Republic of the Philippines
Department of Environment and Natural Resources
PENRO Marinduque

November 17, 2022

MEMORANDUM

FOR : The Regional Executive Director
DENR-MIMAROPA Region

THRU : The OIC-Assistant Regional Director for Technical Services

: The Chief, Legal Division

FROM : The OIC-PENR Officer

SUBJECT : **TURN-OVER OF CHEVRON PHILIPPINES, INCORPORATED'S SITE AND FACILITIES LOCATED IN BRGY. BALOGO, STA. CRUZ, MARINDUQUE**

This refers to the area occupied by Chevron Philippines, Inc. which is inside the expired OLPLA No. 002 of Marcopper Mining Corporation located in Brgy. Balogo, Sta. Cruz, Marinduque.

It can be recalled that the area covered by the said expired OLPLA No. 002 was taken over by DENR-PENRO, Marinduque on June 24, 2022, except the area occupied by the then Caltex Philippines, now Chevron Philippines, Inc. Hence, a Notice to Vacate dated July 21, 2022 was issued by this Office to that effect. A response letters dated August 26, 2022 and October 11, 2022, respectively, was received from Mr. Edgar Castillo, Director and Manager of Chevron Philippines, Inc. signifying their intent to turn-over the area they occupied together with its facilities on an "as-is-where-is" basis.

Relative thereto, providing you herewith a copy of letter dated October 11, 2022 from Mr. Edgar Castillo of Chevron, Philippines, Inc. together with the summary report dated September 2, 2022 on the result of environmental investigation conducted by AECOM Philippine Consultants Corporation on Chevron Marinduque Bulk Depot in Brgy. Balogo, Sta. Cruz, Marinduque, for comment and instruction, if any. In our letter to Mr. Castillo dated September 02, 2022, we required Chevron Philippines, Inc. to submit demolition or decommissioning plan and to undertake clean-up activities before they vacate and turn-over the area. Considering that the company has a counter proposal and offer, we want to seek guidance from the higher authority, for possible resolution of the issue at hand. We would like also to recommend for a technical conference regarding this matter to invite EMB and other concerned Divisions of our Regional Office, specifically Legal Division, Enforcement Division and Licenses, Patents and Deeds Division.

For your information and instruction.

IMELDA M. DIAZ

Capitol Compound, Barangay Bangbangalon, Boac, Marinduque
Telephone Nos.: (042) 332-1490/(042) 332-0727/(042) 332-0927/(042) 332-1913
Website: https://penromarinduque.gov.ph/
Email: penromarinduque@denr.gov.ph

Chevron Philippines Inc.
6/F 6750 Ayala Avenue
1226 Makati City, Philippines
Tel 63 2 8841 1000

October 11, 2022

Imelda M. Diaz
OIC-PENR Officer
DENR Marinduque

Re: Turnover of Chevron Philippines, Inc.'s site and property located at Barangay Balogo, Sta. Cruz, Marinduque, Philippines.

Dear Madam,

In conformity with our letter to this Honorable Office dated 26 August 2022, we write to inform you that, subject to the attached findings of our consultant, AECOM Philippines Consultants Corporation (AECOM), Chevron Philippines Inc. is ready to vacate the premises it occupies at Barangay Balogo, Sta. Cruz, Marinduque, Philippines and to turn-over its property and facilities located therein to this Honorable Office on an as-is-where-is basis.

We will carry out the turnover and pull out our security personnel guarding the premises at a date and time most convenient to this Honorable Office. In line with the foregoing, AECOM will liaise with this Honorable Office to coordinate turn-over activities.

Thank you and we hope to maintain and strengthen our fruitful partnership towards nation building and the betterment of the lives of the Filipino people.

Very truly yours,

CHEVRON PHILIPPINES INC.

By:

Edgar R. Castillo
Director and Manager, Operations PH

AECOM Philippines Consultants Corporation +632.478.3266 tel
14th Floor, Bonifacio Stopover Corporate Center +632.478.3270 fax
2nd Avenue corner 31st Street
Fort Bonifacio Global City, Fort Bonifacio
Taguig City, Philippines 1634

September 2, 2022

Alexander Bryan Hilario
Site Remediation Specialist
Chevron Environmental Management and Real Estate Company
6750 Ayala Avenue, Makati City, Philippines

Subject: Factual summary report on the results of the environmental investigations conducted at Chevron Marinduque Bulk Depot situated at Barangay Balogo, Sta. Cruz, Marinduque, Philippines

Dear Bryan,

AECOM Philippines Consultants Corporation (AECOM) is pleased to submit this factual summary report to Chevron Environmental Management and Real Esta Company (Chevron) for the environmental investigations conducted at Chevron Marinduque Bulk Depot (the "Site") located at Barangay Balogo, Sta. Cruz, Marinduque, Philippines (see **Figure 1** and **2**). This is intended to summarize the findings from the following activities.

- Phase I and II Environmental Site Assessment (ESA) conducted by URS Philippines Inc. (URS) in December 2001;
- Phase I and II ESA conducted by AECOM in January 2009 and February to March 2010;
- Offsite Groundwater Extraction Wells Sampling conducted by AECOM in May 2010;
- Groundwater Monitoring Event conducted by AECOM in November 2011; and,
- Buried Sludge Delineation conducted by AECOM in November 2012.

I. Background and Phase I ESA Information

The Site, with an approximate area of 9,000 square meters, formerly operated as a bulk petroleum storage terminal. During the most recent assessment in November 2012, all structures except for product lines, pumps, and hoses, were still onsite (see **Figure 3**).

Seven aboveground storage tanks (AST 1 to AST 7) are situated at the Site's tank farm. The tank truck loading rack is situated west of the tank farm. The table below shows the details of the ASTs onsite.

Tank ID	Volume (Barrels)	Previous Content	Year Constructed	Construction
AST 1	5,100	Automotive Diesel Oil – B2	1965	Steel
AST 2	5,100	Diesel	1965	Steel
AST 3	40,000	Bunker Fuel Oil	1965	Steel

AST 4	1,900	Kerosene	1965	Steel
AST 5	1,900	Kerosene	1965	Steel
AST 6	3,600	Unleaded Gasoline	1965	Steel
AST 7	22,000	Unleaded Gasoline	1965	Steel

Three oil-water separators (OWS) are situated onsite - a two-chambered one located within the TTLR, and two three-chambered ones located within the tank farm and at the northeastern corner of the Site. The OWS situated at the northeastern corner was observed to be condemned during the most recent assessment in November 2012.

A Marcopper Mining Corporation warehouse is situated south while their two acid tanks and acid pit are situated east of the Site.

Balogo Bay is situated approximately 150 m east of the Site.

History

The Site was reportedly utilized as rice fields prior to 1965 and was converted into a bulk petroleum storage terminal sometime between 1965 and 1969. The Site was initially operated by Exxon-Mobil from 1969 to 1973. Chevron assumed operations of the Site in 1973. The Site reportedly entered into a hospitality agreement with Petron for the use of Chevron's equipment and facilities in 2009. The Site ceased operations on 11 February 2010.

Groundwater Extraction Wells

Groundwater Extraction Well DW01 is situated at the north-northwestern portion of the Site. Four groundwater extraction wells (DW02 to DW05) were identified within the north to northwestern vicinity of the Site.

II. Phase I and II ESA (December 2001, URS)

URS conducted a Phase I and II ESA at the Site in December 2001 wherein five soil bores (SB01 to SB05) were advanced at the Site to depths ranging from 2.0 to 8.0 meters (m) below ground surface (bgs). The soil bores were not converted to groundwater monitoring wells hence no groundwater samples were collected and analyzed during this investigation.

Total Petroleum Hydrocarbons (TPH) C6-C9, TPH C10-C14, and TPH C15-C28 were detected in the soil sample collected from SB02 at 10 milligrams per kilogram (mg/kg), 293 mg/kg, and 1,270 mg/kg, respectively. Chemicals of potential concern (COPC) were not detected in any of the other soil samples analyzed. The URS assessment also reported anecdotal evidence on the potential presence of buried sludge materials in several locations within the tank farm area.

III. Phase I and II ESA (January 2009 and February to March 2010, AECOM)

AECOM conducted a Phase I and II ESA wherein three soil bores (SB06 to SB08) were advanced, all to a terminal depth of 10.0 m bgs and were subsequently converted into permanent groundwater monitoring wells (MW01 to MW03). MW01 and MW03 are situated onsite, to the west and to the north-northwest of the Site's tank farm, respectively. MW02 is situated offsite, to the north-northeast of

the Site. The soil profile observed beneath the Site is Silt to Silty Clay to Clay at 0.10 to 4.0 m bgs and Clay to Bedrock from 4.0 to 10.0 m bgs.

A total of six primary soil samples (two from each soil bore) were submitted to the laboratory for analysis of TPH in the C_6-C_{36} ranges and benzene, toluene, ethylbenzene, and total xylenes (BTEX). All COPC were not detected above the laboratory's reporting limits in all soil samples analyzed.

Groundwater samples were collected from MW01 to MW03 as well as from the onsite groundwater extraction well DW01 and were submitted to the laboratory for analysis of TPH, BTEX, and methyl tert butyl ether (MTBE). MTBE was detected in MW02 at 308 micrograms per liter (µg/L) while all other COPC were not detected above the laboratory's reporting limits.

Measured static water levels (SWLs) in MW01 to MW03 were 6.525 m below top of well casing (bToC), 5.150 m bToC, and 6.943 m bToC, respectively. Groundwater flow direction was assessed to be to the north-northwest.

IV. Groundwater Extraction Wells Sampling (May 2010, AECOM)

Offsite groundwater extraction wells DW02 to DW05 are situated within residential units at the north to northwest of the Site. Four primary groundwater samples were collected from DW02 to DW05 and were submitted to the laboratory for analysis of TPH, BTEX, and MTBE. All COPC were not detected above the laboratory's reporting limits in all groundwater samples analyzed.

V. Groundwater Monitoring Event (November 2011, AECOM)

Three primary groundwater samples were collected from previously installed monitoring wells MW01 to MW03 and were submitted to the laboratory for analysis of TPH, BTEX, and MTBE.

TPH C_{15}-C_{28} was detected in MW01 at 292 µg/L. MTBE was detected in MW03 at 20.4 µg/L. All other COPC were not detected above the laboratory's reporting limits in all groundwater samples analyzed.

Measured SWLs in MW01 to MW03 were 4.890 m bToC, 6.060 m bToC, and 4.460 m bToC, respectively. Groundwater flow direction was assessed to be to the north-northwest.

VI. Buried Sludge Delineation (November 2012, AECOM)

Sludge materials were reportedly buried within the Site's tank farm. In order to verify their presence, delineate the extent if present and assess if they are classified as hazardous waste, a buried sludge delineation activity was conducted.

Forty three soil bores (SS01 to SS42a) were advanced within the suspected sludge burial locations to a maximum depth of 2.5 m bgs. Soil samples for analysis were collected where visual and odor observations were noted. Thirteen primary soil samples were collected and submitted to the laboratory for analysis of metals using toxicity characteristic leaching procedure (TCLP), ignitability, corrosivity, and reactivity. The results are summarized as follows.

- Antimony was detected in six samples ranging from 0.00081 mg/L in SS01-2.7 to 0.0021 mg/L in SS41-1.0.
- Arsenic was detected in SS13-1.5 at 0.0060 mg/L.
- Barium was detected in all samples ranging from 0.034 mg/L in SS10-1.5 to 0.300 mg/L in SS42a-1.5.
- Cadmium was detected in five samples ranging from 0.00044 mg/L in SS23-1.5 to 0.0065 mg/L in SS09-2.0.

  - Chromium was detected in eight samples ranging from 0.00036 mg/L in SS42a-1.5 to 0.0120 mg/L in SS19-1.5.
  - Copper was detected in nine samples ranging from 0.0017 mg/L in SS20-2.0 to 0.0470 mg/L in SS19-1.5.
  - Lead was detected in nine samples ranging from 0.00046 mg/L in SS26a-2.5 to 0.0068 mg/L in SS23-1.5.
  - Mercury was detected in five samples ranging from 0.00069 mg/L in SS41-1.0 to 0.0007 mg/L in SS38-2.0.
  - Zinc was detected in twelve samples ranging from 0.016 mg/L in SS13-1.5 to 6.4 mg/L in SS09-2.0.
  - TCLP Beryllium, Selenium, and Thallium were not detected above the laboratory's reporting limits in any of the soil samples analyzed.
- Others:
  - Moisture content ranged from 16% in SS41-1.0 to 27% in SS19-1.5.
  - pH of the samples ranged from 7.84 in SS23-1.5 to 11.4 in SS41-1.0.
  - Reactive sulfide was detected in three samples ranging from 28 mg/kg in SS42a-1.5 to 200 mg/kg in SS20-2.0.
  - The flashpoint of all samples were above 212 degrees Fahrenheit.

The samples collected were also subjected for analysis of TPH C_6-C_{36}, BTEX and total metals. The results are as follows:

- TPH C_6-C_9 was detected in six samples ranging from 17.8 mg/kg in SS01-2.7 to 259 mg/kg in SS42a-1.5.
- TPH C_{10}-C_{14} was detected in seven samples ranging from 37.6 mg/kg in SS15-2.0 to 11,300 mg/kg in SS41-1.0.
- TPH C_{15}-C_{28} was detected in ten samples ranging from 47.7 mg/kg in SS01-2.7 to 1,660,000 mg/kg in SS09-2.0.
- TPH C_{29}-C_{36} was detected in four samples ranging from 295 mg/kg in SS15-2.0 to 39,500 mg/kg in SS09-2.0.
- Benzene was detected in SS23-1.5 at 0.0830 mg/kg.
- Toluene was detected in SS23-1.5 and SS20-2.0 at 0.273 mg/kg and 0.344 mg/kg, respectively.
- Ethylbenzene was detected in SS23-1.5 and SS42a-1.5 at 0.227 mg/kg and 2.11 mg/kg, respectively.
- Total Xylenes was detected in four samples ranging from 0.834 mg/kg in SS20-2.0 to 1.79 mg/kg in SS42a-1.5.

At the time of the assessment, the analytical results were compared to Department of Environment and Natural Resources (DENR) Administrative Order (DAO) 2004-36 Hazardous Waste Management Procedural Manual specifically the criteria for TCLP metals, corrosivity, ignitability and flammability. No exceedances to the adopted criteria were noted and the samples were assessed to be non-hazardous.

At the time of writing of this factual summary report, the results were also compared to the Revised Procedures and Standards for the Management of Hazardous Wastes, DAO 2013-22. Similarly, no exceedances to the adopted criteria were noted and the samples are still assessed to be non-hazardous.

Summary

A Phase I and II ESA was conducted onsite in 2001, 2009 and 2010. The soil profile observed beneath the Site is Silt to Silty Clay to Clay at 0.10 to 4.0 m bgs and Clay to Bedrock from 4.0 to 10.0 m bgs. All COPC were not detected above the laboratory's reporting limits in all soil samples analyzed.

Three permanent groundwater monitoring wells (MW01 to MW03) were installed at the Site and within the immediate vicinity of the Site. In the two sampling events conducted, TPH C_{15}-C_{28} was detected in MW01 and MTBE was detected in MW02 and MW03. The rest of the analyzed COPC were below laboratory reporting limits. COPC were not detected in any of the onsite (DW01) and offsite (DW02 to DW05) wells.

During the buried sludge delineation, the detected TCLP for heavy metals along with corrosivity, ignitability and flammability of the samples did not exceed the criteria set forth in DAO 2004-36 and DAO 2013-22. As such, the samples are assessed to be non-hazardous waste.

Limitations

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AECOM devoted normal professional efforts compatible with the time and budget available in the review process. AECOM's findings represent its reasonable judgments within the time and budget context of its commission and utilizing the information available to it at the time.

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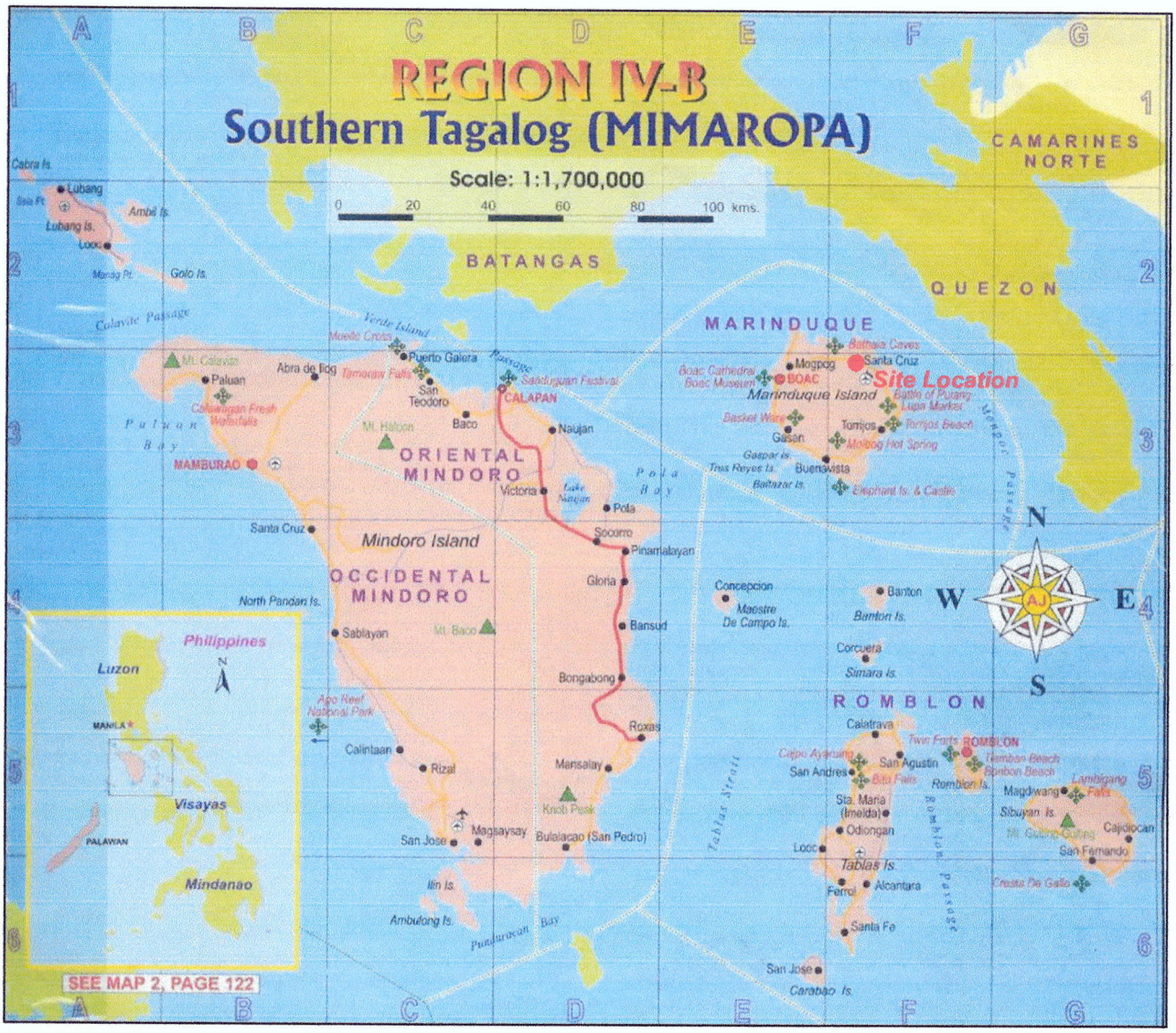
Attachments:

Figure 1	Site Location Map
Figure 2	Site Vicinity Map
Figure 3	Site Features Plan
Figure 4	Historical Groundwater Analytical Results and Hydrogeological Information
Figure 5	Offsite Groundwater Extraction Well Analytical Results
Figure 6	Buried Sludge Delineation Soil Analytical Results



SOURCE:
E-Z MAP PHILIPPINES (TRAVEL ATLAS - 2ND EDITION)

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 1 Site Location Map

AECOM

AECOM Philippines Consultants Corporation
(formerly ENSR International Phils. Inc.)
22nd & 23rd FLOORS, FORT LEGEND TOWERS
3rd AVENUE CORNER 31st STREET
FORT BONIFACIO, GLOBAL CITY
FORT BONIFACIO TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

SITE LOCATION MAP
FACTUAL SUMMARY REPORT
CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
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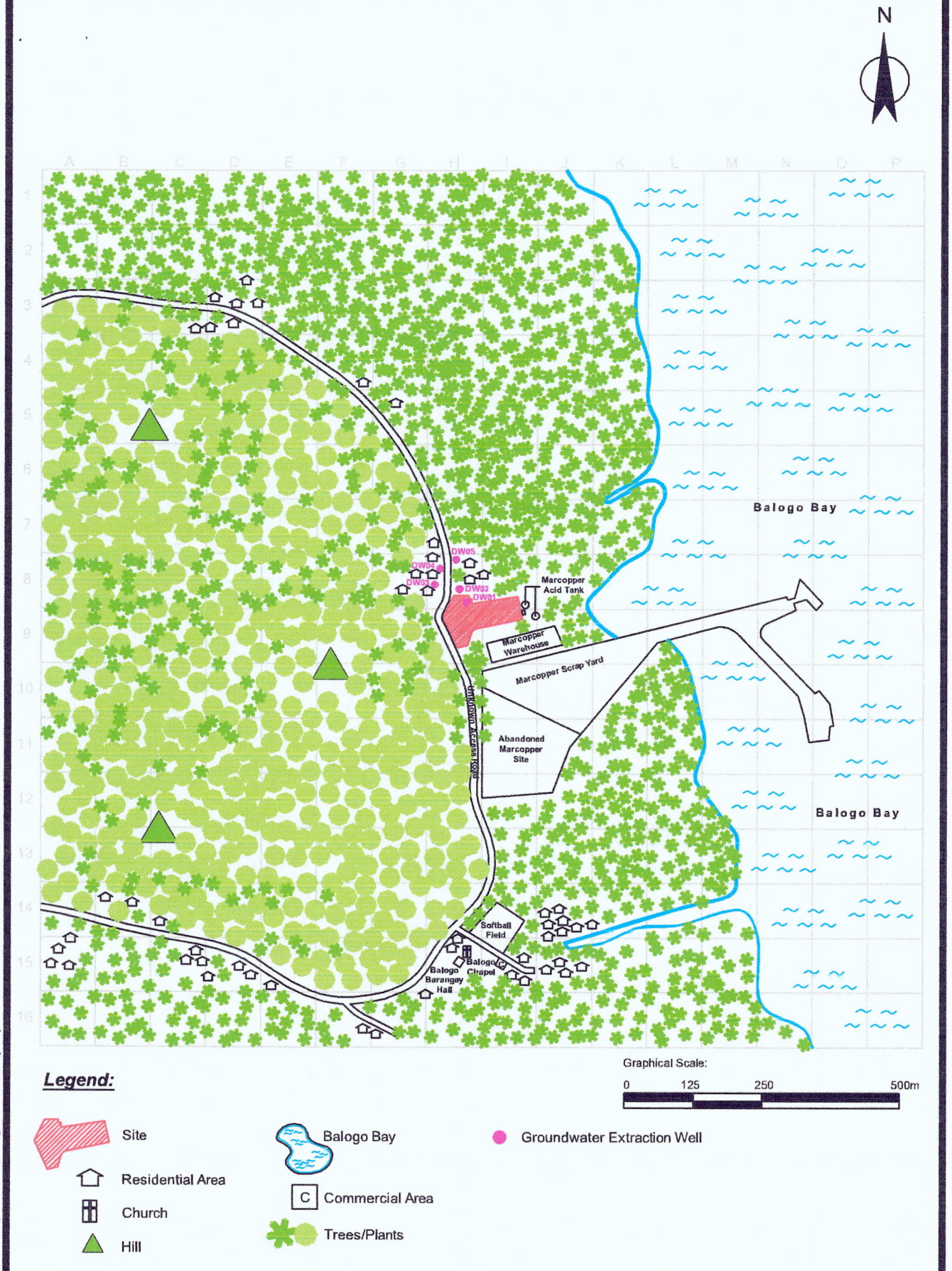

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22nd & 23rd FLOORS, FORT LEGEND TOWERS
3rd AVENUE CORNER 31st STREET
FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

SITE VICINITY MAP
FACTUAL SUMMARY REPORT
CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
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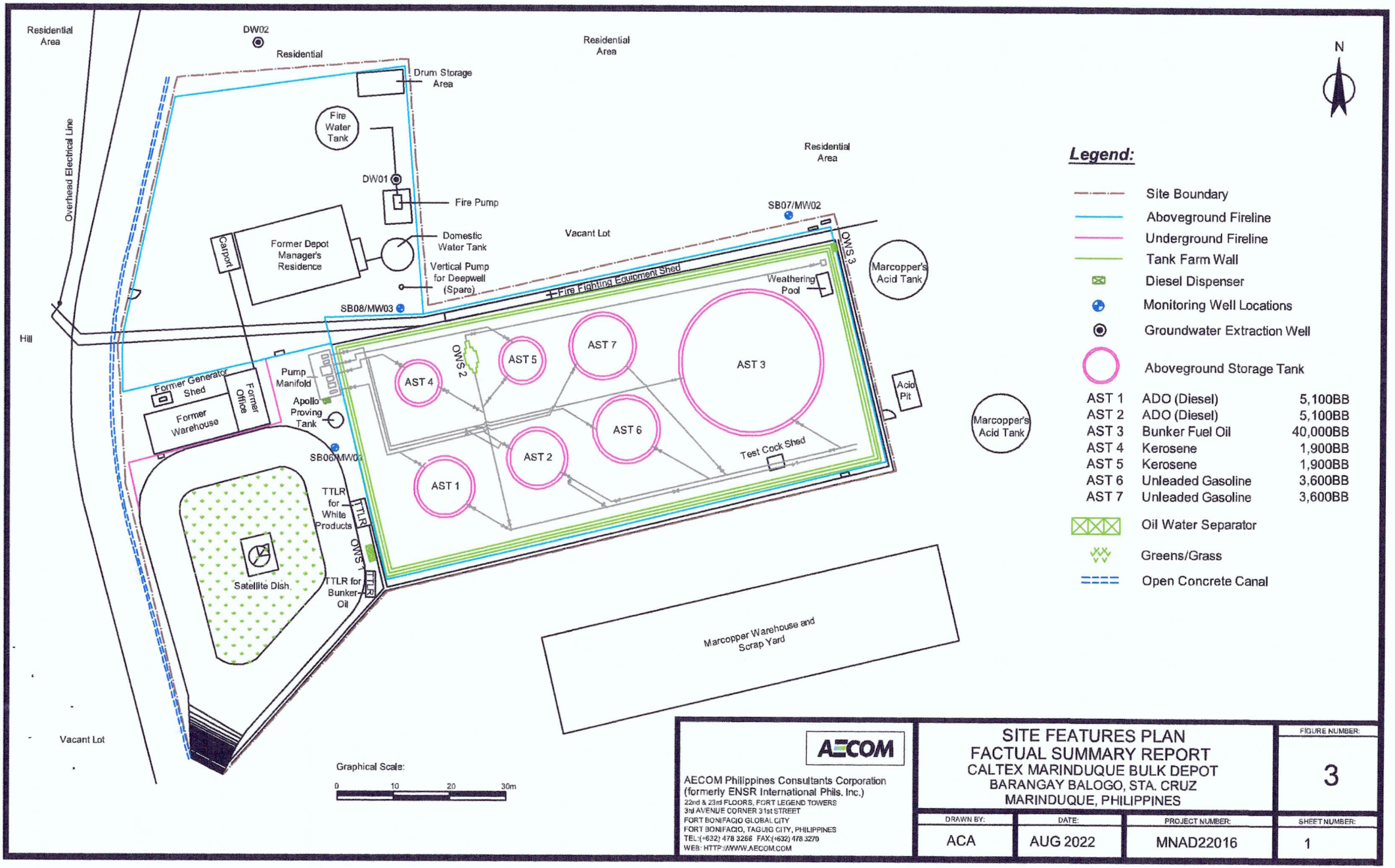
FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 2 Site Vicinity Map

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 3 Site Features Plan



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AECOM Philippines Consultants Corporation
(formerly ENSR International Phils. Inc.)
22nd & 23rd FLOORS, FORT LEGEND TOWERS
3rd AVENUE CORNER 31st STREET
FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO, TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

SITE FEATURES PLAN
FACTUAL SUMMARY REPORT
CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER: 3

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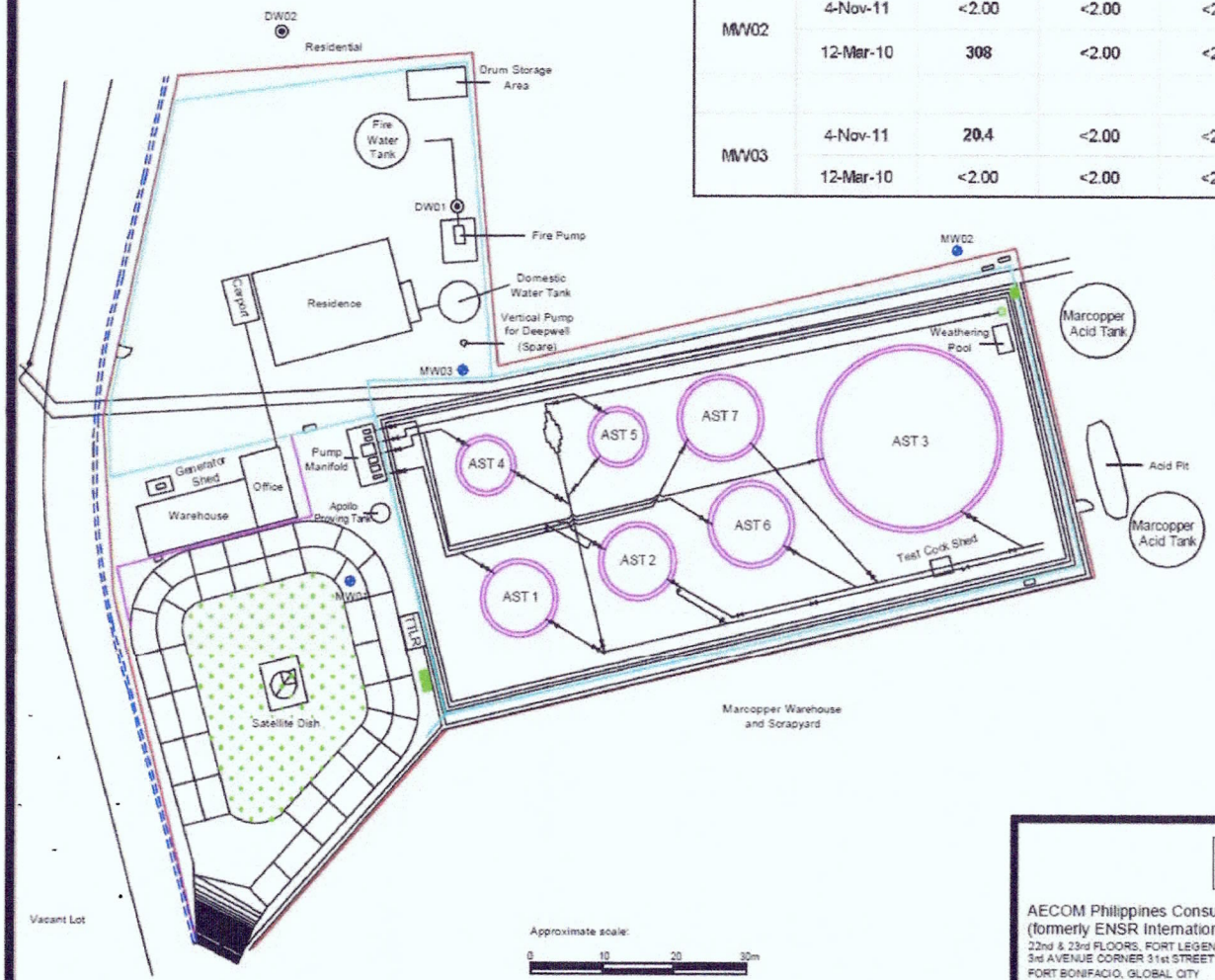
FILE NAME: MNLD11425 Caltex Marinduque Bulk Depot Figure 5 Historical Groundwater Analytical Results and Hydrogeological Information

Well I. D.	DATE	MTBE (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Xylenes (Total) (µg/L)	TPH C_6-C_9 (µg/L)	TPH C_{10}-C_{14} (µg/L)	TPH C_{15}-C_{28} (µg/L)	TPH C_{29}-C_{36} (µg/L)
MW01	4-Nov-11	<2.00	<2.00	<2.00	<2.00	<6.00	<320	<282	292	<470
	12-Mar-10	<2.00	<2.00	<2.00	<2.00	<6.00	<320	<326	<281	<500
MW02	4-Nov-11	<2.00	<2.00	<2.00	<2.00	<6.00	<320	<285	<285	<475
	12-Mar-10	308	<2.00	<2.00	<2.00	<6.00	<320	<326	<280	<498
MW03	4-Nov-11	20.4	<2.00	<2.00	<2.00	<6.00	<320	<278	<278	<464
	12-Mar-10	<2.00	<2.00	<2.00	<2.00	<6.00	<320	<326	<280	<497



Legend:

- Subject Property Boundary
- Aboveground Fireline
- Underground Fireline
- Tank Farm Wall
- Groundwater Monitoring Well
- Groundwater Extraction Well
- Oil Water Separator
- Greens/Grass
- Open Concrete Canal
- Aboveground Storage Tank

AST 1	ADO (Diesel)	5,100BB
AST 2	ADO (Diesel)	5,100BB
AST 3	Bunker Fuel Oil	40,000BB
AST 4	Kerosene	1,900BB
AST 5	Kerosene	1,900BB
AST 6	Unleaded Gasoline	3,600BB
AST 7	Unleaded Gasoline	3,600BB

AECOM Philippines Consultants Corporation
(formerly ENSR International Phils. Inc.)
22nd & 23rd FLOORS, FORT LEGEND TOWERS
3rd AVENUE CORNER 31st STREET
FORT BONIFACIO, GLOBAL CITY
FORT BONIFACIO TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3268 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER: 4

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
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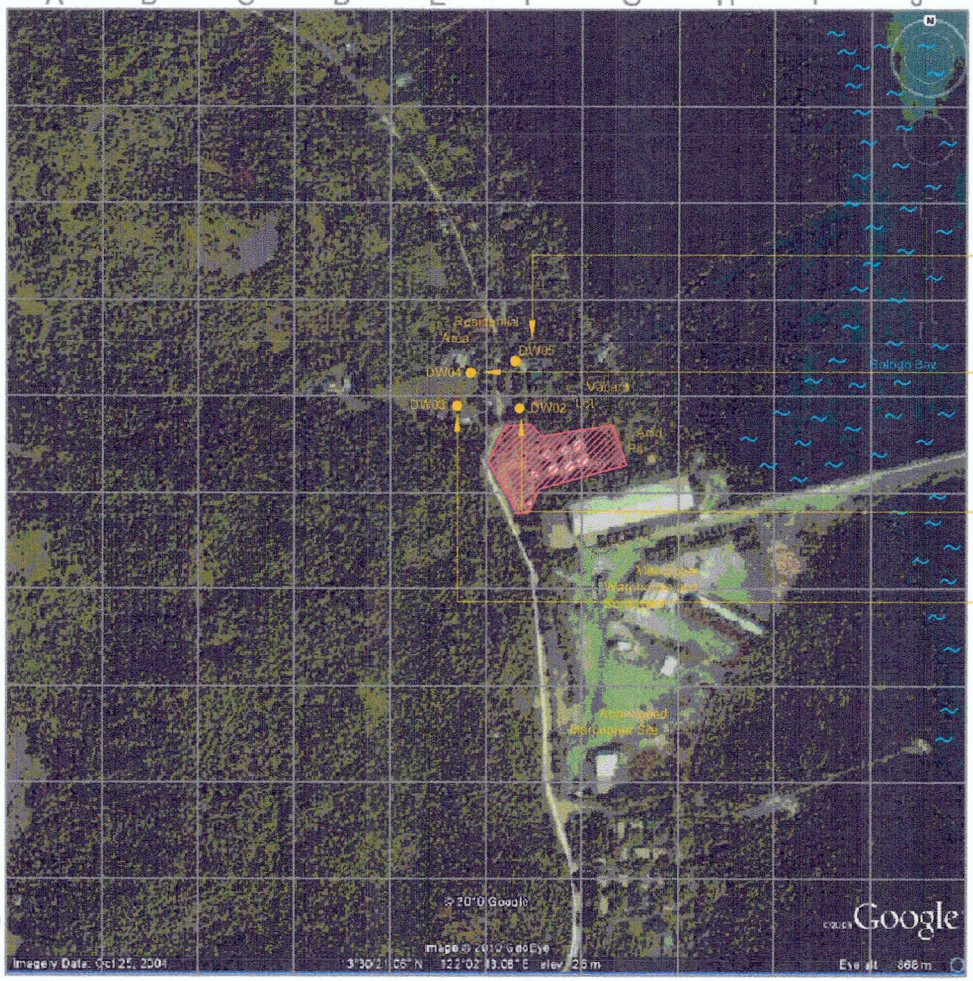
FILE NAME: PH10002049 Caltex Marinduque Bulk Depot Figure 3 Groundwater Analytical Results



DW05
MTBE = <RL
TPH = <RL
BTEX = <RL

DW04
MTBE = <RL
TPH = <RL
BTEX = <RL

DW02
MTBE = <RL
TPH = <RL
BTEX = <RL

DW03
MTBE = <RL
TPH = <RL
BTEX = <RL

N

Legend:

Subject Property

Balogo Bay

Groundwater Extraction Well

Graphical Scale:

0 100 200 300m

AECOM
22nd & 23rd FLOORS, FORT LEGEND TOWERS
3rd AVENUE CORNER 31st STREET
FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

GROUNDWATER ANALYTICAL RESULTS (GROUNDWATER EXTRACTION WELLS) FACTUAL SUMMARY REPORT CALTEX MARINDUQUE BULK DEPOT BARANGAY BALOGO, STA. CRUZ MARINDUQUE, PHILIPPINES

FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
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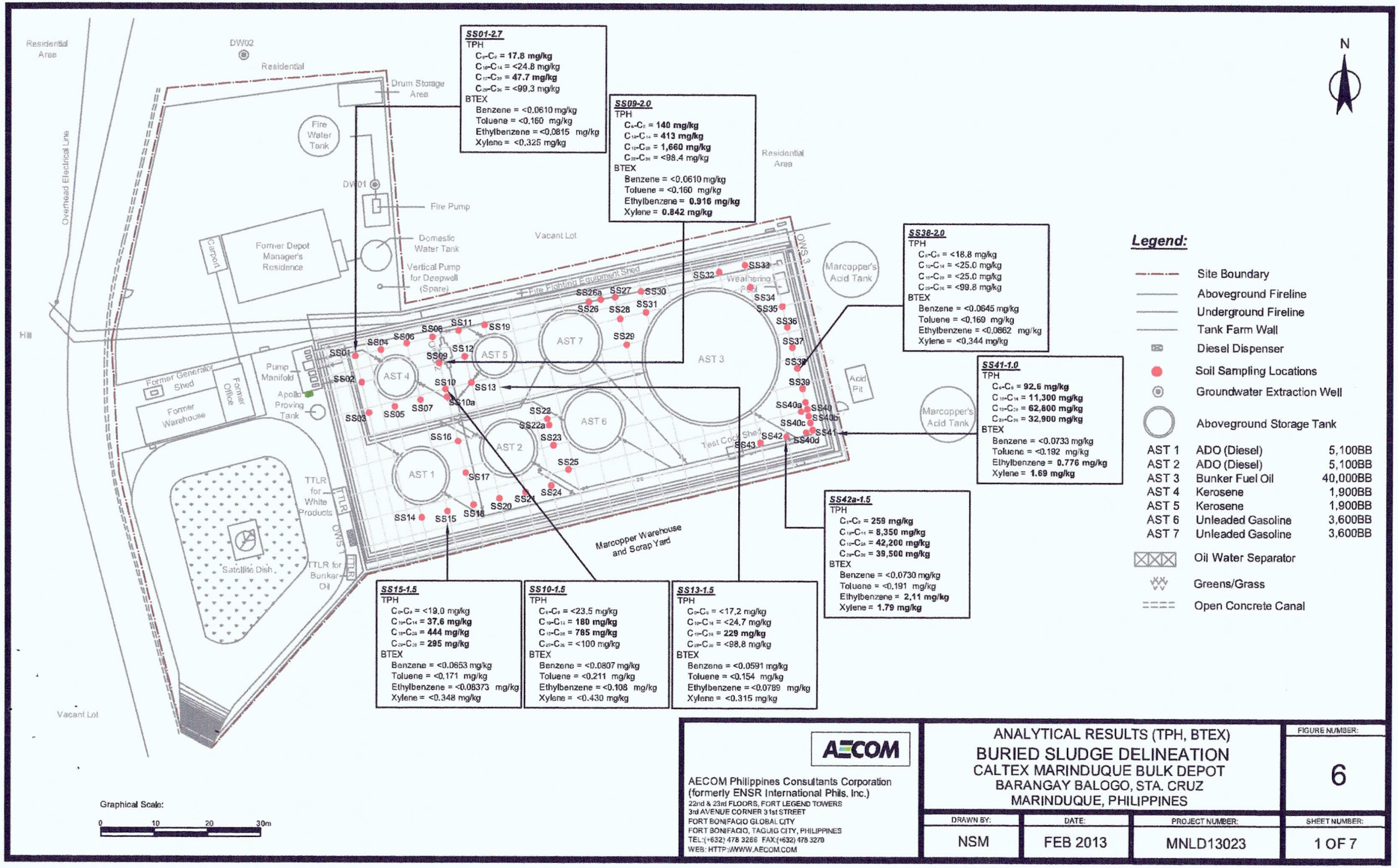
FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 5 Soil/Sludge Analytical Results (TPH, BTEX)



SS01-2.7
TPH
C_6-C_9 = **17.8 mg/kg**
C_{10}-C_{14} = <24.8 mg/kg
C_{15}-C_{28} = **47.7 mg/kg**
C_{29}-C_{36} = <99.3 mg/kg
BTEX
Benzene = <0.0610 mg/kg
Toluene = <0.160 mg/kg
Ethylbenzene = <0.0815 mg/kg
Xylene = <0.325 mg/kg

SS09-2.0
TPH
C_6-C_9 = **140 mg/kg**
C_{10}-C_{14} = **413 mg/kg**
C_{15}-C_{28} = **1,660 mg/kg**
C_{29}-C_{36} = <98.4 mg/kg
BTEX
Benzene = <0.0610 mg/kg
Toluene = <0.160 mg/kg
Ethylbenzene = **0.916 mg/kg**
Xylene = **0.842 mg/kg**

SS38-2.0
TPH
C_6-C_9 = <18.8 mg/kg
C_{10}-C_{14} = <25.0 mg/kg
C_{15}-C_{28} = <25.0 mg/kg
C_{29}-C_{36} = <99.8 mg/kg
BTEX
Benzene = <0.0645 mg/kg
Toluene = <0.169 mg/kg
Ethylbenzene = <0.0862 mg/kg
Xylene = <0.344 mg/kg

SS41-1.0
TPH
C_6-C_9 = **92.6 mg/kg**
C_{10}-C_{14} = **11,300 mg/kg**
C_{15}-C_{28} = **62,800 mg/kg**
C_{29}-C_{36} = **32,900 mg/kg**
BTEX
Benzene = <0.0733 mg/kg
Toluene = <0.192 mg/kg
Ethylbenzene = **0.776 mg/kg**
Xylene = **1.69 mg/kg**

SS42a-1.5
TPH
C_6-C_9 = **259 mg/kg**
C_{10}-C_{14} = **8,350 mg/kg**
C_{15}-C_{28} = **42,200 mg/kg**
C_{29}-C_{36} = **39,500 mg/kg**
BTEX
Benzene = <0.0730 mg/kg
Toluene = <0.191 mg/kg
Ethylbenzene = **2.11 mg/kg**
Xylene = **1.79 mg/kg**

SS15-1.5
TPH
C_6-C_9 = <19.0 mg/kg
C_{10}-C_{14} = **37.6 mg/kg**
C_{15}-C_{28} = **444 mg/kg**
C_{29}-C_{36} = **295 mg/kg**
BTEX
Benzene = <0.0653 mg/kg
Toluene = <0.171 mg/kg
Ethylbenzene = <0.08373 mg/kg
Xylene = <0.348 mg/kg

SS10-1.5
TPH
C_6-C_9 = <23.5 mg/kg
C_{10}-C_{14} = **180 mg/kg**
C_{15}-C_{28} = **785 mg/kg**
C_{29}-C_{36} = <100 mg/kg
BTEX
Benzene = <0.0807 mg/kg
Toluene = <0.211 mg/kg
Ethylbenzene = <0.108 mg/kg
Xylene = <0.430 mg/kg

SS13-1.5
TPH
C_6-C_9 = <17.2 mg/kg
C_{10}-C_{14} = <24.7 mg/kg
C_{15}-C_{28} = **229 mg/kg**
C_{29}-C_{36} = <98.8 mg/kg
BTEX
Benzene = <0.0591 mg/kg
Toluene = <0.154 mg/kg
Ethylbenzene = <0.0789 mg/kg
Xylene = <0.315 mg/kg

Legend:

- Site Boundary
- Aboveground Fireline
- Underground Fireline
- Tank Farm Wall
- Diesel Dispenser
- Soil Sampling Locations
- Groundwater Extraction Well
- Aboveground Storage Tank

AST 1	ADO (Diesel)	5,100BB
AST 2	ADO (Diesel)	5,100BB
AST 3	Bunker Fuel Oil	40,000BB
AST 4	Kerosene	1,900BB
AST 5	Kerosene	1,900BB
AST 6	Unleaded Gasoline	3,600BB
AST 7	Unleaded Gasoline	3,600BB

- Oil Water Separator
- Greens/Grass
- Open Concrete Canal

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TEL:(+632) 478 3266 FAX:(+632) 478 3270
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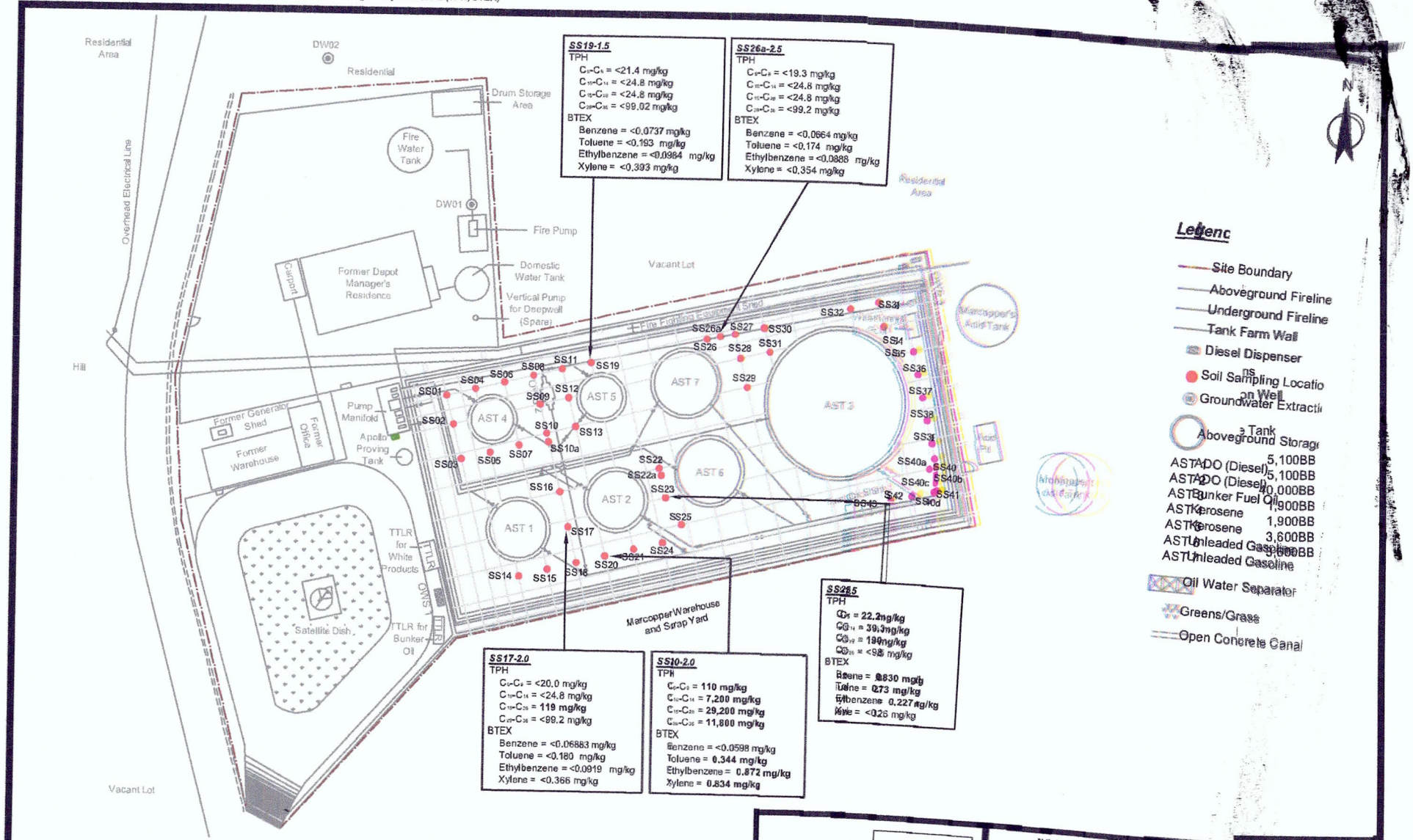
ANALYTICAL RESULTS (TPH, BTEX)
BURIED SLUDGE DELINEATION
CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER: 6

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
NSM	FEB 2013	MNLD13023	1 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 5 Soil/Sludge Analytical Results (TPH, BTEX)



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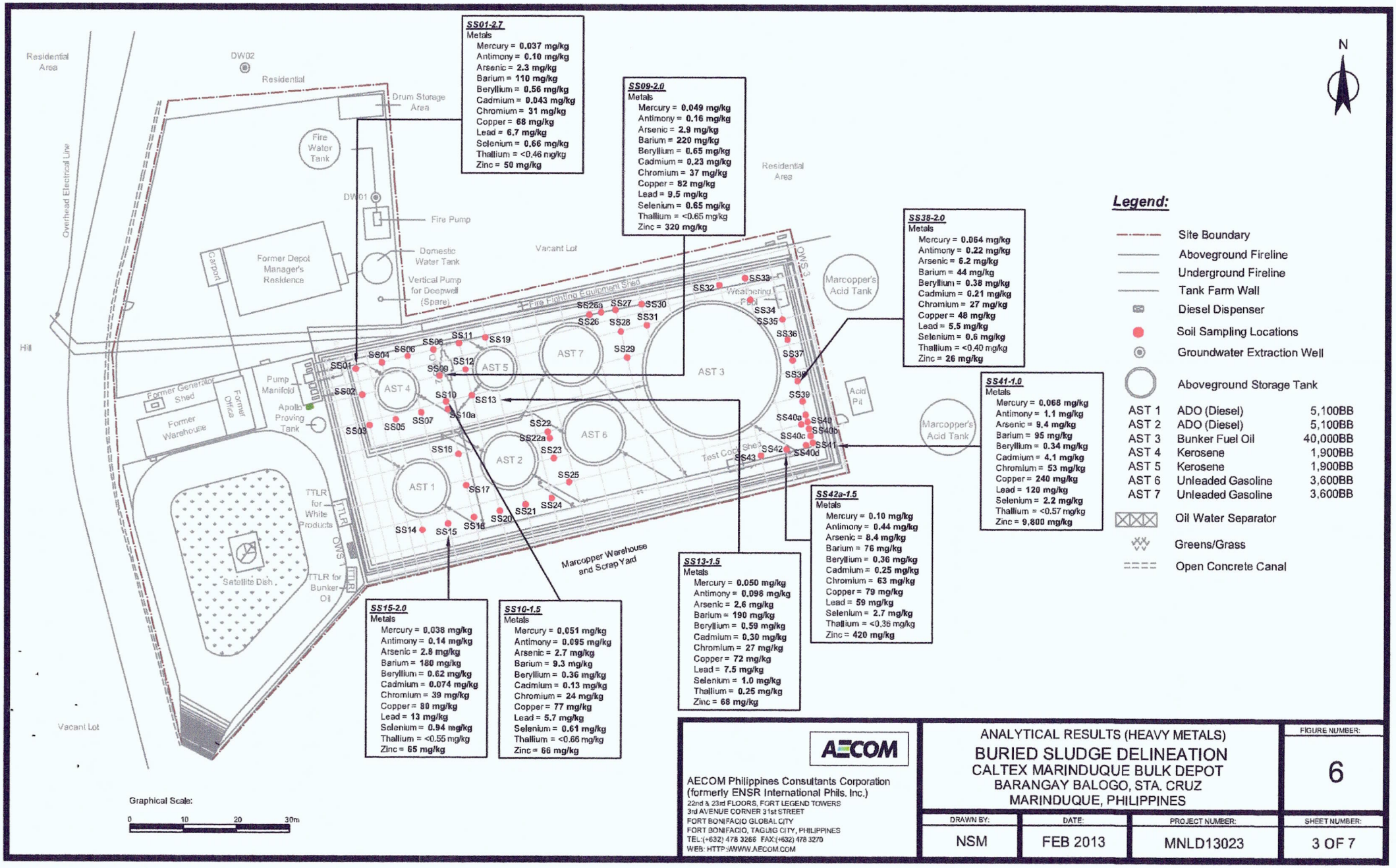
FORT BONIFACIO, BGC CITY, PHILIPPINES
TEL: (+632) 478 3288; FAX: (+632) 812 1270
WEB: HTTP://WWW.AECOM.COM

ANALYTICAL RESULTS (TPH, BTEX)
BURIED SLUDGE DELINEATION
CALTEX MARINDUQUE BULK DEPOT
BRANGAY BALOGO, CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER: 6

DRAWN BY: SM
DATE: FEB 2013
PROJECT NUMBER: MNLD13023
SHEET NUMBER: 2 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 6 Soil/Sludge Analytical Results (Heavy Metals)



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FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO, TAGUIG CITY, PHILIPPINES
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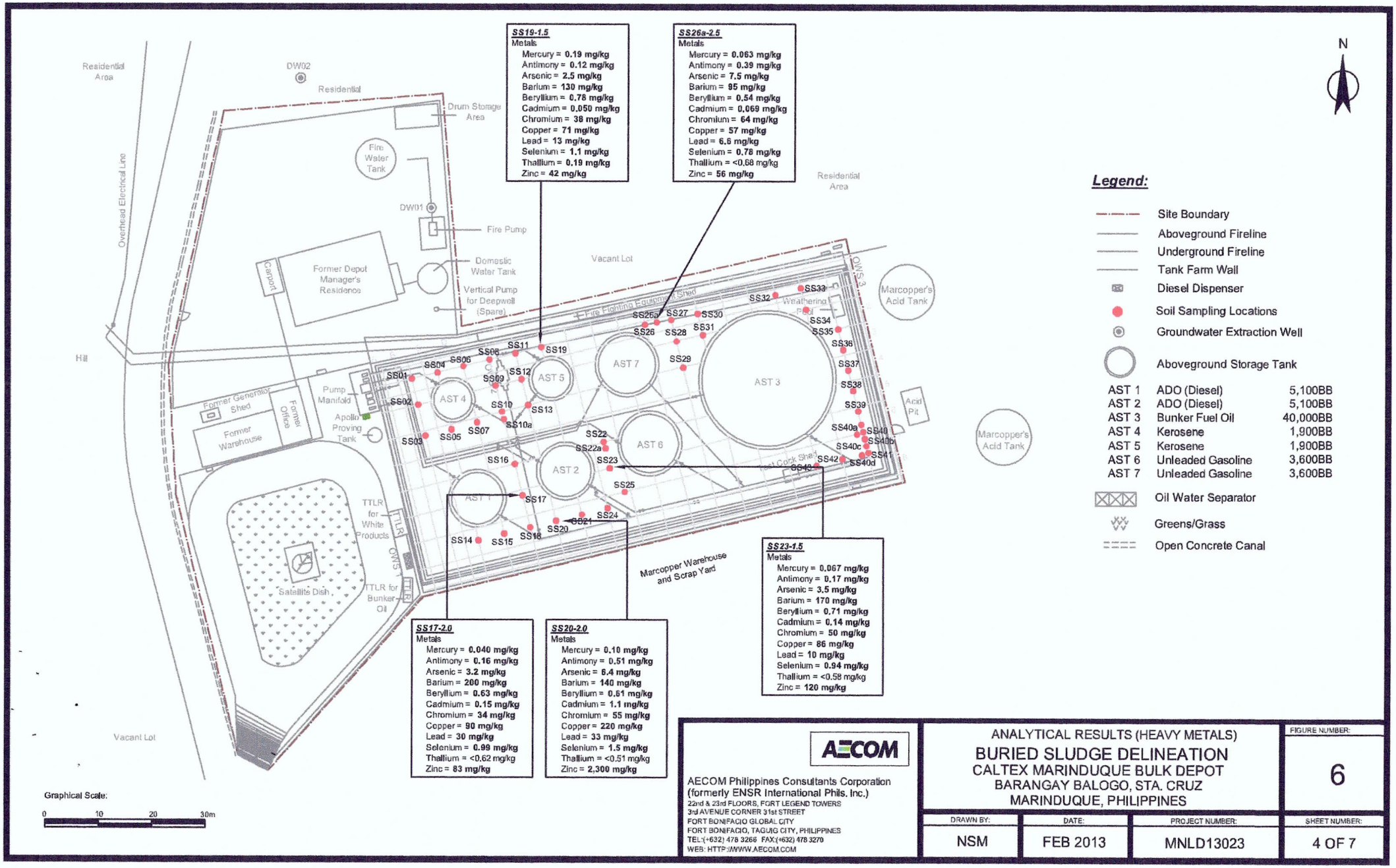
ANALYTICAL RESULTS (HEAVY METALS)

BURIED SLUDGE DELINEATION

CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
6	NSM	FEB 2013	MNLD13023	3 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 6 Soil/Sludge Analytical Results (Heavy Metals)



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FORT BONIFACIO, TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
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ANALYTICAL RESULTS (HEAVY METALS)

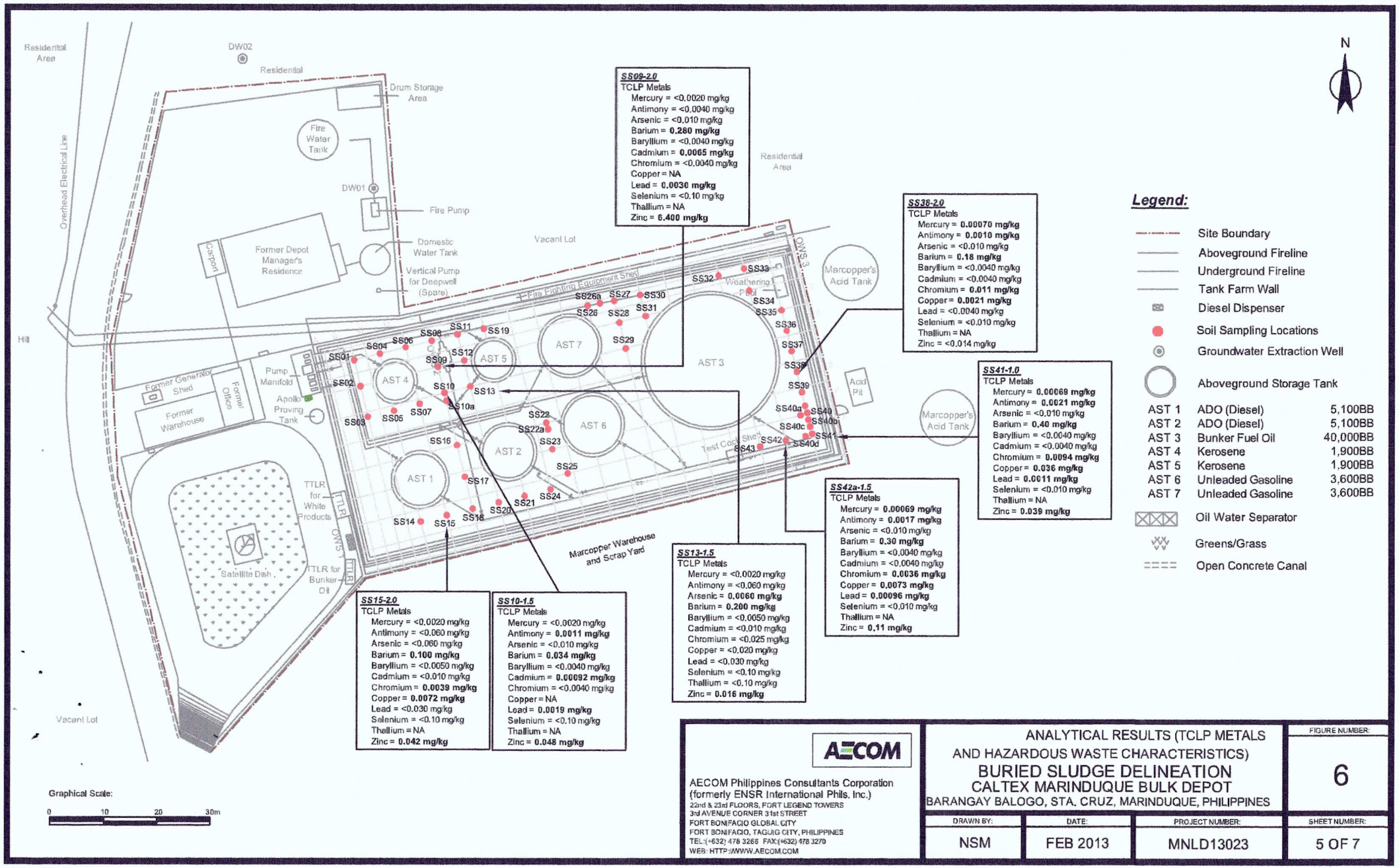
BURIED SLUDGE DELINEATION

CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ
MARINDUQUE, PHILIPPINES

FIGURE NUMBER: 6

DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
NSM	FEB 2013	MNLD13023	4 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 7 Soil/Sludge Analytical Results (TCLP Metals and Heavy Waste Characteristics)



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FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO, TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
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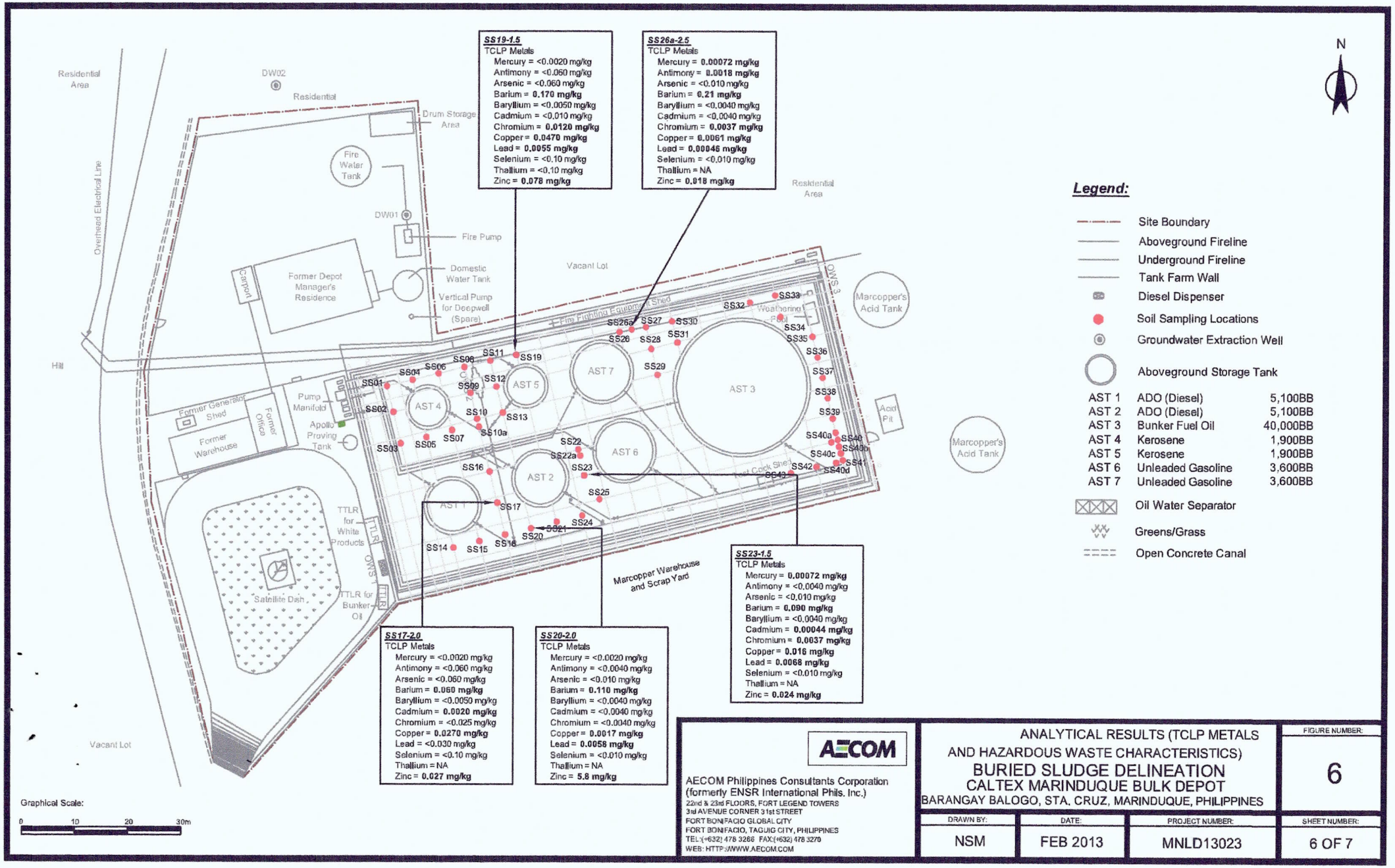
ANALYTICAL RESULTS (TCLP METALS AND HAZARDOUS WASTE CHARACTERISTICS)
BURIED SLUDGE DELINEATION
CALTEX MARINDUQUE BULK DEPOT
BARANGAY BALOGO, STA. CRUZ, MARINDUQUE, PHILIPPINES

FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
6	NSM	FEB 2013	MNLD13023	5 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 7 Soil/Sludge Analytical Results (TCLP Metals and Heavy Waste Characteristics)



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FORT BONIFACIO GLOBAL CITY
FORT BONIFACIO, TAGUIG CITY, PHILIPPINES
TEL:(+632) 478 3266 FAX:(+632) 478 3270
WEB: HTTP://WWW.AECOM.COM

ANALYTICAL RESULTS (TCLP METALS AND HAZARDOUS WASTE CHARACTERISTICS)
BURIED SLUDGE DELINEATION
CALTEX MARINDUQUE BULK DEPOT
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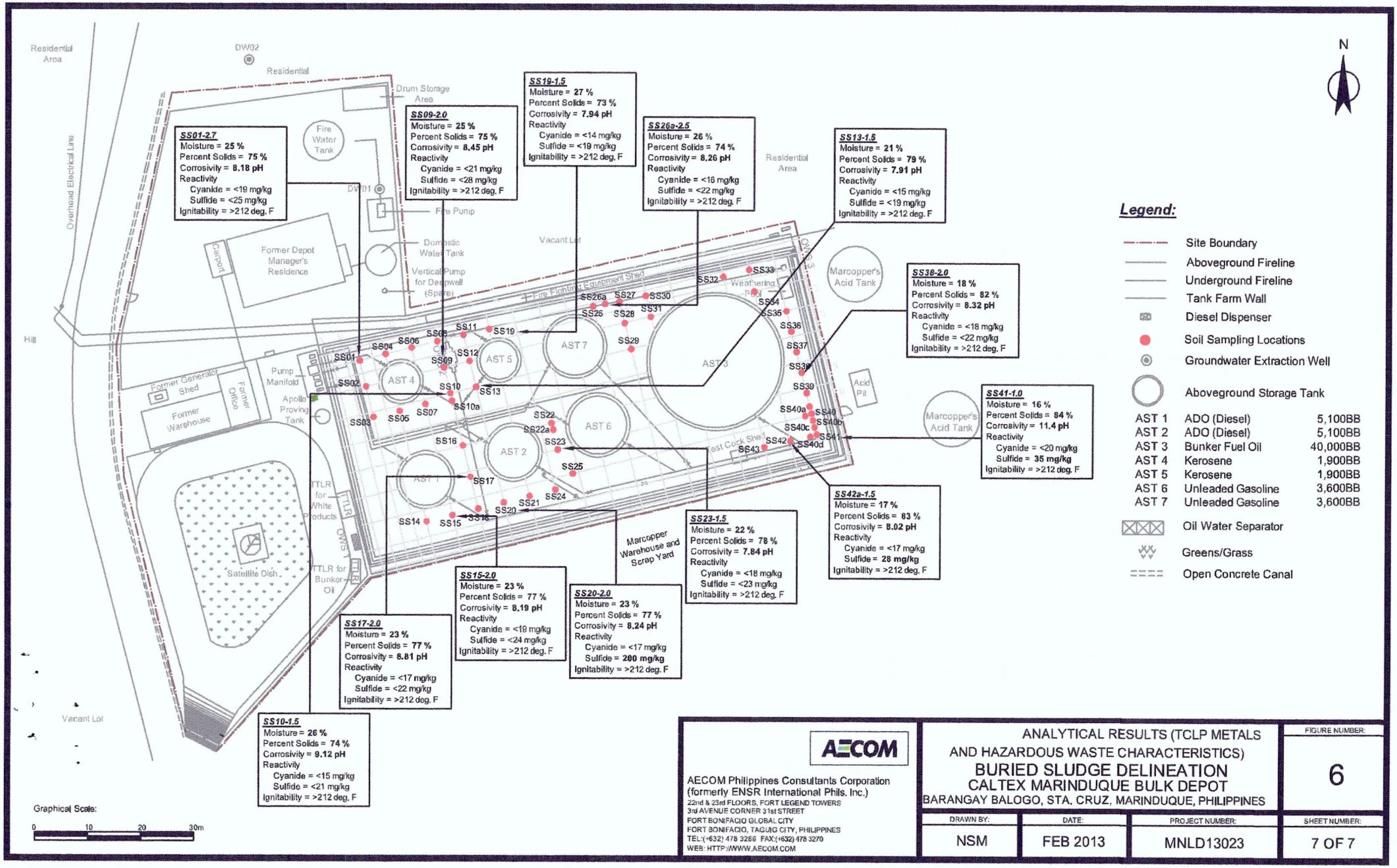
FIGURE NUMBER:	DRAWN BY:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
6	NSM	FEB 2013	MNLD13023	6 OF 7

FILE NAME: MNLD13023 Caltex Marinduque Bulk Depot Figure 7 Soil/Sludge Analytical Results (TCLP Metals and Heavy Waste Characteristics)



SS01-2.7
Moisture = 25 %
Percent Solids = 75 %
Corrosivity = 8.18 pH
Reactivity
Cyanide = <19 mg/kg
Sulfide = <25 mg/kg
Ignitability = >212 deg. F

SS09-2.0
Moisture = 25 %
Percent Solids = 75 %
Corrosivity = 8.45 pH
Reactivity
Cyanide = <21 mg/kg
Sulfide = <28 mg/kg
Ignitability = >212 deg. F

SS19-1.5
Moisture = 27 %
Percent Solids = 73 %
Corrosivity = 7.94 pH
Reactivity
Cyanide = <14 mg/kg
Sulfide = <19 mg/kg
Ignitability = >212 deg. F

SS26a-2.5
Moisture = 26 %
Percent Solids = 74 %
Corrosivity = 8.26 pH
Reactivity
Cyanide = <16 mg/kg
Sulfide = <22 mg/kg
Ignitability = >212 deg. F

SS13-1.5
Moisture = 21 %
Percent Solids = 79 %
Corrosivity = 7.91 pH
Reactivity
Cyanide = <15 mg/kg
Sulfide = <19 mg/kg
Ignitability = >212 deg. F

SS38-2.0
Moisture = 18 %
Percent Solids = 82 %
Corrosivity = 8.32 pH
Reactivity
Cyanide = <18 mg/kg
Sulfide = <22 mg/kg
Ignitability = >212 deg. F

SS41-1.0
Moisture = 16 %
Percent Solids = 84 %
Corrosivity = 11.4 pH
Reactivity
Cyanide = <20 mg/kg
Sulfide = 35 mg/kg
Ignitability = >212 deg. F

SS42a-1.5
Moisture = 17 %
Percent Solids = 83 %
Corrosivity = 8.02 pH
Reactivity
Cyanide = <17 mg/kg
Sulfide = 28 mg/kg
Ignitability = >212 deg. F

SS23-1.5
Moisture = 22 %
Percent Solids = 78 %
Corrosivity = 7.84 pH
Reactivity
Cyanide = <18 mg/kg
Sulfide = <23 mg/kg
Ignitability = >212 deg. F

SS20-2.0
Moisture = 23 %
Percent Solids = 77 %
Corrosivity = 8.24 pH
Reactivity
Cyanide = <17 mg/kg
Sulfide = 200 mg/kg
Ignitability = >212 deg. F

SS15-2.0
Moisture = 23 %
Percent Solids = 77 %
Corrosivity = 8.19 pH
Reactivity
Cyanide = <18 mg/kg
Sulfide = <24 mg/kg
Ignitability = >212 deg. F

SS17-2.0
Moisture = 23 %
Percent Solids = 77 %
Corrosivity = 8.81 pH
Reactivity
Cyanide = <17 mg/kg
Sulfide = <22 mg/kg
Ignitability = >212 deg. F

SS10-1.5
Moisture = 26 %
Percent Solids = 74 %
Corrosivity = 9.12 pH
Reactivity
Cyanide = <15 mg/kg
Sulfide = <21 mg/kg
Ignitability = >212 deg. F

Legend:

- Site Boundary
- Aboveground Fireline
- Underground Fireline
- Tank Farm Wall
- Diesel Dispenser
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FIGURE NUMBER: 6

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NSM	FEB 2013	MNLD13023	7 OF 7