

Our Ref: PSM5568-007L REV B Formal Lodgement

17 February 2026

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Attention: Athena Vercoe

Dear Athena

**RE: 12 MARS ROAD, LANE COVE WEST -
SALINITY MANAGEMENT PLAN (SMP)**

1. Executive Summary

This report has been prepared by PSM to accompany a State Significant Development Application (**SSDA**) for the construction and ongoing operation of a data centre facility at 12 Mars Road, Lane Cove West in the Lane Cove Government Area (**LGA**). The site is legally described as Lot 22 in Deposited Plan 732062.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the Project Mars Data Centre Project (SSD-82052708) dated 10th April 2025.

This report concludes that the proposed data centre is suitable and warrants approval.

2. Introduction

A State Significant Development Application (SSDA) has been prepared to support a data centre at 12 Mars Road, Lane Cove West. The site area is 33,559m² and is zoned E4 General Industrial.

The proposal will include:

- Site preparation works including demolition, bulk excavation and removal of existing structures on the site, tree and vegetation clearing and bulk earthworks.
- Construction, fit-out and operation of a three-storey data centre building with a total gross floor area of approximately 21,832m² comprising:
 - 24 parking spaces
 - 2 loading dock spaces
 - 2 levels of technical data hall floor space
 - 3 level office and amenities building
- Provision of required utilities including:
 - diesel storage tanks
 - water tanks
 - substations on site

- Vehicle and pedestrian access provided via Mars Road.
- Associated landscaping and site servicing.
- Installation of site services and drainage infrastructure.
- A floor space ratio of approximately 0.65:1.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) and accompanying cover letter issued for the Project Mars Data Centre (SSD-82052708) dated 10th April 2025.

Specifically, this report has been prepared to respond to the SEARs requirement listed below.

Item	Description of Requirement	Section reference (this report)
13. Ground and Water Conditions	<ul style="list-style-type: none"> • Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity and acid sulfate soils. • Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on: <ul style="list-style-type: none"> ○ surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses. ○ groundwater resources in accordance with the <i>Groundwater Guidelines</i>. 	Section 4

This report presents a Salinity Management Plan (SMP) for the proposed development a 12 Mars Road, Lane Cove West NSW ('the Site'). The aim of the SMP is to effectively manage site salinity, minimise the effect of the proposed development on salinity processes and to protect the proposed development from salinity damage. The work was undertaken in accordance with our fee proposal PSM5568-001L, dated 17 October 2024.

2.1 The Site

The site is located in Lane Cove West within the Lane Cove Local Government Area (LGA). It is bound by Mars Road to the north, Woodcock Place to the west, Blackman Park to the south and an industrial site to the east.

The site is located in the Lane Cove West Business Park which is a key economic and employment precinct in the Lane Cove LGA. The Lane Cove West Business Park contains a range of land uses including Cochlear, Storage King, Lane Cove Gymnastics Club, Novis Healthcare and an Airtrunk Data Centre.

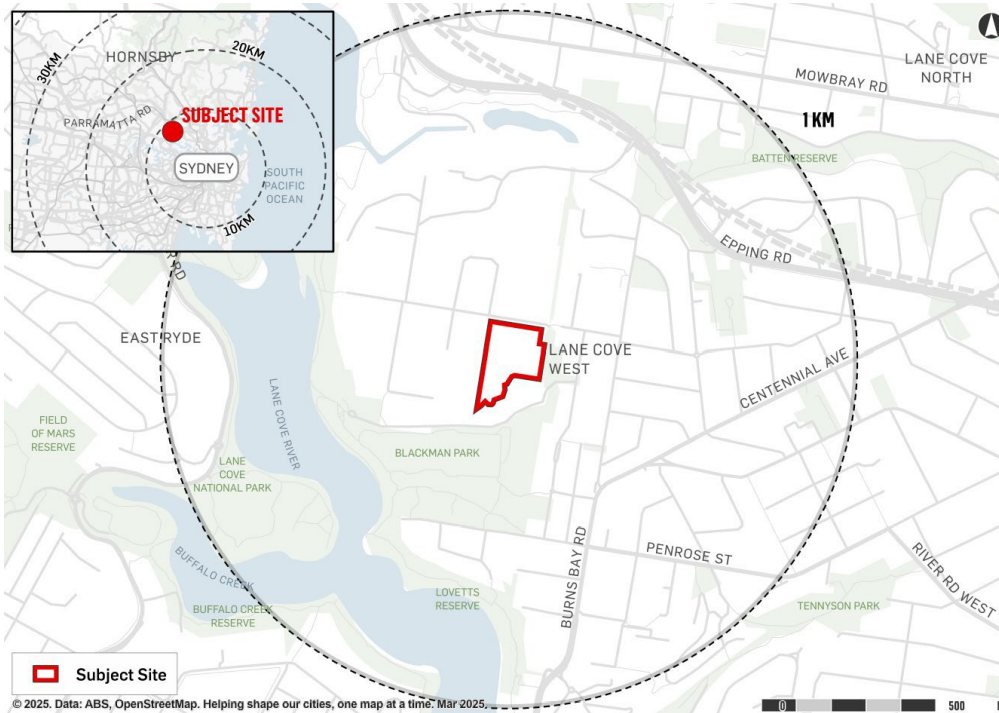
The site comprises one individual allotment totalling 33,559m². It is currently occupied by 4 warehouse buildings with ancillary office spaces.

The closest residential uses to the site are 200m to the east of the site on Wood Street, Lane Cove West and 250m to the north of the site on Banksia Close.

The site is well serviced by transport and is within close proximity to Epping Road and the M2 Motorway.



Inset 1: Site Aerial (Urbis, 2025)



Inset 2: Local Context (Urbis, 2025)

3. Salinity Assessment

PSM conducted a round of site investigations during November 2024 (reported in PSM5568-005L, dated 17 December 2024).

During the investigation, eight (8) soil samples were recovered and sent to a NATA accredited analytical laboratory for the following testing:

- Cation Exchange Capacity (CEC) of calcium, magnesium, potassium and sodium
- Exchange sodium percentage
- Salinity (EC_{1:5}, one part soil to five parts water)
- Soil PH
- Chlorides
- Sulphates
- Resistivity.

Table 1 represents a summary of the results of the analytical soil testing undertaken. Laboratory test reports are included in Appendix A

Table 1 - Summary of Aggressivity and Salinity Testing Results

Sample ID (Depth)	Material Description	pH	Electrical Conductivity [μ S/cm]	Moisture Content	Resistivity [ohm cm]	Exchangeable Cations [meq/100g]					ESP (%)	Sulfate [mg/kg]	Chloride [mg/kg]
						Ca	Mg	K	Na	CEC			
BH01b (2.5 – 2.8 m)	FILL: Sandy CLAY trace gravel	6.6	37	14.9	27000	2.9	0.7	0.1	0.2	3.9	5.4	10	30
BH02 (0.6 – 1.2 m)	NATURAL: Clayey SAND	4.8	47	2.3	21300	0.4	0.5	0.3	0.2	1.5	17.4	40	<10
BH03 (0.5 – 0.6 m)	NATURAL: CLAY	5.5	30	8.3	33300	4.1	3.3	0.2	0.6	8.2	7.3	20	<10
BH03 (2.5 – 3.0 m)	BEDROCK: SANDSTONE	4.2	43	1.1	23200	<0.1	0.3	<0.1	<0.1	0.5	18.1	20	<10
BH04 (0.5 – 0.6 m)	FILL: Sandy GRAVEL	7.0	134	7.3	7460	3.8	0.8	0.3	0.4	5.3	8.5	30	150
BH05b (2.3 – 2.6 m)	NATURAL: Gravelly SAND trace clay	7.5	254	7.2	3940	5.0	<0.2	0.2	<0.2	5.2	<0.2	270	20
BH08 (0.5 – 0.6 m)	NATURAL: Clayey SAND trace gravel	4.4	39	<1.0	25600	0.7	0.4	0.1	0.1	1.3	7.8	30	<10
BH08 (2.1 – 2.5 m)	BEDROCK: SANDSTONE	4.7	29	4.7	34500	<0.1	0.4	0.1	0.1	0.7	18.6	10	<10

3.1 Salinity

Site Investigations for Urban Salinity (DLWC 2002) classify soil salinity based on electrical conductivity (EC_e). The method of conversion from $EC_{1:5}$ to EC_e (electrical conductivity of saturated extract) is based on DLWC (2002) and given by $EC_e = EC_{1:5} \times M$, where M is the multiplication factor based on “Soil Texture Group”.

The “Soil Texture Group” of the samples tested were assessed during our investigation. The salinity classification for the soil samples that were tested are presented in Table 2.

It is assessed that the soils on site are classified as “non-saline” to “slightly saline”.

We have referred to Clause 4.8.2 of Australian Standard AS3600-2018 “Concrete Structures” and note that the assessed soil electrical conductivity (EC_e) is slightly below the lower threshold of the “A2” exposure classification.

Table 2 - Salinity Classification

SAMPLE ID (Depth)	$EC_{1:5}$	SOIL TYPE	M	EC_e	SALINITY CLASS
	(dS/m)			(dS/m)	
BH01b (2.5 – 2.8 m)	0.037	Light medium clay	8	0.3	Non-saline
BH02 (0.6 – 1.2 m)	0.047	Sandy loams	14	0.7	Non-saline
BH03 (0.5 – 0.6 m)	0.03	Light clays	8.5	0.3	Non-saline
BH03 (2.5 – 3.0 m)	0.043	Sands	17	0.7	Non-saline
BH04 (0.5 – 0.6 m)	0.134	Sands	17	2.3	Slightly saline
BH05b (2.3 – 2.6 m)	0.254	Sandy loams	14	3.6	Slightly saline
BH08 (0.5 – 0.6 m)	0.039	Sandy loams	14	0.5	Non-saline
BH08 (2.1 – 2.5 m)	0.029	Sands	17	0.5	Non-saline

3.2 Corrosivity/ Aggressivity

Table 4.8.1 of AS3600-2018 “Concrete Structures” provides criteria for exposure classification for concrete in sulfate soils based on sulfates in soil and groundwater, and pH of soil. On the basis of the sulphate and pH testing completed we assess the exposure classification for concrete in sulphate soils to be “B1” to “A1”.

Table 6.4.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for concrete piles based on sulfates in the soil and groundwater, soil and groundwater pH, and chlorides in groundwater. On the basis of the soil sulfates and pH testing completed we assess the exposure classification for concrete piles in the soil to be “Non-aggressive” to “Moderate”.

Table 6.5.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of the soil chlorides and pH testing completed we assess the exposure classification for steel piles in the soil to be “Non-aggressive” to “Mild”.

3.3 Sodicity

Sodicity provides a measure of the likely dispersion on wetting and to shrink/swell properties of a soil. Soil sodicity is classified based on the Exchangeable Sodium Percentage (ESP) which is the amount of exchangeable sodium as a percentage of the Cation Exchange Capacity (DLWC, 2002).

The Exchangeable Sodium Percentages calculated from these laboratory results range between <0.2% and 18.6% indicating that the soils on site are “Non-sodic” to “Highly sodic” when compared to criteria listed in DLWC (2002). The results are summarised in Table 3.

Table 3 - Jar Sample Soil Sodicity Results

SAMPLE ID (Depth)	ESP (%)	Rating (DLCW, 2002)
BH01b (2.5 – 2.8 m)	5.4	Sodic
BH02 (0.6 – 1.2 m)	17.4	Highly sodic
BH03 (0.5 – 0.6 m)	7.3	Sodic
BH03 (2.5 – 3.0 m)	18.1	Highly sodic
BH04 (0.5 – 0.6 m)	8.5	Sodic
BH05b (2.3 – 2.6 m)	<0.2	Non-sodic
BH08 (0.5 – 0.6 m)	7.8	Sodic
BH08 (2.1 – 2.5 m)	18.6	Highly sodic

4. Salinity Management Plan

4.1 Development Components

This SMP addresses the components of the proposed development for the Site at the construction stage. Recommendations regarding the following development components are provided in the subsequent sections:

- Earthworks,
- Imported soils,
- Gardens and landscaped areas,
- Roads, footpaths, and hardstand areas,
- Surface water, stormwater, and drainage,
- Durability of concrete structures in contact with the ground.

4.2 Earthworks

Details of the earthworks to be undertaken at the Site (e.g. civil cut-fill plans) are not known to PSM however the provided architectural plans by HDR indicate that the proposed development will include excavation of soil and rock up to 8 m depth as well as some areas of filling.

The design and construction of the earthworks should consider the following recommendations:

- Importation of soil as per Section 4.3 of this letter,
- Vegetation cover should be established and maintained on permanent batters upon completion to control erosion,
- The final surface of all areas of the development should be graded to prevent the ponding of surface water,

- Erosion control of temporary batters, stockpiles and disturbed areas should be planned prior to undertaking the earthworks and implemented during the earthworks. Consideration should be given to:
 - Grading and partially sealing completed surfaces,
 - Installation of clearly visible fencing and traffic control measures to prevent unnecessary trafficking of areas and preventing site disturbance,
 - Establishing set vehicular access points and roads,
 - Protecting stockpiles (temporary vegetation or mulching) where these are to be left in place for long durations,
- Sediment control shall be implemented by means of sediment traps and silt fencing where considered necessary.

4.3 Importation of Soil

It may be required to import topsoil or other soil onto site. Materials to be imported to site should be addressed for suitability for the intended use. Highly saline or contaminated soils should not be imported to site.

4.4 Gardens and Landscaped Areas

The design and construction of any gardens and landscaped areas should consider the following recommendations:

- Selection of plant species should consider the soil conditions, including slightly saline soils with relatively poor fertility and clayey low permeability soil profiles. The promotion of successful revegetation is likely to require the use of nutrient-rich topsoil. Saline topsoils should not be imported to site.
- Potential for waterlogging should be minimised by:
 - Adopting plant species with minimal watering requirements,
 - Adopting 'waterwise' gardening principles,
 - Minimising the use of potable water in landscaped areas,
 - Properly designed and implemented irrigation systems,
 - Establishment of perennial species and deep-rooted trees.

4.5 Roads, Footpaths and Hardstand Areas

As stated, PSM understands the proposed development will include new roads, footpaths, and hardstand areas. The design and construction of roads, footpaths and hardstand areas should consider the following recommendations:

- Roads, footpaths and hardstand surfaces should be graded, and the grades maintained at all times to prevent ponding of surface water at locations where this can result in infiltration into the underlying soils (e.g. pavement joints).
- Connections between the roads, footpath and hardstand surfaces and the surface water and stormwater drainage infrastructure should be designed, constructed and maintained to restrict infiltration into underlying soils.
- Services that are to be located below the roads, footpath and hardstand surfaces should be installed, where practical, at the time of construction.
- Provision for a damp-proof course or membrane beneath slabs should be considered by the slab designer.

4.6 Surface Water, Stormwater and Drainage

Surface water, stormwater and drainage design should aim at restricting infiltration into the ground resulting in groundwater recharge. The design and construction of surface water, stormwater and drainage measures should thus consider the following recommendations.

- Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed.
- Stormwater and surface water should be managed to restrict infiltration.
- Temporary water retaining structures used during construction should be managed to restrict infiltration.
- Stormwater and surface water infrastructure should be redesigned and constructed to minimise the likelihood of leakage.
- Guttering and down pipes should be connected and maintained.
- Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas.

4.7 Durability of Concrete Structures in Contact with the Ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity assessment and the durability requirements in AS2159:2009 “Piling Design and Installation” and AS3600:2018 “Concrete Structures”.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements.

Based on the salinity and resistivity test results from the conducted testing (ref. PSM5568-005L dated 17 December 2024), it is recommended that

1. The design of structural concrete members (excluding piles) in contact with the ground (excluding piles) adopt a “B1” exposure classification, as defined in AS3600:2018.
2. The design of concrete cast in situ piles adopt a “moderate” classification as defined in AS2159:2009.

4.8 Durability of Steel Structures in Contact with The Ground

Table 6.5.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of soil chlorides, resistivity and pH testing completed we assess the exposure classification for steel piles in the soil to be “mild”.

5. Conclusion

This report concludes that the proposed data centre (as designed) is suitable and warrants approval given the designer(s) and contractor(s) responsible for the various development components give appropriate consideration to the recommendations provided in this SMP.

The designer and contractors should contact PSM during the works if they have any queries with regards to the requirements in the SMP or if conditions significantly differ from those described.

Yours Sincerely



**HENRY ZHANG
GEOTECHNICAL ENGINEER**



**AGUSTRIA SALIM
PRINCIPAL**

Encl.

Figure 1	Site Locality Plan
Appendix A	Aggressivity and Salinity Laboratory Test Certificates

328500

329000




328500

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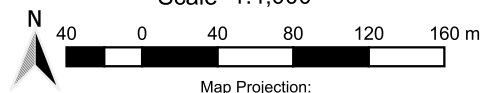
6257000

6257000

Legend

 Approximate Site Boundaries

Scale 1:4,000



Map Projection:
GDA2020 / MGA zone 56
EPSG:7856

Goodman
12 Mars Road
Lane Cove West NSW

SITE LOCALITY PLAN



Created By:
PSM

Revision:
A

Date:
15 Dec 2024

Paper Size:
A4

Note:
Aerial imagery from Nearmap of site conditons from 14 Sept 2024

PSM5568-007L

Figure 1

Appendix A

Aggressivity and Salinity Laboratory Test Certificates



CERTIFICATE OF ANALYSIS

Work Order : **ES2438545**
Client : **PSM Holdings Aust Pty Limited**
Contact : HENRY ZHANG
Address : G3, 56 Delhi Road
North Ryde 2113
Telephone : ----
Project : PSM55678
Order number : ----
C-O-C number : ----
Sampler : HENRY ZHANG
Site : 12 Mars Road, Care Care West
Quote number : EN/333
No. of samples received : 8
No. of samples analysed : 8

Page : 1 of 4
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 26-Nov-2024 10:15
Date Analysis Commenced : 26-Nov-2024
Issue Date : 02-Dec-2024 13:53



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H⁺ + Al³⁺).
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH01b_2.5-1.8	BH02_0.6-1.2	BH03_0.5-0.6	BH03_2.5-3.0	BH04_0.5-0.6
		Sampling date / time		22-Nov-2024 00:00	20-Nov-2024 00:00	20-Nov-2024 00:00	20-Nov-2024 00:00	22-Nov-2024 00:00
Compound	CAS Number	LOR	Unit	ES2438545-001	ES2438545-002	ES2438545-003	ES2438545-004	ES2438545-005
				Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	6.6	4.8	5.5	4.2	7.0
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	37	47	30	43	134
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.9	2.3	8.3	1.1	7.3
EA080: Resistivity								
Resistivity at 25°C	----	1	ohm cm	27000	21300	33300	23200	7460
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	2.9	0.4	4.1	<0.1	3.8
Exchangeable Magnesium	----	0.1	meq/100g	0.7	0.5	3.3	0.3	0.8
Exchangeable Potassium	----	0.1	meq/100g	0.1	0.3	0.2	<0.1	0.3
Exchangeable Sodium	----	0.1	meq/100g	0.2	0.2	0.6	<0.1	0.4
Cation Exchange Capacity	----	0.1	meq/100g	3.9	1.5	8.2	0.5	5.3
Exchangeable Sodium Percent	----	0.1	%	5.4	17.4	7.3	18.1	8.5
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	10	40	20	20	30
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	30	<10	<10	<10	150



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH08_0.5-0.6	BH08_2.1-2.5	BH05b_2.3-2.6	----	----	
Sampling date / time		22-Nov-2024 00:00		22-Nov-2024 00:00		21-Nov-2024 00:00		----	----
Compound	CAS Number	LOR	Unit	ES2438545-006	ES2438545-007	ES2438545-008	-----	-----	
				Result	Result	Result	----	----	
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit	4.4	4.7	7.5	----	----	
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm	39	29	254	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	<1.0	4.7	7.2	----	----	
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm	25600	34500	3940	----	----	
ED006: Exchangeable Cations on Alkaline Soils									
∅ Exchangeable Calcium	----	0.2	meq/100g	----	----	5.0	----	----	
∅ Exchangeable Magnesium	----	0.2	meq/100g	----	----	<0.2	----	----	
∅ Exchangeable Potassium	----	0.2	meq/100g	----	----	0.2	----	----	
∅ Exchangeable Sodium	----	0.2	meq/100g	----	----	<0.2	----	----	
∅ Cation Exchange Capacity	----	0.2	meq/100g	----	----	5.2	----	----	
∅ Exchangeable Sodium Percent	----	0.2	%	----	----	<0.2	----	----	
ED007: Exchangeable Cations									
Exchangeable Calcium	----	0.1	meq/100g	0.7	<0.1	----	----	----	
Exchangeable Magnesium	----	0.1	meq/100g	0.4	0.4	----	----	----	
Exchangeable Potassium	----	0.1	meq/100g	0.1	0.1	----	----	----	
Exchangeable Sodium	----	0.1	meq/100g	0.1	0.1	----	----	----	
Cation Exchange Capacity	----	0.1	meq/100g	1.3	0.7	----	----	----	
Exchangeable Sodium Percent	----	0.1	%	7.8	18.6	----	----	----	
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	30	10	270	----	----	
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg	<10	<10	20	----	----	