	0.67	U	0.60	U	0.60	U	0.59	U	6.1	U	0.66	U	0.69	U	0.68	U	0.78	U	0.66	U	0.60	U	0.60	U	0.65	U	1.5	U
Endrin	SW8081A	72-20-8	µg/kg	30,000		0.67	U	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.63	U	0.68	U	1.6	U
Endrin aldehyde	SW8081A	7421-93-4	µg/kg	NS		0.67	U	0.69	U	0.71	U	0.63	U	0.64	U	0.62	U	6.4	U	0.70	U	0.74	U	0.72	U	0.83	U	0.70	U	0.64	U	0.63	U	0.68	U	1.6	U
Endrin ketone	SW8081A	53494-70-5	µg/kg	NS		0.63	U	0.65	U	0.67	U	0.60	U	0.60	U	0.59	U	6.1	U	0.66	U	0.69	U	0.68	U	0.78	U	0.66	U	0.60	U	0.60	U	0.65	U	1.5	U
Heptachlor	SW8081A	76-44-8	µg/kg	380		0.52	U	0.53	U	0.55	U	0.49	U	0.50	U	0.49	U	6.2	J	0.55	U	0.57	U	0.56	U	0.64	U	0.54	U	0.49	U	0.49	U	0.53	U	1.2	U
Heptachlor epoxide	SW8081A	1024-57-3	µg/kg	190		0.56	U	0.57	U	0.59	U	0.53	U	0.53	U	0.52	U	5.3	U	0.59	U	0.61	U	0.60	U	0.69	U	0.58	U	0.53	U	0.53	U	0.57	U	1.3	U
Methoxychlor	SW8081A	72-43-5	µg/kg	16,000		0.60	U	0.61	U	0.63	U	0.56	U	0.57	U	0.55	U	5.7	U	0.62	U	0.65	U	0.64	U	0.74	U	0.62	U	0.56	U	0.56	U	0.61	U	1.4	U
Toxaphene	SW8081A	8001-35-2	µg/kg	1,600		7.5	U	7.6	U	7.9	U	7.0	U	7.1	U	6.9	U	71	U	7.8	U	8.2	U	8.0	U	9.2	U	7.7	U	7.1	U	7.1	U	7.6	U	17	U
Polychlorinated Biphenyls (PCBs)																																					
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS		0.0075	U	0.0076	U	0.0079	U	0.007	U	0.0071	U	0.0069	U	0.036	U	0.0078	U	0.0082	U	0.0080	U	0.0092	U	0.0077	U	0.0071	U	0.0071	U	0.0076	U	0.0087	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS		0.019	U	0.019	U	0.020	U	0.018	U	0.018	U	0.017	U	0.089	U	0.020	U	0.020	U	0.020	U	0.023	U	0.019	U	0.018	U	0.018	U	0.019	U	0.022	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS		0.019	U	0.019	U	0.020	U	0.018	U	0.018	U	0.017	U	0.089	U	0.020	U	0.020	U	0.020	U	0.023	U	0.019	U	0.018	U	0.018	U	0.019	U	0.022	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS		0.019	U	0.019	U	0.020	U	0.018	U	0.018	U	0.017	U	0.089	U	0.020	U	0.020	U	0.020	U	0.023	U	0.019	U	0.018	U	0.018	U	0.019	U	0.022	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS		0.0496		0.019	U	0.020	U	0.0972		0.0449		0.017	U	0.487		0.020	U	0.020	U	0.020	U	0.023	U	0.019	U	0.018	U	0.018	U	0.019	U	0.0751	
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS		0.019	U	0.019	U	0.020	U	0.0708		0.018	U	0.017	U	0.089	U	0.020	U	0.020	U	0.020	U	0.023	U	0.019	U	0.018	U	0.018	U	0.019	U	0.0563	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS		0.172		0.0076	U	0.0079	U	0.0331	J	0.0071	U	0.0069	U	0.036	U	0.0078	U	0.0082	U	0.0080	U	0.0291	J	0.0077	U	0.0071	U	0.0071	U	0.0076	U	0.0087	U
Total PCBs	SW8082	1336-36-3	mg/kg	7.4		0.222		0.11	U	0.116	U	0.201	J	0.0449		0.0988	U	0.487		0.116	U	0.116	U	0.116	U	0.0291	J	0.110	U	0.110	U	0.110	U	0.110	U	0.131	
Total Metals																																					
Arsenic	SW6020	7440-38-2	mg/kg	95		0.40	J	0.34	J	0.18	J	1.1	J	0.20	J	0.12	U	0.38	J	0.27	J	0.20	J	0.21	J	30.6		0.58	J	2.0		3.0		1.2	J	42.0	
Barium	SW6020	7440-39-3	mg/kg	2,500		4.3		3.6		3.2		36.9		1.1		0.91	J	32.7		1.9		3.2		2.6		23.2		4.0		3.1		26.7		9.1		41.7	
Cadmium	SW6020	7440-43-9	mg/kg	120		0.22	J	0.22	J	0.23	J	0.67	J	0.11	J	0.15	J	0.28	J	0.16	J	0.21	J	0.13	J	4.2		0.30	J	0.50	J	0.65	J	0.31	J	8.1	
Chromium	SW6020	7440-47-3	mg/kg	1,100		11.8		9.2		17.3		27.3		11.2		8.3		12.9		7.8		11		9.6		**1,540**		22.3		51.4		75.3		17.4		**1,110**	
Lead	SW6020	7439-92-1	mg/kg	800		**1,480**		7.9		2.2	J	104		3.0		0.29	J	17.9		7.4		7.5		1.1	J	73.1		6.7		10.6		14.7		41.3		100	
Mercury	SW7471A	7439-97-6	mg/kg	61		0.018	J	0.0065	U	0.021	J	0.051		0.0064	U	0.0061	U	0.027	J	0.0068	U	0.0090	J	0.012	J	0.23		0.0070	U	0.020	J	0.0065	U	0.021	J	0.24	
Selenium	SW6020	7782-49-2	mg/kg	1,000		0.12	J	0.12	U	0.12	U	0.10	U	0.12	U	0.11	J	0.12	U	0.13	U	0.13	U	0.13	U	1.2		0.30	U	0.26	U	0.29	U	0.31	U	1.5	J
Silver	SW6020	7440-22-4	mg/kg	1,000		0.19	J	0.078	J	0.050	U	0.073	J	0.048	U	0.044	U	0.047	U	0.052	U	0.053	U	0.052	U	0.66	J	0.049	U	0.056	J	0.072	J	0.060	J	0.23	J

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

µg/kg = microgram(s) per kilogram
mg/kg = milligram(s) per kilogram
CASRN = Chemical Abstracts Service Registry Numbe
NS = not specified
SIM = selected ion monitoring

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection lim

TABLE 5. COMPOSITE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Sample Identifier							DTSS055		DTSS056		DTSS057		DTSS058		DTSS059		DTSS060		DTSS061		DTSS062		DTSS063		DTSS064		DTSS065		DTSS066	
Test Pit ID							TP15		TP16		TP17		TP18		TP19		TP20		Field Duplicate of DTSS060		TP21		TP22		TP23		TP24		TP25	
Lab Sample ID							C31545-1		C31545-2		C31545-3		C31545-4		C31545-5		C31545-6		C31545-7		C31545-8		C31545-9		C31545-10		C31545-11		C31545-12	
Sample Date							16-Dec-2013		16-Dec-2013		16-Dec-2013		16-Dec-2013		16-Dec-2013		16-Dec-2013		16-Dec-2013		17-Dec-2013		17-Dec-2013		17-Dec-2013		17-Dec-2013		17-Dec-2013	
Sample Depth in Feet within Mound							1-6		1-5		1-4		1-9		1-8		1-6		1-6		1-7		1-8		1-11		1-8		1-6	
Composite Sample Interval (ft):							1.5		1.0		1.0		2.0		0.5		1.5		1.5		1.5		2.0		2.5		2.0		1.5	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/ Industrial Land Use (Groundwater Potential Drinking Water Source)** [1]	**TSCA Level** [2]	**RCRA Regulatory Levels** [3]	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Polychlorinated Biphenyls (PCBs)																														
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	NS	1.0	0.17	U	0.041	U	0.18	U	0.16	U	0.85	U	0.16	U	0.084	U	0.17	U	0.16	U	0.16	U	0.17	U	0.16	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	NS	NS	0.42	U	0.10	U	0.45	U	0.39	U	2.1	U	0.40	U	0.21	U	0.41	U	0.40	U	0.41	U	0.43	U	0.39	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	NS	NS	0.42	U	0.10	U	0.45	U	0.39	U	2.1	U	0.40	U	0.21	U	0.41	U	0.40	U	0.41	U	0.43	U	0.39	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	NS	NS	0.42	U	0.10	U	0.45	U	0.39	U	2.1	U	0.40	U	0.21	U	0.41	U	0.40	U	0.41	U	0.43	U	0.39	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	NS	NS	5.26		1.05		3.25		3.65		12.7		4.59		2.27		4.01		4.76		5.07		3.84		4.02	
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	NS	NS	0.42	U	0.10	U	6.08		0.39	U	2.1	U	1.83		0.60		1.28		2.01		1.58		0.43	U	2.37	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	NS	NS	0.583	J	0.111	J	0.944		0.199	J	0.85	U	0.403	J	0.229	J	0.545	J	0.827		0.594	J	0.391	J	0.731	J
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	50	50	5.84		1.16		**10.3**		3.85		**12.7**		6.82		3.10		5.84		**7.60**		7.24		4.23		7.12	
Total Metals																														
Arsenic	SW6020	7440-38-2	mg/kg	95	NS	NS	19.4		9.9	J	21.9		16.0		22.3		22.8		22.0		24.5		31.1		21.0		29.6		21.7	
Barium	SW6020	7440-39-3	mg/kg	2,500	NS	NS	781		215		1,380		246		423		386		619		385		652		638		1,270		602	
Cadmium	SW6020	7440-43-9	mg/kg	120	NS	NS	20.3	J	4.4	J	19.7	J	6.1	J	11.7	J	13.2	J	16.4	J	39.0		15.7	J	16.4	J	18.7	J	12.4	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	NS	NS	258		167		276		245		300		315		320		370		264		457		372		313	
Lead	SW6020	7439-92-1	mg/kg	800	NS	NS	**3,410**		613		**4,520**		**1,360**		**12,300**		**2,650**		**4,760**		**3,370**		**4,180**		**7,920**		**3,390**		**2,500**	
Mercury	SW7471A	7439-97-6	mg/kg	61	NS	NS	0.75		0.20		1.5		0.25		0.51		0.59		0.54		0.27		0.50		0.75		0.77		0.50	
Selenium	SW6020	7782-49-2	mg/kg	1,000	NS	NS	1.3	J	0.63	U	1.9	J	0.62	J	0.89	J	2.5	J	4.3	J	10.9		1.3	J	0.76	J	0.75	J	174	
Silver	SW6020	7440-22-4	mg/kg	1,000	NS	NS	2.5	J	0.41	J	2.1	J	0.84	J	13.1		0.88	J	1.4	J	0.91	J	1.7	J	1.5	J	5.7	J	1.6	J
Toxicity Characteristic Leaching Procedure Metals																														
Arsenic	SW1311/6010B	7440-38-2	mg/L	NS	NS	5.0	--		--		0.029	J	--		0.0033	U	0.0033	U	0.0033	U	--		0.0033	U	0.0033	U	--		--	
Barium	SW1311/6010B	7440-39-3	mg/L	NS	NS	100	--		--		3.1		--		3.0		1.9		1.4		--		1.3		2.1		--		--	
Cadmium	SW1311/6010B	7440-43-9	mg/L	NS	NS	1.0	--		--		0.19		--		0.082		0.058		0.028		--		0.15		0.14		--		--	
Chromium	SW1311/6010B	7440-47-3	mg/L	NS	NS	5.0	--		--		0.0021	U	--		0.0021	U	0.0021	U	0.0021	U	--		0.0021	U	0.0021	U	--		--	
Lead	SW1311/6010B	7439-92-1	mg/L	NS	NS	5.0	--		--		**5.7**		--		1.5		0.78		0.44		--		4.7		3.3		--		--	
Mercury	SW13117470A	7439-97-6	mg/L	NS	NS	0.20	--		--		0.00040	U	--		0.00040	U	0.00040	U	0.00040	U	--		0.00040	U	0.00040	U	--		--	
Selenium	SW1311/6010B	7782-49-2	mg/L	NS	NS	1.0	--		--		0.015	J	--		0.015	J	0.011	U	0.018	J	--		0.020	J	0.018	J	--		--	
Silver	SW1311/6010B	7440-22-4	mg/L	NS	NS	5.0	--		--		0.0024	U	--		0.0024	U	0.0024	U	0.0024	U	--		0.0025	J	0.0024	U	--		--	

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

[2] Toxic Substances Control Act (TSCA) disposal criteria for PCB waste.

[3] Regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24).

mg/kg = milligram(s) per kilogram NS = Not specified

mg/L = milligram(s) per liter

CASRN = Chemical Abstracts Service Registry Number

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 5. COMPOSITE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

Analyte	Analytical Method	CASRN	Units	PBESL Soil Screening Levels for Commercial/ Industrial Land Use (Groundwater Potential Drinking Water Source) [1]	TSCA Level [2]	RCRA Regulatory Levels [3]	Sample Identifier	DTSS067		DTSS068		DTSS069		DTSS070		DTSS071		DTSS072		DTSS073		DTSS074		DTSS075		DTSS076		DTSS077		DTSS078	
							Test Pit ID	TP26		TP27		TP28		TP29		Field Duplicate of DTSS070		TP29		TP30		TP30		TP31		TP31		TP32		TP32		
							Lab Sample ID	C31545-13		C31545-14		C31545-15		C31545-16		C31545-17		C31545-18		C31545-19		C31545-20		C31545-21		C31559-1		C31559-2		C31559-3		
							Sample Date	17-Dec-2013		17-Dec-2013		17-Dec-2013		18-Dec-2013		18-Dec-2013		18-Dec-2013		18-Dec-2013		18-Dec-2013		18-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		
							Sample Depth in Feet within Mound	1-5		1-5		1-6		1-10		1-10		11-21		1-10		11-17		1-10		11-16		1-9		10-18		
							Composite Sample Interval (ft):	1.0		1.0		1.0		2.0		2.0		2.5		2.0		1.5		2.5		1.5		2.0		2.0		
								Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Polychlorinated Biphenyls (PCBs)																															
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	NS	1.0		0.32	U	0.080	U	0.15	U	0.17	U	0.16	U	0.42	U	0.18	U	0.088	U	3.3	U	0.18	U	0.17	U	0.18	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	NS	NS		0.80	U	0.20	U	0.38	U	0.42	U	0.41	U	1.0	U	0.45	U	0.22	U	8.3	U	0.44	U	0.43	U	0.46	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	NS	NS		0.80	U	0.20	U	0.38	U	0.42	U	0.41	U	1.0	U	0.45	U	0.22	U	8.3	U	0.44	U	0.43	U	0.46	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	NS	NS		0.80	U	0.20	U	0.38	U	0.42	U	0.41	U	1.0	U	0.45	U	0.22	U	8.3	U	0.44	U	0.43	U	0.46	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	NS	NS		5.37		1.75		4.10		5.03		5.35		2.71		4.05		0.654		22.5		4.79		5.15		5.58	
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	NS	NS		0.80	U	1.30		2.03		1.12		1.61		1.88	J	0.822	J	0.22	U	67.6		1.41		1.46		3.27	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	NS	NS		0.32	U	0.486		0.799		0.536	J	0.248	J	1.28	J	0.298	J	0.088	U	6.47	J	0.563	J	0.437	J	2.04	
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	50	50		5.37		3.54		6.93		6.69		7.21		5.87		5.17		0.654		**96.6**		6.76		7.05		**10.9**	
Total Metals																															
Arsenic	SW6020	7440-38-2	mg/kg	95	NS	NS		47.1		25.7		18.4		17.4		25.3		22.6		24.3		25.7		18.8	J	19.3	J	18.9	J	275	
Barium	SW6020	7440-39-3	mg/kg	2,500	NS	NS		144		**2,950**		698		562		907		757		765		361		723		857		591		499	
Cadmium	SW6020	7440-43-9	mg/kg	120	NS	NS		6.8	J	10.9	J	13.8	J	14.6	J	21.5	J	50.1		16.9	J	8.9	J	16.3		19.7	J	13.9	J	14.4	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	NS	NS		**1,110**		495		228		202		207		272		255		414		247		210		164		209	
Lead	SW6020	7439-92-1	mg/kg	800	NS	NS		**954**		**1,960**		**3,060**		**4,130**		**20,200**		**5,120**		**5,780**		**2,100**		**3,830**		**5,150**		**1,450**		**151,000**	
Mercury	SW7471A	7439-97-6	mg/kg	61	NS	NS		0.31		0.49		0.59		0.84		0.95		0.73		0.98		0.21		0.59		1.2		0.71		0.75	
Selenium	SW6020	7782-49-2	mg/kg	1,000	NS	NS		1.3	J	1.2	J	1.6	J	1.5	J	3.0	J	0.69	U	1.1	J	0.80	J	3.3	U	3.4	U	3.4	U	3.7	U
Silver	SW6020	7440-22-4	mg/kg	1,000	NS	NS		0.64	J	1.1	J	1.3	J	1.9	J	2.3	J	1.4	J	3.3	J	0.63	J	1.8	J	1.8	J	2.0	J	5.5	J
Toxicity Characteristic Leaching Procedure Metals																															
Arsenic	SW1311/6010B	7440-38-2	mg/L	NS	NS	5.0		0.0033	U	0.0033	U	--		--		0.0065	J	0.0095	J	--		--		0.0033	U	0.0033	U	--		0.0033	U
Barium	SW1311/6010B	7440-39-3	mg/L	NS	NS	100		2.1		1.8		--		--		3.2		2.5		--		--		2.6		2.4		--		3.3	
Cadmium	SW1311/6010B	7440-43-9	mg/L	NS	NS	1.0		0.044		0.082		--		--		0.16		0.14		--		--		0.10		0.16		--		0.13	
Chromium	SW1311/6010B	7440-47-3	mg/L	NS	NS	5.0		0.0021	U	0.0021	U	--		--		0.0021	U	0.0021	U	--		--		0.0021	U	0.0021	U	--		0.0021	U
Lead	SW1311/6010B	7439-92-1	mg/L	NS	NS	5.0		0.98		2.1		--		--		**6.3**		3.3		--		--		**5.0**		3.7		--		1.1	
Mercury	SW13117470A	7439-97-6	mg/L	NS	NS	0.20		0.00040	U	0.00040	U	--		--		0.00040	U	0.00040	U	--		--		0.00040	U	0.00040	U	--		0.00040	U
Selenium	SW1311/6010B	7782-49-2	mg/L	NS	NS	1.0		0.011	J	0.012	J	--		--		0.012	J	0.017	J	--		--		0.011	U	0.011	U	--		0.014	J
Silver	SW1311/6010B	7440-22-4	mg/L	NS	NS	5.0		0.0024	U	0.0024	U	--		--		0.0030	J	0.0024	U	--		--		0.0050	J	0.0024	U	--		0.0024	U

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

[2] Toxic Substances Control Act (TSCA) disposal criteria for PCB waste.

[3] Regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24).

mg/kg = milligram(s) per kilogram NS = Not specified

mg/L = milligram(s) per liter

CASRN = Chemical Abstracts Service Registry Number

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 5. COMPOSITE SOIL SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

						Sample Identifier	DTSS079		DTSS080		DTSS081		DTSS082		DTSS083		DTSS084		DTSS085		DTSS086		DTSS087	
						Test Pit ID	TP33		TP33		TP34		TP35		TP36		Field Duplicate of DTSS083		TP37		TP38		Surface Composite	
						Lab Sample ID	C31559-4		C31559-5		C31559-6		C31559-7		C31559-8		C31559-9		C31559-10		C31559-11		C31559-12	
						Sample Date	19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013		19-Dec-2013	
						Sample Depth in Feet within Mound	1-9		10-18		1-4		1-4		1-6		1-6		1-5		1-4		0-0.5	
						Composite Sample Interval (ft):	2.0		2.0		1.0		1.0		1.5		1.5		1.0		1.0		-	
Analyte	**Analytical Method**	**CASRN**	**Units**	**PBESL Soil Screening Levels for Commercial/ Industrial Land Use (Groundwater Potential Drinking Water Source) [1]**	**TSCA Level [2]**	**RCRA Regulatory Levels [3]**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**	**Results**	**Q**
Polychlorinated Biphenyls (PCBs)																								
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	NS	1.0	0.39	U	0.37	U	0.0081	U	0.16	U	0.16	U	0.16	U	0.16	U	0.15	U	0.026	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	NS	NS	0.98	U	0.93	U	0.020	U	0.41	U	0.40	U	0.40	U	0.39	U	0.37	U	0.064	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	NS	NS	0.98	U	0.93	U	0.020	U	0.41	U	0.40	U	0.40	U	0.39	U	0.37	U	0.064	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	NS	NS	0.98	U	0.93	U	0.020	U	0.41	U	0.40	U	0.40	U	0.39	U	0.37	U	0.064	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	NS	NS	8.14		6.53		0.025	J	2.71		1.92		2.39		0.743	J	2.29		0.131	
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	NS	NS	0.98	U	1.79	J	0.020	U	0.81		1.02		2.34		0.591	J	1.06		0.255	
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	NS	NS	0.561	J	0.788	J	0.008	U	0.348	J	0.374	J	0.983		0.323	J	0.439	J	0.324	
Total PCBs	SW8082	1336-36-3	mg/kg	7.4	50	50	**8.70**		**9.11**		0.025		3.87		3.31		5.71		1.66		3.79		0.71	
Total Metals																								
Arsenic	SW6020	7440-38-2	mg/kg	95	NS	NS	43.7	J	23.3	J	7.5	J	13	J	21.3	J	16.2	J	21.2	J	12.4	J	4.5	J
Barium	SW6020	7440-39-3	mg/kg	2,500	NS	NS	900		607		125		244		291		180		158		207		44.1	
Cadmium	SW6020	7440-43-9	mg/kg	120	NS	NS	24.4	J	18.9	J	8.2	J	5.9	J	6.7	J	6.1	J	10.1	J	5.4	J	1.5	J
Chromium	SW6020	7440-47-3	mg/kg	1,100	NS	NS	237		196		166		273		178		164		250		136		75	J
Lead	SW6020	7439-92-1	mg/kg	800	NS	NS	**2,630**		**2,460**		386		**1,830**		**834**		**923**		**905**		**974**		185	
Mercury	SW7471A	7439-97-6	mg/kg	61	NS	NS	1.3		0.82		0.17		0.11		0.61		1.2		0.72		0.23		0.16	
Selenium	SW6020	7782-49-2	mg/kg	1,000	NS	NS	4.2	J	3.7	U	3.1	U	3.3	U	6.2	J	3.2	U	3.1	U	2.9	U	3.4	U
Silver	SW6020	7440-22-4	mg/kg	1,000	NS	NS	1.9	J	1.7	J	0.41	J	0.86	J	1.9	J	1.2	J	0.89	J	2.4	J	0.30	J
Toxicity Characteristic Leaching Procedure Metals																								
Arsenic	SW1311/6010B	7440-38-2	mg/L	NS	NS	5.0	--		--		--		0.0033	U	0.0033	U	0.0033	U	0.0033	U	0.0033	U	--	
Barium	SW1311/6010B	7440-39-3	mg/L	NS	NS	100	--		--		--		1.9		1.4		1.4		1.4		1.5		--	
Cadmium	SW1311/6010B	7440-43-9	mg/L	NS	NS	1.0	--		--		--		0.042		0.044		0.043		0.047		0.054		--	
Chromium	SW1311/6010B	7440-47-3	mg/L	NS	NS	5.0	--		--		--		0.0021	U	0.0021	U	0.0021	U	0.0021	U	0.0021	U	--	
Lead	SW1311/6010B	7439-92-1	mg/L	NS	NS	5.0	--		--		--		0.23		0.69		0.77		0.79		1.0		--	
Mercury	SW13117470A	7439-97-6	mg/L	NS	NS	0.20	--		--		--		0.00040	U	0.00040	U	0.00055	J	0.00040	U	0.00040	U	--	
Selenium	SW1311/6010B	7782-49-2	mg/L	NS	NS	1.0	--		--		--		0.011	U	0.011	U	0.015	J	0.011	U	0.011	U	--	
Silver	SW1311/6010B	7440-22-4	mg/L	NS	NS	5.0	--		--		--		0.0024	U	0.0024	U	0.0024	U	0.0024	U	0.0024	U	--	

Notes:

Results shown in bold and highlighted blue equal or exceed one or more of the criteria listed.

[1] Pacific Basin Environmental Screening Levels (PBESLs) Soil Screening Levels for Commercial/Industrial Land Use (potentially impacted groundwater IS a current or potential drinking water resource) (Table A-2) (updated April 2013).

[2] Toxic Substances Control Act (TSCA) disposal criteria for PCB waste.

[3] Regulatory levels for the Toxicity Characteristic (40 Code of Federal Regulations Part 261.24).

mg/kg = milligram(s) per kilogram

NS = Not specified

mg/L = milligram(s) per liter

CASRN = Chemical Abstracts Service Registry Number

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

TABLE 6. PETROLEUM PRODUCT SAMPLE ANALYTICAL RESULTS, DEDEDO SOLID WASTE TRANSFER STATION PHASE II ESA, DEDEDO, GUAM

				Sample Identifier	DTSP001		DTSP002	
				Aboveground Strorage Tank (gallon)	1,000		500	
				Sample Date	10-Aug-2013		10-Aug-2013	
Analyte	**Analytical Method**	**CASRN**	**Units**	**Used Oil Specifications [1]**	**Results**	**Q**	**Results**	**Q**
Fuel Fingerprint								
Gasoline (C4-C12)	SW8015B	NS	--	NS	No Match		No Match	
Turpentine (C9-C11)	SW8015B	NS	--	NS	No Match		No Match	
Mineral Spirits (C9-C12)	SW8015B	NS	--	NS	No Match		No Match	
Kerosene (C9-C18)	SW8015B	NS	--	NS	No Match		No Match	
Diesel/Fuel Oil #2 (C9-C22)	SW8015B	NS	--	NS	No Match		No Match	
Fuel Oil #4 (C11-C24)	SW8015B	NS	--	NS	No Match		No Match	
Fuel Oil #6 (C11-C26)	SW8015B	NS	--	NS	Partial Match		Match	
Other	SW8015B	NS	--	NS	No Match		No Match	
Polychlorinated Biphenyls (PCBs)								
Aroclor 1016	SW8082	12674-11-2	mg/kg	NS	1.3	U	14	U
Aroclor 1221	SW8082	11104-28-2	mg/kg	NS	3.4	U	34	U
Aroclor 1232	SW8082	11141-16-5	mg/kg	NS	3.4	U	34	U
Aroclor 1242	SW8082	53469-21-9	mg/kg	NS	3.4	U	34	U
Aroclor 1248	SW8082	12672-79-6	mg/kg	NS	3.4	U	34	U
Aroclor 1254	SW8082	11097-69-1	mg/kg	NS	3.4	U	34	U
Aroclor 1260	SW8082	11096-82-5	mg/kg	NS	1.3	U	14	U
Total PCBs	SW8082	1336-36-3	mg/kg	no detectable	3.4	U	34	U
Total Metals								
Arsenic	SW6010C	7440-38-2	mg/kg	5.0	0.052	U	0.23	U
Cadmium	SW6010C	7440-43-9	mg/kg	2.0	0.016	U	0.55	
Chromium	SW6010C	7440-47-3	mg/kg	10	0.084	J	2.0	
Lead	SW6010C	7439-92-1	mg/kg	100	0.32	J	39.8	
General Chemistry								
Flashpoint	ASTM D93	NS	ºF	NS	>200		>200	

Notes:

Results shown in bold and highlighted blue equal or exceed the criteria listed.

[1] Used Oil Specifications as presented in 40 Code of Federal Regulations, Part 279.11.

ºF = degrees Fahrenheit NS = not specified

mg/kg = milligram(s) per kilogram

CASRN = Chemical Abstracts Service Registry Number

Data Qualifiers:

J = The analyte was positively identified; the quantitation is estimated.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

Appendix A

Photograph Log

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

	
Photo 1. Test pile of known size and amount for calculation of tire pile volume	**Photo 2. Mixed debris/soil pile, North of Decision Unit (DU) 3**
	
Photo 3. Tire and E-waste pile in DU 2 and DU 3 area	**Photo 4. 20 feet high debris pile comprised of mixed debris/soil, North of DU 3**

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

	
Photo 5. Sample collection at Test Pit (TP)-01	**Photo 6. Sample collection at TP-02**
	
Photo 7. Excavation at TP-03	**Photo 8. Excavation at TP-04**

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 9. Completion of TP-05

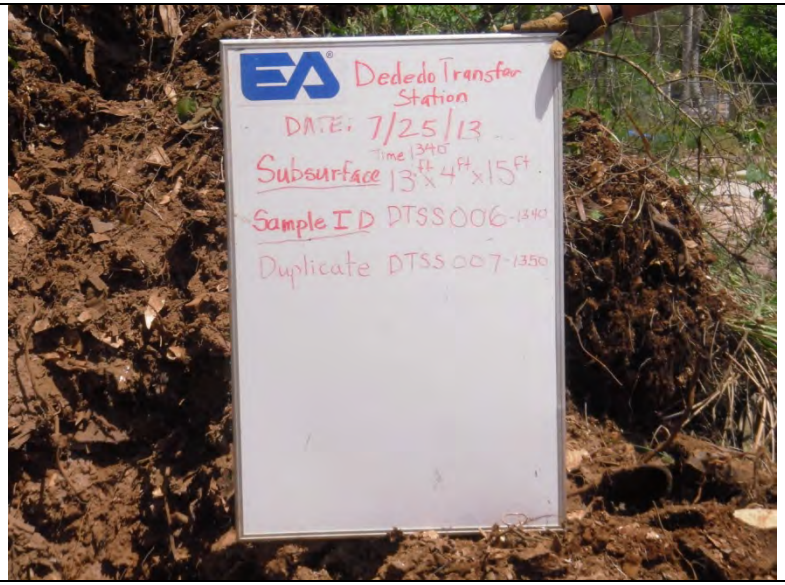


Photo 10. Board information at TP-06

Photo 11. TP-07 at 2.5 ft below ground surface (bgs)

Photo 12. TP-08 with mound of mixed debris/soil

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 13. Completion of TP-09

Photo 14. Excavation at TP-10

Photo 15. Completion of TP-10

Photo 16. Completion of TP-11

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 17. Begin excavation at TP-12

Photo 18. TP-13 with mound of mixed debris/soil

Photo 19. Excavation at TP-14

Photo 20. Sample S029, Discrete Surface Soil Sampling

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 21. Sample collection at the former stored waste oil drums area

Photo 22. Sample S048, Discrete Surface Soil Sampling

Photo 23. Waste characterization sample collection at the mixed debris/soil pile

Photo 24. Sample S051, Waste Characterization Soil Sampling

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 25. Completion of product sampling

Photo 26. Looking inside of 1000 gallon Aboveground Storage Tank (AST)

Photo 27. Laying out grid at DU1 for Multi-Incremental (MI) sampling

Photo 28. Gridding out DU2 with tape measure and cones

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 29. MI sampling on grass area

Photo 30. MI sampling on packed backfill material

Photo 31. Begin excavation of TP 15

Photo 32. Collecting soil sample from bucket at TP 15

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 33. TP 16

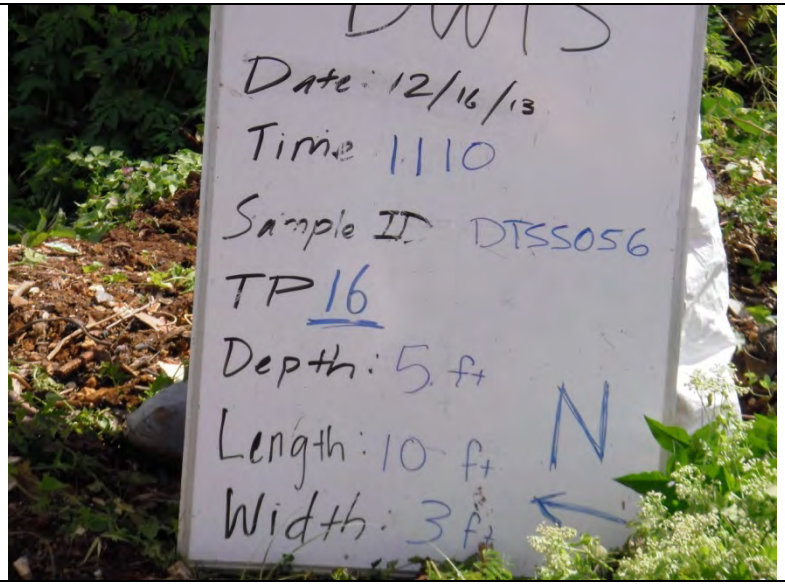


Photo 34. TP 16 information

Photo 35. Taking measurments of TP 17

Photo 36. Collecting soil samples at TP 17

Photo 37. TP 18 information

Photo 38. Collecting soil samples from bucket at TP 18

Photo 39. Collecting soil samples at TP 19- Unknown bluish material found throughout the test pit

Photo 40. Battery found in TP 19

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 41. Begin excavation at TP 20

Photo 42. Limestone bedrock at ground surface at the bottom of TP 20

Photo 43. Board Information for TP 21 and bucket of soil for colecting the sample

Photo 44. TP 21

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 45. Begin excavation at TP 22

Photo 46. Measuring the depth within the mounded pile aboveground surface at TP 22

Photo 47. TP 23 information

Photo 48. Debris found at TP 23

Photo 49. Debris found at TP 24

Photo 50. Soil samples collected from TP 24

Photo 51. Debris found in TP 25

Photo 52. Board information and bucket of soil for sampling from TP 25

Photo 53. Collecting soil samples from bucket from TP 26

Photo 54. TP 26 information

Photo 55. Debris found in TP 27

Photo 56. TP 27 information

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 57. Limestone bedrock at ground surface at bottom the of TP 28

Photo 58. TP 28 information

Photo 59. Begin excavation at TP 29

Photo 60. Limestone bedrock at ground surface at the bottom of TP 29

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 61. Begin excavation at TP 30

Photo 62. TP 30 Information

Photo 63. Begin excavation at TP 31

Photo 64. Completion of TP 31

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 65. Collecting a sample at TP 32

Photo 66. Sidewall view of TP 32

Photo 67. Begin excavation at TP 33

Photo 68. TP 33 at 18 feet

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 69. Debris found in TP 34

Photo 70. TP 34

Photo 71. Begin excavation at TP 35

Photo 72. Collecting samples at TP 35

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 73. Begin excavation at TP 36

Photo 74. Debris found in TP 36

Photo 75. TP 37

Photo 76. Debris from TP 37

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 77. TP 38

Photo 78. Debris found in TP 38

Photo 79. Arwa of composite soil sample S087

Photo 80. S087 Location for composite soil sample

Photograph Log
Dededo Solid Waste Transfer Station
Dededo, Guam

Photo 81. Bucket was decontaminated between each sample

Photo 82. Decontaminated the bucket

Photo 83. Decontaminated excavator tracks before demobization

Photo 84. Decontaminated of excavator tracks

Appendix B

Detailed Site Inventory

APPENDIX B. DETAILED SITE INVENTORY FOR DEDEDO WASTE TRANSFER STATION, DEDEDO, GUAM.

Decision Unit 1 Area

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
80%	Tires	4000	cu. ft.	148.15	cu. yd.	Commercial & Industrial Tires with few Rims
15%	Household Waste	750	cu. ft.	27.78	cu. yd.	Plastics, glass, and misc. household items
2%	Scrap Metal/ Truck Chassis	100	cu. ft.	3.70	cu. yd.	Metal pieces, automobile parts/ pieces
2%	Concrete	100	cu. ft.	3.70	cu. yd.	Concrete pieces/ chips
1%	Greenwaste/ Soil	50	cu. ft.	1.85	cu. yd.	
TOTAL	25^{ft} x 25^{ft} x 8^{ft}	5000	cu. ft.	185.19	cu. yd.	

Decision Unit 2 Area

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
80%	Tires	3000	cu. ft.	111.11	cu. yd.	Commercial & Industrial Tires with few Rims
10%	Greenwaste/ Soil	375	cu. ft.	13.89	cu. yd.	
5%	Asphalt	187.5	cu. ft.	6.94	cu. yd.	Pieces of asphalt/ rubble
5%	Plastics	187.5	cu. ft.	6.94	cu. yd.	PVC, buckets, misc. household items, bins, bottles
TOTAL	50^{ft} x 25^{ft} x 3^{ft}	3750	cu. ft.	138.89	cu. yd.	

Area North of Decision Unit 3

Area 1

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
15%	E-Waste	6,240.00	cu. ft.	231.11	cu. yd.	Computer components, televisions, monitors, towers
40%	White Goods	16,640.00	cu. ft.	616.30	cu. yd.	Refrigerators, stoves, freezers
20%	Scrap Metal	8,320.00	cu. ft.	308.15	cu. yd.	Automobile parts, bicycle frame, metal pieces, I-beams
15%	Plastics	6,240.00	cu. ft.	231.11	cu. yd.	PVC, buckets, misc. household items, bins, bottles
8%	Wood	3,328.00	cu. ft.	123.26	cu. yd.	Plywood, 2x4's, 4x4's, pallets
1%	Propane Tanks	416.00	cu. ft.	15.41	cu. yd.	
1%	Glass	416.00	cu. ft.	15.41	cu. yd.	Assorted broken glass
TOTAL	80^{ft} x 80^{ft} x 6.5^{ft}	41,600.00	cu. ft.	1,540.74	cu. yd.	

100%	Steel crate of batteries	(20 on surface, potentially +40 batteries total)
TOTAL	3^{ft} x 3^{ft} x 2^{ft}	

Area 2

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
70%	Mixed Debris/Soil	176,400.00	cu. ft.	6,533.33	cu. yd.	Plastics, foam insullation/cushion, metal, broken glass, soil
10%	Plastics	25,200.00	cu. ft.	933.33	cu. yd.	PVC, buckets, misc. household items, bins, bottles, toys
10%	Tires	25,200.00	cu. ft.	933.33	cu. yd.	Loose/ Bundled commercial & industrial tires with few rims
5%	Metal/ Steel Pieces	12,600.00	cu. ft.	466.67	cu. yd.	Automobile parts, bicycle frames, rims, I-beams, pipes
2.5%	White Goods	6,300.00	cu. ft.	233.33	cu. yd.	Refrigerators, stoves, freezers, water heaters, washers
2.5%	E-Waste	6,300.00	cu. ft.	233.33	cu. yd.	Computer components, televisions, monitors, towers
TOTAL	$175^{ft} \times 120^{ft} \times 12^{ft}$	252,000.00	cu. ft.	9,333.33	cu. yd.	

Area 3

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
40%	Mixed Debris/Soil	58,500.00	cu. ft.	2,166.67	cu. yd.	Plastics, foam cushion from auto seats, metal, broken glass
30%	White Goods	43,875.00	cu. ft.	1,625.00	cu. yd.	Refrigerators, stoves, freezers, ranges
25%	Plastics	36,562.50	cu. ft.	1,354.17	cu. yd.	PVC, buckets, misc. household items, bins, bottles, toys
5%	Scrap Metal	7,312.50	cu. ft.	270.83	cu. yd.	Automobile parts, rims, pipes, misc. rusted metals
1%	Tires	1,462.50	cu. ft.	54.17	cu. yd.	Commercial & Industrial tires with few rims
TOTAL	$125^{ft} \times 130^{ft} \times 9^{ft}$	146,250.00	cu. ft.	5,416.67	cu. yd.	

Area West of Decision Unit 3

Area 4

Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)		Waste Details
75%	Plastics	39,975.00	cu. ft.	1,480.56	cu. yd.	PVC, buckets, misc. household items, bins, bottles, toys
10%	Scrap Metal	5,330.00	cu. ft.	197.41	cu. yd.	Automobile parts, bicycle frames, rims, I-beams, pipes
5%	Tires	2,665.00	cu. ft.	98.70	cu. yd.	Commercial & Industrial tires with few rims
5%	Mixed Material	2,665.00	cu. ft.	98.70	cu. yd.	Plastics, metals, tires, car seat cushion, insulation materal
TOTAL	$82^{ft} \times 65^{ft} \times 10^{ft}$	53,300.00	cu. ft.	1,974.07	cu. yd.	

Area 5

Location	Dimensions ($L^{ft} \times W^{ft} \times H^{ft}$)	Area (cu. ft.)		Tires	
Section 1	$65^{ft} \times 55^{ft} \times 11^{ft}$	39,325.00	cu. ft.	3933	units
Section 2	$25^{ft} \times 18^{ft} \times 14^{ft}$	1,800.00	cu. ft.	180	units
Section 3	$12^{ft} \times 12^{ft} \times 4^{ft}$	576.00	cu. ft.	58	units
Section 4	$50^{ft} \times 4^{ft} \times 7^{ft}$	1,400.00	cu. ft.	140	units
21 Bundles	$4^{ft} \times 4^{ft} \times 2^{ft}$	3,150.00	cu. ft.	315	units
Section 5	$32^{ft} \times 15^{ft} \times 8^{ft}$	3,840.00	cu. ft.	384	units
Section 6	$30^{ft} \times 55^{ft} \times 6^{ft}$	9,900.00	cu. ft.	990	units
Section 7					
At front gate	$12^{ft} \times 4^{ft} \times 4^{ft}$	192.00	cu. ft.	19	units
Near Global Rec.	$50^{ft} \times 4^{ft} \times 7^{ft}$	1,400.00	cu. ft.	140	units
TOTAL		61,583.00	cu. ft.	6158	units

APPENDIX B. DETAILED SITE INVENTORY FOR DEDEDO WASTE TRANSFER STATION, DEDEDO, GUAM.

Total Debris Composition (DTS Site)					
Percentage	Debris Type	Area (cu. ft.)		Area (cu. yd.)	
41.78%	Shred/ Soil	234,900.00	cu. ft.	8,700.00	cu. yd.
19.24%	Plastics	108,165.00	cu. ft.	4,006.11	cu. yd.
17.41%	Tires	97,910.50	cu. ft.	3,626.31	cu. yd.
11.88%	White Goods	66,815.00	cu. ft.	2,474.63	cu. yd.
5.99%	Scrap Metal	33,662.50	cu. ft.	1,246.76	cu. yd.
2.23%	E-Waste	12,540.00	cu. ft.	464.44	cu. yd.
0.59%	Wood	3,328.00	cu. ft.	123.26	cu. yd.
0.47%	Mixed Material	2,665.00	cu. ft.	98.70	cu. yd.
0.13%	Household Waste	750.00	cu. ft.	27.78	cu. yd.
0.08%	Greenwaste/ Soil	425.00	cu. ft.	15.74	cu. yd.
0.07%	Glass	416.00	cu. ft.	15.41	cu. yd.
0.07%	Propane Tanks	416.00	cu. ft.	15.41	cu. yd.
0.03%	Asphalt	187.50	cu. ft.	6.94	cu. yd.
0.02%	Concrete	100.00	cu. ft.	3.70	cu. yd.
TOTAL		562,280.50	cu. ft.	20,825.20	cu. yd.

Approximately 11,400 commercial and industrial tires

Appendix C

Test Pit Logs

EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: BT, JS, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/24/13
Time: 1330
Weather: Partly cloudy
Start Location:
End Location:
Length: 8 ft

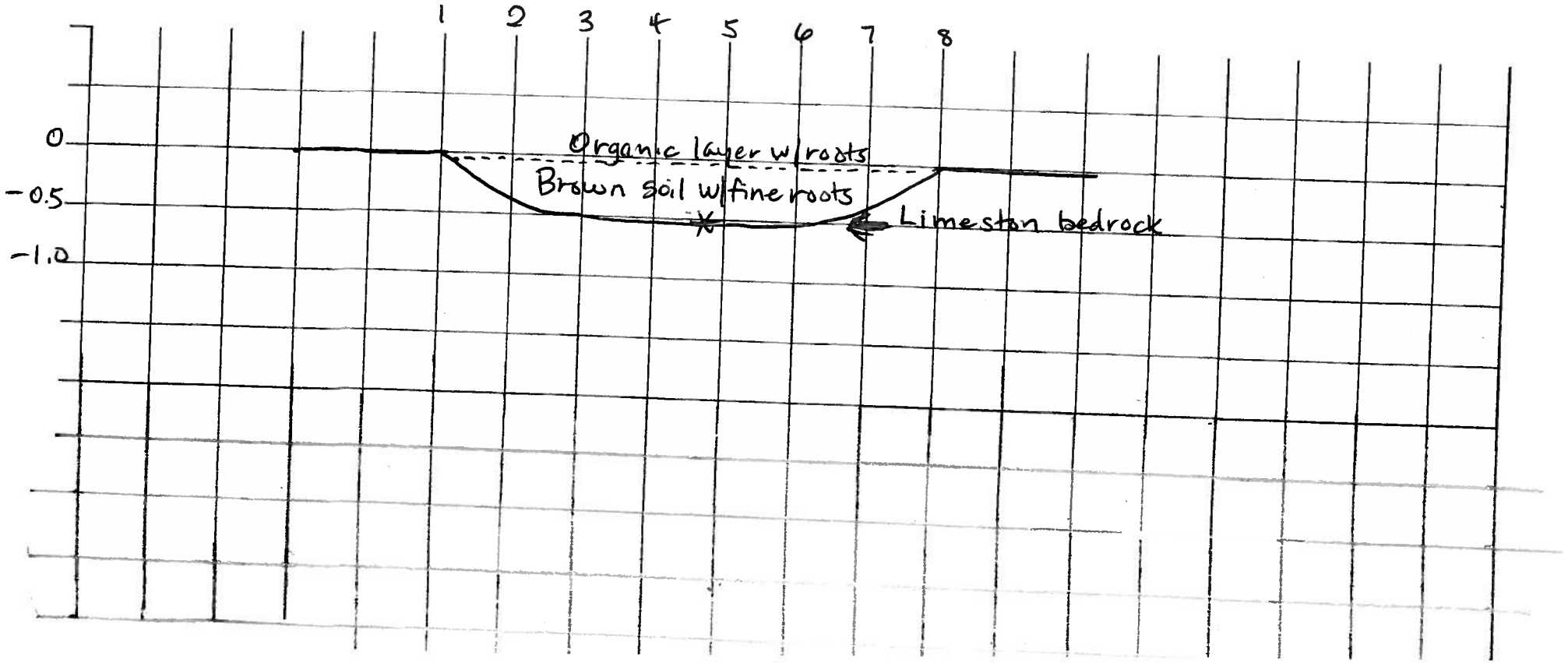
Excavation No: TP-9

SAMPLES COLLECTED:	TIME:
DTSS001	1330

Map View

North — Start — DTSS001 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: BO, JS, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 9/24/13
Time: 1415
Weather: Partly cloudy
Start Location: North
End Location: South
Length: 9 ft.

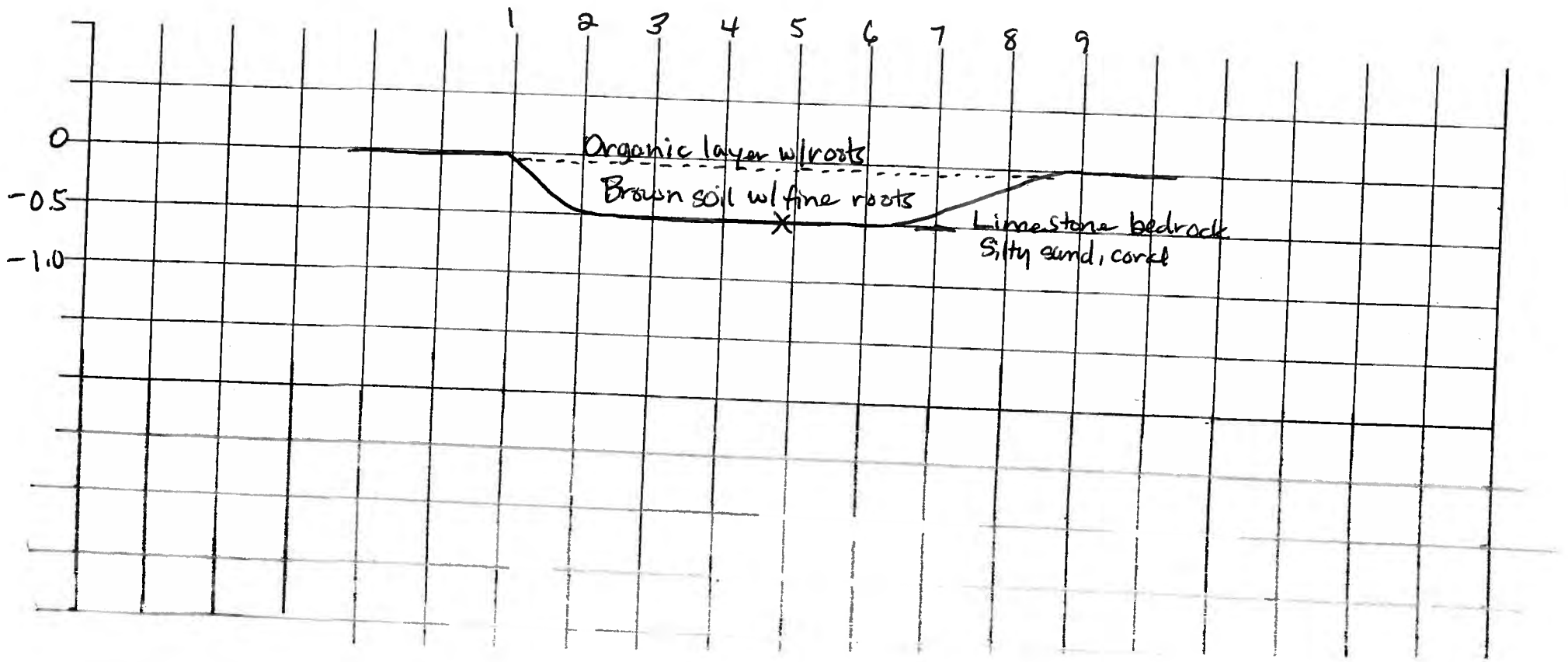
Excavation No: TP02

SAMPLES COLLECTED:	TIME:
DTSS002	1415

Map View

North — Start — end — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: BO, JS, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/24/13
Time: 1450
Weather: Partly cloudy
Start Location: North
End Location: South
Length: 9ft.

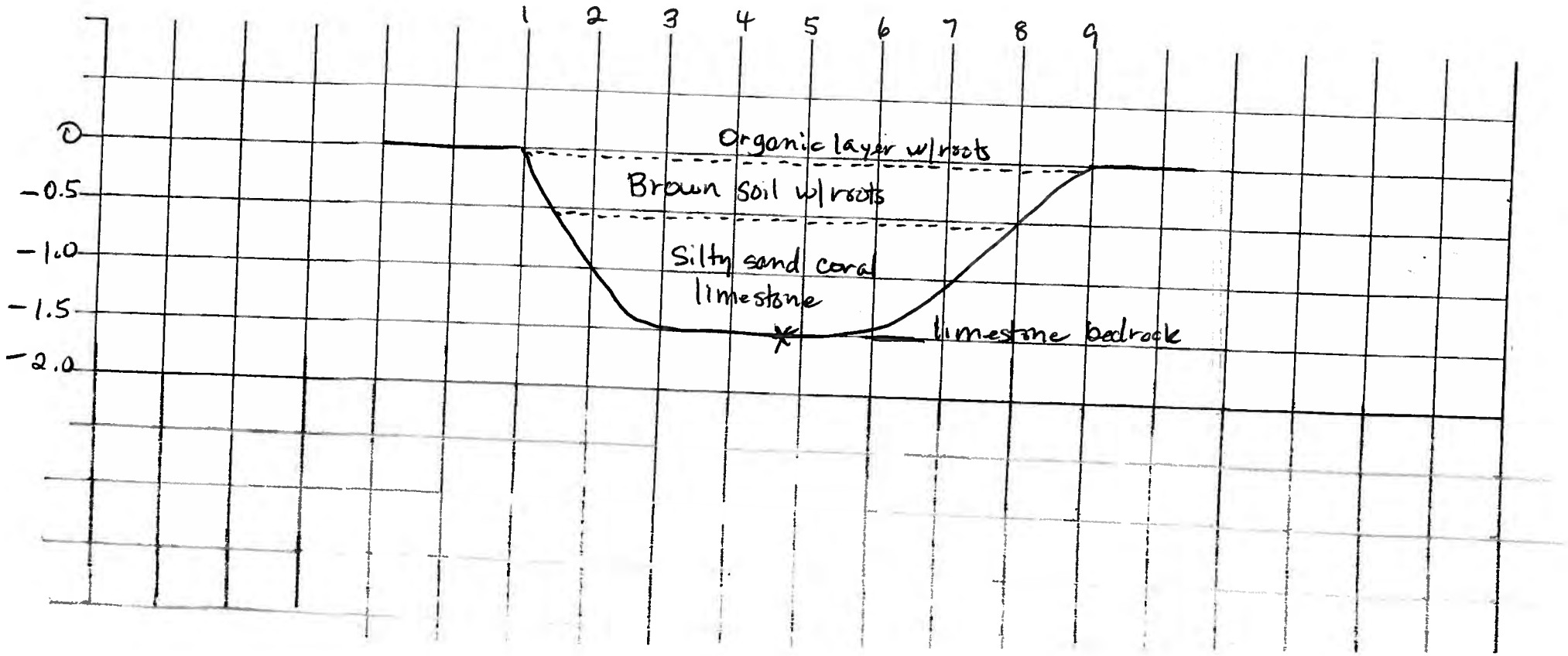
Excavation No: TP03

SAMPLES COLLECTED:	TIME:
DTSS003	1450

Map View

North — start — DTSS003 — end — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, JS, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/25/13
Time: 0930
Weather: Sunny
Start Location: North
End Location: South
Length: 14 ft.

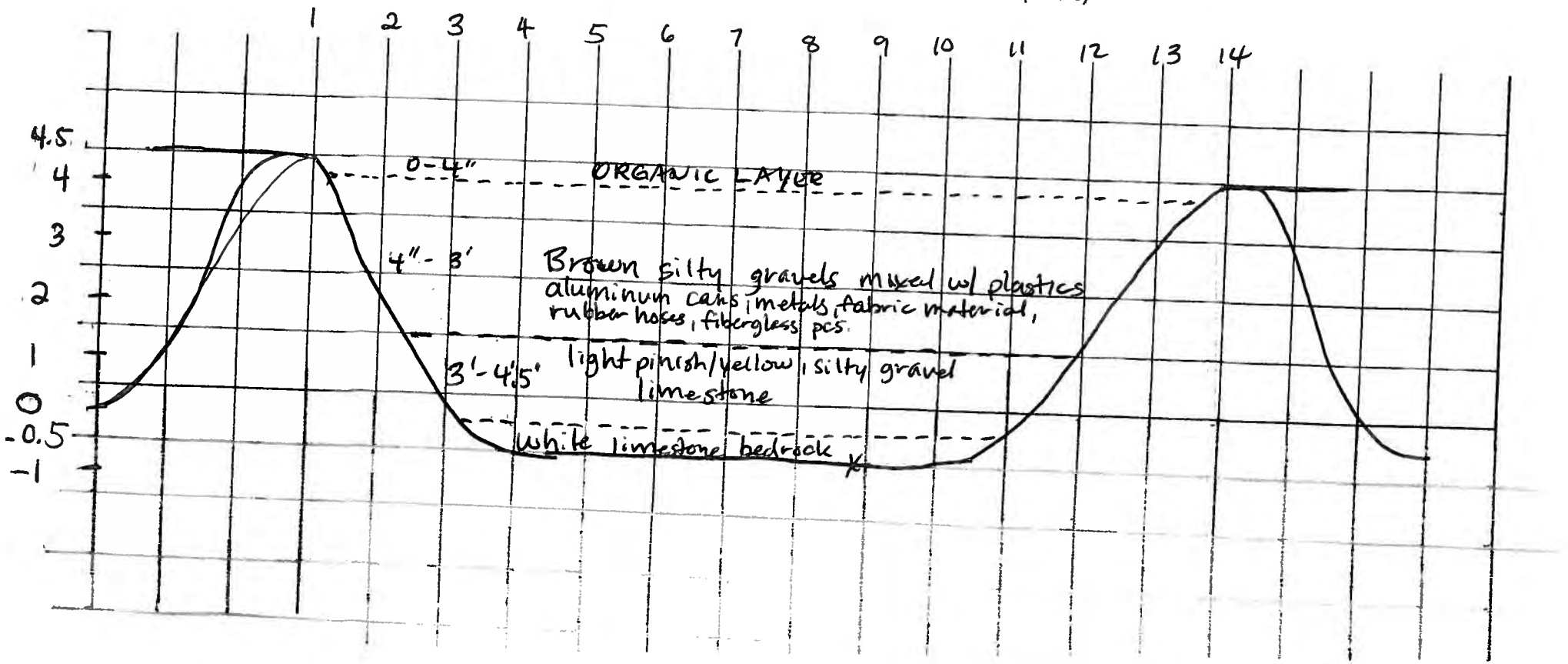
Excavation No: TP04

SAMPLES COLLECTED:	TIME:
DTS004	0950

Map View

North — start — DTS.S004 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

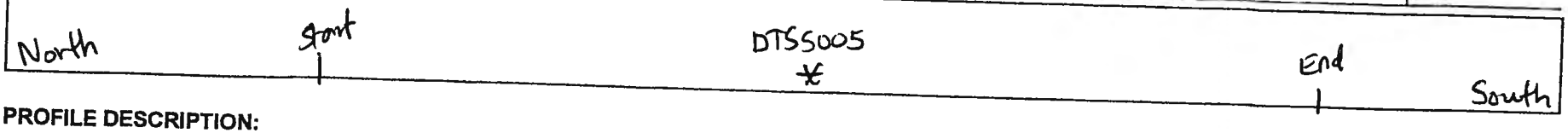
Contract No: 6239210
Personnel: TR, JS, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/25/13
Time: 1030
Weather: Sunny
Start Location: North
End Location: South
Length: 14ft

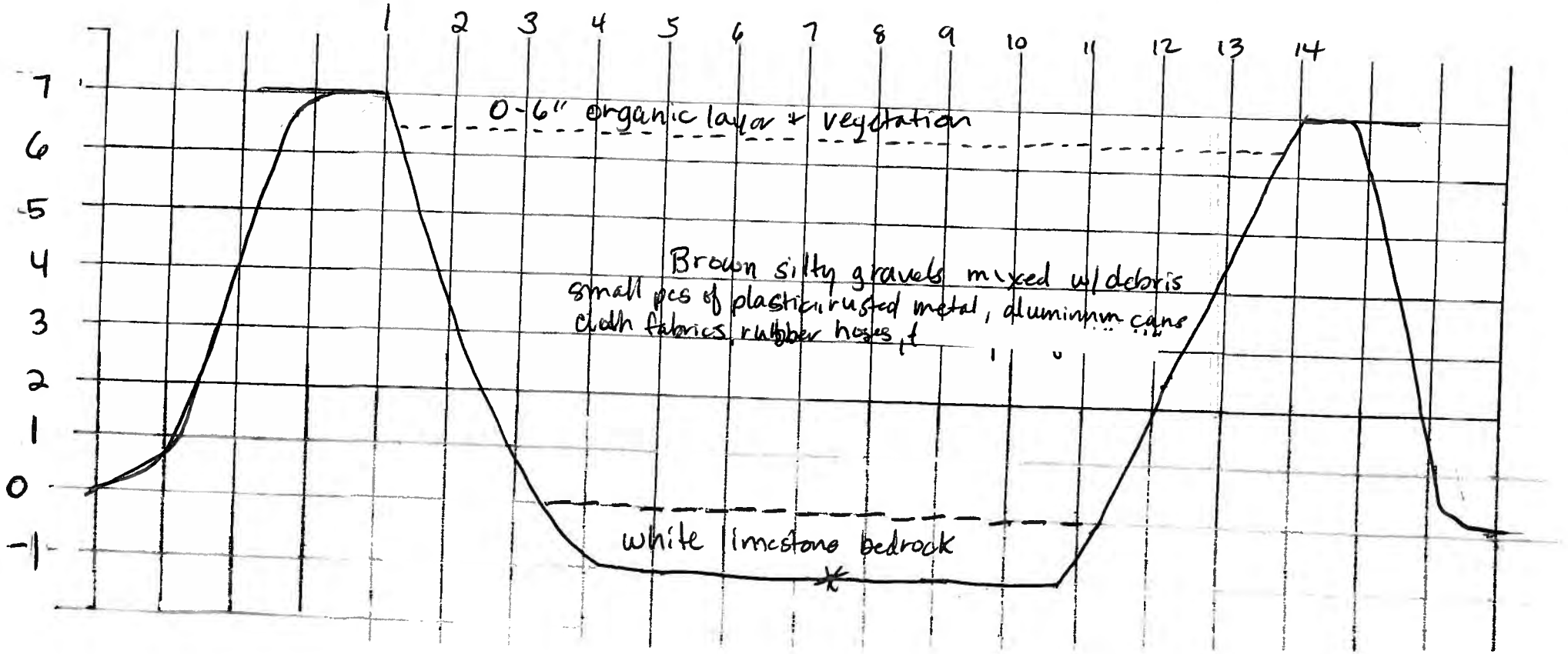
Excavation No: TP05

SAMPLES COLLECTED:	TIME:
DTS5005	1045

Map View



PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, JS, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/25/13
Time: 1340
Weather: Sunny
Start Location: North
End Location: South
Length: 13 ft.

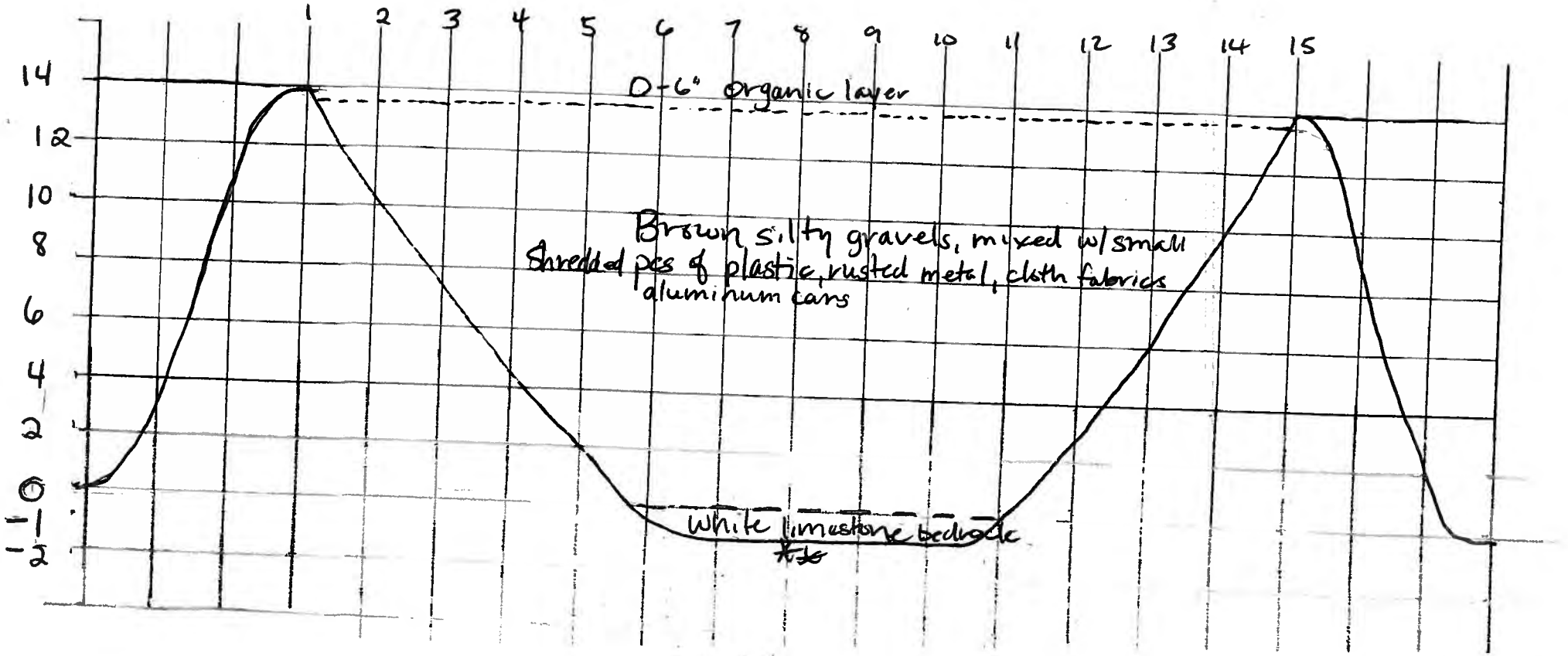
Excavation No: TP06

SAMPLES COLLECTED:	TIME:
DTSS006	1340
DTSS007 DUP	1350

Map View

North — start 1 — DTSS006/5007 ~~DUP~~ — End 1 — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, JS, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/25/13
Time: 1440
Weather: Sunny
Start Location: North
End Location: South
Length: 9 ft

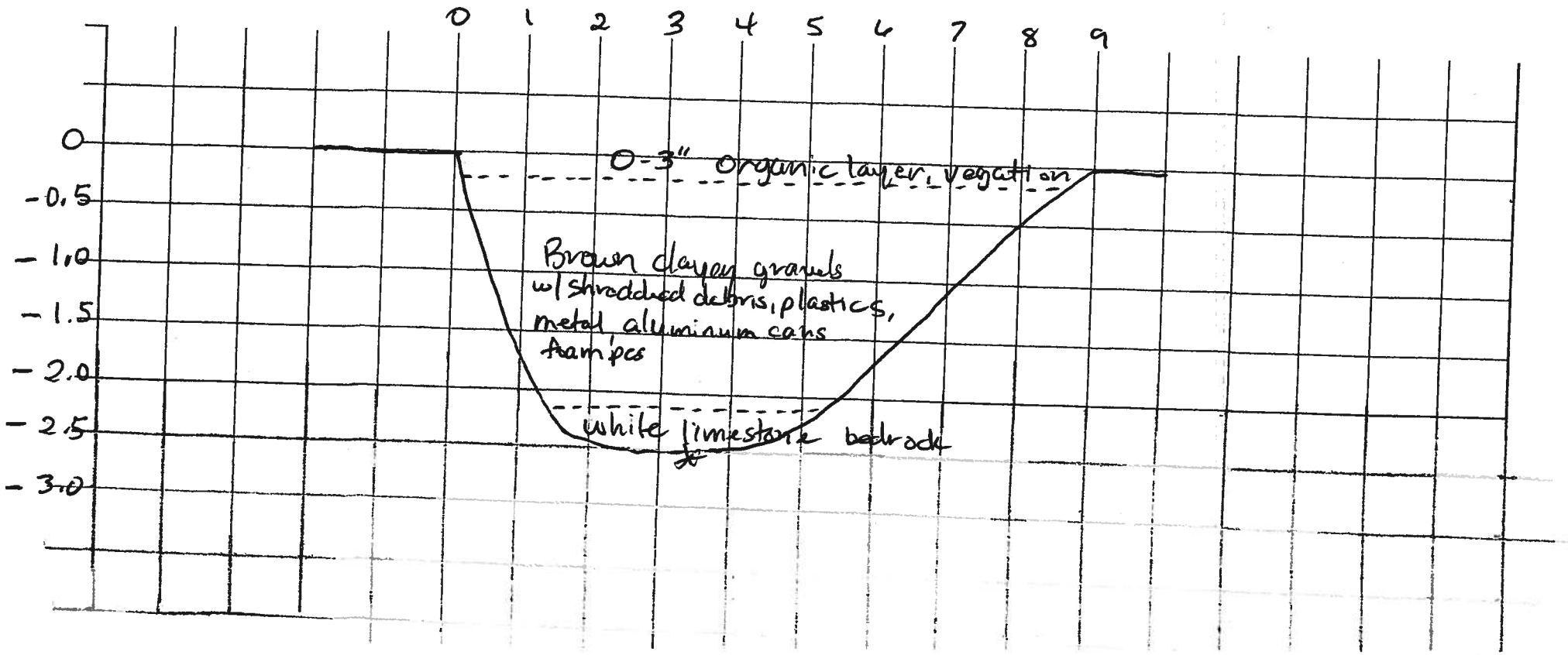
Excavation No: TP-7

SAMPLES COLLECTED:	TIME:
DTSS008	1445

Map View

North — Start — DTSS008 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, BO, LH, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/26/13
Time: 0910
Weather: Sunny
Start Location: North
End Location: South
Length: 15 ft

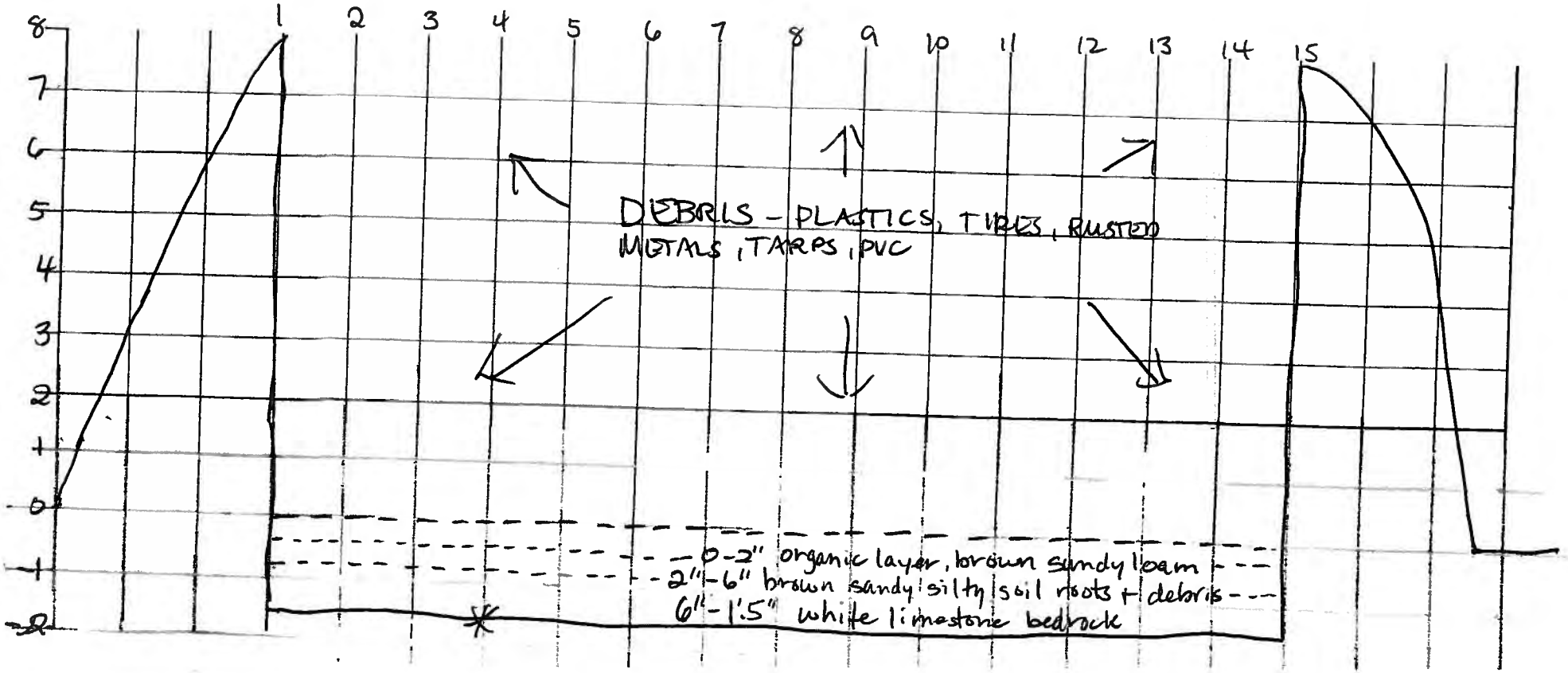
Excavation No: TP08

SAMPLES COLLECTED:	TIME:
DTS5009	0921

Map View

North — Absent — DTS5009 * — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, BO, LH, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/26/13
Time: 0955
Weather: Sunny
Start Location: West
End Location: East
Length: 12ft

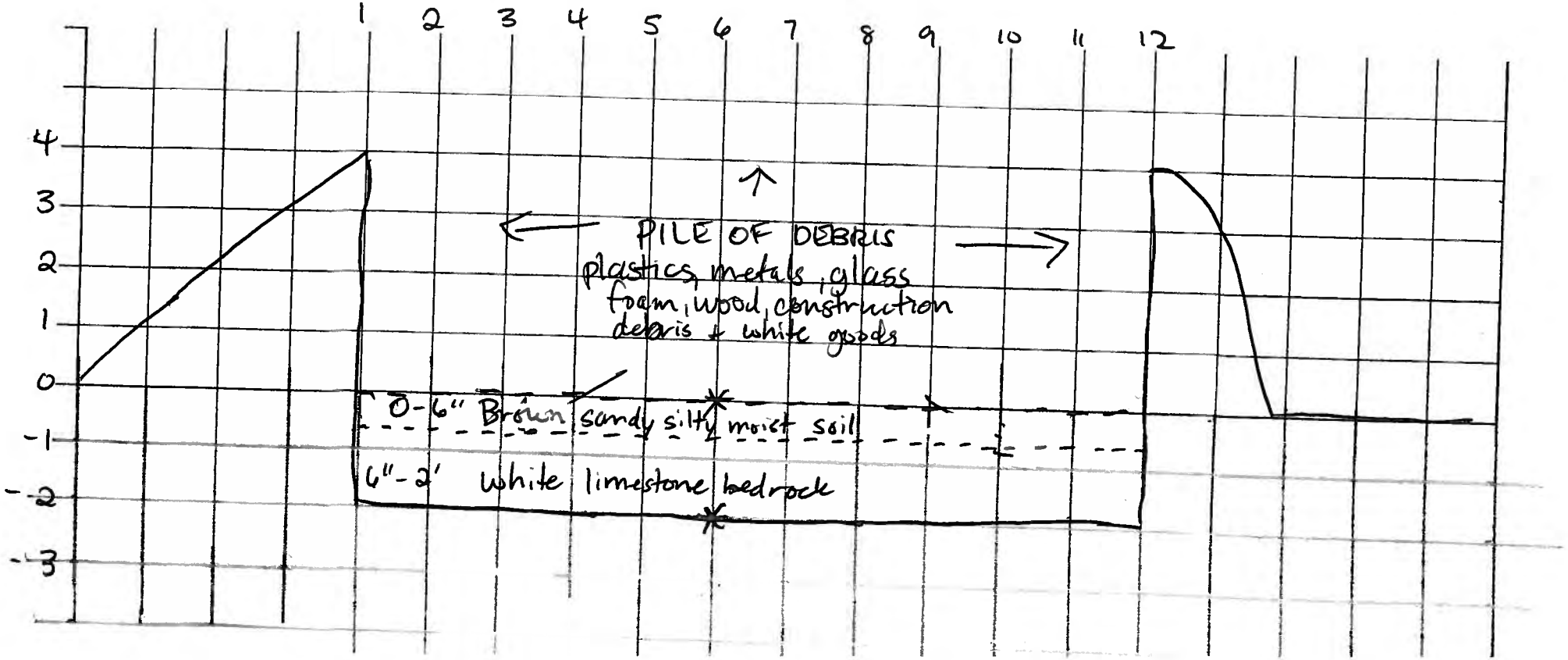
Excavation No: TP09

SAMPLES COLLECTED:	TIME:
DTSS010	1005

Map View

West start | DTSS010 * | end | East

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, BO, LH, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/26/10
Time: 1040
Weather: Sunny
Start Location: South
End Location: North
Length: 10ft

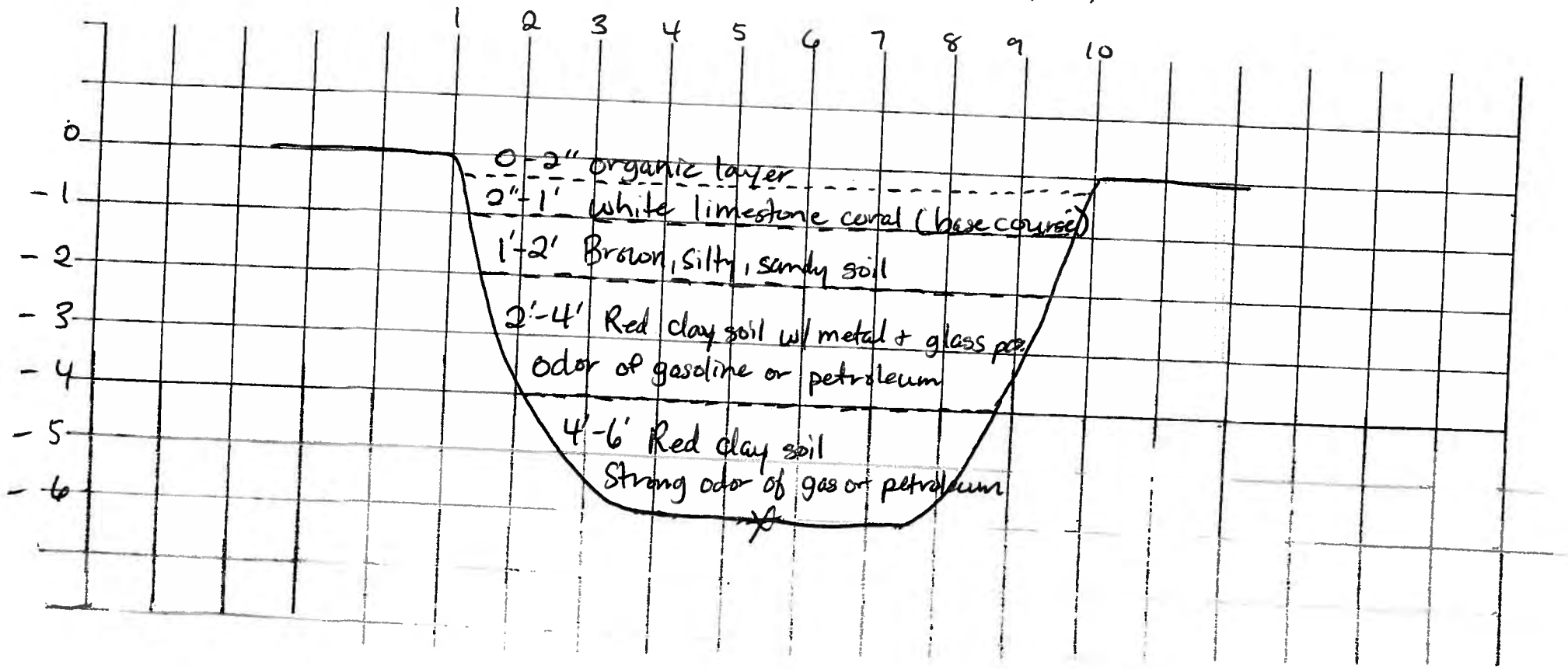
Excavation No: TP-10

SAMPLES COLLECTED:	TIME:
DTSS011	1055

Map View

South — start — DTSS011 * — end — North

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: TR, BO, LH, LR, JQ
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/26/13
Time: 1340
Weather: Sunny
Start Location: West
End Location: East
Length: 11 ft.

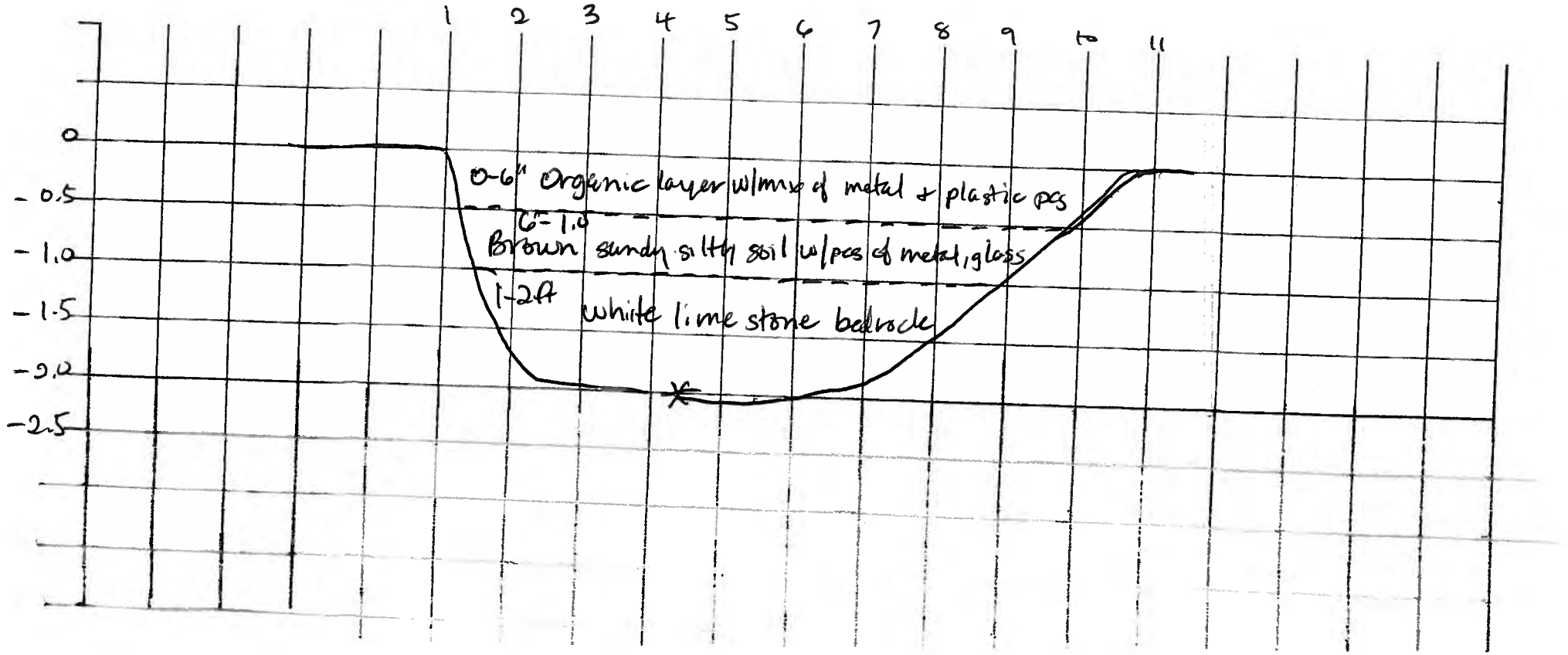
Excavation No: TP-11

SAMPLES COLLECTED:	TIME:
DTSS012	1345

Map View

West — start — DTSS012 — end — East

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: BO, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/29/13
Time: 0915
Weather: Sunny
Start Location: South
End Location: North
Length: 12 FT

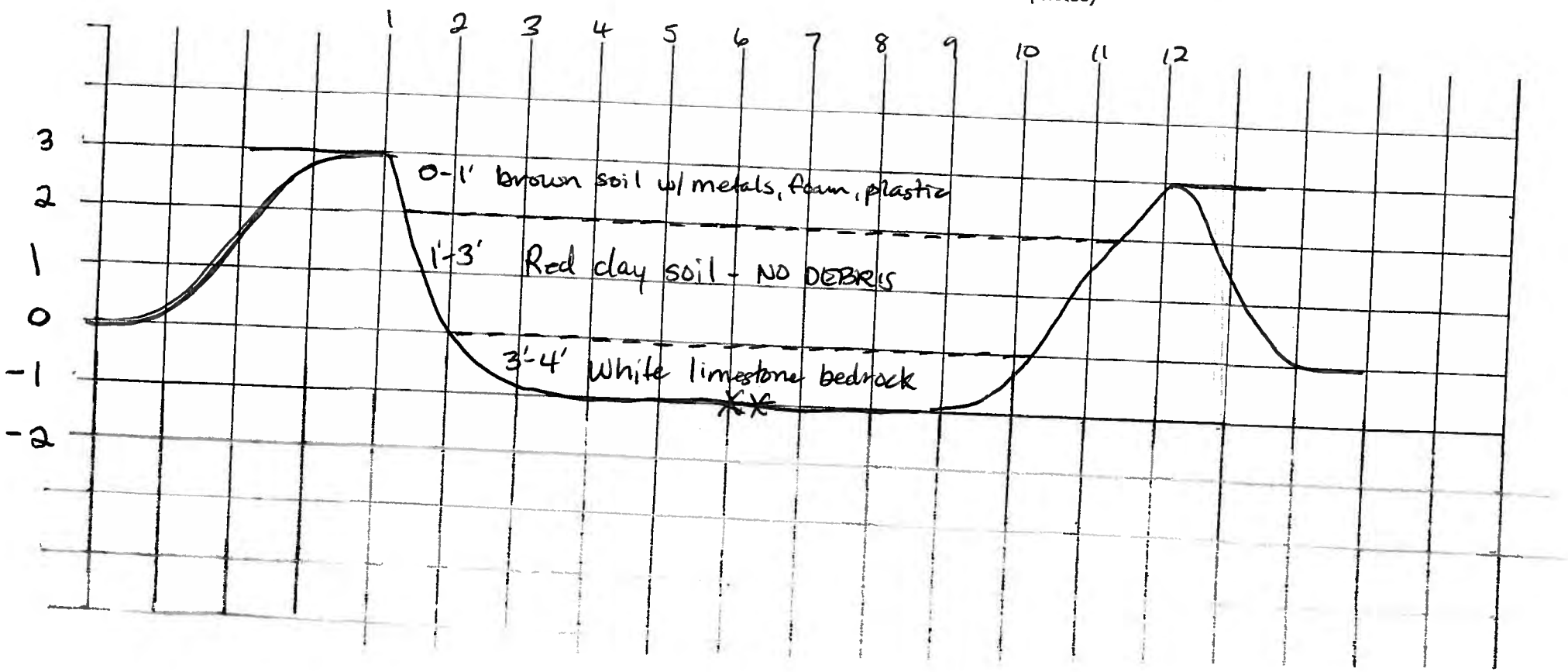
Excavation No: TP-12

SAMPLES COLLECTED:	TIME:
DT35013	1030
DT35014 (DUP)	1050

Map View

South — start — DT35013 — DT35014 (DUP) — end — North

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

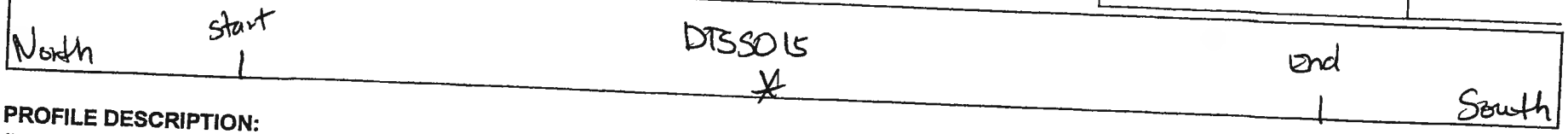
Contract No: 6239210
Personnel: BO, JQ, LR
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 7/29/13
Time: 1135
Weather: Sunny
Start Location: North
End Location: South
Length: 15ft

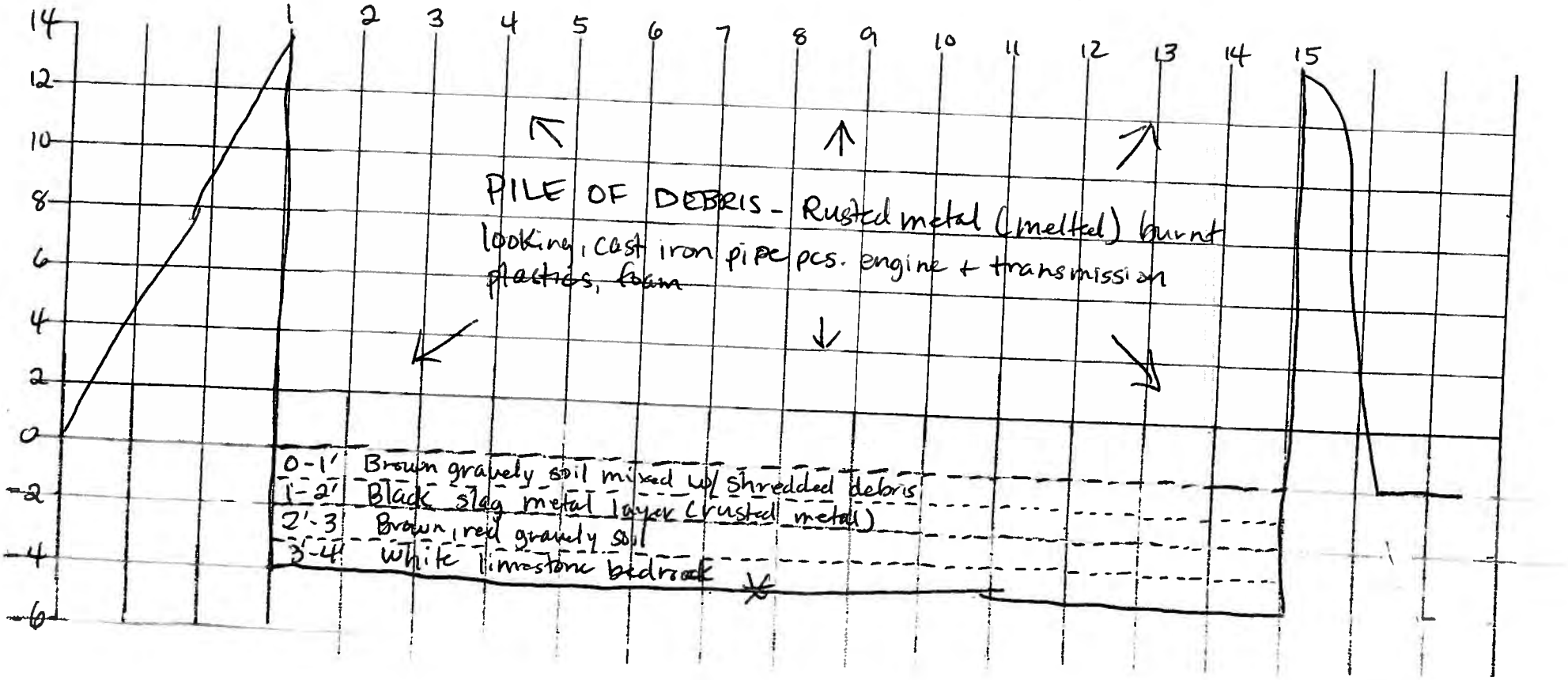
Excavation No: TP-13

SAMPLES COLLECTED:	TIME:
DTSS015	1230

Map View



PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Attachment A

Contract No: 6239210
Personnel: BO, JQ, LR, JS
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

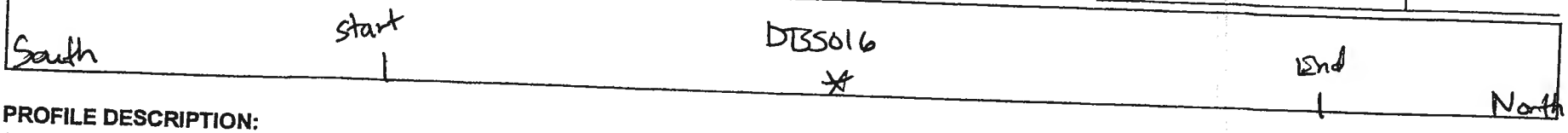
Date: 7/29/13
Time: 1415

Excavation No: TP-14

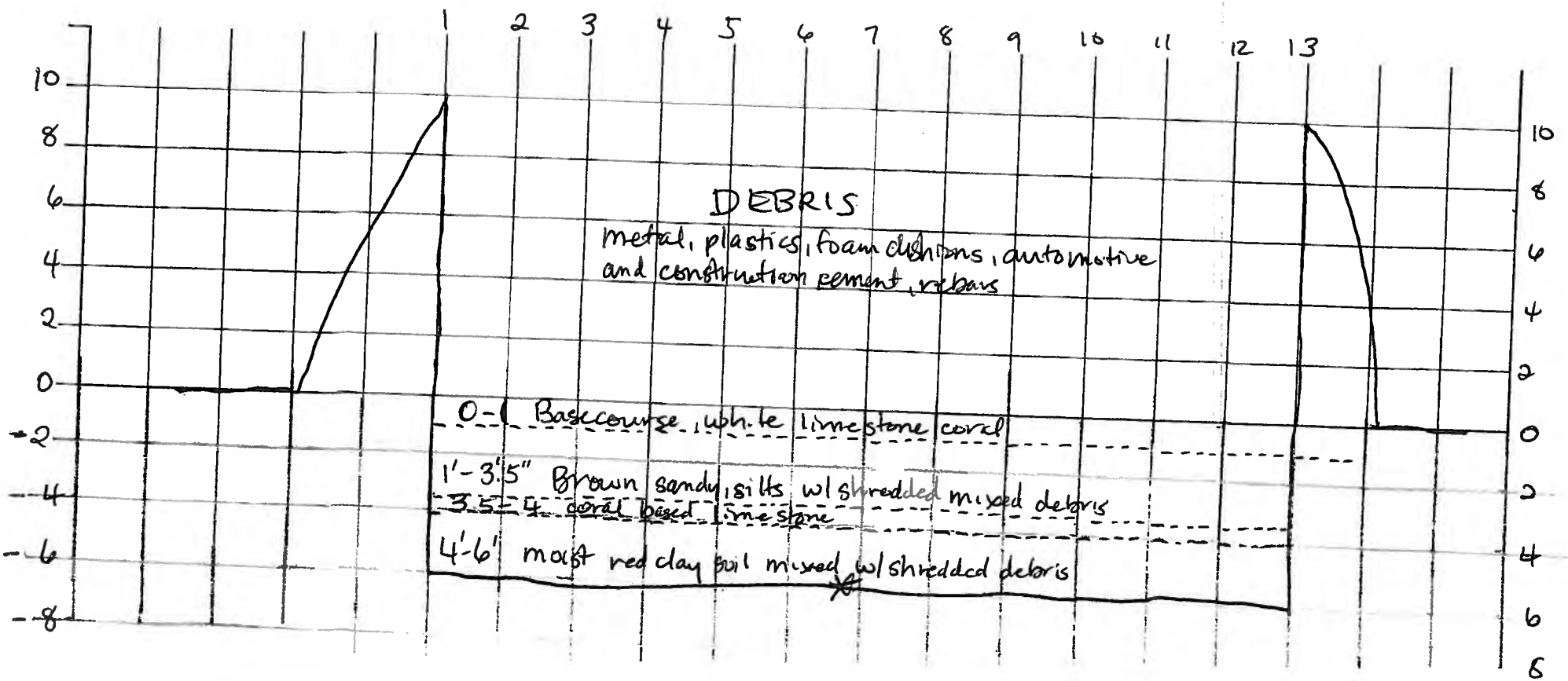
Weather: Sunny
Start Location: South
End Location: North
Length: 13 ft

SAMPLES COLLECTED:	TIME:
DTSS016	1515

Map View



PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

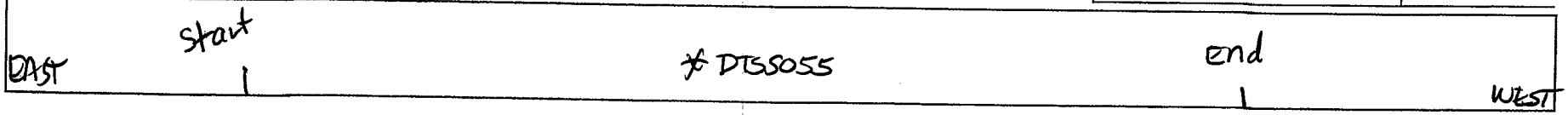
Contract No: 6239210
Personnel: TRJS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/16/13
Time: 1026
Weather: Sunny
Start Location: EAST
End Location: WEST
Length: 14 ft

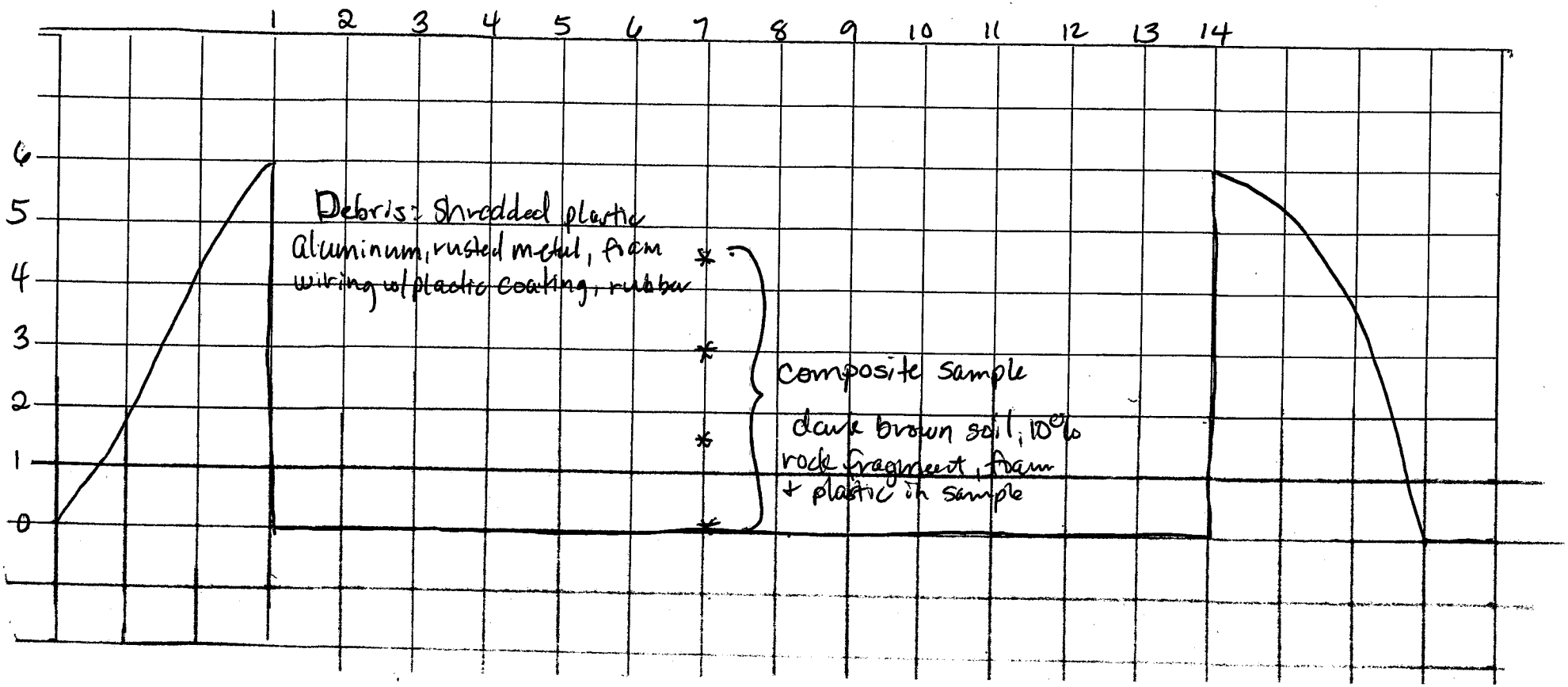
Excavation No: TP15

SAMPLES COLLECTED:	TIME:
DTSS055	1033

Map View



PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APD1
PID/FID Reading: N/A

Date: 12/16/13
Time: 1104
Weather: Sunny
Start Location: East
End Location: West
Length: 10 ft

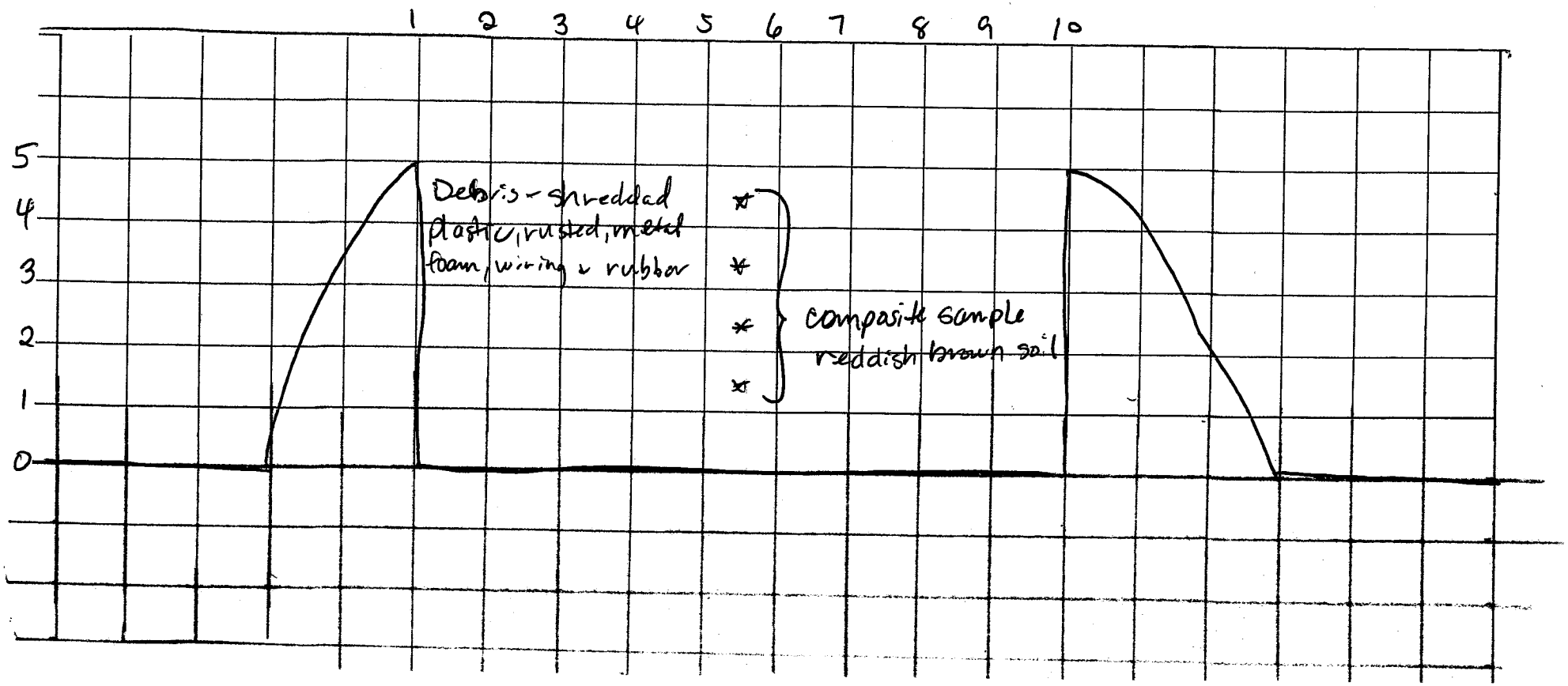
Excavation No: TP16

SAMPLES COLLECTED:	TIME:
DTSS056	1110

Map View

EAST — Start — # DTSS056 — End — WEST

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6232910
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APD1
PID/FID Reading: N/A

Date: 12/16/13
Time: 1130
Weather: Sunny
Start Location: EAST
End Location: WEST
Length: 14 ft

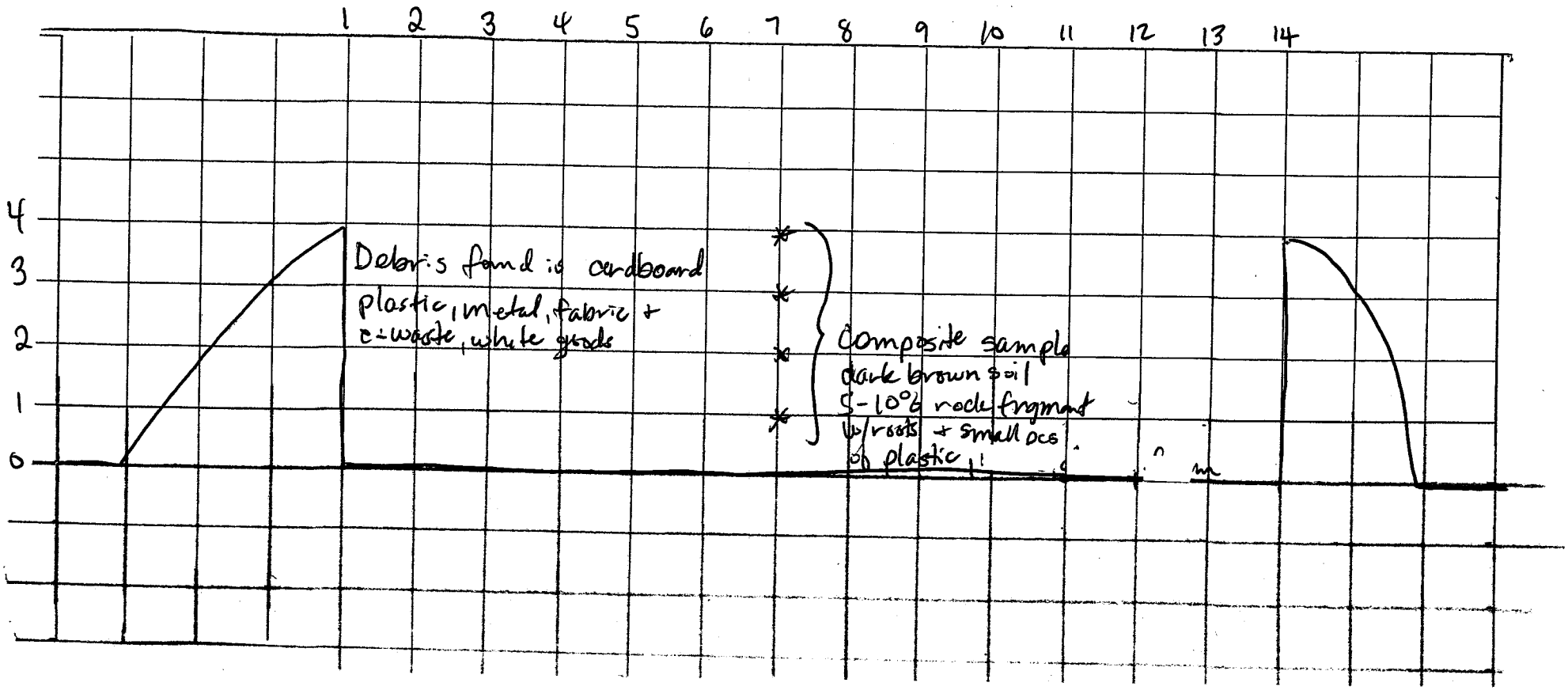
Excavation No: TP17

SAMPLES COLLECTED:	TIME:
DTSS057	1140

Map View

East | start | * DTSS057 | End | West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 62392.10
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APD1
PID/FID Reading: N/A

Date: 12/16/13
Time: 1319
Weather: Sunny
Start Location: East
End Location: West
Length: 12 ft

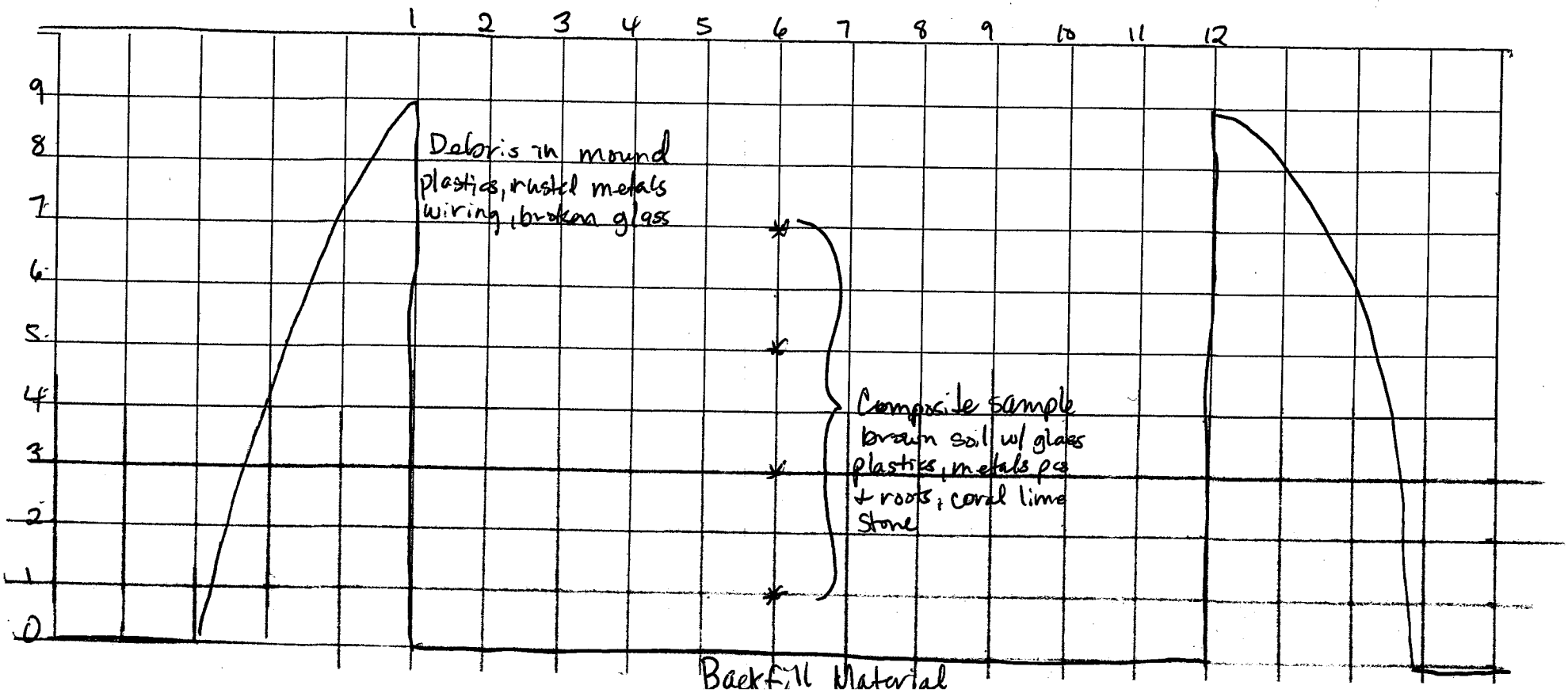
Excavation No: TP18

SAMPLES COLLECTED:	TIME:
DTSS058	1330

Map View

East — Start — * DTSS058 — End — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210

Personnel: TR, JS, MM, SM, RM

Location: DWTS

Contractor:

Subcontractor: APPI

PID/FID Reading: N/A

Date: 12/16/13

Time: 1349

Excavation No: TP 19

Weather: Sunny

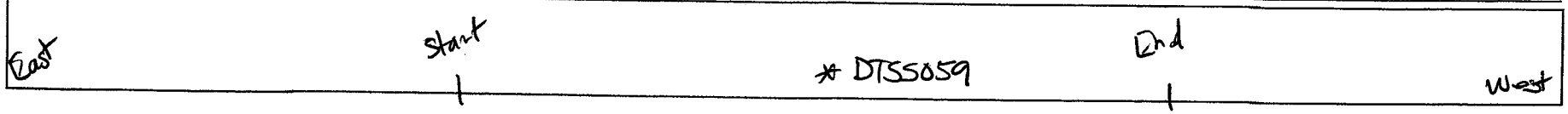
Start Location: East

End Location: West

Length: 10 ft.

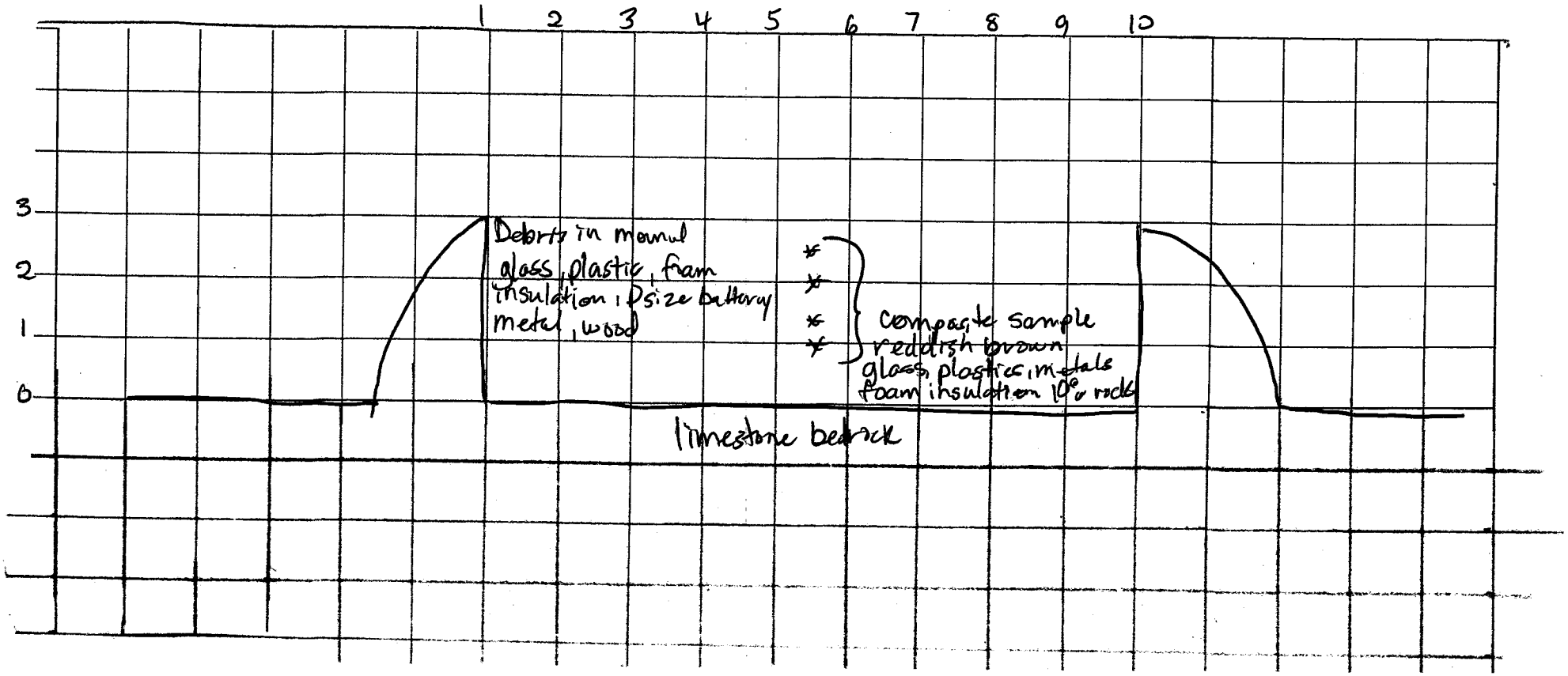
SAMPLES COLLECTED:	TIME:
DTS5059	1355

Map View



PROFILE DESCRIPTION:

(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/16/13
Time: 1408
Weather: Sunny
Start Location: East
End Location: West
Length: 9 ft.

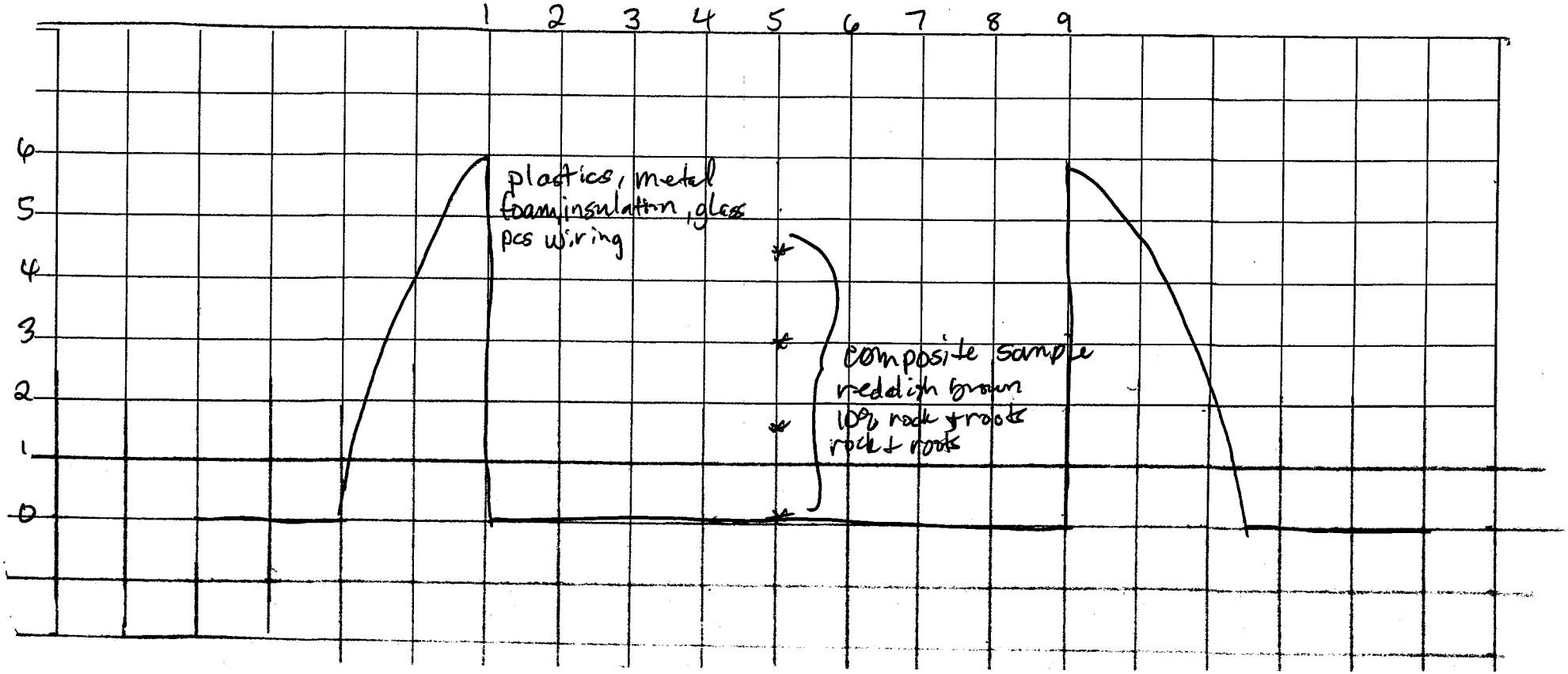
Excavation No: TP20

SAMPLES COLLECTED:	TIME:
DTSS060	1400
DTSS061 (DUP)	1430

Map View

East — start — * DTSS060, DTSS061 (DUP) — End — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/17/13
Time: 0847
Weather: Sunny
Start Location: East
End Location: West
Length: 10ft

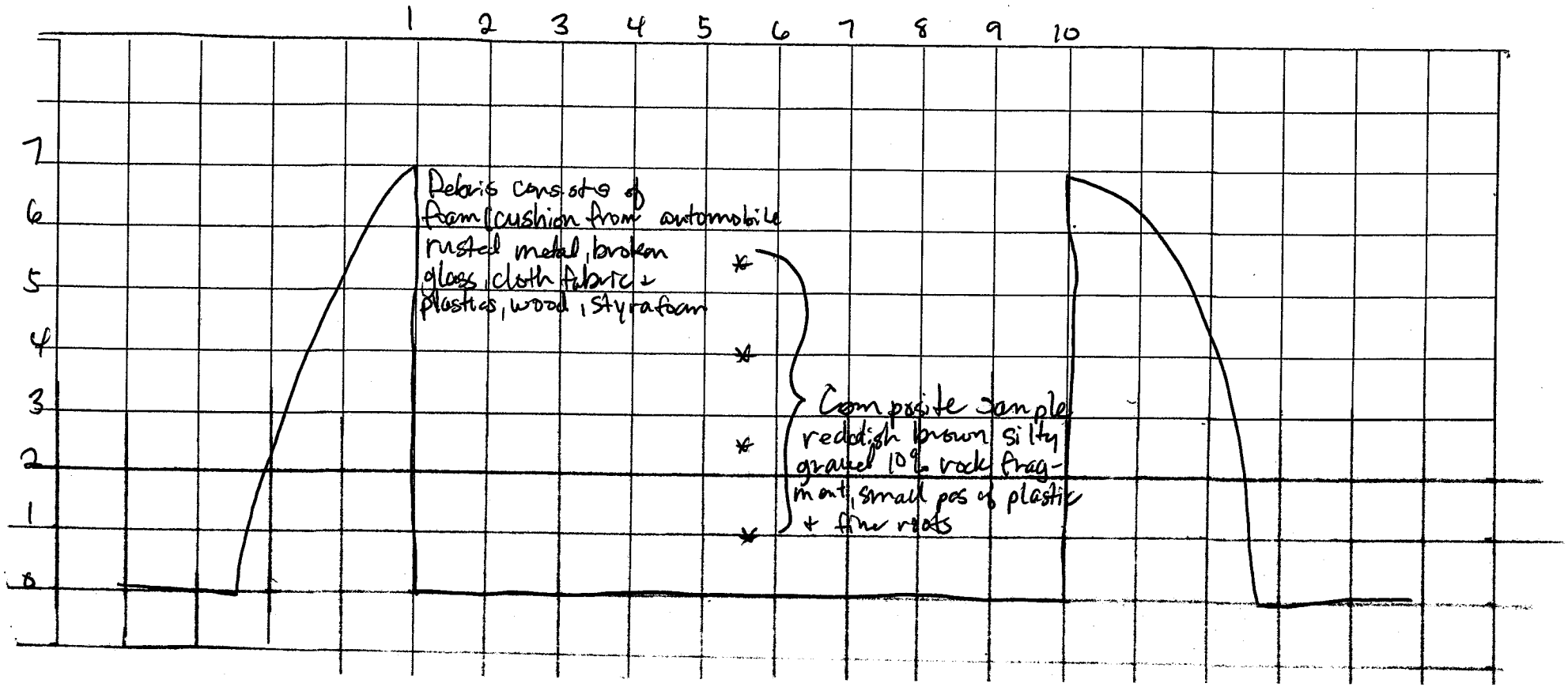
Excavation No: TP21

SAMPLES COLLECTED:	TIME:
DTSS062	0905

Map View

East — Start — * DTSS062 — End — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM, JS
Location: DWTS
Contractor:
Subcontractor: APPI
PID/FID Reading: N/A

Date: 12|
Time: 1005
Weather: Sunny
Start Location: East
End Location: West
Length: 9 ft.

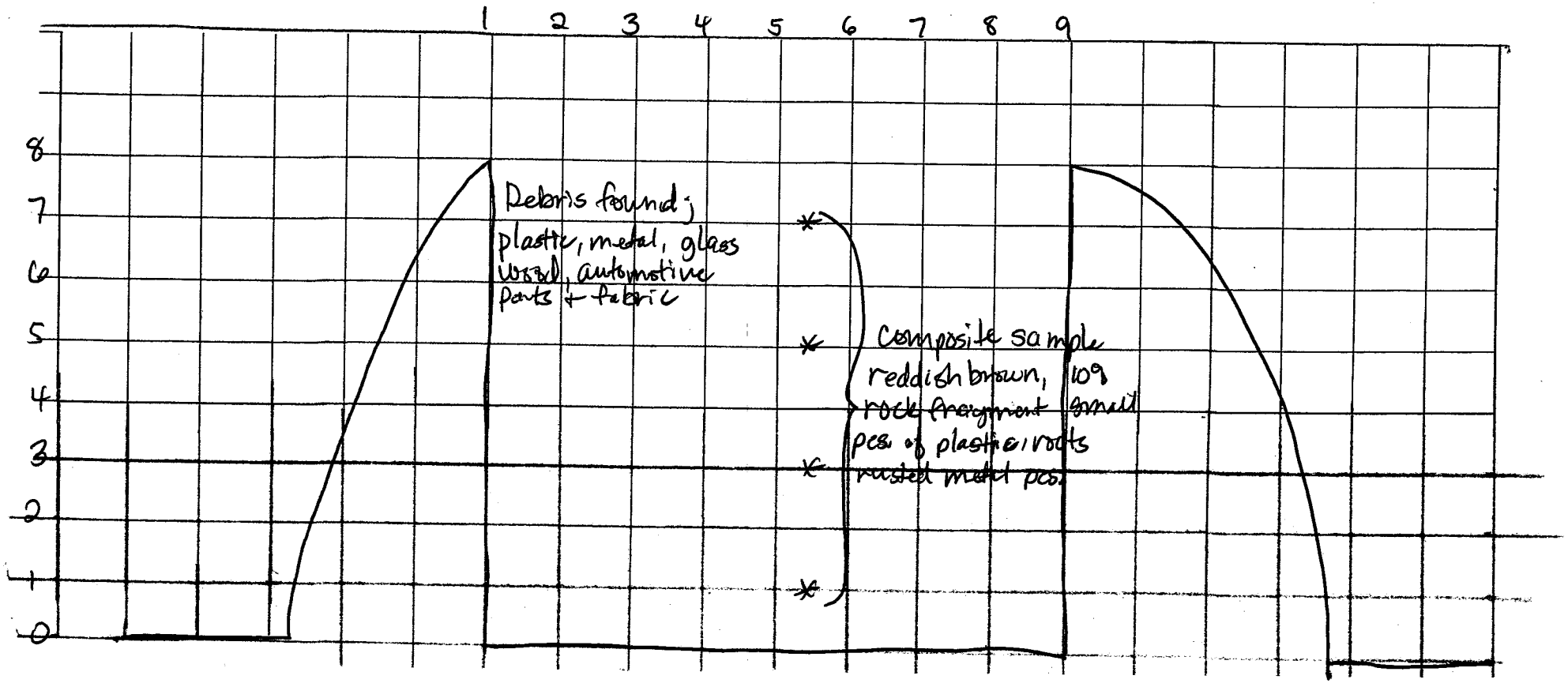
Excavation No: TP22

SAMPLES COLLECTED:	TIME:
DTSS063	1010

Map View

East — Start — 1 — DTSS063 — End — 1 — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/17/13
Time: 1038
Weather: Sunny
Start Location: North
End Location: South
Length: 10ft.

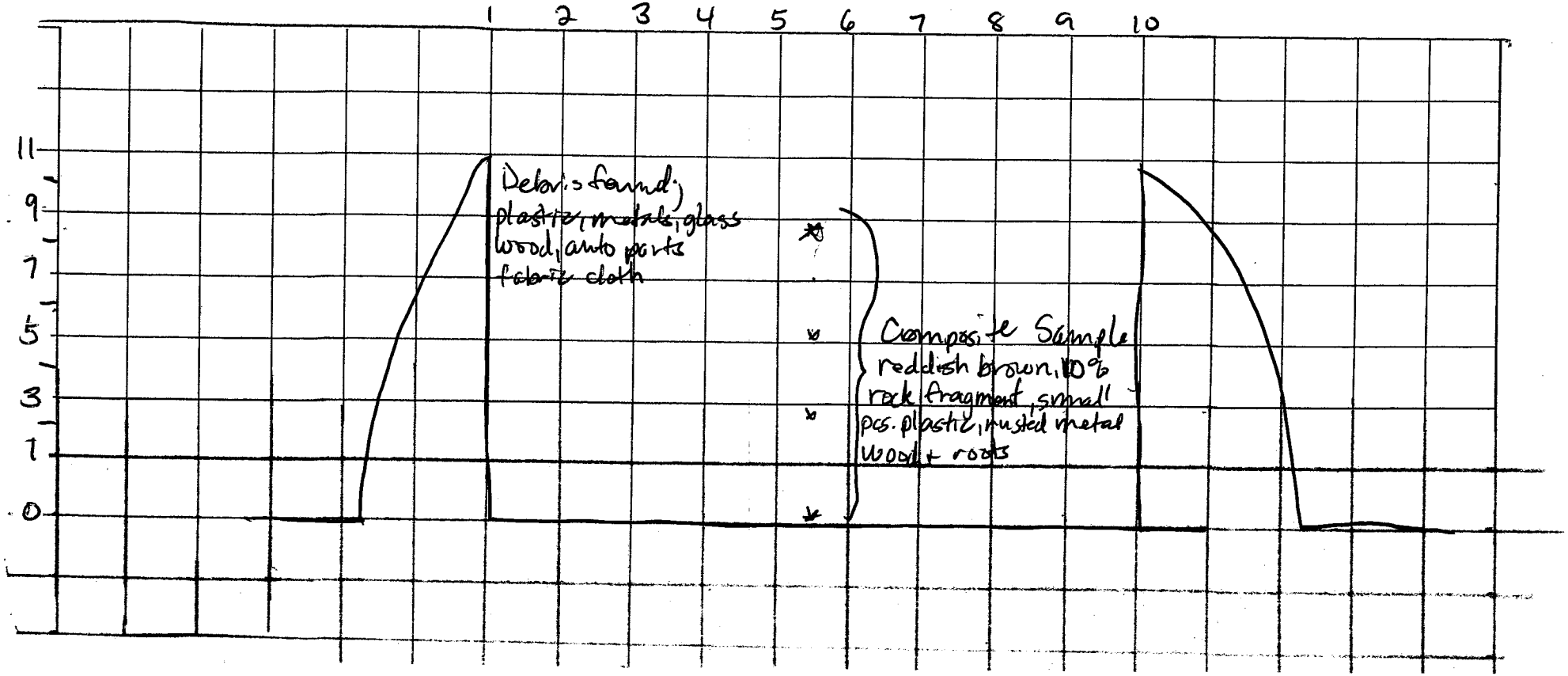
Excavation No: TP23

SAMPLES COLLECTED:	TIME:
DTSS064	1047

Map View

North — Start — * DTSS064 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, JS, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/17/13
Time: 1100

Excavation No: TP24

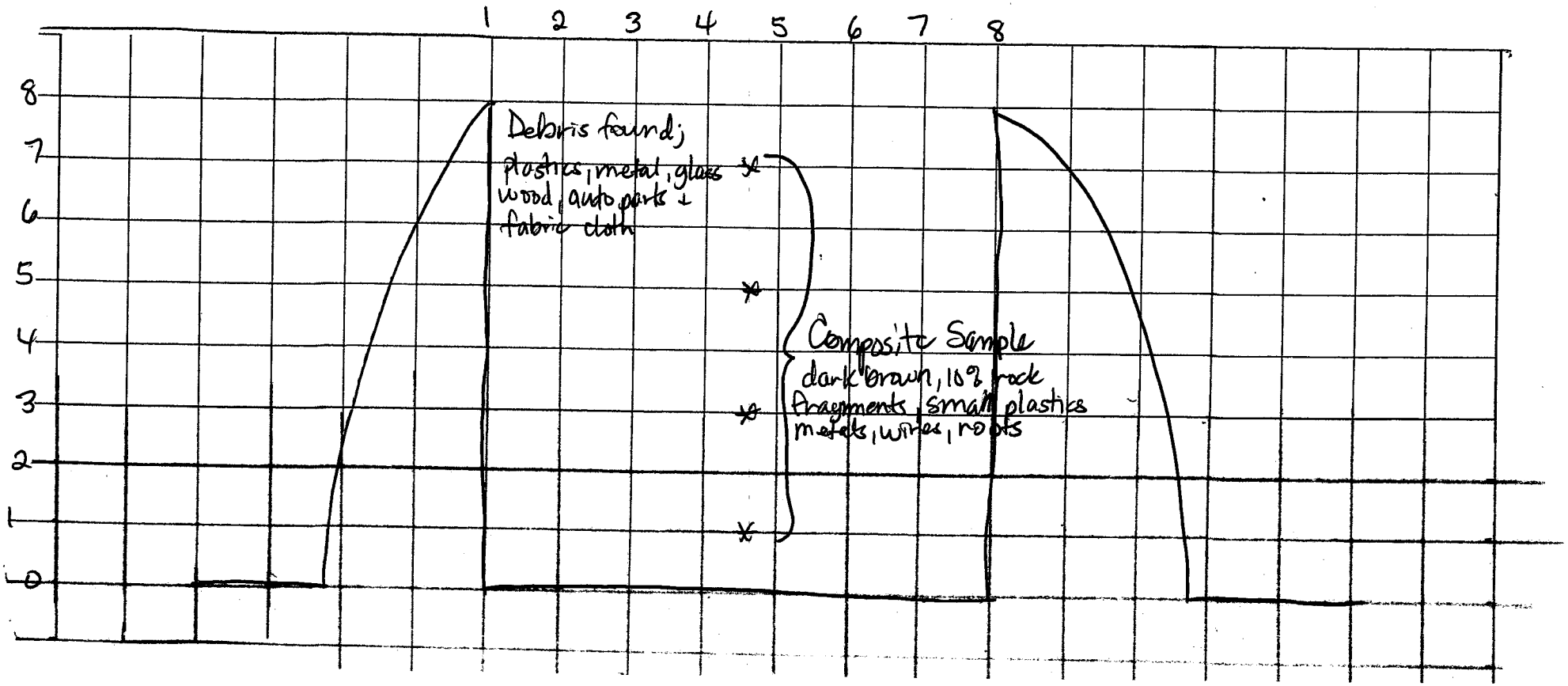
Weather: Sunny
Start Location: North
End Location: South
Length: 8 ft

SAMPLES COLLECTED:	TIME:
DTS5065	1116

Map View

North — Start — DTS5065 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/17/13
Time: 1300
Weather: Sunny
Start Location: North
End Location: South
Length: N/A.

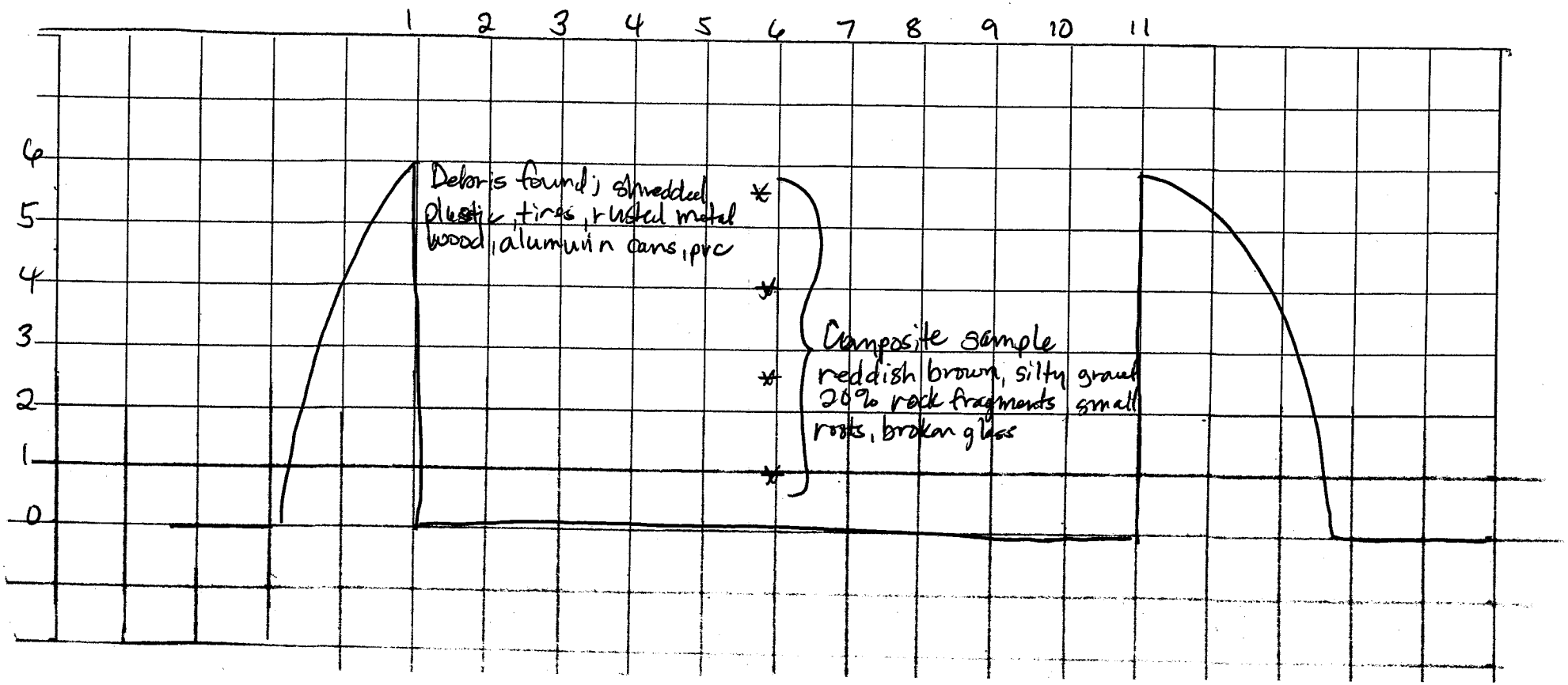
Excavation No: TP25

SAMPLES COLLECTED:	TIME:
DTSS066	1315

Map View

North — Start — ✱ DTSS066 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/18/13
Time: 1340
Weather: Sunny
Start Location: North
End Location: South
Length: 10ft.

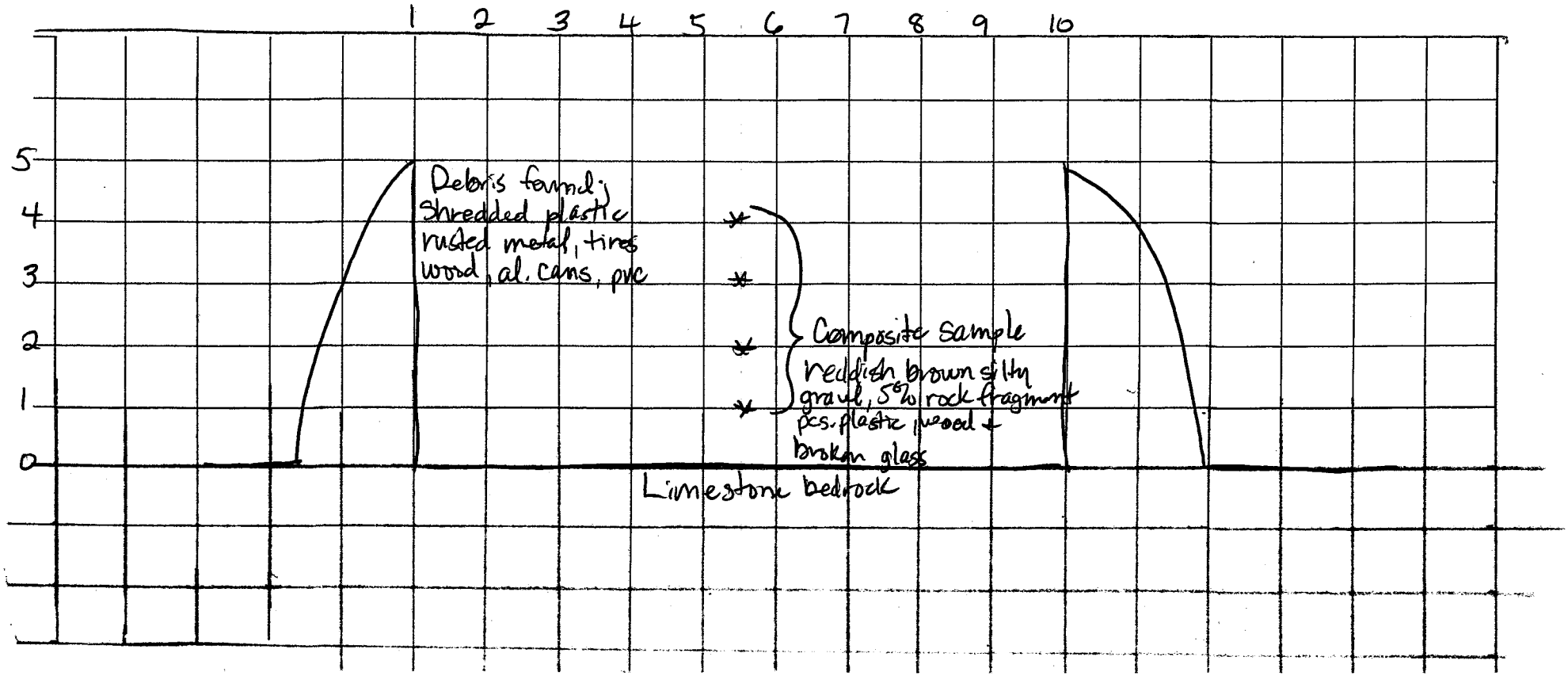
Excavation No: TP26

SAMPLES COLLECTED:	TIME:
DTSS067	1345

Map View

North — Start — * DTSS067 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/17/13
Time: 1400
Weather: Sunny
Start Location: North
End Location: South
Length: 8-ft

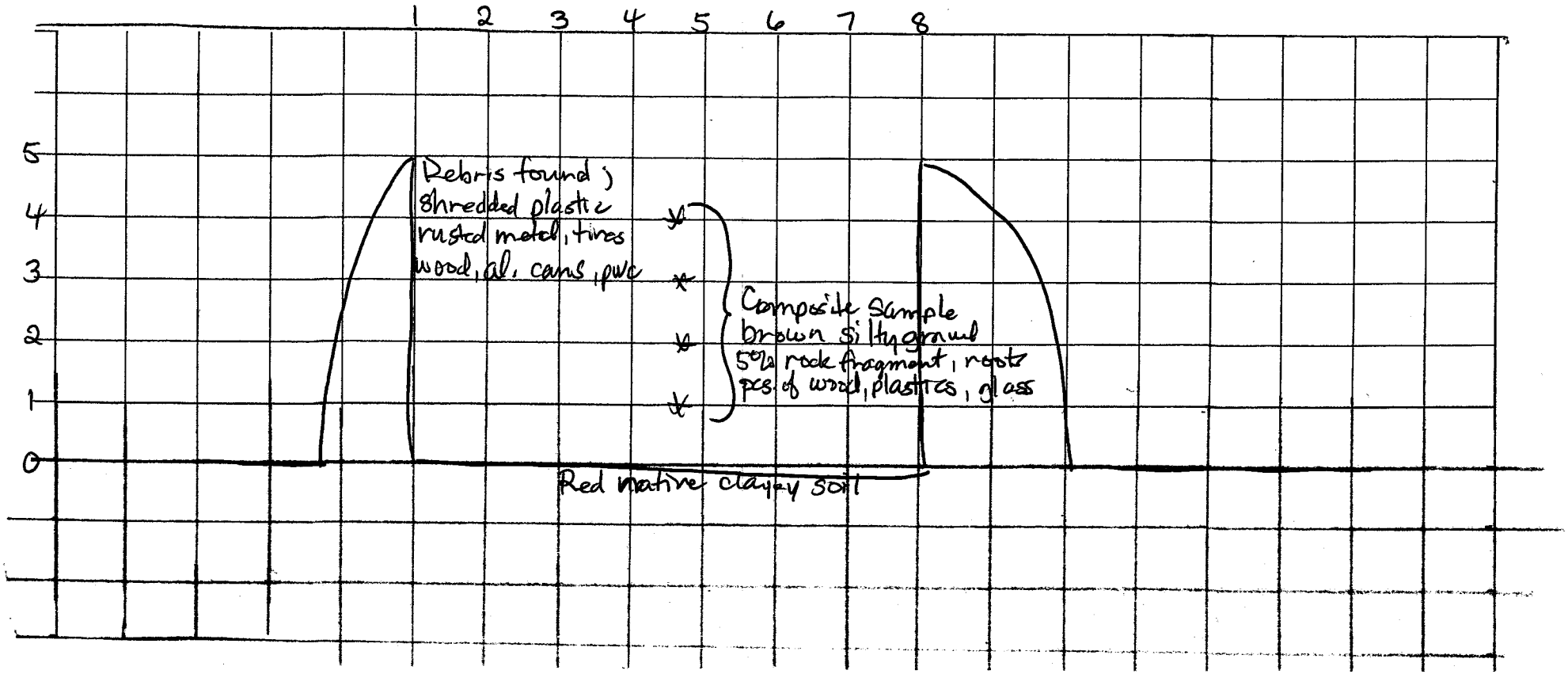
Excavation No: TP27

SAMPLES COLLECTED:	TIME:
DTSS068	1405

Map View

North — start — * DTSS068 — end — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 623910

Personnel: TR, MM, SM, RM

Location: DWTS

Contractor:

Subcontractor: APDI

PID/FID Reading: N/A

Date: 12/17/13

Time: 1418

Excavation No: TP28

Weather: Sunny

Start Location: North

End Location: South

Length: 10 ft.

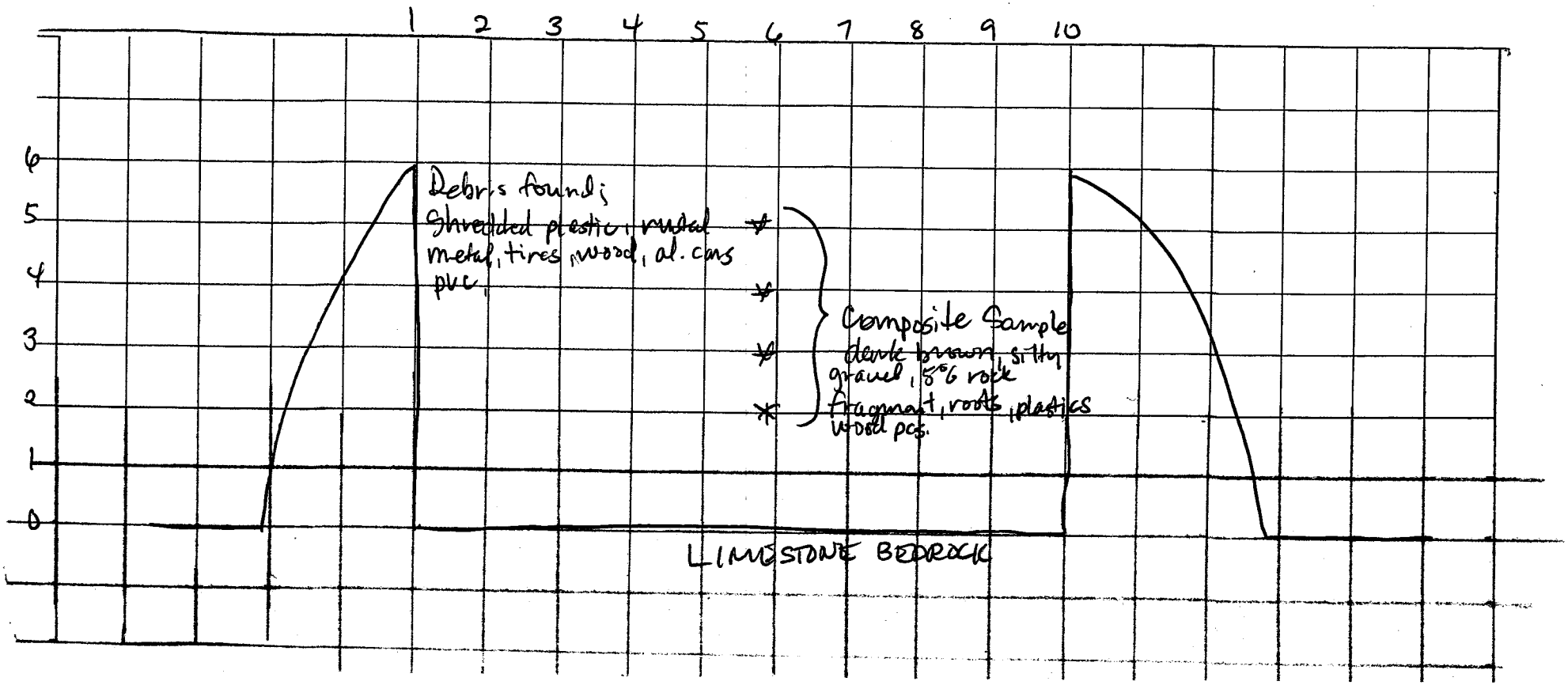
SAMPLES COLLECTED:	TIME:
DTSS069	1425

Map View

North — start — * DTSS069 — End — South

PROFILE DESCRIPTION:

(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APOI
PID/FID Reading: N/A

Date: 12/18/13
Time: 0845
Weather: Sunny
Start Location: East
End Location: West
Length: 14 ft.

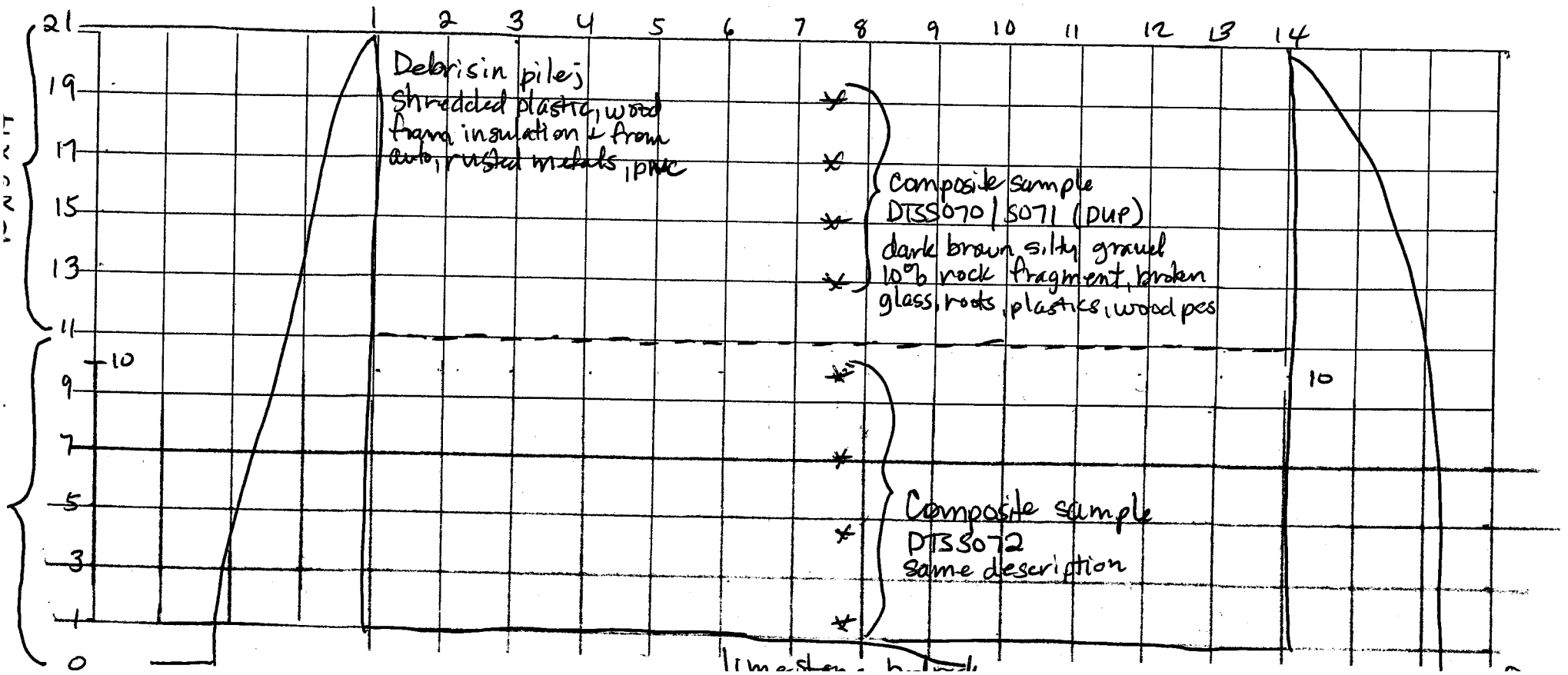
Excavation No: TP29

SAMPLES COLLECTED:	TIME:
DTSS070	0905
DTSS071 (DUP)	0910
DTSS072	0945

Map View

East — Start — 1 — * DTSS070|S071 (DUP) — * DTSS072 — End — 1 — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/18/13
Time: 10005
Weather: Sunny
Start Location: East
End Location: West
Length: 12 ft.

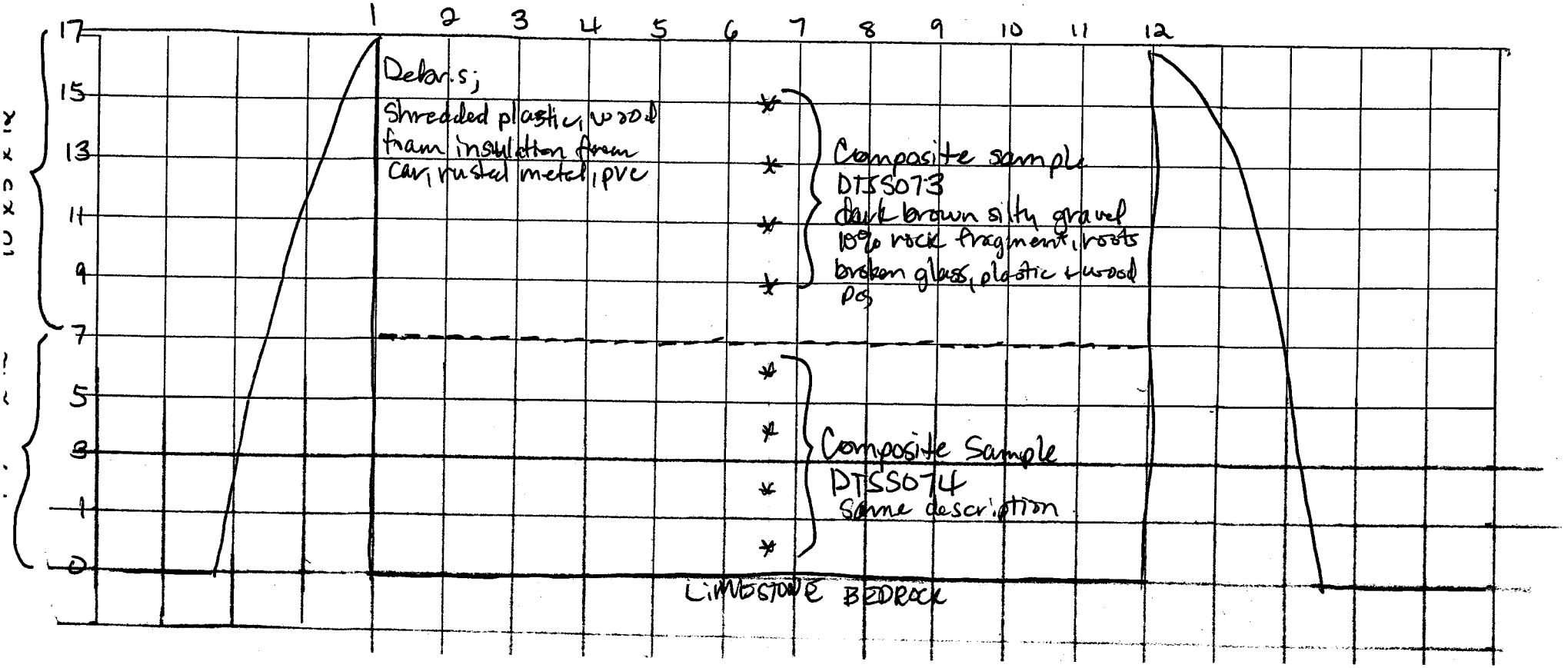
Excavation No: TP30

SAMPLES COLLECTED:	TIME:
DTSS073	1030
DTSS074	1055

Map View

East — Start — 1 — * DTSS073 — * DTSS074 — End — 1 — West

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/18/13
Time: 1115
Weather: Sunny
Start Location: North
End Location: South
Length: 15 ft.

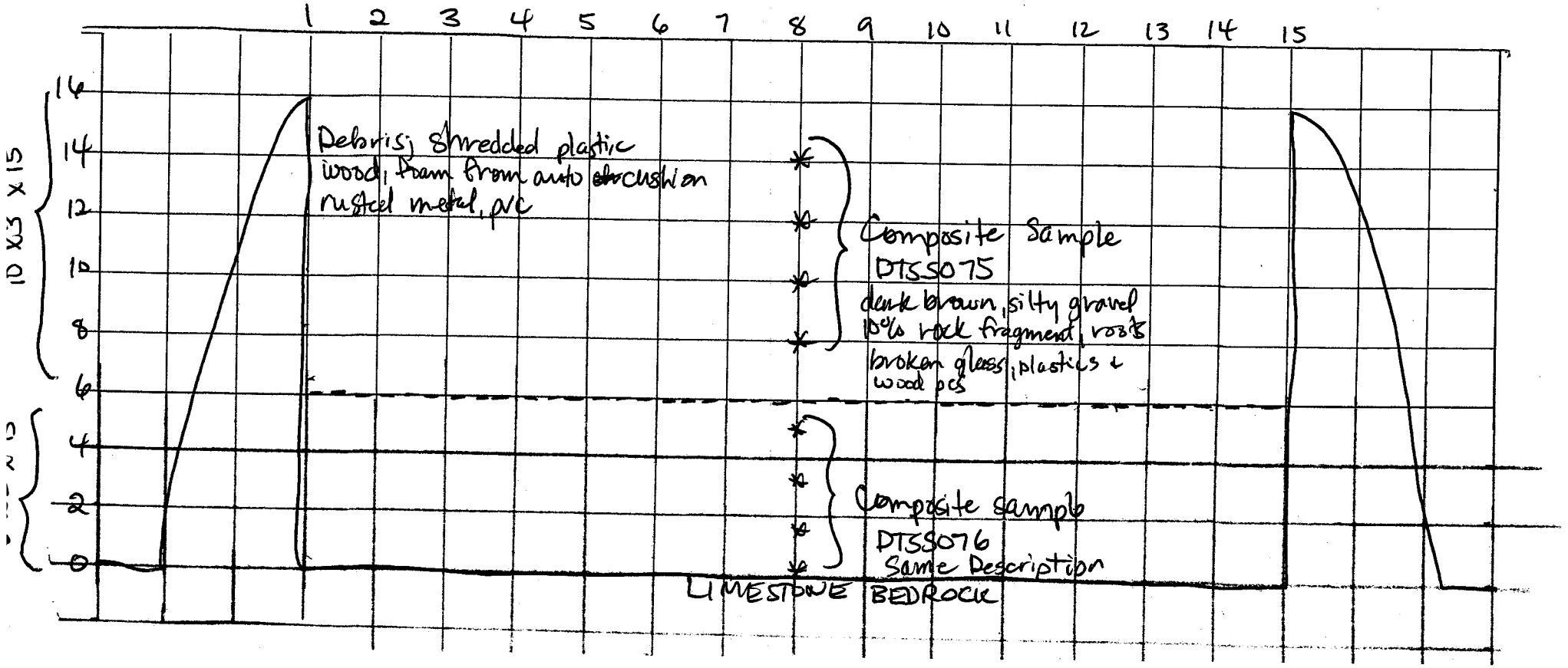
Excavation No: TP31

SAMPLES COLLECTED:	TIME:
DTSS075	1130
DTSS076	0850 -12/19/13

Map View

North — start — * DTSS075 * DTSS076 — END — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/19/13
Time: 0920

Excavation No: TP32

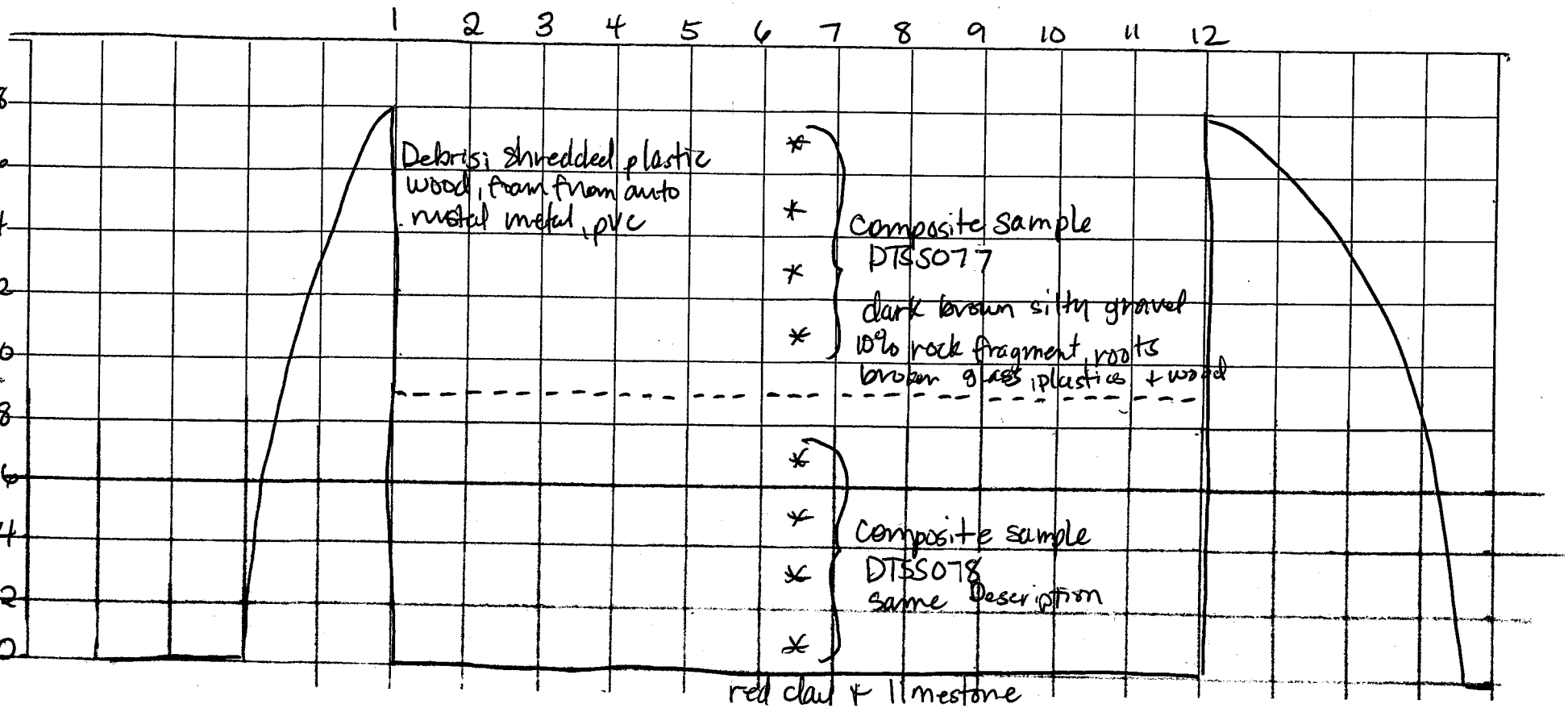
Weather: Sunny
Start Location: North
End Location: South
Length: 12 ft

SAMPLES COLLECTED:	TIME:
DTSS077	0955
DTSS078	1035

Map View

North — start — * DTSS077 * DTSS078 — end — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/19/13
Time: 1030
Weather: Sunny
Start Location: North
End Location: South
Length: 12 ft.

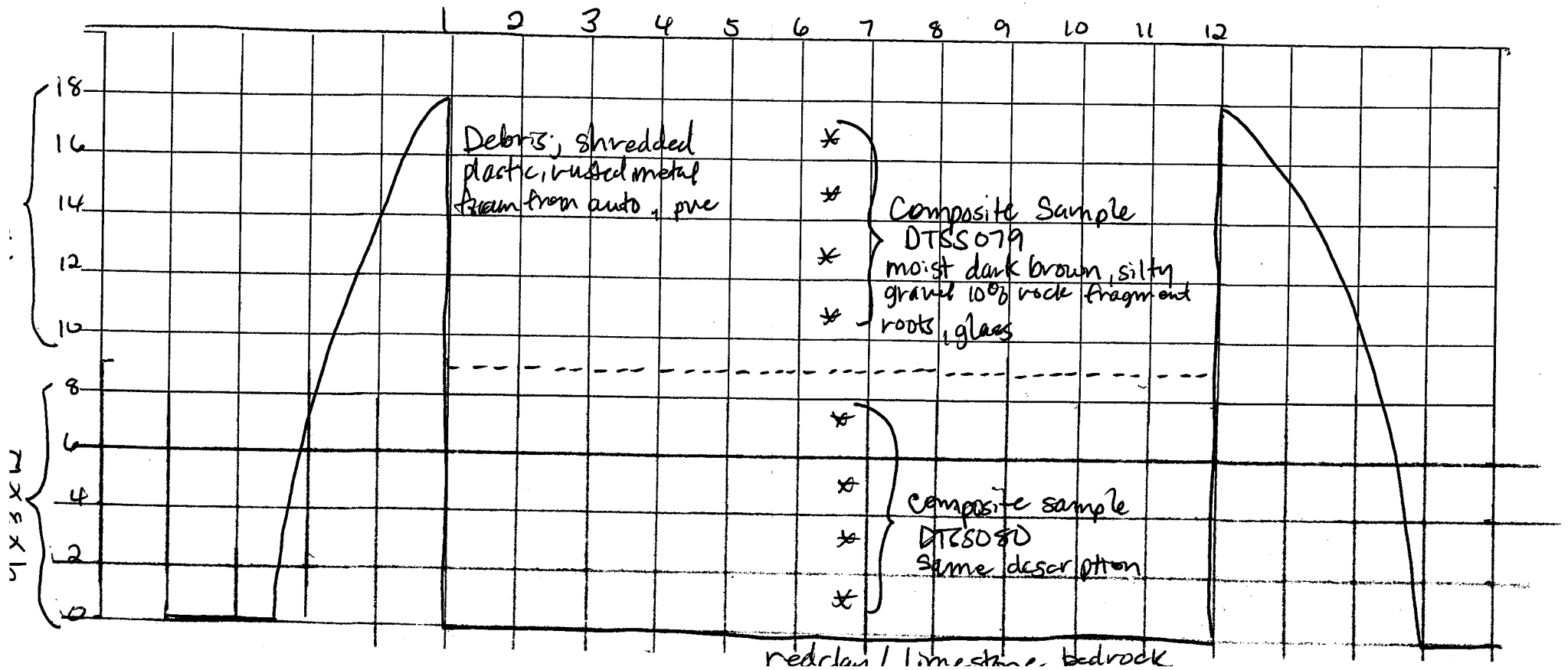
Excavation No: TP33

SAMPLES COLLECTED:	TIME:
DTSS079	1035
DTSS080	1110

Map View

North — start — * DTSS079 * DTSS080 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/19/13
Time: 1110

Excavation No: TP 34

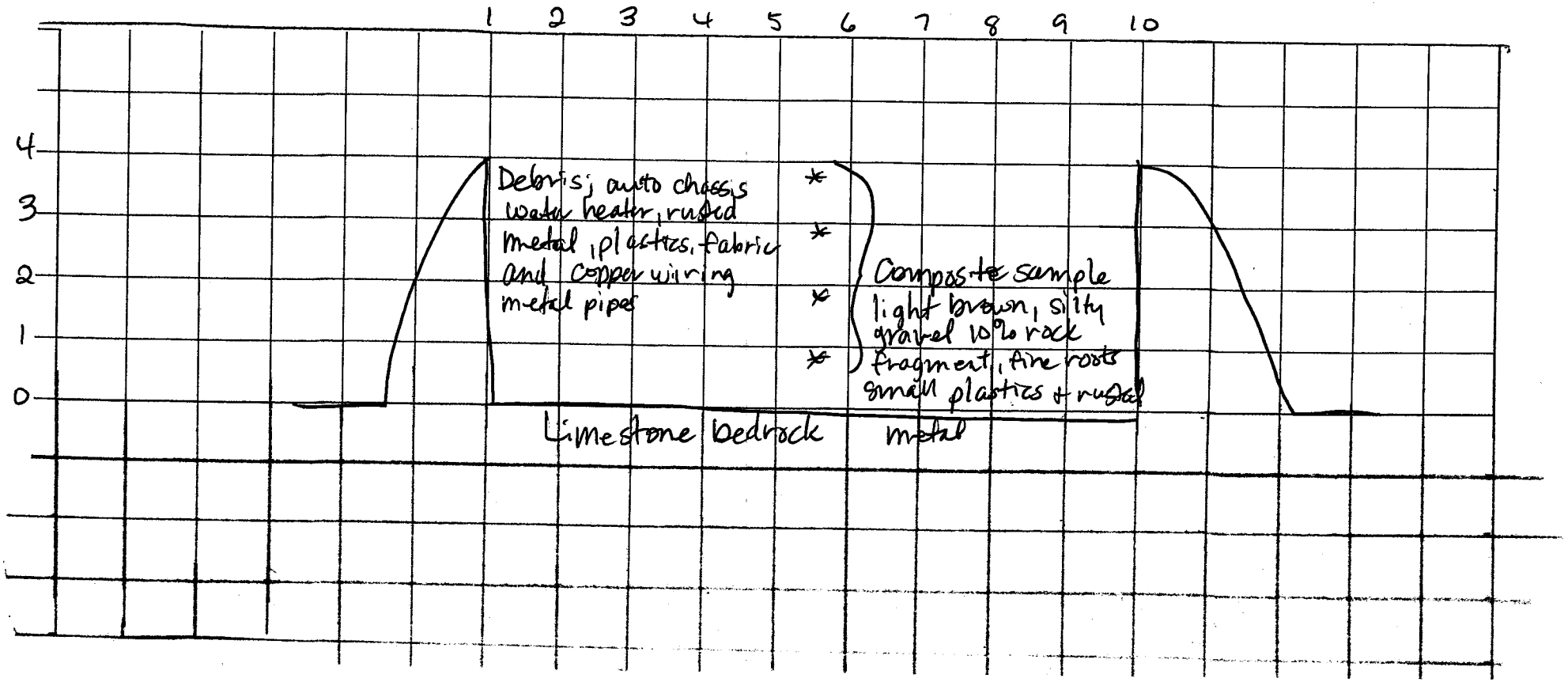
Weather: Sunny
Start Location: North
End Location: South
Length: 10 ft

SAMPLES COLLECTED:	TIME:
DTSS081	1245

Map View

North — Start — * DTSS081 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 623926

Personnel: TR, MM, SM, RM

Location: DWTS

Contractor:

Subcontractor: APDI

PID/FID Reading: N/A

Date: 12/19/13

Time: 1300

Excavation No: TP35

Weather: Sunny

Start Location: North

End Location: South

Length: 11 ft.

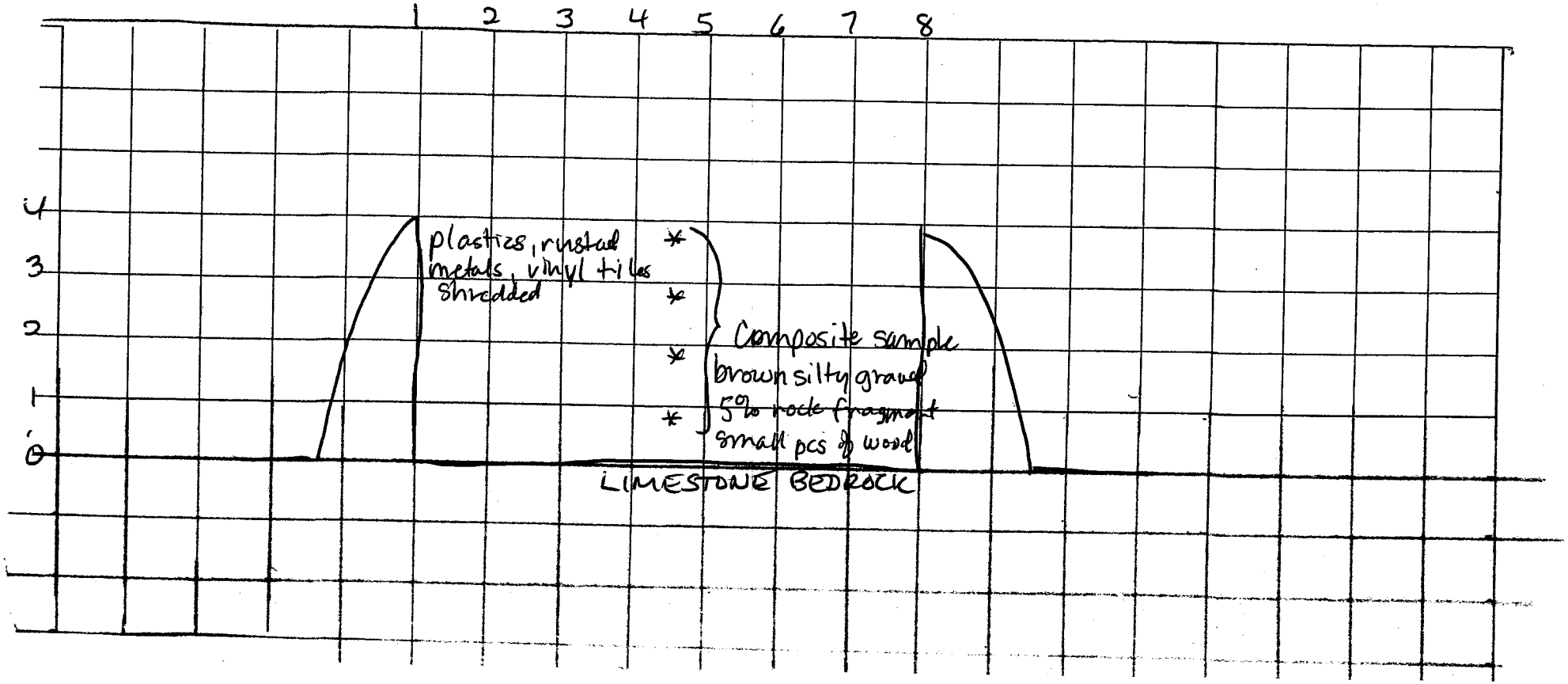
SAMPLES COLLECTED:	TIME:
DTSS082	1340

Map View

North — start — * DTSS082 — end — South

PROFILE DESCRIPTION:

(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/19/13
Time: 1350

Excavation No: TP36

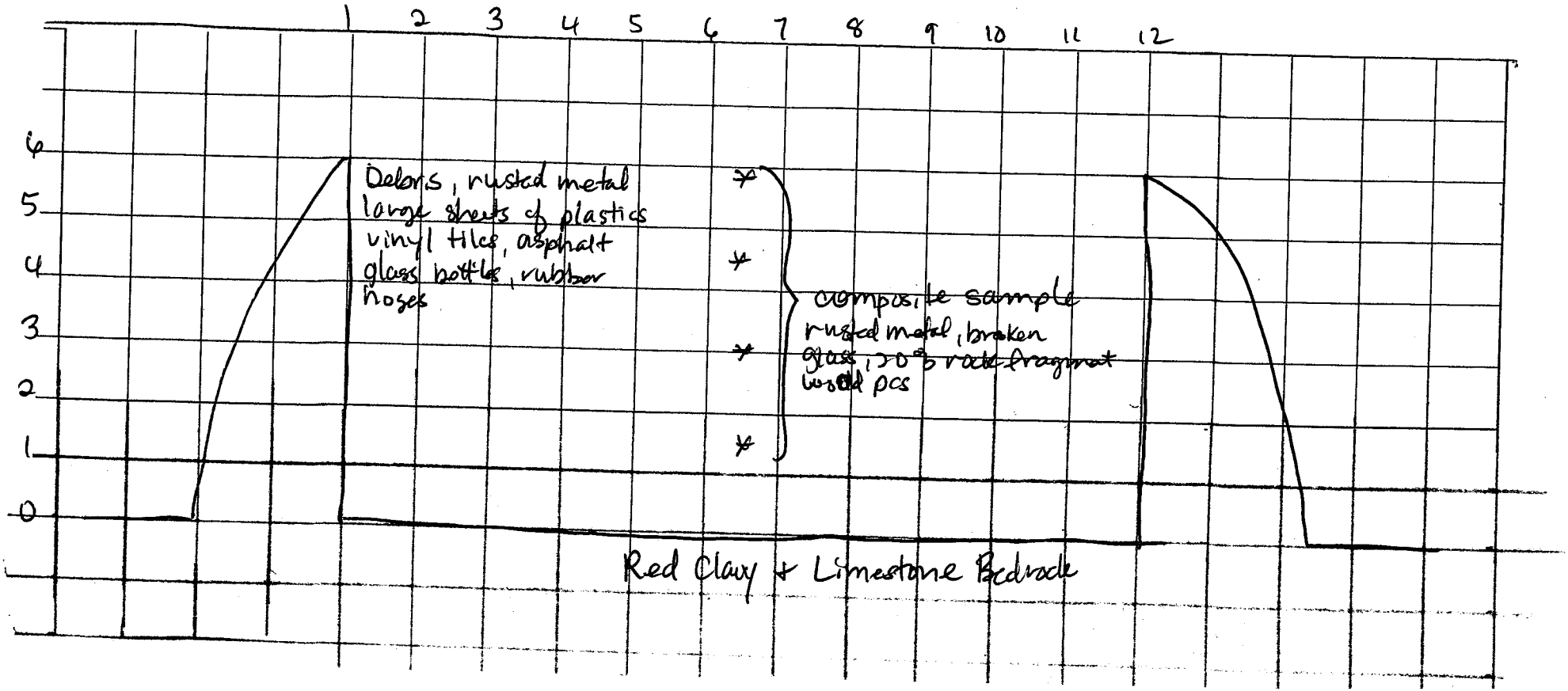
Weather: Sunny
Start Location: North
End Location: South
Length: 12 ft.

SAMPLES COLLECTED:	TIME:
DTSS083	1400
DTSS084 (DUP)	1405

Map View

North — start — * DTSS083, DTSS084 (DUP) — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210
Personnel: TR, MM, SM, RM
Location: DWTS
Contractor:
Subcontractor: APDI
PID/FID Reading: N/A

Date: 12/19/13
Time: 1425
Weather: Sunny
Start Location: East
End Location: West
Length: 14 ft.

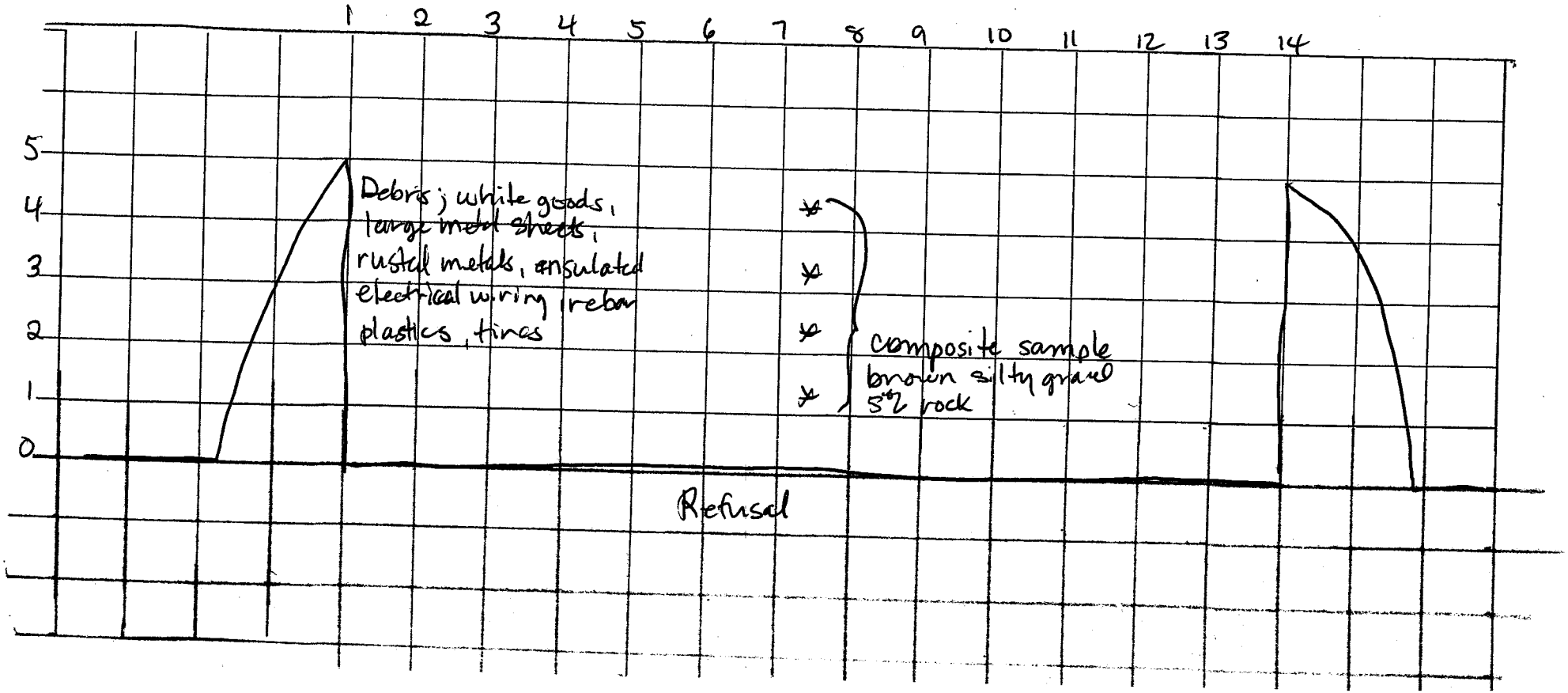
Excavation No: TP37

SAMPLES COLLECTED:	TIME:
DTSS085	1450

Map View

East — Start — * DTSS085 — END — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)



EXCAVATION FIELD LOG

Contract No: 6239210

Personnel: TR, MM, SU, RM

Location: DWTS

Contractor:

Subcontractor: APD1

PID/FID Reading: N/A

Date: 12/19/13

Time: 1515

Excavation No: TP38

Weather: Sunny

Start Location: North

End Location: South

Length: 8ft.

SAMPLES COLLECTED:	TIME:
DTS5086	1530

Map View

North — Start — # DTS5086 — End — South

PROFILE DESCRIPTION:
(Include: soil classification, color, odor, texture, depth, waste materials present, moisture, and location of photos)