Altis Property Group & Frasers Property
Mamre Road Kemps Creek
Site Salinity Assessment

657-703,707-711, 707A,
713-755 & 757-769 Mamre Road
Kemps Creek, NSW 2178

27 February 2019

54963/120710

JBS&G Australia Pty Ltd

www.jbsg.com.au

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Abbreviations

Term	Definition
AHD	Australian Height Datum
Altis	Altis Property Group
ASS	Acid Sulfate Soils
ASS	Acid Sulfate Soils
ASSMAC	Acid Sulfate Soil Management Advisory Committee
BGS	Below Ground Surface
CEC	Cation Exchange Capacity
CEMP	Construction Environmental Management Plan
DIPNR	Department of Infrastructure, Planning and Natural Resources
DLWC	Department of Land and Water Conservation
DO	Dissolve Oxygen
EC	Electrical Conductivity
ECe	Extract Electrical Conductivity
Envirolab	Envirolab Services Pty Ltd
ESP	Exchangeable Sodium Percentage
Eurofins	Eurofins Mgt
Frasers	Frasers Property
ha	hectare
HGL	Hydrogeological Landscape
JBS&G	JBS&G Australia Pty Ltd
LDPE	Low Density Polyethylene
NAPL	Non-aqueous Phase Liquid
NSW OEH	NSW Office of Environment and Heritage
PSI	Preliminary Site Investigation
PSM	Pells Sullivan Meynink
SA	Standards Australia
SAQP	Sampling, Analytical and Quality Plan
SMP	Salinity Management Plan
SSA	Site Salinity Assessment
SSDA	State Significant Development Application
SWL	Standing Water Level
uPVC	Un-plasticised Polyvinyl Chloride
WNSW	Water New South Wales

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Altis Property Group (Altis) and Frasers Property (Frasers) (the clients) for the provision of consultancy services associated with the proposed Kemps Creek Warehouse and Logistic Hub. The proposed development is located on the western side of Mamre Road, Kemps Creek, NSW (the site) as shown in **Figure 1**. The assessment area comprises five legal properties, as shown on **Figure 2,** and occupies a total footprint of approximately 116.3 hectares (ha). The site is legally identified as Lot 34 DP1118173, Lot X DP421633, Lot 1 DP1018318, Lot Y DP 421633 and Lot 22 DP258414.

It is understood that Altis and Frasers intend to submit a State Significant Development Application (SSDA) for the proposed development. The Department of Planning and Environment (DPE) have reviewed a draft Environmental Impact Statement (EIS) for the project and have requested additional information per clause 54(1) of the *Environmental Planning and Assessment Regulation 2000*.

The clients require a site salinity assessment (SSA) and an acid sulfate soils (ASS) assessment to be completed at the site in accordance with DPE's request for additional information. The SSA is documented herein and has been completed in accordance with the NSW Department of Land and Water Conservation (DLWC 1992), DIPNR (2002), AS 2159-2009 (SA 2009) and ASSMAC (1998) guidelines.

Based on the scope of investigation undertaken, based on the proposed commercial/industrial land use for the site, and in accordance with the limitations in **Section 12**, the following conclusions are provided:

- Desktop assessment identified the potential for regional salinity and sodicity characteristics to exist within natural soil strata at the site. Soils on upper and lower slopes are considered to be moderately and slightly saline respectively, with elevated salinity present in the deeper (>1 m below ground surface) soil profiles. Site soils present within all site landforms are considered to be 'highly sodic';
- Appropriate management controls as part of a broader construction environmental management plan (CEMP) to be developed for the earthworks and development stages will be necessary to ensure appropriate management of saline and sodic soil hazards, typical of areas on within the Mount Vernon and Shale Plains HGLs. Such conditions will also require consideration by the civil works and structural designers of future infrastructure and/or buildings to ensure appropriate precautions are implemented with regard to material in contact with the saline soil;
- Consideration of the saline nature of the soils and also shallow groundwater seepage system will be required by the development design team (including civil works and structural/building/hydraulics engineering team and landscape designers) to ensure appropriate materials are specified for the project;
- No potential for the presence of ASS was identified in the desktop assessment undertaken for this DSI. During site sampling, no indicators of ASS were observed within sampled material. On this basis, no management for the potential presence of ASS is required during or following redevelopment of the site.

- A CEMP is to be prepared for the site to address the identified soil conditions, including characteristic sodicity and saline nature of the soils and groundwater to appropriately mitigate potential risks to the development and surrounding area. In addition to the relevant Soil and Water Management sections of the CEMP and imported materials management protocol should also be developed to ensure that only material suitable for use as fill material is imported onto the site (i.e. non-saline, non-sodic soil/fill material).

1. Introduction

1.1 Introduction and Background

JBS&G Australia Pty Ltd (JBS&G) has been engaged by Altis Property Group (Altis) and Frasers Property (Frasers) (the clients) for the provision of consultancy services associated with the proposed Kemps Creek Warehouse and Logistic Hub. The proposed development is located on the western side of Mamre Road, Kemps Creek, NSW (the site) as shown in **Figure 1**. The assessment area comprises five legal properties, as shown on **Figure 2,** and occupies a total footprint of approximately 116.3 hectares (ha). The site is legally identified as Lot 34 DP1118173, Lot X DP421633, Lot 1 DP1018318, Lot Y DP 421633 and Lot 22 DP258414.

It is understood that Altis and Frasers intend to submit a State Significant Development Application (SSDA) for the proposed development. The Department of Planning and Environment (DPE) has reviewed a draft Environmental Impact Statement (EIS) for the project and has requested additional information per clause 54(1) of the *Environmental Planning and Assessment Regulation 2000* to enable appropriate assessment of development impacts.

The clients require a site salinity assessment (SSA) and an acid sulfate soils (ASS) assessment to be completed at the site in accordance with DPE's request for additional information. The SSA is documented herein and has been completed in accordance with the NSW Department of Land and Water Conservation (DLWC 1992[1]), DIPNR (2002[2]), AS 2159-2009 (SA 2009[3]) and ASSMAC (1998[4]) guidelines.

1.2 Objective

The objective of the SSA is to characterise potential salinity and ASS conditions at the site such that the suitability of the site for the proposed land uses can be determined, and to make recommendations regarding appropriate management of the identified conditions as required.

1.3 Scope of Work

The following scope of works was undertaken:

- A desktop review of available site history information, including:
  - Review of historical assessment reports, relating to the environmental conditions of the site and surrounding area, as provided by the clients or hosted on readily accessible planning websites;
  - Review of the environmental setting, including a review of topography, lithology, hydrology and soils of the site and surrounding areas;
- A detailed site inspection on all properties to document site landforms, surface soil characteristics and any indicators of potential salinity or ASS conditions (bare soils, salt crystals, puffiness/greasiness of soils, staining, indicator vegetation, stressed vegetation and/or building deterioration);
- Development of the sampling analytical and quality plan (SAQP) for the SSA to guide implementation of the site investigation such that assessment objectives are achieved;
- Execution of a field investigation program in accordance with the SAQP comprising sampling of soil and groundwater at relevant locations across the site;

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1 *What Do All the Numbers Mean? A Guide for the Interpretation of Soil Test Results*. Hazelton and Murphy for Department of Land and Water Conservation, DLWC 1992.
2 *Site Investigations for Urban Salinity*. Department of Infrastructure, Planning and Natural Resources, 2002, DIPNR 2002.
3 *Australian Standard* (AS) 2159-2009*: Piling Design and Installation.* Standards Australia, 2009, SA 2009.
4 *Acid Sulfate Soil Manual.* Acid Sulfate Soil Management Advisory Committee, August 1998, ASSMAC 1998.

- Analysis of representative soil and groundwater samples for a range of physicochemical indicator characteristics;
- Comparison of collected data against appropriate guideline and Australian Standard criteria to facilitate an assessment of salinity and ASS potential; and
- Preparation of this SSA report in general accordance with relevant guidelines.

1.4 Kemps Creek Warehouse and Logistics Hub

The proposed development comprises a warehouse and logistics hub which will be constructed over the entire site footprint (116.3 ha). The development will comprise demolition of existing structures, stripping of existing vegetation, levelling and grading activities (including the importation of 1.4 million cubic metres of material to raise site levels), installation of infrastructure/services and erection of several warehouses.

Based on discussions with the client regarding design of the facility, it is understood that minor cutting of the eastern (elevated) site portion and substantial filling of the western (depressed) site portion will occur. Importation of the proposed volume of filling material will result in raising of the site ground surfaces by an average of approximately 1.2 m, with filling focused on the western site portion.

The site footprint is to be largely capped with impermeable hardstand pavements and building footprints. Rainwater is anticipated to be collected via onsite drainage and stormwater infrastructure and directed towards site boundaries and the adjoining South Creek. Decreased rainwater infiltration into the underlying soils is anticipated as a result, which will reduce ground moisture content.

Given the volume of material proposed to be imported to the site, it is considered likely that the imported material will be sourced from nearby developments. There is the potential that imported material will comprise soil/rock from similar hydrogeological landscapes which, as discussed in **Section 2**, may be characterised by elevated salinity, aggressivity and sodicity characteristics.

Based on the above, the assessment provided herein has been designed to provide an understanding of current salinity conditions and enable a baseline to evaluate how potential changes in site hydrology and hydrogeology may influence salt distribution in the environment, as well as the associated hazards and risks.

2. Site Condition and Surrounding Environment

2.1 Site Identification

The location of the site is shown on **Figure 1**. The layout of the site and approximate site boundary are shown on **Figure 2**. The site details are summarised in **Table 2.1**.

Table 2.1: Summary Site Details

Site Lot Numbers	Lot 34 DP1118173 Lot X DP421633 Lot 1 DP1018318 Lot Y DP 421633 Lot 22 DP258414
Site Street Address	657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW
Site Area	The approximate site area is 116.3 ha, as shown on **Figure 2**. Approximate areas of each site are: Lot 34 – 25.8 ha; Lot X – 19.2 ha; Lot 1 – 28.1 ha; Lot Y – 17.0 ha; and Lot 22 – 26.3 ha.
Local Government Authority	Penrith City Council
Approximate Geographic Coordinates (MGA 56)	Easting: 293918 Northing: 6253999

2.2 Site Description

A detailed site inspection of the site was conducted on 1 February 2019 by Jessica Staehli, one of JBS&G's experienced environmental scientists. Notable site landforms are shown on **Figure 3** and site features on **Figure 4**. A photographic record of the site inspection is included in **Appendix A.**

The site inspections identified limited bare soil patches associated with soil reworking activities including minor cutting/filling around site structures and features. No salt crystals, puffiness, black staining, indicator vegetation species, tree/vegetation dieback or site structure damage were observed over the site. On that basis, no indicators of potential salinity or ASS conditions were observed during the site inspection. Details of the site condition as observed during the inspection are presented following.

2.2.1 657-703 Mamre Road (Lot 34 DP1118173)

The land parcel comprises a triangular lot of approximately 25.8 ha. The land parcel was bound to the north, south and east by the high-pressure gas pipeline, Bakers Lane and Mamre Road, respectively. The property is currently used for agricultural and residential purposes.

Ground surfaces within the land parcel sloped from the north-east to the south-west. Drainage lines were observed to flow downwards from the smaller corrugated iron shed in the eastern portion of the site in a south-western direction to the central portion of the southern boundary of the property. The ground surface gently undulated with an overall upward grade from the central-portion of the southern boundary to the western site corner (through the tree cover).

The vast majority of the property consisted of well vegetated cattle grazing paddocks. The land parcel was predominantly grass covered with scattered patches of bush and trees present in the western portion. A concrete driveway was present connecting Mamre Road to the main residence and sheds. The following structures were observed on the property, situated within the south-east portion:

- One main residence located west of Mamre Road, constructed from red brick with a terracotta roof (**Photograph 1**).

- One large corrugated metal equipment storage shed with a sealed concrete floor to the west of the residence holding old machinery, two cars, and general household waste (plastic, cardboard, empty feed drums, wood, bricks, corrugated metal sheets and wooden fencing) (**Photograph 2**).
- One smaller corrugated iron shed to the north of the main shed storing a disused woodfired oven, hand tools, empty paint tins, disused furniture and disused agricultural tools (**Photograph 3-4**).
- Various additional structures were observed southwest of the primary residence and storage sheds (**Photograph 5-9**);

An agricultural dam was present in the central portion of the property which was partially filled with turbid brown water at the time of the inspection. No odours or films were observed on the retained surface water. Cursory inspection of exposed soils on the embankment indicated that they comprised red-brown clay, consistent with natural surficial soils observed in the surrounding property areas (**Photograph 10**).

The western portion, including westernmost dam, and the north-eastern corner of the land parcel were not able to be inspected in detail due to the presence of vegetation. A section of the ground surface abutting Bakers Lane consisted of an area of shorter grass surrounded by taller and denser vegetation (**Photograph 11-13**).

2.2.2 707A Mamre Road (Lot 1 DP1018318)

The property comprises an irregularly shaped 28.1 ha parcel of land. The land parcel was bordered to the north, east, south and west by Bakers Lane, 707-711 Mamre Road (Lot X DP421633), 757-769 Mamre Road (Lot 22 DP258414), and the banks of South Creek, respectively.

The landform of the property exhibited an overall downward grade from east to west, towards South Creek. The eastern portion of the property graded from southeast to northwest, with the northern portion of the property comprising the local drainage channel fed by the surrounding properties (Lot 34, north and Lot X east). Internal asphalt paved and gravel access roads were present across limited surfaces, providing internal property access.

The majority of the property consisted of fenced paddocks containing overgrown healthy vegetation with scattered patches of bush and trees (**Photograph 14**). A dam in the northern portion of the site bordering Bakers Lane was unable to be accessed due to a lack of gate in the fence line, however, dense vegetation was growing through the dam and a raised embankment was visible from the fence line.

A sealed asphalt paved driveway connected Bakers Lane to the main buildings, with an asphalt paved carpark area (**Photographs 15 and 16**). The carpark connected to a sealed tiled area with a roundabout and driveways leading to the main residences. The following structures were observed on the property, situated within the north-eastern portion of the property:

- Two main residences located south of Bakers Lane, both constructed from yellow brick with a terracotta roof with a paved backyard area (**Photographs 17 and 18**).
- A corrugated metal shelter with a concrete floor located between the two residences and contained stored furniture, firewood and pallets (**Photograph 19**).
- One large and substantially dilapidated marquee structure with a sealed concrete floor to the north-east of the main residences holding furniture, machinery and appliances (microwaves and washing machines) (**Photographs 20 and 21**).
- One large tin equipment shed to the south-west of the residences, the interior was unable to be accessed (**Photograph 22**).

- One small corrugated metal dog kennel to the east of the residences with solar panels installed directly west of the kennel and main residences.
- One small corrugated metal animal shelter, containing overgrown vegetation (**Photograph 23**).
- Numerous wooden structures appearing to be for recreational use were observed in the south-western portion of the property (**Photographs 24 and 25**).

The property was generally absent of odours, staining or the presence of hazardous building materials. A small area (<5 m^2) household rubbish and bonfire remnants were present north of the main residences (**Photograph 26-28**). The area was cleared of vegetation and contained burnt household rubbish, embers, scrap metal and building materials. Inspection of the ground surfaces indicated that the rubbish and bonfire remnants were limited to ground surfaces, and did not extend to underlying soils.

2.2.3 713-755 Mamre Road (Lot Y DP421633)

The land parcel comprises an approximately rectangular lot of approximately 17.0 ha which is bordered to the north and west by 707-711 Mamre Road (Lot X DP421633). Mamre Road borders the land parcel to the east and 757-769 Mamre Road (Lot 22 DP258414) borders the land parcel to the south.

The property graded downward from west to east with a local topographical minimum observed within the northwest corner. Three small dams within aerial imagery (**Section 3.2**) contained overgrown vegetation and were unable to be closely accessed due to dense vegetation cover (**Photographs 29 and 30**). The dam walls appeared to be raised indicating potential for cut and fill in these areas.

The land parcel was largely covered by healthy overgrown grasses and vegetation. The land parcel appeared to gently slope downwards in a western direction from Mamre Road. The property contained one unsealed track presumed to have been formed by previous vehicle use. Patches of bush were observed in the western portion and trees were scattered through the western and central portions of the land parcel.

No buildings were observed within the land parcel. An area of denser vegetation growth was observed in the western portion of the property (**Photograph 31**), indicating a potential change in soil/drainage environment when compared with surrounding soils (**Photograph 32-33**).

2.2.4 757-769 Mamre Road (Lot 22 DP258414)

The land parcel comprises a roughly rectangular lot of approximately 26.3 ha. The northern boundary of the land parcel is bordered by 707A Mamre Road (Lot 1 DP1018318), 707-711 Mamre Road (Lot X DP421633) and 713-755 Mamre Road (Lot Y DP258414). Mamre Road borders the land parcel to the east and Kemps Creek is located along the western boundary. A private property adjoins the entire southern property boundary.

The majority of the property consisted of fenced paddocks with varying levels of vegetation for cattle grazing. Ground surfaces within the land parcel gently sloped downward from the east to the west, towards South Creek. Trees were located along the west site boundary facing the adjoining South Creek. No dams were observed on this parcel.

A sealed concrete driveway connected Mamre Road to the main residence and the secondary house, with concrete areas to the west of the house surrounding the main shed. A gravel surfaced driveway connected Mamre Road to the concrete storage area south of the main residence. The storage area was sealed with asphaltic material. The following structures were observed in the eastern portion of the property:

- One main residence and a secondary smaller residence, both constructed from brown brick with tiled roofs surrounded by healthy grassed areas (**Photographs 34 and 35**).
- One unsealed vegetable garden covered in bug deterring mesh located to the south of the main residence (**Photograph 36**).
- One wire fenced chicken coup with corrugated metal shelter located west of the main residence (**Photograph 37**).
- One wire fenced goat pasture with an animal shelter made of a plastic seafood storage shed located north of the chicken coup (**Photograph 38**).
- One large unsealed storage shed with stored building materials (**Photographs 39 and 40**).
- One disused demountable toilet block located south of the storage shed (**Photograph 41**).
- One corrugated metal animal shelter to the east of the stockpiled concrete storage area (**Photograph 42**).
- One unsealed corrugated metal equipment shed, tool shed, cattle yard and caravan located on the southern border of the site, to the west of the stockpiled concrete area (**Photograph 43**).
- One unsealed corrugated metal machinery shelter located in the south-western portion of the site (**Photograph 44**).
- Abandoned cars, truck and corrugated metal sheets located to the west of the machinery shelter in the western portion of the property.

Bare soil and soil stockpiles were present within the property (**Photograph 49 and 50**) in addition to scrap materials comprising wood and general building materials (**Photograph 51**).

2.2.5 707-711 Mamre Road (Lot X DP421633)

The land parcel comprises a battle axe block of approximately 19.5 ha. The land parcel is bound to the north, east, south and west by Bakers Lane, Mamre Road, 757-769 Mamre Road (Lot 22 DP258414) and 707A Mamre Road (Lot 1 DP1018318), respectively. At the time of the inspection the north-east portion of the property was used to store and distribute various pet and livestock supplies (Mamre Produce) (**Photograph 52**). Property access and egress was available through two gravel surfaced driveways fronting Bakers Lane (**Photograph 53 and 54**)

The property broadly comprised three separate areas. The north-east portion of the property was used to store, sell and distribute various pet and livestock supplies. The southern and western portions of the property comprised dense feedstock crops and the balance (central portion) of the property housed a dam and some unused vacant/cleared areas of land.

The property contained two separate dams, understood (based on communications with the land occupant) to be recharged exclusively by rainwater infiltration. The northern dam was on the western portion of the pet and livestock supplies area, and the central dam within the approximate central portion of the property (**Photograph 55 and 56**). The northern dam was turbid and dark brown, and the central dam was highly turbid and light brown. Neither dam exhibited sheens or odours.

The property graded overall downward from east to west. A drainage channel dissected the property, orientated approximately south-north. The channel intersected the dam within the central portion of the property and meandered from the northern portion of the dam to the discharge point from the property, a local low point in the approximate centre of the northern boundary. The topography of the property appeared to have been altered slightly from its predevelopment alignment, presumed to be the result of grading/levelling associated with the

construction of observed features (dams, raised roadways and drainage channels). The drainage channel did not contain any surface water at the time of the inspection.

Internal vehicle access roads were present throughout the property. A gravel driveway provided access from Bakers Lane, which continued to the northern dam. The roadway continued around the northern dam as a dirt track, which provided vehicular access to the southern and western crop fields.

The pet and livestock supplies area contained a residence, temporary demountable office and a large agricultural storage shed on the eastern portion, and a green corrugated metal storage shed on the western portion, adjacent to the dam (**Photograph 57-59**). Rainwater storage tanks were present adjacent to both the western storage shed and the residence (**Photograph 60**). The majority of the supplies area was utilised for storage of retail supplies comprising a range of agricultural and structural products (empty intermediate bulk containers, fencing and gating supplies, stock feeders and blue drums) (**Photograph 60-64**).

The central portion of the property was occupied by cattle at the time of inspection, apparently utilised for grazing. Stored reclaimed building materials were observed adjacent to the vehicle access roads, typically comprising concrete, bricks and wooden pallets (**Photograph 65 and 66**).

The southern and western portions of the property were almost entirely occupied by very densely cultivated livestock feed crops (**Photograph 67 and 68**). Inspection from accessible areas (the property boundaries and limited internal footpaths) indicated that the entire area was utilised for crop cultivation.

2.3 Surrounding Properties

The surrounding land-uses of the site are detailed below.

- North – large service easement (Prospect Reservoir water supply lines) immediately north with further rural residential land uses beyond. Erskine Business Park including warehouses, cargo sheds, distribution centres and other industrial land use observed 190 m north-east of the site.
- East – Mamre Road immediately east of the site. Agricultural grazing land observed beyond. Emmaus Retirement and Emmaus Catholic College observed approximately 600 m east of the site.
- South – Agricultural grazing and market garden land uses. Kemps Creek observed approximately 1.2 km south of the site.
- West – South Creek immediately west of the site. Twin Creeks Gold and Country Club and residential land use observed beyond.

2.4 Topography

A topographical survey of the site is provided in **Appendix B**. The site is gently undulates with overall falls from the highest point located in close vicinity to the intersection of Bakers Lane and Mamre Road (~43 m Australian Height Datum (AHD)) in the east, to a low point of approximately 28 m AHD in the west adjacent South Creek. The site has elevation grade of 35 m AHD based on review of Google Earth topographical maps.

At the time of the site inspection, JBS&G confirmed the site topography to generally agree with the survey provided. An overall consistent downward east to west grade was noted, with local drainage channels and lower slopes converging within the centre of Lot X, the southwest boundary of Lot 34 and northern boundary of Lot 1, before meeting with South Creek on the western boundary.

2.5 Regional Geology and Soils

A review of the regional geology presented on *Penrith 1:100 000 Geological Sheet 9035* (DMR 1991[5]) indicates that the western portion of the site adjacent to South Creek is underlain by the Quaternary Period geological formation, comprising fluvial fine-grained sand, silt and clay. The eastern portion of the site is inferred to be underlain by the Triassic Period Bringelly Shale of the Wianamatta group, comprising of shale, carbonaceous claystone, claystone, laminate and fine to medium grained lithic sandstone. It is anticipated that the Bringelly Shale formation occurs at depth underlying the Quaternary aged fluvial deposits.

A review of eSPADE[6] indicated that the site soils comprise residual Blacktown soils in the eastern portion of the site and of South Creek soils in the western portion of the site. Blacktown soils consist of shallow to moderately deep hard setting mottle texture contrast soils, red and brown podzolic soils on crests, grading to yellow podzolic soils on lower slopes and drainage lines. Limitations include localised seasonal waterlogging, localised water erosion hazard, moderately reactive highly plastic subsoil and localised surface movement potential. Localised salinity, sodicity, low pH and high aluminium toxicity is reported in some Blacktown Residual Soils.

South Creek soils consist of often very deep layered sediments over bedrock or relict soils, structured plastic clays or structured loams in and immediately adjacent to drainage lines, red and yellow podzolic soils with small areas of structured grey clays and yellow solodic soils. The landscape comprises the present active floodplain of many drainage networks of the Cumberland Plain. Limitations include flood risks, seasonal waterlogging and localised permanently high water tables, water erosion hazards and surface movement potential.

Table 2.2 presents soil/geology conditions reported within a previous geotechnical investigation (PSM 2017[7]). Local soil/geology conditions encountered during the current field works are discussed in **Section 9.1.**

Table 2.2 Encountered Soil/Geology in Lot Y (PSM 2017)

Unit	Top of Unit (m bgs)	Descriptions
Topsoil	0.0	Topsoil: clay with some sand and trace gravels, medium to high plasticity, brown, fine-grained sand, sub-angular gravel up to 5 mm, soft to firm consistency, moist to wet, rootlets and organics observed down to 0.2 m;
Natural Soils	0.1 to 0.2	Clay: high plasticity, reddish brown, firm to stiff, moist; Clayey sand to sandy clay: low to medium plasticity, mottled orange and pale grey, stiff to very stiff, moist; Gravelly sandy clay: medim to hi8gh plasticity, orange and grey, fine to medium grained sand, sub-rounded to sub-angular ironstone gravel up to 30 mm, very stiff, moist;
Bedrock	1.1 to 3.8	Shale: pale grey to dark grey, extremely to highly weathered;

2.6 Salinity

The *Salinity Potential in Western Sydney* map (DIPNR 2002[8]) indicates that the assessment area exists within an area of 'moderate salinity potential' outside of drainage line areas. Areas with this

[5] *1:100 000 Penrith Geological Map Sheet 9030 Edition 1.* Department of Mineral Resources, Published 1991, DMR 1991

[6] http://www.environment.nsw.gov.au/eSpade2Webapp Department of Environment and Heritage, NSW Government. Accessed 08/02/2019

[7] *713-755 Mamre Road, Kemps Creek Results of Geotechnical Investigations.* Pells Sullivan Meynink Reference PSM3276-100L Rev 1 dated 4 May 2017 (PSM 2017)

[8] *Salinity Potential in Western Sydney*. Department of Infrastructure, Planning and Natural Resources, March 2003, DIPNR 2002;

classification exhibit scattered scalding and indicator vegetation, but soil concentrations have not been mapped. Saline areas are identified as potentially existing within these areas.

A review of eSPADE indicated that the eastern portion of the site exists within the Shale Plains Hydrogeological Landscape (HGL) and the western site portion exists within the Mount Vernon HGL. Relevant information from both landscapes is summarised following:

Development may mobilise salts within soils and groundwater if appropriate mitigation and prevention actions are not taken.

Shale Plains HGL

- This HGL is characterised by shallow and transient salinity driven by lateral water movement, salt mobilisation and cycling. Low permeability sub-soils restrict downward movement of water and salts present within the upper soil materials can become mobilised and concentrated at the surface. Land salinity is equally prevalent in the lower and upper landscape elements. Salt sites occur in upper change of slopes and within drainage channels;
- The landscape has high levels of salinization with frequent, small areas of heavily affected land. Urban and infrastructure damage occur frequently within this HGL;
- Landscape limitations and hazards on this HGL include salinity, gully erosion and streambank erosion. Urbanisation of this landscape has presented significant salinity and increased development is a major hazard and is likely to further mobilise salts within the soils and groundwater if appropriate mitigation and prevention actions are not taken; and
- Shallow cyclic urban salinity and extensive saline groundwater coupled with low gradients are important features of this landscape.

Mount Vernon HGL

- Small cyclic salt outbreaks occur on change of slope and lower slopes. Some groundwater discharge occurs on floodplains and drainage lines. Salt sites on change of slope are typically seasonal whilst the groundwater discharge sites may exhibit more persistent discharge. Salt sites are sodium chloride dominant;
- The landscape has moderate levels of land salinisation, rivers and streams carry high electrical conductivity (EC) and there is a moderate salt load from this landscape; and
- The limitations and hazards on this landscape include salinity, sheet erosion, gully erosion, streambank erosion and mass movement.

2.7 Acid Sulfate Soils

DLWC (1998), states that ASS are likely to be located in coastal lowlands up to about 10 m AHD. No risk map for the area encompassing the site was provided as part of the acid sulfate soil risk map series, DLWC (1998), typically indicating that such conditions have not been identified based on regional mapping of geology and soil (as discussed in **Section 2.5**).

Review of accessible data using the SEED tool, hosted by NSW OEH (2019[9]) indicates the area occupied by the site has not been required to be assessed for the presence of ASS based on the outcomes of a preliminary evaluation. A printout of the risk map surrounding the site is presented in **Appendix C**. Such sites are by default characterised as "no known occurrence", being defined as areas where land management activities are not likely to be affected by ASS materials.

[9] *Sharing and Enabling Environmental Data (SEED)*. https://www.seed.nsw.gov.au/ accessed 14 February 2019;

Planning certificates presented in a preliminary site investigation (contamination) completed for the site (JBS&G 2017, **Section 3**), and included in **Appendix D**, do not identify the site as being subject to any policies relating to ASS.

Review of the geographical and topographical location of the assessment area, in addition to the geological conditions identified at the site has indicated that there is no appreciable risk of ASS occurrence in natural residual soils and/or rock at the site. On this basis, there is no requirement for further consideration of ASS conditions and/or management of such during future ground disturbance activities.

2.8 Hydrology

As discussed in **Section 2.2**, the site is predominantly grass covered with the exception of hardstand areas, building footprints and roadways. Soils on upper slopes at the site comprise relatively impermeable clay and plastic clay/structured loams on lower slopes and drainage channels. As such, rainfall and other surface water is considered likely to migrate from the site via a combination of infiltration into underlying sub-soils to the extent of permeability followed by surface runoff of excess water into on-site drainage channels. On-site drainage channels are anticipated to discharge into onsite dams or directly to South Creek situated west of the site. South Creek splits into South Creek and Kemps Creek adjacent to the south-western boundary of the site.

Creeks and rivers of the hydrogeological landscape within which the site is located (**Section 2.9**) are reported (**Section 2.7**) to be characterised by high electrical conductivity with moderate salt loads from the surrounding hydrogeological landscape.

2.9 Hydrogeology

A review of eSPADE indicated that the western portion of the site exists within the Shale Plains Hydrogeological Landscape (HGL) and the eastern site portion exists within the Mount Vernon HGL (**Figure 4**). Relevant information from both landscapes is summarised following:

Shale Plains HGL

- Low permeability sub-soils restrict downward movement of water. Long low colluvial/alluvial foot slopes and plains feature frequently, with ponding on plains often present;
- Water primarily moves laterally through shale layers, and vertically through interbedded sandstone and sandstone fracturing (primary and secondary porosity); and
- The HGL is characterised by high residence times due to a low hydraulic gradient and is therefore more likely to accumulate salt out of soils and bedrock.

Mount Vernon HGL

- The HGL is characterised by steep hills of shale and minor sandstone which grade moderately steeply into foot-slopes and plains, with ponding often present on plains;
- Water predominantly moves laterally through the shale layers (although vertical movement through fracturing does occur) and vertically through interbedded sandstone and sandstone fracturing (via primary and secondary porosity). Considerable lateral water movement may occur at the sandstone-shale interface;
- Alluvial sand and gravel deposits derived from the surrounding rocks are present along current streams. Shallow groundwater on foot slopes are an important feature of the landscape; and
- The residence time is moderate.

2.9.1 Site Hydrogeology

Two relevant groundwater systems are anticipated to operate in the vicinity of the site area:

- A shallow unconfined to semi-confined aquifer system within the unconsolidated soils; and
- A deeper confined groundwater system resident in primary and secondary porosity of the Bringelly Shale.

Localised waterlogging of soil and permanent high groundwater tables are anticipated in alluvial/colluvial soils as may be present on lower slopes and channels (**Figure 3**). Regional groundwater is anticipated to be highly saline, consistent with the elevated salinity hazard of the regional soil and geological landscapes.

Registered groundwater bore information was obtained from the Water New South Wales groundwater mapping tools (WNSW 2019[10]) (**Appendix E**). A review of the registered bore information indicated that there were three bores within a 500 m radius of the site. The registered bore searches are summarised in **Table 2.3** below.

Table 2.3 Registered Groundwater Bore Search Summary

Bore ID	Use	Property / Distance from site (m)	Water Level (m bgs unless stated otherwise)	Well Depth (m)	Encountered Geology Comments
GW110029	Monitoring (active)	Australia Pipes 576 Mamre Road Erskine Park, 2176, 480 m north-east of site	-	0.75	Topsoil (to 0.2 m), silty clay (to 0.5) overlying heavy clay (to 0.75m).
GW110030	Monitoring (active)		-	0.75	Topsoil (to 0.2 m), silty clay (to 0.6) overlying heavy clay (to 0.75m).
GW110031	Monitoring (active)		-	0.75	Topsoil (to 0.2 m), silty clay (to 0.4) overlying heavy clay (to 0.75m).

Registered groundwater bores located within 500 m radius of the site are used for monitoring purposes. Given the agricultural land use of the surrounding area within the vicinity of the site, in addition to the identified licensed bores, there is a moderate probability of additional undocumented monitoring, stock, domestic and irrigation bores near the site. With regard to such bores, it is anticipated that water bearing zones would be restricted to those of significant depth associated with the sandstone basement, rather than resident with the saline clay and/or shale profiles.

Based on the reported geology, topography and depth to groundwater, perched (shallow) groundwater if present within unconsolidated soils is expected to migrate towards lower slopes and drainage channels within the site and then west towards South Creek.

2.10 Meteorology

The Sydney area has a humid to temperate climate with a seasonal rainfall maximum during the summer and autumn months. Data from Horsley Park Equestrian Centre Meteorological Station[11] located approximately 7 kilometres east of the site has identified the mean monthly temperature range from 12.1 degrees Celsius to 23.7 degrees Celsius. Mean monthly average rainfall ranges from 51.1 mm to 121.3 mm.

[10] *Groundwater Monitoring Overview Map*. NSW Department of Primary Industries, 2015 Http://allwaterdata.water.nsw.gov.au/water.stm Accessed 8 February 2019

[6] http://www.bom.gov.au/climate/averages/tables/cw_066124.shtml. Accessed 08 February 2019.

The area has a history of droughts, which are broken by periods of heavy rainfall resulting in significant recharges to groundwater resources. The 1940s and 1980s and the current decade are observed to be dry periods, while the early 1970s and 1990s were wet periods.

Summer winds are north-easterly with southerly thunderstorms common. Winter winds are westerly.

3. Previous Investigations

Two historical assessments have been undertaken at the site, as documented in JBS&G (2017) and PSM (2017). Relevant details from previous investigations are provided in **Section 4.1** to **Section 4.2**.

3.1 713-755 Mamre Road, Kemps Creek – Results of Geotechnical Investigations (PSM 2017)

Pells Sullivan Meynink (PSM) completed a geotechnical assessment on the site, with intrusive soil investigation of Lot Y (713-755 Mamre Road). It was reported that the geotechnical condition of the surrounding land parcels of the site was anticipated to be generally similar to that encountered within Lot Y.

The site was reported to generally consist of grassed and vegetated areas. A total of 12 test pits were advanced across the Lot Y to depths ranging from 3.0 m bgs to 4.1 m bgs at locations as shown in **Figure 5**. Encountered soil/geology conditions are summarised in **Section 2.5.**

Soils were reported to comprise topsoil (0-0.1 m bgs) then residual clay (0.1 to 3.8 m bgs) overlying highly weathered shale bedrock to the maximum depth of the investigation. Fill material was not encountered in any of the 12 test pit locations. It was reported that groundwater was not observed during the intrusive investigation, though seepage was observed within the photographic log at TP05.

3.2 *Preliminary Site Investigation – 657-703, 707-711, 707A, 713-755 & 757-769 Mamre Road Kemps Creek, NSW* (JBS&G 2017).

JBS&G completed a PSI at the site. The purpose of the investigation was to characterise the potential presence of contamination conditions at the site and to draw preliminary conclusions regarding the suitability of the site for the proposed use.

JBS&G conducted a desktop review of readily available relevant background and historical information, a detailed site inspection (of accessible areas limited to 713-755 Mamre Rd), development of a preliminary conceptual site model and presentation of the assessment findings in relation to potential site contamination.

The PSI provided a review of regional environmental conditions, which were found to be in general agreement with the summary provided herein. No specific information pertaining to local salinity or ASS conditions were reported at the site, however JBS&G provided a site description from accessible areas. The occurrence of indicators of ASS or salinity was not reported in JBS&G (2017).

JBS&G (2017) presented an assessment of the site history by review of historical land titles and aerial photographs pertaining to the site. The site was reported to have been utilised for primarily rural (agricultural and residential) purposes since the beginning of the 20 th century. Limited commercial land use (Mamre Produce –agricultural supply distribution) was identified at Lot X (707-711 Mamre Road) within the northeast corner of the property. The site was reported to have been well vegetated throughout the period of aerial photographs, with land clearance associated with agricultural occupation. It was additionally identified that Lot X and Lot 22 were utilised for more intensive agricultural activities (crop cultivation).

4. Site Landforms

The site contains three distinct landforms: upper slopes, lower slopes and drainage channels (**Figure 3**). The layout of landforms and anticipated salinity conditions of each landform are discussed following.

Whilst elevated salinity potential has been identified at a regional level based on review of the site's environmental setting, no permanent/transient salt sites, damage to structures or other indicators of elevated salinity were observed during the site inspection **Section 2.2**.

4.1 Upper Slopes

Upper slopes are present on the eastern portion of the site, comprising the entirety of the anticipated Mount Vernon HGL and the central/eastern portions of the Shale Plains HGL as presented in **Figure 4**.

For the portion of the site within the Mount Vernon HGL, the potential salt sites are anticipated to be encountered on change of slopes. No substantial creeks/drainage channels currently exist or, based on review of historical aerial photographs presented in JBS&G (2017), previously existed within the portion of the site which is within the Mount Vernon HGL and it is therefore considered unlikely that groundwater discharge sites would occur in this portion of the site.

The Shale Plains HGL across the western site portion comprises upper slopes, lower slopes and drainage channels. The potential for restricted water infiltration may concentrate salts within the upper soil materials in this portion of the upper slopes should waterlogging conditions arise.

Shallow soils (0-1.0 m bgs) within upper change of slopes are therefore identified as the media most likely to exhibit salinity hazard within this site portion.

4.2 Lower Slopes

Lower slopes are identified within the central and western portions of the site, within the Shale Plains regional HGL.

Similar to the upper slopes, the potential for restricted water infiltration may concentrate salts within the upper soil materials in this portion of the upper slopes of this portion of the site. Shallow soils (0-1.0 m bgs) within upper change of slopes are therefore identified as the media most likely to exhibit salinity hazard within this site portion.

4.3 Drainage Channels

Drainage channels are identified within the central and western portions of the site, within the Shale Plains regional HGL. Salt sites occur would be anticipated to occur in the upper change of slopes and within drainage channels.

5. Sampling Analysis and Quality Plan

5.1 Investigation Rationale

5.1.1 State the Problem

The site is proposed to be redeveloped to accommodate a commercial/industrial facility. Review of the regional environmental setting has identified the potential for environmental conditions (salinity, sodicity, aggressivity) to adversely affect the proposed development site and surrounding area if not appropriately managed.

Sufficient environmental data is required to characterise current site conditions with regard to salinity, aggressivity and sodicity to enable requirements for management of such conditions to be defined during development design such that environmental and built infrastructure impacts can be appropriately managed.

5.1.2 Identify the Decision

With respect to the potential salinity hazards identified in **Section 2**, the following decisions below generally follow the DLWC (2002) assessment process for assessing urban salinity:

- Are natural soils at the site characterised by elevated salinity, sodicity or aggressivity characteristics?
- Is groundwater underlying the site characterised by saline and or aggressive characteristics?
- Is there the potential for existing salinity risk to be altered by the proposed development such that they pose an unacceptable risk to the future development and surrounding environment?
- Is a site management strategy required to address known or potential site salinity, aggressivity and/or sodicity conditions during design and development of the site to ensure identified hazards, or potential hazards do not result in adverse harm to the environment and/or infrastructure?

5.1.3 Identify Inputs to the Decision

Inputs to the decisions are:

- Review of regional environmental setting information;
- The results of previous assessments relevant to the areas of investigation, including background historical information, site observations, laboratory results and report findings;
- Additional environmental data collected by sampling and analysis and site observations made during the current investigation; and
- Generic salinity, sodicity and aggressivity assessment criteria to provide initial screening of potential risks to the proposed development, documented in **Section 6**.

5.1.4 Define the Study Boundaries

The lateral study boundary comprises the extent of the site as shown on **Figure 1** to **Figure 5** and detailed in **Sections 2.1**.

The vertical extent of the study comprised the maximum depth of the investigation, comprising the groundwater monitoring well location (MW01 8.2 m bgs).

The current investigation makes use information presented in recent site investigations (JBS&G 2017 and PSM 2017). Intrusive investigations undertaken as part of the current assessment are limited to the period of site sampling (29 January to 04 February 2019).

5.1.5 Develop a Decision Rule

Laboratory analytical data was assessed against relevant assessment criteria as documented in **Section 6**. The decision rules adopted to answer the decisions identified in **Section 5.1.2** are summarised in **Table 5.1**.

Table 5.1: Summary of Decision Rules

Decision Required to be Made	Decision Rule
1a. Are soils at the site characterised by elevated salinity?	Soil data sets were constructed based on landform and salinity characteristics and statistically analysed. Salinity values were compared against assessment criteria documented in **Section 6**. If a significant proportion of samples were identified as being within slightly, moderately, highly or severely saline ranges, the answer to the decision was Yes, otherwise the answer to the decision was No.
1b. Are soils at the site characterised by elevated sodicity?	Soil data sets were constructed based on landform and sodicity characteristics and statistically analysed. Sodicity indicator values were compared against assessment criteria documented in **Section 6**. If a significant proportion of samples were identified as being within moderately or highly sodic ranges, the answer to the decision was Yes, otherwise the answer to the decision was No.
1c. Are soils at the site characterised by elevated aggressivity?	Soil data sets were constructed based on landform and aggressivity characteristics and statistically analysed. Aggressivity indicator values were compared against assessment criteria documented in **Section 6**. If a significant proportion of samples were identified as being within mildly, moderately or highly aggressive ranges, the answer to the decision was Yes, otherwise the answer to the decision was No.
2. Is groundwater underlying the site characterised by saline and or aggressive characteristics?	Groundwater analytical data was compared against assessment criteria documented in **Section 6**. If any of the characteristic values for salinity or aggressivity were exceeded, the answer to the decision was Yes, otherwise the answer to the decision was No.
3. Is there the potential for existing salinity risk to be altered by the proposed development such that they pose an unacceptable risk to the future development and surrounding environment?	If the answer to any of the above decisions was yes (1a-c and 2) the answer to the decision was Yes. If all the above decisions were No, then the answer to the decision was No
4. Is a Site Management Strategy Required?	Is the answer to any of the above decisions Yes? If Yes, a site management strategy is required. If No, a site management strategy is not required.

5.1.6 Optimise the Design for Obtaining Data

DLWC (2002) presents a guide for the selection of the number of investigation locations required to characterise site conditions. With respect to the environmental setting of the site, a substantial body of information exists regarding the hydrogeological and salinity processes at the site (**Section 2**).

Historical site assessments have been conducted (PSM 2017) which included intrusive sampling at twelve locations within Lot Y (**Figure 5**), providing detailed profile descriptions within the area. Information from PSM (2017) was considered in conjunction with sampling and analysis undertaken as part of the current investigation to provide additional data pertaining to the anticipated landform and soil conditions at the site.

Landforms identified by review of the topographical site layout (**Appendix B**), site inspection observations and the regional site setting are listed in **Table 5.2.** Based on the identified landforms and site features, the intrusive sampling design is summarised in **Table 5.2**.

High risk media identified in **Table 5.2** is generally limited to surficial/shallow soils on all landscapes, but particularly on change of slopes and drainage channels. On this basis, soil inspection, sampling and analysis was focused towards such media. Distribution of analysis within the site was determined based on relative risk of site media.

Table 6.2 Data Points and Rationale

Landscape	Data Acquisition	Comments
Upper Slopes	27 x boreholes/test pits 12 x historical test pits (PSM 2017) 38 x soil samples analysed	This landscape comprises upper slopes over the majority of the site. Placement of investigation locations was targeted towards local changes of slope (where identified) to target regional 'worst case' characteristics. Boreholes were advanced to a maximum depth of 8.2 m bgs, into residual shale bedrock. Samples were analysed over a range of depths from the ground surface to 5.6 m bgs, with sample analysis over-represented within the top 1 m of soils to target potential salt accumulation, in accordance with the anticipated HGL characteristics (**Section 2**)
Lower Slopes	11 x boreholes/test pits 16 x soil samples analysed	This landscape comprises lower slopes over the central and western site portions. Placement of investigation locations was targeted towards local changes of slope (where identified) to target regional 'worst case' characteristics. Boreholes were advanced to a maximum depth of 7.2 m bgs, into residual shale bedrock. Samples were analysed over a range of depths from the ground surface to 6.1 m bgs. with sample analysis overrepresented within the top 1 m of soils to target potential salt accumulation, in accordance with the anticipated HGL characteristics (**Section 2**)
Drainage Channels	10 x boreholes/test pits 10 x soil samples analysed	Significant current/historical drainage channels at the site are limited to the central site portion. Placement of investigation locations was targeted towards local changes of slope, local erosional features and wet soils (where identified) to target regional 'worst case' characteristics. Boreholes were advanced to a maximum depth of 2.0 m bgs, into residual soils. Samples were analysed over a range of depths from the ground surface to 1.9 m bgs. Sample analysis was over-represented within the top 1 m of residual and depositional soils to target potential salt accumulation, in accordance with the anticipated HGL characteristics (**Section 2**).
Groundwater	3 x monitoring wells, screened and sampled	Screening of broad scale groundwater salinity potential is provided by installation of representative upgradient (upper slopes) and downgradient (lower slopes) groundwater wells. The installation of MW01 on the approximate upgradient site boundary and MW02 within the drainage channel (hydrogeological downgradient point) provides and indication of potential widespread salinity characteristics in shallow groundwater at the site.

5.2 Field Investigation Methodology

5.2.1 Soil

Soil investigation locations were advanced via a combination of excavator, drill rig and hand augers. Five of the targeted locations in Lot X (MW01, MW02, MW03, TP06 and TP07), were advanced via 150 mm diameter drill rig (push tube and solid flight auger method) to achieve the required depth of the investigation. Eight of the systematic holes in Lot X (TP08, TP10, TP14, TP19, TP23, TP27, TP25, and TP29), and two of the targeted holes in Lot 1 (TP400 and TP401) were advanced via 150 mm diameter hand auger, due to access restrictions precluding the use of plant. All remaining holes were advanced via excavator with a 300 mm diameter bucket, facilitating inspection of bulk soil.

Discrete samples were collected from undisturbed soils within push tube liners or directly from the backhoe bucket or directly from the hand auger, to a depth of at least 0.3 m into natural soils or prior refusal. Soil samples were generally collected from the ground surface, 0.3 m, 0.5 m and then at 0.5 m intervals to a to the maximum test pit depth.

Encountered conditions were recorded on field investigation logs to assist in the identification of natural and anthropogenic landforms at the site. During the collection of soil samples, features such as seepage, discolouration, staining, colour, texture, moisture content and inclusions were noted.

Collected samples were immediately transferred to laboratory supplied sample jars/bags (as appropriate). The sample jars/bags were then transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded to the testing laboratory with each sample batch. Based upon field observations, samples were analysed in accordance with the laboratory schedule (refer to **Table 5.3**).

All samples remained at the primary laboratory for a period of two months following the receipt of sample results for possible future analysis (subject to holding times) if required.

5.2.2 Groundwater

Three groundwater monitoring wells (MW01 to MW03), screened to intercept perched aquifer seepage were installed at the site, as shown on **Figure 5**, and MW01 was screened to intercept the shale aquifer.

The wells were constructed from 50 mm un-plasticised polyvinyl chloride (uPVC) screen and casing, with appropriate filter packs (sand), bentonite seals, and lockable caps to complete the wells. The wells were then completed as stand pipes to ensure they were not covered in the period intervening installation and sampling.

Newly installed groundwater monitoring wells were developed three days prior to sampling via the use of Waterra's Inertial Foot valves and low density polyethylene (LDPE) tubing to remove sediment disturbed during well installation and/or accumulation given the lapse in time. During development, the bores will be rapidly purged and then allowed to recharge. Development of monitoring wells was limited by groundwater recharge rates.

The monitoring wells were sampled using a peristaltic pump. In order to ensure groundwater representative of the target aquifer was obtained, the following procedure was adopted:

- Prior to sampling, groundwater levels were gauged with an interface probe to assess standing groundwater levels (SWLs) and the potential presence of non-aqueous phase liquids (NAPLs) within the groundwater well;
- Low flow pumping was undertaken with a peristaltic pump, using new disposable silicone/LDPE tubing as required for sampling at each monitoring well to remove standing/static water. Only a short length of silicone tubing was used in the peristatic pump head, the remainder of the tubing was of small diameter and relatively inert material, and no degassing was observed during field pumping. The LDPE tubing was lowered to the middle of the wetted screen length of the monitoring well prior to the commencement of purging;
- Purging of groundwater was then undertaken generally at a rate of 0.1 L to 0.5 L/minute while ensuring that the drawdown did not exceed 500 mm (as measured by interface probe) during the pumping event;
- Measurement of field parameters including pH, conductivity, redox potential, dissolved oxygen and temperature was completed at a frequency of once every 1 to 5 minutes dependent on the purging rate, using a multi-parameter probe/meter and a flow cell;

- During the development, purging and sampling, features such as discolouration, staining, odours and other indications of contamination were noted of field forms;
- Groundwater samples were obtained using the low-flow pump when three or more consecutive readings of field parameters met the following criteria: pH ± 0.05; Dissolved oxygen (DO) ± 10 % or 0.1 mg/L; EC ± 3 %; and Redox potential ± 10 mV (Vic EPA April 2000 *Groundwater Sampling Guidelines (VIC EPA 2000*);
- Collected groundwater samples were immediately transferred to sample containers of appropriate composition, which were pre-treated in a manner appropriate for the laboratory analysis. Groundwater samples were obtained in a manner that ensures no headspace remained in the bottles;
- Each of the sample bottles were labelled with the project ID, date, sampler's initials and unique monitoring well ID (or quality control sample name), using permanent ink marker on labels affixed to the sides of the bottles by the laboratory;
- All bottles were placed directly into a pre-chilled ice chest, for transport to the testing laboratories; and
- Chain of custody documentation were completed for each batch of samples relinquished to the laboratory and included: sample ID; number of bottles/vials; media type (i.e., water); project ID; name; date; and time of sampling and relinquishment.

At the completion of sampling at each location, single use sampling equipment was disposed of and re-useable equipment that potentially contacted groundwater including the interface probe was decontaminated as per the general procedures discussed above for non-disposable soil sampling equipment. Rinsate samples were collected to demonstrate the effectiveness of decontamination procedures.

Samples were analysed in accordance with the laboratory schedule (refer to **Table 5.3**). Sample locations are shown on **Figure 5**.

5.3 Laboratory Analysis

JBS&G contracted Eurofins MGT (Eurofins) as the primary laboratory, and Envirolab Services Pty Ltd (Envirolab) as the secondary laboratory. All laboratories were NATA registered for the required analyses. In addition, the laboratories met JBS&G's internal QA/QC requirements. The analytical schedule is presented in **Table 5.4**.

Not all soil samples collected were selected for analysis. Distribution of analysis was determined based on professional judgement to ensure that high risk media, identified based on field observations, was targeted as a priority. Additionally, sufficient coverage of natural landforms and fill material types was achieved via the distribution of the balance of analytical testing.

Table 5.4: Analytical Schedule

Condition	No. of Sample Locations	Analyses (exc. QA/QC)
Soil		
Salinity	38	Electrical conductivity (EC) – 67
Aggressivity		pH – 67 samples Chloride – 40 samples Sulfate – 40 samples Resistivity – 40 samples
Sodicity		Cation exchange capacity (CEC) – 40 samples Exchangeable sodium Percentage (ESP) – 40 samples
Groundwater		
Salinity	3	EC – 3 samples
Aggressivity		pH – 3 samples Chloride – 3 samples Sulfate – 3 samples

6. Assessment Criteria

6.1 Regulatory Guidelines

The investigation was undertaken with consideration to aspects of the following guidelines, as relevant:

- *Acid Sulfate Soil Manual.* NSW Acid Sulfate Soil Management Advisory Committee. August 1998 (ASSMAC 1998).
- *What Do All the Numbers Mean? A Guide for the Interpretation of Soil Test Results.* Hazelton and Murphy for Department of Land and Water Conservation (DLWC 1992);
- *Site Investigations for Urban Salinity*. Department of Land and Water Conservation. 2002, (DIPNR 2002); and
- *Australian Standard: Piling Design and Installation.* AS2159-2009, 2009, (SA 2009).

6.2 Assessment Criteria

As per the process for data interpretation presented in DLWC (2002), a set of site assessment criteria was adopted and used for evaluation of the environmental data collected for this assessment.

6.2.1 Salinity Criteria

The criteria used to classify saline soil is presented in **Table 6.1**. Salinity ratings (EC_e) are calculated by multiplying the electrical conductivity of a 1:5 soil: water extract by a factor dependant of soil texture ranging from 6 to 17 depending on soil type. Hazelton and Murphy (DLWC 1992) classify soil salinity on the basis of EC_e and describe the implications of the salinity classes on agriculture and/or plant growth below.

Table 6.1 Soil Salinity Classes

Class	EC_e (dS/cm)	Implication
Non Saline	<2	Salinity effects mostly negligible
Slightly Saline	2 – 4	Yields of sensitive crops affected
Moderately Saline	4 – 8	Yields of many crops affected
Very Saline	8 – 16	Only tolerant crops yield satisfactorily
Highly Saline	>16	Only a few very tolerant crops yield satisfactorily

Representative soil profile sample results were corrected for soil texture and the results compared against the above criteria to place material types into salinity classes.

Groundwater analytical results were compared against screening criteria adopted from ANZECC (2000[12]) for typical salinity of southeast NSW lowland rivers (125 to 2200 µS/cm).

6.2.2 Aggressivity

Laboratory analysis data for soil and groundwater samples was compared to sulfate, chloride and pH criteria to identify appropriate exposure classification or soil aggressivity levels for concrete and steel piles, developed from *AS 2159 – 2009 Piling Design and Installation*, presented in **Table 6.2** and **6.3** below.

[12] *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Volume 1 – The Guidelines*. Australian and New Zealand Environment and Conservation Council, October 2000, ANZECC 2000;

Table 6.2 Exposure Classification or Concrete Piles

Exposure Conditions				Exposure Classification (Aggressivity)
Sulfates (as SO_3) in soil (mg/kg)	Sulfates (as SO_3) in groundwater (mg/L)	pH	Chlorides in groundwater (mg/L)	Soil conditions – B (low permeability soils such as silts and clays)
<4000	<1000	> 5.5	<6000	Non-Aggressive
4000 – 8000	1000 – 3000	4.5 – 5.5	6000 – 12 000	Mild
8000 – 16 000	3000 – 10 000	4 – 4.5	12 000 – 30 000	Moderate
>16 000	> 10 000	<4	>30 000	Severe

Table 6.3 Exposure Classification or Steel Piles

Exposure Conditions				Exposure Classification (Aggressivity)
Chlorides (as SO_3) in soil (mg/kg)	Chlorides (as SO_3) in groundwater (mg/L)	pH	Resistivity (Ohms.cm)	Soil conditions – B (low permeability soils such as silts and clays)
<5000	<1000	> 5	>5000	Non-Aggressive
5000 – 20 000	1000 – 10 000	4 – 5	2000 – 5000	Non-Aggressive
20 000 – 50 000	10 000 – 20 000	3 – 4	1000 – 2000	Mild
>50 000	>20 000	<3	<1000	Moderate

6.2.3 Sodicity

Sodic soils may be affected by very severe surface crusting, very low infiltration and hydraulic conductivity, very hard and dense subsoils, high susceptibility to gully erosion and tunnel erosion. Sodicity also affects the shrink – swell properties of a soil. Sodicity characterisation of site soils will be identified via comparison of the laboratory analysis data against the sodicity ratings as shown in **Table 6.4** below, derived from DIPNR (2002).

Table 6.4 Sodicity Ratings

ESP %	Rating
<5	Non-sodic
5 – 15	Sodic
> 15	Highly Sodic

7. Results

7.1 Lithology and Soil Observations

The investigation locations encountered soil and lithology conditions broadly representative of the anticipated conditions based on the regional setting. Soil observations are presented in **Appendix F**, a summary of observations of lithology and soil are summarised following.

7.1.1 Upper Slopes

A total of twenty-seven test pit/borehole locations were advanced within upper slopes (MW01-02, TP00-TP04, TP100-101, TP200-201, TP300-301, TP10, TP14, TP19, TP21, TP23-25, TP27-29 and TP 31-33).

Nine of the locations (MW01, TP00-TP04, TP101, TP201 and TP300) were placed within the inferred Mount Vernon HGL extent and the remaining sixteen (MW03, TP10, TP14, TP19-31, TP23-25, TP27-29, TP31-33, TP100, TP200 and TP301) within the Shale Plains HGL.

Filling

Shallow filling was identified within the vicinity of and underlying site structures (TP00-TP04). The fill material was observed to comprise a mixture of road base gravel and natural site soils mixed with anthropogenic materials (gravel and other building/demolition constituents). Fill material in these locations ranged in depth from 0.2 m to 0.5 m bgs.

Residual soil

Residual soils were encountered at every investigation location to depths in excess of 2.0 m (the practical excavator reach) in all test pit locations advanced via excavator and 7.5 m (MW03) in boreholes advanced via drill rig. Residual soil was underlain by bedrock at MW01 (2.2 m bgs). Residual clays were encountered to depths ranging from 0.6 m (TP19) and 1.2 m bgs (TP06), the maximum achievable depth via hand auger method.

The soils comprised a mixture of silty clay, sandy clay and gravelly clay, ranging in depth from the ground surface to a maximum encountered depth of 7.5 m (MW03). The encountered soils were characterised by a mottled structure, typically grey and orange/red/brown, varying moisture content and medium to high plasticity.

Bedrock

Bedrock was encountered at location MW01 (2.2 m bgs), comprising grey shale. It is noted that clay with substantial proportions of weathered shale and ironstone gravels were present at numerous locations throughout the site.

7.1.2 Lower Slopes

A total of eleven test pit/borehole locations were advanced within the lower slopes (MW02, TP05-09, TP11, TP102, TP302, TP400-401). All of the locations were placed within the inferred extent of the Shale Plains HGL.

Reworked Natural / Topsoils

Shallow reworked natural materials and topsoils were present at TP05-09, TP11 and TP302. The reworked natural materials were noted to comprise a mixture of natural site soil mixed with roots/rootlets. This soil profile ranged in depth from 0.1 to 0.4 m bgs.

Alluvial/Colluvial Soil

Depositional soils were encountered at TP102, TP400 and TP401. The alluvial soils comprised a mixture of silty and clayey sand. The soil profile ranged in depth from 0.3 m to 0.4 m bgs and overlay residual clays.

Residual Soil

Residual soils were encountered at every investigation location to depths in excess of 2.0 m (the practical excavator reach) in all test pit locations advanced via excavator and to a maximum depth of 6.5 m bgs at MW02 advanced via drill rig. Residual soil was underlain by bedrock at MW02 (6.5 m bgs).

The soils comprised a mixture of silty clay, sandy clay and gravelly clay, ranging from the ground surface to a maximum encountered depth of 6.5 m (MW02). The encountered soils were characterised as mottled structures typically grey and orange/red/brown with varying moisture content and medium to high plasticity.

Bedrock

Bedrock was encountered at MW02 (6.5 m bgs). It is noted that clay with substantial proportions of weathered shale and ironstone gravels were present at TP21 (0.2->2.0 m bgs) and TP26 (0.3-2.0 m bgs).

7.1.3 Drainage Channels

A total of ten test pit/borehole locations were advanced within (current/former) drainage channels (TP12-13, T15-TP18, TP22, TP26, TP30 and TP34). All of the locations were placed within the inferred extent of the Shale Plains HGL. Bedrock was not encountered at any of the boreholes or test pits advanced in the Drainage Channels area.

Residual soil

Residual soils were encountered at every investigation location to depths in excess of 2.0 m (the practical excavator reach) in all test pit locations advanced via excavator. Bedrock was not encountered underlying the residual soils.

The soils comprised a mixture of silty clay, sandy clay and gravelly clay, ranging from the ground surface to a maximum encountered depth of 2.0 m (numerous locations). The encountered soils were characterised as mottled structures typically grey and orange/red/brown with varying moisture content and medium to high plasticity.

7.2 Analytical Results

Detailed laboratory reports and chain of custody documentation are provided in **Appendix G**. Summarised soil analytical data from the current assessment are presented in **Table A** 'Soil Analytical Results' and **Table B** 'Groundwater Analytical Results'.

7.2.1 Salinity

A total of sixty-seven soil samples were submitted for analysis of salinity (thirty-eight from upper slopes, sixteen from lower slopes and ten from drainage channels). Thirty two of the analysed samples were collected from the top 1 m of soils. Review of the datasets has indicated that shallow (0-1 m bgs) soils were typically less saline and deeper soils (>1 m bgs) were more saline. Analytical results for shallow and deeper soils have been therefore considered separately and results are presented following. Results for EC obtained from a 1:5 extract at 25 °C were multiplied by soil texture factors in accordance with DLWC (2002) and the resulting extract electrical conductivity (EC_e) values are discussed below:

Shallow Soils (0-1 m bgs):

- Upper Slopes: EC_e exhibited an average value of 2.78 dS/m within the slightly saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils;
- Lower Slopes: EC_e exhibited an average value of 1.30 dS/m within the non-saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils; and
- Drainage Channels: EC_e exhibited an average value of 0.56 dS/m within the non-saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils..

Comparison of results with the criteria presented in **Section 7.2.3** indicates that shallow soils on upper slopes should be considered slightly saline, whilst shallow soils on lower slopes and drainage channels should be considered non-saline .

Deep Soils (0-1 m bgs):

- Upper Slopes: EC_e exhibited an average value of 4.25 dS/m within the moderately saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils;
- Lower Slopes: EC_e exhibited an average value of 4.40 dS/m within the moderately-saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils; and
- Drainage Channels: EC_e exhibited an average value of 1.56 dS/m within the non-saline range. Review of the location of soils with elevated salinity did not identify a pattern to the lateral distribution of saline soils.

Comparison of results with the criteria presented in **Section 7.2.3** indicates that deep soils on upper and lower slopes should be considered moderately saline, and drainage channels should be considered non-saline .

7.2.2 Aggressivity

A total of forty soil samples were submitted for analysis of salinity, sodicity and aggressivity parameters (twenty-three from upper slopes, twelve from lower slopes and five from drainage channels).

Soil

A summary of results are as follows:

- Upper Slopes
  - pH ranged from 4.7 to 9.1 pH units with an average of 5.98 pH units. pH values were generally within the mildly-aggressive range with respect to concrete piles, with the balance of the values within the non-aggressive range. The pH values were all within the non-aggressive range with respect to steel piles;
  - Sulfate concentrations ranged from <30 to 300 mg/kg, all within the non-aggressive range with respect to concrete piles;
  - Chloride concentrations ranged from 7.4 to 1900 mg/kg, all within the non-aggressive range with respect to steel piles;
  - Resistivity values ranged from 8.7 to 220 ohm.m, all within the non-aggressive range with respect to steel piles; and
  - Based on the above, drainage channel soils are considered 'non-aggressive' with respect to both concrete and steel pile exposure.
- Lower Slopes
  - Soil pH ranged from 5.2 to 8.2 pH units with an average of 6.427 pH units. pH values were generally within the non-aggressive range with respect to concrete piles, apart two samples (TP05 1.0-1.1 and TP05 1.5-1.6) which were in the mildly aggressive range. The pH values were all within the non-aggressive range with respect to steel piles;
  - Sulfate concentrations ranged from <30 to 240 mg/kg, all within the non-aggressive range with respect to concrete piles;
  - Chloride concentrations ranged from <5 to 1100 mg/kg, all within the non-aggressive range with respect to steel piles;
  - Resistivity values ranged from 17 to 930 ohm.m, all within the non-aggressive range with respect to steel piles; and
  - Based on the above, lower slopes soils are considered 'non-aggressive' with respect to both concrete and steel pile exposure.
- Drainage Channels
  - Soil pH ranged from 5.1 to 6.2 pH units with an average of 5.75 pH units. pH values were generally within the non-aggressive range with respect to concrete piles, apart from three samples (TP18 0-0.1, TP22 0.6-0.7 and TP22 1.5-1.7) which were in the mildly aggressive range. The pH values were within the non-aggressive range with respect to steel piles;
  - Sulfate concentrations ranged from 33 to 99 mg/kg, all within the non-aggressive range with respect to concrete piles;
  - Chloride concentrations ranged from 32 to 210 mg/kg, all within the non-aggressive range with respect to steel piles;
  - Resistivity values ranged from 63 to 350 ohm.m, all within the non-aggressive range with respect to steel piles; and
  - Based on the above, drainage channel soils are considered 'non-aggressive' with respect to both concrete and steel pile exposure.

Regarding groundwater characteristics and exposure classifications for steel and concrete piles, the following comments are provided as follows:

- Groundwater pH ranged from 5.8 to 7.3 pH units with an average of 6.8 pH units. pH values were all within the non-aggressive range with respect to both concrete and steel piles.
- Chloride concentrations within groundwater were reported to range between 8300 mg/L to 14 000 mg/L, with an average of 10 533 mg/L. Comparison of the above results with the criteria presented in **Section 7.2.4** indicate that chlorides in groundwater are 'mildly aggressive' with respect to steel piles; and
- Sulfate concentrations within groundwater were reported to range between 820 mg/L to 1100 mg/L, with an average of 923 mg/L. Comparison of the above results with the criteria presented in **Section 7.2.4** indicate that sulfate in groundwater concentrations are 'non-aggressive' with respect to concrete piles.

7.2.3 Sodicity

A total of forty soil samples were submitted for analysis of salinity, sodicity and aggressivity parameters (twenty-three from upper slopes, twelve from lower slopes and five from drainage channels). Characteristics of soil which determine sodicity (exchangeable sodium percentage, ESP %) were generally consistent between material types with the following overall comments:

- Twenty-seven of the forty analysed samples were reported to have an ESP within the highly sodic range (>15 %);
- No evident pattern to the distribution of moderately/non sodic soils was observed within the data set; and
- On this basis, all soils at the site are considered to be highly sodic.

8. Discussion

8.1 Salinity

Desktop review of regional environmental conditions identified that soil conditions in the vicinity of the site represent a high potential for the occurrence of soils with elevated salinity. Intrusive investigation, media sampling and laboratory analysis of representative soil profile samples was undertaken in accordance with the methodology described in **Section 5**.

Analytical results for soil pH and EC_e exhibited variability between landforms at the site. Mildly and moderately saline soils were identified at the site in the natural soils of lower and upper slopes respectively. Natural soil strata within drainage channels are considered to be non-saline. Placed fill material and disturbed natural soils identified in a number of areas at the site typically exhibited lower salinity levels than the underlying natural soils. These natural soil conditions are typical of those encountered within the Mount Vernon and Shale Plains HGLs, being related to the marine depositional environment in which they were laid down.

It is noted that the EC_e of deeper soils (>1 m bgs) was substantially higher than of shallow soils (0-1.0 m bgs) in both upper and lower slopes. This indicates that shallow residual soils may have undergone salt leaching processes via rainwater infiltration over time and as such, retention of shallow soils over the underlying sub-soils acts to minimise the impact of the more saline soils on built infrastructure.

Salinity conditions at the site will require consideration during design and construction of the proposed development.

8.2 Aggressivity

The desktop review of regional environmental conditions identified the site exhibited a high potential for the occurrence of soils with elevated chlorides. Intrusive investigation, media sampling and laboratory analysis of representative soil profile samples was undertaken in accordance with the methodology described in **Section 5**.

Analytical results for soil pH, chloride and sulfate were generally consistent across all landforms at the site. Site soils did not contain elevated concentrations of chloride or sulfate, or pH values within the ranges which indicate the potential for broadscale conditions aggressive to built structures, including concrete or steel based building and/or services infrastructure as may be used in future development of the site.

Analytical results for groundwater identified chloride and sulfate concentrations are mildly aggressive towards concrete and steel where future building and/or services infrastructure is constructed such that they intersect the groundwater table, or otherwise be exposed to groundwater seepage.

Identification of these conditions to the development design team, including the civil works and structure/building/hydraulics engineering team and associated reference to AS2159-2009 is required to ensure appropriate design requirements are adopted for the development.

8.3 Sodicity

The desktop review of regional environmental conditions identified that the site exhibited a high potential for the occurrence of sodic soils. Intrusive investigation, media sampling and laboratory analysis of representative soil profile samples was undertaken in accordance with the methodology described in **Section 5**.

Analytical results for soil ESP as a measure of sodicity were generally consistent across all landforms at the site. Site soils are all considered to be highly sodic and therefore have a high erosion potential when disturbed.

As per the regional mapping advice, such conditions are consistent with those of this area. Future works that will result in vegetation removal and/or earthworks will be required to provide appropriate controls for management of the erosion hazard in accordance with best practice methods as outlined in current NSW construction guidelines and codes of practice. Such controls will be required to minimise the transport of sediment from the site into the adjoining environment and will require consideration of appropriate design and construction of temporary and permanent surface water drainage and sediment controls.

8.4 Site Management Strategy

It is understood that the site will be subject to extensive filling as part of the proposed development. Appropriate consideration of the site soil and groundwater conditions is necessary during the civil, hydraulics, landscaping and structural design of the proposed development to ensure appropriate management of the existing site conditions and minimise the risk of exacerbating soil limitations.

Management of these erosional characteristics and salinity hazards are consistent with standard development techniques adopted for broad scale earthworks programs in Western Sydney and should be incorporated into a construction environmental management plan (CEMP) for the redevelopment of the site.

Site Salinity/Sodicity Management Plan

To effectively manage the soil limitations at the site, the following management objectives should be established:

- Minimisation of erosion rates and resulting sediment loss to down-gradient areas during and following completion of the proposed earthworks; and
- Minimisation of the alteration to existing natural soil profiles and exposure of sub-surface soils to the extent practicable to reduce the potential for mobilisation of salt and the erosion hazard.

Where practicable, it is recommended that the existing soil profile and landforms are maintained with minimal disturbance. It is understood that a filling program to raise site levels is proposed, and as such, importation of suitable material to raise levels would act to minimise disturbance of the erosive soil and exposure of saline sub-soils to surface water.

However, where excavation and/or cut and fill works are required to achieve development objectives, including the installation of underground services, foundations, etc implementation of appropriate management controls for soil and surface water will be required. In addition, construction of inground infrastructure including drainage pits/pipes, foundations, floor slabs etc must consider the potential additional requirements with regard to aggressivity ratings in accordance with industry guidance and Australian Standards to maximise the lifetime of built structures and/or infrastructure associated with the development.

Given the quantum of material proposed to be imported, it is also anticipated that an importation management protocol will be required as part of the consent conditions and/or CEMP that defines the assessment requirements to demonstrate that only non-saline soil/fill material of suitable low aggressivity is placed at the site.

A detailed CEMP is required to include a detailed Soil and Water Management Plan section during the works. This plan will be required to be prepared and implemented in accordance with the guidance presented in Landcom's *Managing Urban Stormwater: Soils and Construction* (The Blue Book, 4th ed, 2004[13]).

[13] Information available at: https://www.environment.nsw.gov.au/stormwater/publications.htm

9. Conclusions and Recommendations

Based on the scope of investigation undertaken, based on the proposed commercial/industrial land use for the site, and in accordance with the limitations in **Section 12**, the following conclusions are provided:

- Desktop assessment identified the potential for regional salinity and sodicity characteristics to exist within natural soil strata at the site. Soils on upper and lower slopes are considered to be moderately and slightly saline respectively, with elevated salinity present in the deeper (>1 m below ground surface) soil profiles. Site soils present within all site landforms are considered to be 'highly sodic';
- Appropriate management controls as part of a broader CEMP to be developed for the earthworks and development stages will be necessary to ensure appropriate management of saline and sodic soil hazards, typical of areas on within the Mount Vernon and Shale Plains HGLs. Such conditions will also require consideration by the civil works and structural designers of future infrastructure and/or buildings to ensure appropriate precautions are implemented with regard to material in contact with the saline soil;
- Consideration of the saline nature of the soils and also shallow groundwater seepage system will be required by the development design team (including civil works and structural/building/hydraulics engineering team and landscape designers) to ensure appropriate materials are specified for the project;
- No potential for the presence of ASS was identified in the desktop assessment undertaken for this DSI. During site sampling, no indicators of ASS were observed within sampled material. On this basis, no management for the potential presence of ASS is required during or following redevelopment of the site.
- A CEMP is to be prepared for the site to address the identified soil conditions, including characteristic sodicity and saline nature of the soils and groundwater to appropriately mitigate potential risks to the development and surrounding area. In addition to the relevant Soil and Water Management sections of the CEMP and imported materials management protocol should also be developed to ensure that only material suitable for use as fill material is imported onto the site (i.e. non-saline, non-sodic soil/fill material).

10. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

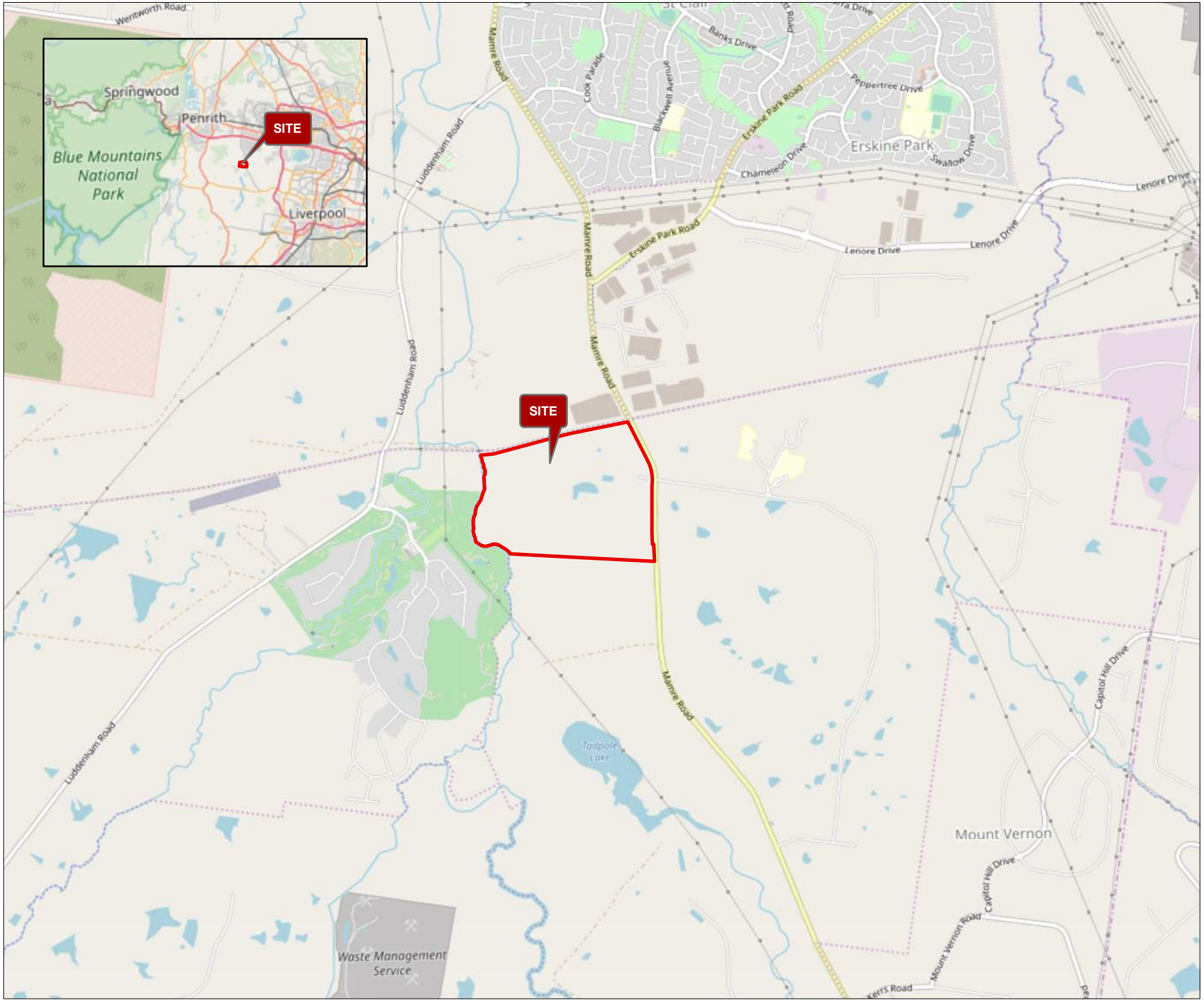
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on review of the regional environmental setting and relvant guidance.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown localised conditions, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend:

Approximate Site Boundary

JBS&G

Job No: 54963

Client: Altis Property Group

Version: R02 Rev A	Date: 19-Feb-2019
Drawn By: AV	Checked By: RH

Scale 1:40,000

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metres

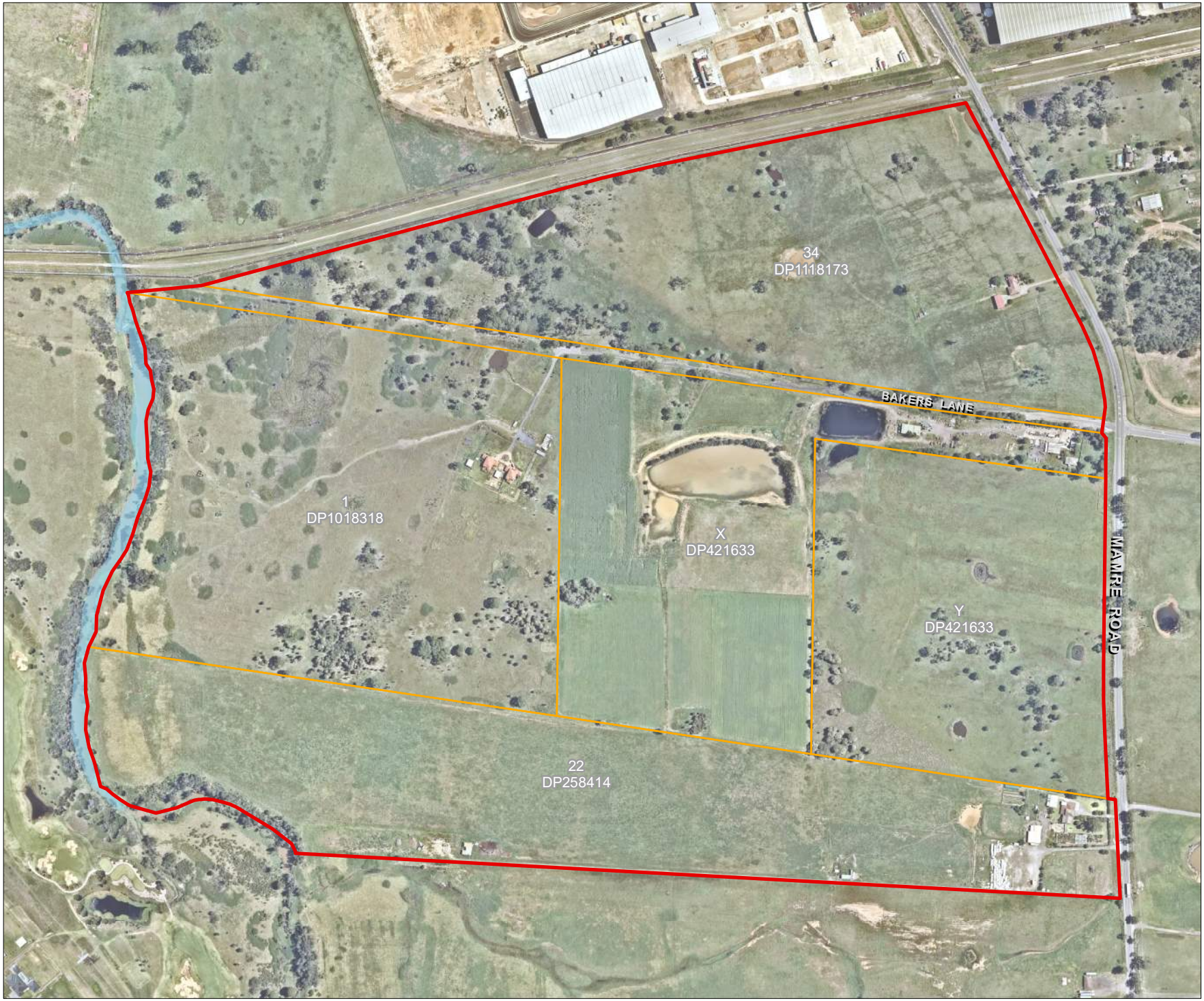
Coor. Sys. GDA 1994 MGA Zone 56

Mamre Road
Kemps Creek, NSW

SITE LOCATION

FIGURE 1

File Name: N:\Projects\Altis Property Group\54963 Mamre Road DSI\GIS\Maps\R02 Rev A\54963_01_SiteLoc.mxd
Reference: Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA



Legend:

- Approximate Site Boundary
- Lot Boundary
- South Creek

JBS&G

Job No: 54963

Client: Altis Property Group

Version: R02 Rev A	Date: 19-Feb-2019
Drawn By: AV	Checked By: RH

Scale 1:7,000

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metres

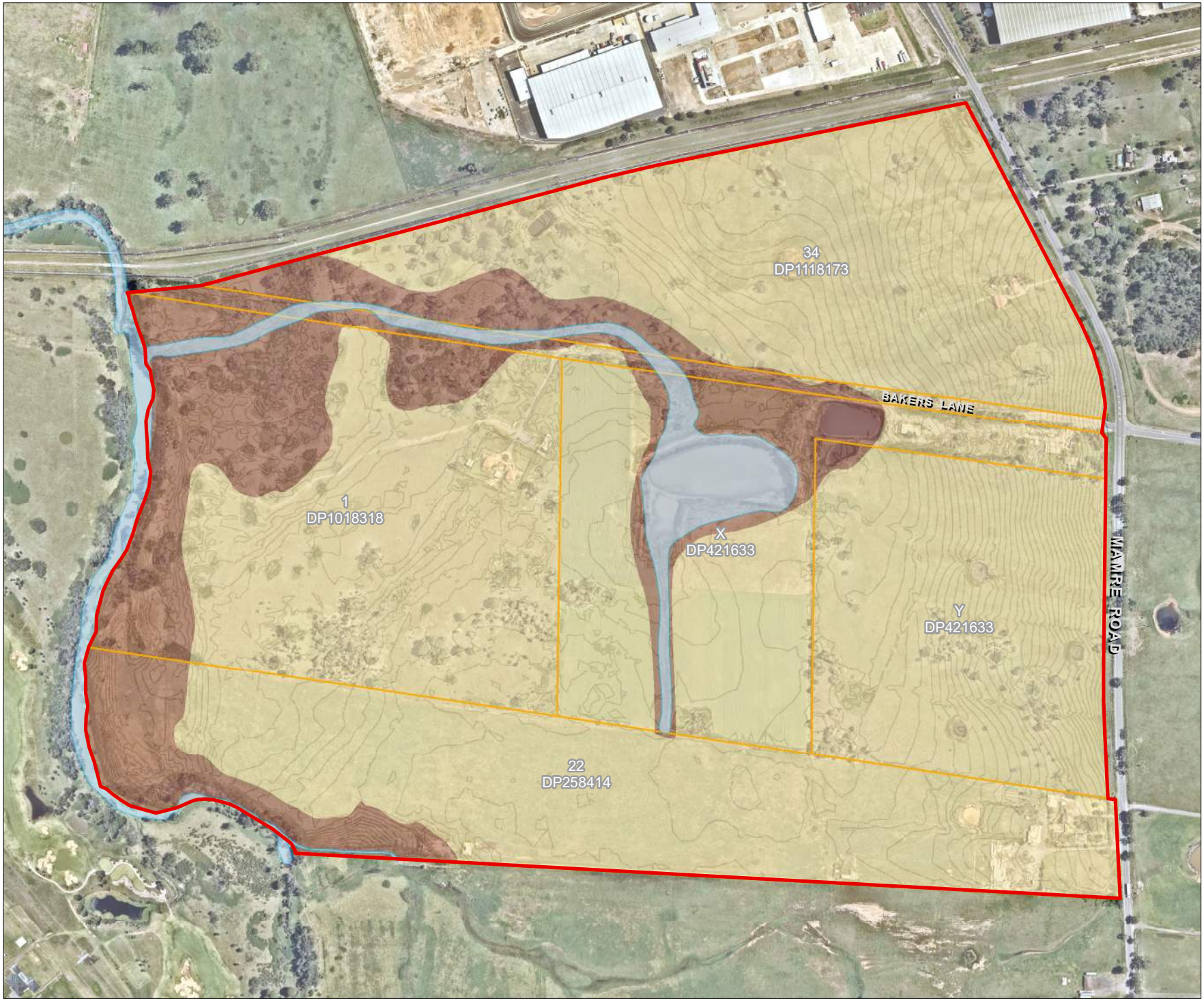
Coor. Sys. GDA 1994 MGA Zone 56

Mamre Road
Kemps Creek, NSW

SITE LAYOUT

FIGURE: 2

File Name: N:\Projects\Altis Property Group\54963 Mamre Road DSI\GIS\Maps\R02 Rev A\54963_02_SiteLay.mxd
Reference: Near Maps - http://www.nearmap.com.au/. Imagery 29 Dec 2018.



Legend:

- Approximate Site Boundary
- Lot Boundary
- Channels
- Lower Slopes
- Upper Slopes

JBS&G

Job No: 54963

Client: Altis Property Group

Version: R02 Rev A	Date: 19-Feb-2019
Drawn By: AV	Checked By: RH

Scale 1:7,000

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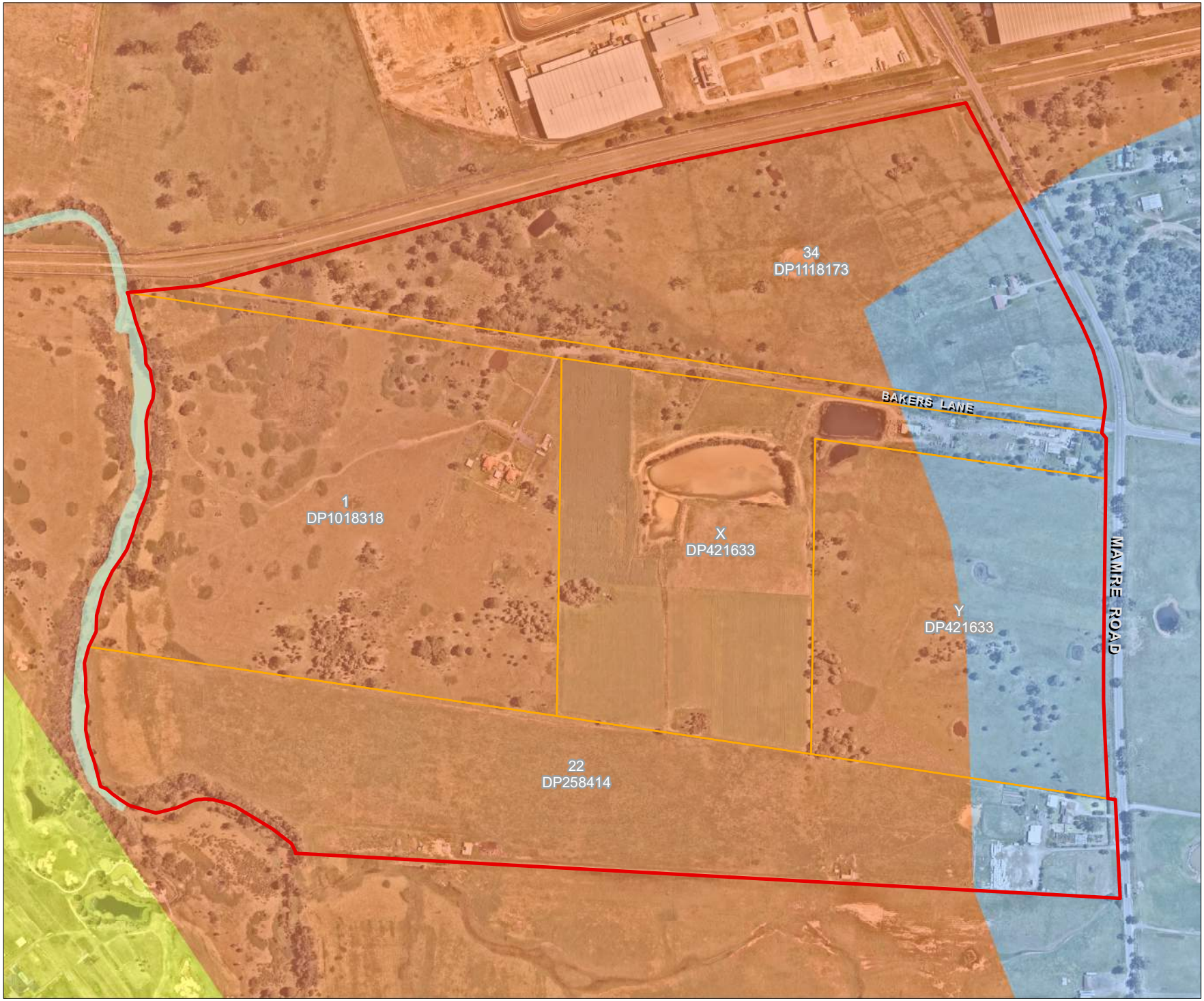
Coor. Sys. GDA 1994 MGA Zone 56

Mamre Road
Kemps Creek, NSW

SITE LANDFORMS

FIGURE: 3

File Name: N:\Projects\Altis Property Group\54963 Mamre Road DSI\GIS\Maps\R02 Rev A\54963_03_SiteLandforms.mxd
Reference: Near Maps - http://www.nearmap.com.au/. Imagery 29 Dec 2018.



Legend:

- Approximate Site Boundary
- Lot Boundary
- South Creek

Hydrogeological Landscapes

- Mount Vernon
- Upper South Creek
- Shale Plains

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Job No: 54963

Client: Altis Property Group

Version: R02 Rev A	Date: 19-Feb-2019
Drawn By: AV	Checked By: RH

Scale 1:7,000

0 80 160

metres

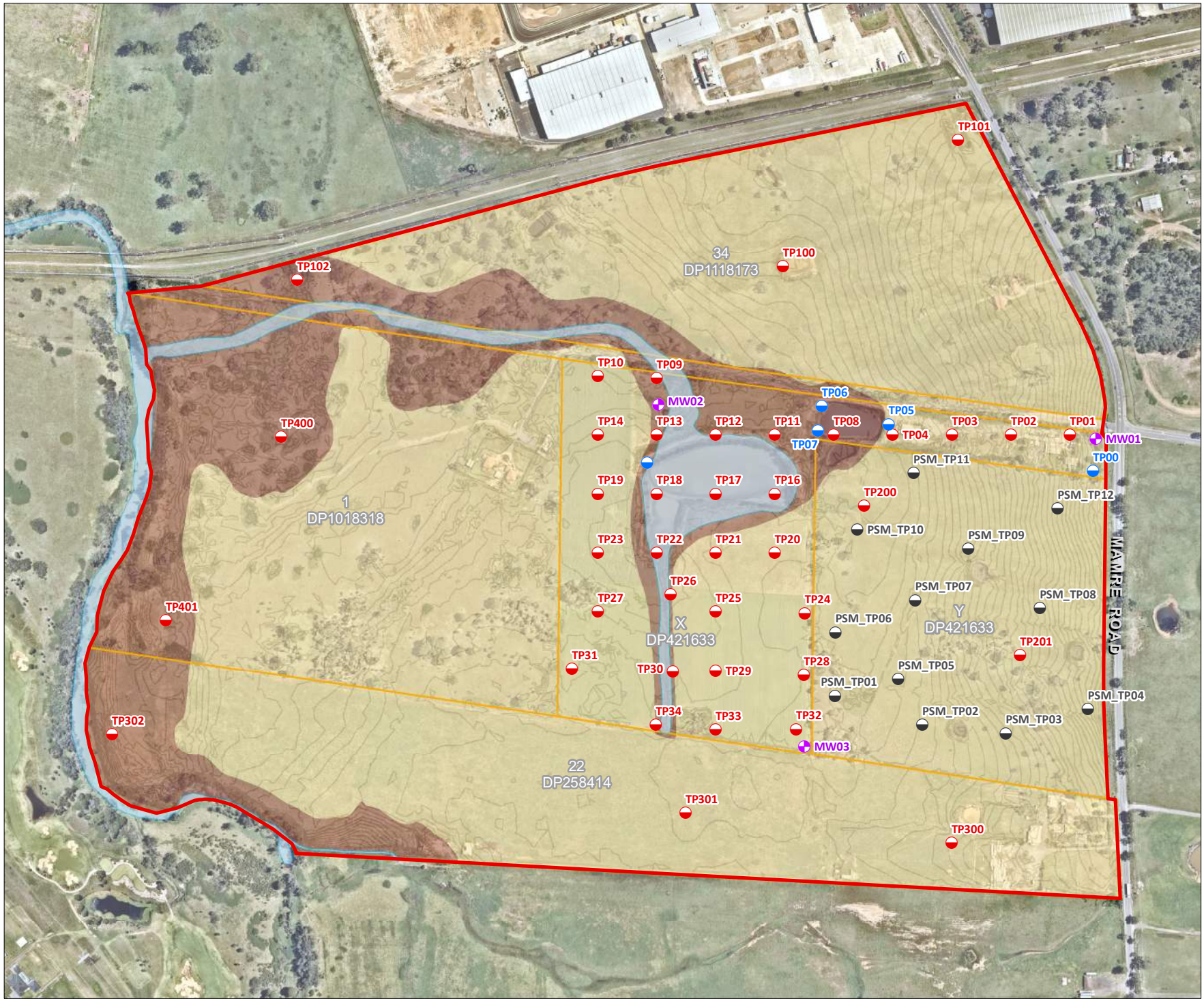
Coor. Sys. GDA 1994 MGA Zone 56

Mamre Road
Kemps Creek, NSW

REGIONAL HYDROGEOLOGICAL LANDSCAPES

FIGURE: 4

File Name: N:\Projects\Altis Property Group\54963 Mamre Road DSI\GIS\Maps\R02 Rev A\54963_04_HydroLandscapes.mxd
Reference: Near Maps - http://www.nearmap.com.au/. Imagery 29 Dec 2018.



Legend:

- Approximate Site Boundary
- Lot Boundary
- Channels
- Lower Slopes
- Upper Slopes

Historical Samples

- PSM 2017

Current Sample Locations

- Soil Sample Location
- Soil Sample Location - Targeted
- Soil Sample - Targeted / Groundwater Monitoring Well Location

JBS&G

Job No: 54963

Client: Altis Property Group

Version: R02 Rev A	Date: 19-Feb-2019
Drawn By: AV	Checked By: RH

Scale 1:7,000

0 80 160
metres

Coor. Sys. GDA 1994 MGA Zone 56

Mamre Road
Kemps Creek, NSW

SAMPLE LOCATIONS

FIGURE: 5

File Name: N:\Projects\Altis Property Group\54963 Mamre Road DSI\GIS\Maps\R02 Rev A\54963_05_SampleLoc.mxd
Reference: Near Maps - http://www.nearmap.com.au/. Imagery 29 Dec 2018.

Table A Soil Analytical Results

Table A - Soil Analysis Results
Project Number: 54963
Project Name: Mamre Road, Kemps Creek

	Sodicity						Aggressivity				Salinity		Other	
	Cation Exchange Capacity	Exchangeable Ca	Exchangeable Mg	Exchangeable K	Exchangeable Na	Exchangeable Sodium Percentage (ESP)	Sulphate (as SO4)	Chloride	Resistivity*	pH 1:5 soil:water	EC 1:5 soil:water	ECe (Texture Corrected Conductivity)	% Clay	% Moisture 103oC
	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	mg/kg	mg/kg	OHM.M	ph Units	µS/cm	dS/m	%	%
EQL	0.05	0.1	0.1	0.1	0.1	0.1	30	5	0.5	0.1	10	5	1	1
Hazelton and Murphy (DLWC 1992) - Slightly Saline												2		
Hazelton and Murphy (DLWC 1992) - Moderatley Saline												4		
Hazelton and Murphy (DLWC 1992) - Very Saline												8		
Hazelton and Murphy (DLWC 1992) - Highly Saline												16		
AS 2159-2009 Exposure Classification for Concrete Piles - Mildly Aggressive							4000			4.5-5.5				
AS 2159-2009 Exposure Classification for Concrete Piles - Moderately Aggressive							8000			4.0-4.5				
AS 2159-2009 Exposure Classification for Concrete Piles - Severely Aggressive							16,000			<4.0				
AS 2159-2009 Exposure Classification for Steel Piles - Mildly Aggressive								10,000	<2000	3.0-4.0				
AS 2159-2009 Exposure Classification for Steel Piles - Moderately Aggressive								20,000	<1000	<3.0				
DIPNR (2002) - Sodic						5								
DIPNR (2002) - Highly Sodic						15								

Sample ID	Location	Depth	Date	Landform	Matrix	Texture	Conversion Factor													
MW01 0.4-0.5	MW01	0.4-0.5	29/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5	550	4.4	-	17
MW01 1.0-1.1	MW01	1-1.1	29/01/2019	Upper Slopes	Natural	Clay	8	15	0.6	11	0.2	3.7	24	300	1500	12	4.8	830	6.64	25	14
MW01 1.5-1.6	MW01	1.5-1.6	29/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	6.5	290	2.32	-	9.9
MW01 5.5-5.6	MW01	5.5-5.6	29/01/2019	Upper Slopes	Natural	Clay	8	35	28	4.8	0.5	1.2	3.3	110	880	15	9.1	670	5.36	-	17
MW02 0.4-0.5	MW02	0.4-0.5	29/01/2019	Lower Slopes	Natural	Clay	8	13	0.3	8.9	0.1	3.4	26	150	660	28	6.2	350	2.8	-	17
MW02 1.9-2.0	MW02	1.9-2	29/01/2019	Lower Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.6	610	4.88	-	16
MW02 3.0-3.1	MW02	3-3.1	29/01/2019	Lower Slopes	Natural	Clay	8	6.8	0.2	4	<0.1	2.5	37	91	1100	17	5.9	600	4.8	-	14
MW02 6.0-6.1	MW02	6-6.1	29/01/2019	Lower Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	8.2	730	5.84	-	13
MW03 0.4-0.5	MW03	0.4-0.5	29/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5	1000	8	-	17
MW03 0-0.2	MW03	0-0.2	29/01/2019	Upper Slopes	Natural	Clay	8	17	3.5	11	0.3	2.3	14	45	230	52	7.3	190	1.52	-	9
MW03 1.5-1.6	MW03	1.5-1.6	29/01/2019	Upper Slopes	Natural	Clay	8	4	<0.1	2.2	<0.1	1.7	43	230	1900	9.1	5.9	1100	8.8	-	13
MW03 2.9-3.0	MW03	2.9-3	29/01/2019	Upper Slopes	Natural	Clay	8	2.9	<0.1	1.5	<0.1	1.3	44	170	1900	8.7	7.3	1200	9.6	-	14
TP00 0.2-0.3	TP00	0.2-0.3	30/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	6	20	0.16	-	15
TP00 0.4-0.5	TP00	0.4-0.5	30/01/2019	Upper Slopes	Natural	Clay	8	7.4	1.9	4.4	0.1	1	14	37	36	220	6.3	46	0.368	-	9.6
TP00 1.0-1.1	TP00	1-1.1	30/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.5	420	3.36	-	9.5
TP01 0.2-0.3	TP01	0.2-0.3	30/01/2019	Upper Slopes	Fill	Clay	8	-	-	-	-	-	-	-	-	-	6.4	140	1.12	-	10
TP01 1.0-1.1	TP01	1-1.1	30/01/2019	Upper Slopes	Natural	Clay	8	13	0.3	9.3	0.2	3.4	26	310	910	14	5	700	5.6	27	10
TP02 0.2-0.3	TP02	0.2-0.3	30/01/2019	Upper Slopes	Fill	Clay	8	-	-	-	-	-	-	-	-	-	8.4	94	0.752	-	11
TP02 0-0.15	TP02	0-0.15	30/01/2019	Upper Slopes	Fill	Clay	8	38	36	1.7	0.5	0.4	1	<30	21	98	7.9	100	0.8	-	21
TP02 1.0-1.1	TP02	1-1.1	30/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.7	280	2.24	-	13
TP05 1.0-1.1	TP05	1-1.1	30/01/2019	Lower Slopes	Natural	Clay	8	4.1	0.3	2.8	<0.1	1	23	90	580	22	5.2	450	3.6	-	12
TP05 1.5-1.6	TP05	1.5-1.6	30/01/2019	Lower Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.4	880	7.04	-	19
TP06 0.8-0.9	TP06	0.8-0.9	29/01/2019	Lower Slopes	Natural	Clay	8	8.3	0.9	5.1	<0.1	2.2	26	240	430	29	5.7	340	2.72	-	14
TP100 0.4-0.5	TP100	0.4-0.5	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.1	400	3.2	-	11
TP100 0-0.1	TP100	0-0.1	4/02/2019	Upper Slopes	Fill	Clay	8	13	0.7	8.3	0.2	3.5	27	100	160	56	6.3	180	1.44	-	11
TP100 1.0-1.1	TP100	1-1.1	4/02/2019	Upper Slopes	Natural	Clay	8	7.8	0.4	5.5	0.2	1.7	22	84	270	32	5.5	320	2.56	-	13
TP100 1.9-2.0	TP100	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.2	430	3.44	-	14
TP101 0.2-0.3	TP101	0.2-0.3	4/02/2019	Upper Slopes	Natural	Clay	8	12	1.2	6.3	0.5	3.7	31	120	150	43	5.4	230	1.84	-	8.8
TP101 1.1-1.2	TP101	1.1-1.2	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	6.3	45	0.36	-	6.9
TP101 1.9-2.0	TP101	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	9.6	<0.1	6.8	0.2	2.6	27	<30	170	69	5.7	150	1.2	-	12
TP102 0.0-0.1	TP102	0-0.1	4/02/2019	Lower Slopes	Fill	Sand	17	2.7	0.9	1.4	<0.1	0.3	11	<30	5.1	930	7.3	11	0.187	-	9.1
TP102 0.5-0.6	TP102	0.5-0.6	4/02/2019	Lower Slopes	Natural	Clay	8	10	0.2	7.2	0.2	2.8	27	51	120	89	5.9	110	0.88	-	14
TP12 1.0-1.1	TP12	1-1.1	30/01/2019	Drainage Channels	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.7	200	1.6	-	17
TP12 1.8-1.9	TP12	1.8-1.9	30/01/2019	Drainage Channels	Natural	Clay	8	19	2	11	0.3	5.6	29	43	210	63	6.2	160	1.28	-	13
TP15 0.3-0.4	TP15	0.3-0.4	30/01/2019	Drainage Channels	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.9	30	0.24	-	12
TP15 0-0.1	TP15	0-0.1	30/01/2019	Drainage Channels	Fill	Clay	8	12	2	8.4	0.3	1.3	11	33	32	350	6.2	28	0.224	-	15
TP15 1.7-1.8	TP15	1.7-1.8	29/01/2019	Drainage Channels	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.9	400	3.2	-	12
TP18 0-0.1	TP18	0-0.1	30/01/2019	Drainage Channels	Fill	Clay	8	14	1.3	10	0.3	2.3	16	99	42	120	5.4	83	0.664	-	13
TP18 1.0-1.1	TP18	1-1.1	30/01/2019	Drainage Channels	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.8	130	1.04	-	14
TP20 1.0-1.1	TP20	1-1.1	31/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.1	330	2.64	-	11
TP20 1.7-1.8	TP20	1.7-1.8	31/01/2019	Upper Slopes	Natural	Clay	8	8.1	0.6	5	0.1	2.3	28	81	530	28	5.3	350	2.8	-	11
TP200 0.5-0.6	TP200	0.5-0.6	4/02/2019	Upper Slopes	Natural	Clay	8	12	1.5	8	0.2	2.3	19	250	1900	15	5.2	660	5.28	-	17
TP200 1.0-1.1	TP200	1-1.1	4/02/2019	Upper Slopes	Natural	Clay	8	13	0.8	8.2	0.1	3.5	28	160	1500	8.7	5	1100	8.8	-	16
TP200 1.9-2.0	TP200	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	4.9	330	2.64	-	19
TP201 0.0-0.1	TP201	0-0.1	4/02/2019	Upper Slopes	Fill	Clay	8	9.2	2.5	6	0.2	0.6	6	72	7.4	18	7	550	4.4	-	9.2
TP201 1.0-1.1	TP201	1-1.1	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.1	810	6.48	-	17
TP201 1.9-2.0	TP201	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	13	0.4	9.7	0.3	3.1	23	190	1200	12	5	810	6.48	-	15
TP22 0.6-0.7	TP22	0.6-0.7	31/01/2019	Drainage Channels	Natural	Clay	8	8.8	1.3	5.2	0.2	2.2	25	82	49	110	5.2	92	0.736	-	14
TP22 1.5-1.6	TP22	1.5-1.6	31/01/2019	Drainage Channels	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.1	84	0.672	-	15
TP30 0-0.1	TP30	0-0.1	31/01/2019	Drainage Channels	Fill	Clay	8	12	4.2	6.3	0.2	1.5	12	65	41	83	6.1	120	0.96	-	14
TP300 0.4-0.5	TP300	0.4-0.5	4/02/2019	Upper Slopes	Natural	Clay	8	17	2.6	10	0.3	3.6	21	150	360	43	7.2	230	1.84	-	5.6
TP300 1.0-1.1	TP300	1-1.1	4/02/2019	Upper Slopes	Natural	Clay	8	17	2.3	10	0.3	4.6	26	290	570	47	6.2	210	1.68	-	12
TP300 1.9-2.0	TP300	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	8.1	650	5.2	-	11
TP301 0.4-0.5	TP301	0.4-0.5	4/02/2019	Upper Slopes	Natural	Clay	8	15	7	6.3	0.3	1.5	10	120	38	68	5.9	150	1.2	-	10
TP301 1.0-1.1	TP301	1-1.1	4/02/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	6.9	67	0.536	-	9.2
TP301 1.9-2.0	TP301	1.9-2	4/02/2019	Upper Slopes	Natural	Clay	8	15	0.9	9.7	0.2	4.4	29	230	410	33	5.6	300	2.4	-	13
TP302 0.0-0.1	TP302	0-0.1	4/02/2019	Lower Slopes	Fill	Clay	8	12	8.8	2.4	0.5	0.2	1.3	<30	13	170	6.6	61	0.488	-	10
TP302 0.5-0.6	TP302	0.5-0.6	4/02/2019	Lower Slopes	Natural	Clay	8	11	5.5	5.2	0.2	0.4	3.8	68	5.5	310	6.7	32	0.256	-	10
TP302 1.9-2.0	TP302	1.9-2	4/02/2019	Lower Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	7.4	30	0.24	-	8.8
TP31 0.4-0.5	TP31	0.4-0.5	31/01/2019	Upper Slopes	Natural	Clay	8	18	0.2	12	0.3	5.4	30	<30	83	80	6	120	0.96	-	15
TP32 0.7-0.8	TP32	0.7-0.8	31/01/2019	Upper Slopes	Natural	Clay	8	15	0.2	8.9	0.2	5.9	39	180	1600	8.9	4.7	1100	8.8	-	14
TP32 0-0.1	TP32	0-0.1	31/01/2019	Upper Slopes	Fill	Clay	8	-	-	-	-	-	-	-	-	-	5.2	210	1.68	-	6.1
TP32 1.7-1.8	TP32	1.7-1.8	31/01/2019	Upper Slopes	Natural	Clay	8	-	-	-	-	-	-	-	-	-	5.2	1200	9.6	-	14
TP400 0.4-0.5	TP400	0.4-0.5	4/02/2019	Lower Slopes	Natural	Clay	8	5.6	0.5	3.8	<0.1	1.2	22	96	44	59	7.1	170	1.36	-	11
TP400 0.8-0.9	TP400	0.8-0.9	4/02/2019	Lower Slopes	Natural	Clay	8	12	0.5	8.3	0.2	2.9	24	38	320	32	7.2	310	2.48	-	18
TP401 0.0-0.1	TP401	0-0.1	4/02/2019	Lower Slopes	Fill	Sand	17	2.4	1.3	0.8	0.3	0.1	5.6	<30	<5	510	6	20	0.34	-	7
TP401 0.4-0.5	TP401	0.4-0.5	4/02/2019		Natural	Clay	8	8.4	0.8	6.3	0.2	1.2	14	68	8.1	320	6.3	32	0.256	-	14

Table B Groundwater Analytical Results

Table B - Groundwater Analytical Results
Project Number: 54963
Project Name: Mamre Road, Kemps Creek

	Major Anions			Ionic Balance	
	Sulphate (as S04)	Chloride	pH	Electrical Conductivity @ 25 °C	Total Alkalinity (as CaCO3)
	mg/L	mg/L	mg/L	µS/cm	mg/L
EQL	1	1	5	1	5
AS 2159-2009 Exposure Classification for Concrete Piles - Mildly Aggressive	1000		4.5-5.5		
AS 2159-2009 Exposure Classification for Concrete Piles - Moderately Aggressive	3000		4-4.5		
AS 2159-2009 Exposure Classification for Concrete Piles - Severely Aggressive	10,000		<4.0		
AS 2159-2009 Exposure Classification for Steel Piles - Mildly Aggressive		10,000	3.0-4.0		
AS 2159-2009 Exposure Classification for Steel Piles - Moderately Aggressive		20,000	<3.0		

Field_ID	LocCode	WellCode	Sampled_Date-Time					
MW01	MW01	MW01	1/02/2019	850	8400	7.2	27,000	1100
QA20190201	MW01	MW01	1/02/2019	850	8300	7.3	27,000	1100
QC20190201	MW01	MW01	1/02/2019	930	8300	6.6	23,000	1200
MW02	MW02	MW02	1/02/2019	820	9300	5.8	21,000	1000
MW03	MW03	MW03	1/02/2019	1100	14000	7.3	40,000	1300

Appendix A Photographic Log

PHOTO 1. 657-703 MAMRE ROAD BACK OF MAIN RESIDENCE



PHOTO 2. 657-703 MAMRE ROAD MAIN SHED



PHOTO 3. 657-703 SMALLER SHED INTERIOR, NORTH OF MAIN SHED



PHOTO 4: 657-703 MAMRE ROAD POTENTIAL ACM PIPE FRAGMENT



JBS&G

Job No: 54963	
Client: Altis Property Group	
Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH
Not to Scale	
Coord. Sys n/a	

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 5: 657-703 MAMRE ROAD ANIMAL SHELTER



PHOTO 6: 657-703 MAMRE ROAD FEED SHED



PHOTO 7: BUILDING MATERIALS SURROUNDING FEED SHED



PHOTO 8: DISUSED WASHING MACHINE TO THE SOUTH OF THE ANIMAL SHELTER



JBS&G

Job No: 54963	
Client: Altis Property Group	
Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH
Not to Scale	
Coord. Sys n/a	

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 9. 657-703 MAMRE ROAD TOOL SHED



PHOTO 10. 657-703 MAMRE ROAD DAM WALL EMBANKMENTS



PHOTO 11. 657-703 MAMRE ROAD DENSE BUSH SHRUBBERY IN WESTERN AND NORTH-EASTERN PORTION OF THE SITE



PHOTO 12: 657-703 MAMRE ROAD DENSE BUSH SHRUBBERY IN WESTERN AND NORTH-EASTERN PORTION OF THE SITE



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 13: 657-703 MAMRE ROAD CHANGE IN VEGETATION BORDERING BAKERS LANE



PHOTO 14: 707A MAMRE ROAD DAM AND RAISED EMBANKMENT BORDERING BAKERS LANE



PHOTO 15: 707A MAMRE ROAD SEALED ASPHALT DRIVEWAY



PHOTO 16: 707A MAMRE ROAD CARPARK AREA



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 17: 707A MAMRE ROAD EASTERN RESIDENCE



PHOTO 18: 707A MAMRE ROAD MAIN WESTERN RESIDENCE



PHOTO 19: 707A MAMRE ROAD TIN SHELTER



PHOTO 20: 707A MAMRE ROAD INTERIOR OF MARQUEE



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 21: 707A MAMRE ROAD STORED APPLIANCES INSIDE MARQUEE



PHOTO 22: 707A MAMRE ROAD TIN SHED



PHOTO 23: 707A MAMRE ROAD ANIMAL SHELTER



PHOTO 24: 707A MAMRE ROAD WOODEN STRUCTURES IN SOUTH-WESTERN PORTION OF SITE



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 25: 707A MAMRE ROAD WOODEN STRUCTURES IN SOUTH-WESTERN PORTION OF SITE



PHOTO 26: 707A MAMRE ROAD RECREATIONAL FACILITY WITH DRUMS



PHOTO 27: 707A MAMRE ROAD RECREATIONAL FEATURE DRUMS



PHOTO 28: 707A MAMRE ROAD BURN AREA



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 29: 713-755 MAMRE ROAD RAISED DAM WALL, SOUTHERN PORTION



PHOTO 30: 713-755 MAMRE ROAD RAISED DAM WALL, EASTERN PORTION BORDERING MAMRE ROAD



PHOTO 31: 713-755 MAMRE ROAD INCREASED VEGETATION GROWTH



PHOTO 32: 713-755 MAMRE ROAD GENERAL SITE, NORTH-EAST FACING



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 33: 713-755 MAMRE ROAD GENERAL SITE, NORTH FACING



PHOTO 34: 767-789 MAMRE ROAD MAIN RESIDENCE



PHOTO 35: 767-789 MAMRE ROAD SMALLER RESIDENCE



PHOTO 36: 767-789 MAMRE ROAD VEGETABLE GARDEN



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 37: 767-789 MAMRE ROAD CHICKEN COOP



PHOTO 38: 767-789 MAMRE ROAD ANIMAL SHELTER



PHOTO 39: 767-789 MAMRE ROAD MAIN SHED INTERIOR



PHOTO 40: 767-789 MAMRE ROAD MAIN SHED INTERIOR



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 41: 767-789 MAMRE ROAD HISTORICAL TOILET BLOCK



PHOTO 42: 767-789 MAMRE ROAD ANIMAL SHELTER



PHOTO 43: 767-789 MAMRE ROAD SECONDARY SHED AND CARAVAN



PHOTO 44: 767-789 MAMRE ROAD MACHINERY SHED



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 45: 767-789 MAMRE ROAD HISTORICAL TOILET BLOCK



PHOTO 46: 767-789 MAMRE ROAD CONCRETE STORAGE AREA



PHOTO 47: 767-789 MAMRE ROAD STORED CONCRETE SLABS



PHOTO 48: 767-789 MAMRE ROAD STOCKPILE WEST OF MAIN SHED



JBS&G

Job No: 54963	
Client: Altis Property Group	
Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH
Not to Scale	
Coord. Sys n/a	

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 49: 767-789 MAMRE ROAD STOCKPILE WEST OF THE CONCRETE STORAGE AREA



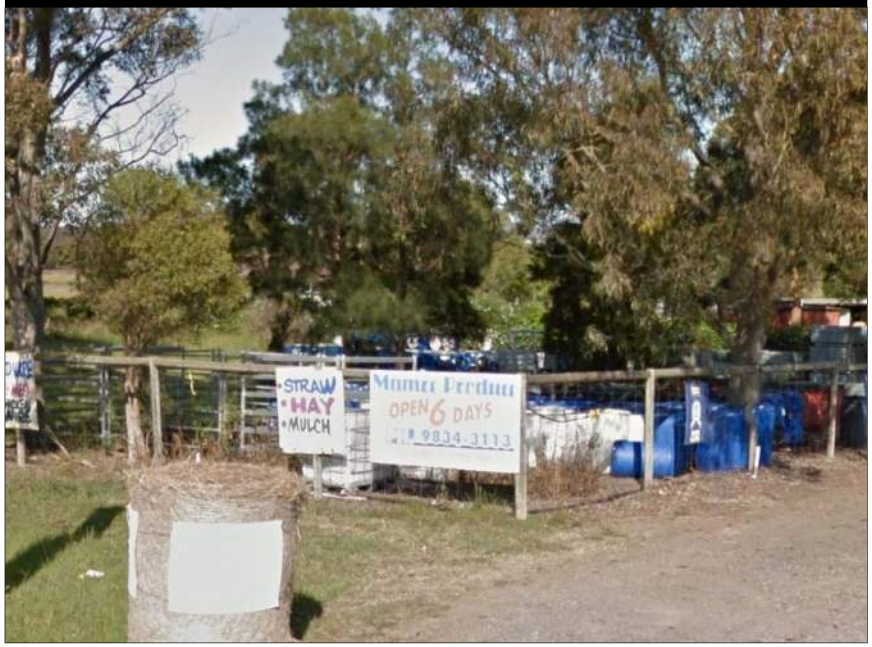
PHOTO 50: 767-789 MAMRE ROAD RAISED EMBANKMENT



PHOTO 51: 767-789 MAMRE ROAD BUILDING MATERIAL STOCKPILE



PHOTO 52: 707-711 MAMRE ROAD MAMRE PRODUCE



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 53: 707-711 MAMRE ROAD SITE ENTRY



PHOTO 54: 707-711 MAMRE ROAD SITE EXIT



PHOTO 55: 707-711 MAMRE ROAD NORTHERN DAM



PHOTO 56: 707-711 MAMRE ROAD CENTRAL DAM



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 57: MAMRE PRODUCE STORAGE AREA



PHOTO 58: 707-711 MAMRE PRODUCE STORAGE AREA WITH STORAGE SHED (LEFT)



PHOTO 59: 707-711 MAMRE PRODUCE STORAGE AREA WESTERN SHED



PHOTO 60: 707-711 MAMRE PRODUCE WESTERN SHED AND STORAGE TANKS



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 61: 707-711 MAMRE PRODUCE STORAGE



PHOTO 62: 707-711 MAMRE PRODUCE STORAGE



PHOTO 63: 707-711 MAMRE PRODUCE STORAGE



PHOTO 64: 707-711 MAMRE PREODUCE STORAGE



JBS&G

Job No: 54963	
Client: Altis Property Group	
Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH
Not to Scale	
Coord. Sys n/a	

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 65: 707-711 MAMRE ROAD STORED CONSTRUCTION MATERIALS



PHOTO 66: 707-711 MAMRE ROAD STORED CONSTRUCTION MATERIALS



PHOTO 67: 707-711 MAMRE ROAD WESTERN BOUNDARY OF PROPERTY AT CENTRAL/SOUTHERN PORTION INTERSECTION



PHOTO 68: 707-711 MAMRE ROAD BOUNDARY OF CENTRAL AND SOUTHERN PORTIONS (FACING WEST)



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 69: WEATHERED SHALE MW01



PHOTO 70: SATURATED WEATHERED SHALE MW01



PHOTO 71: HIGH PLASTICITY SILTY CLAY MW02



PHOTO 72: SILTY CLAY GREY BROWN MOTTLING MW02



JBS&G

Job No: 54963

Client: Altis Property Group

Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH

Not to Scale

Coord. Sys n/a

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

PHOTO 73: TP31 SILTY CLAY



PHOT 73: TP01 ACM FRAGMENT (0.1-0.3)



PHOTO 74: TP02 ASPHALTIC GRAVELS AND SLAG



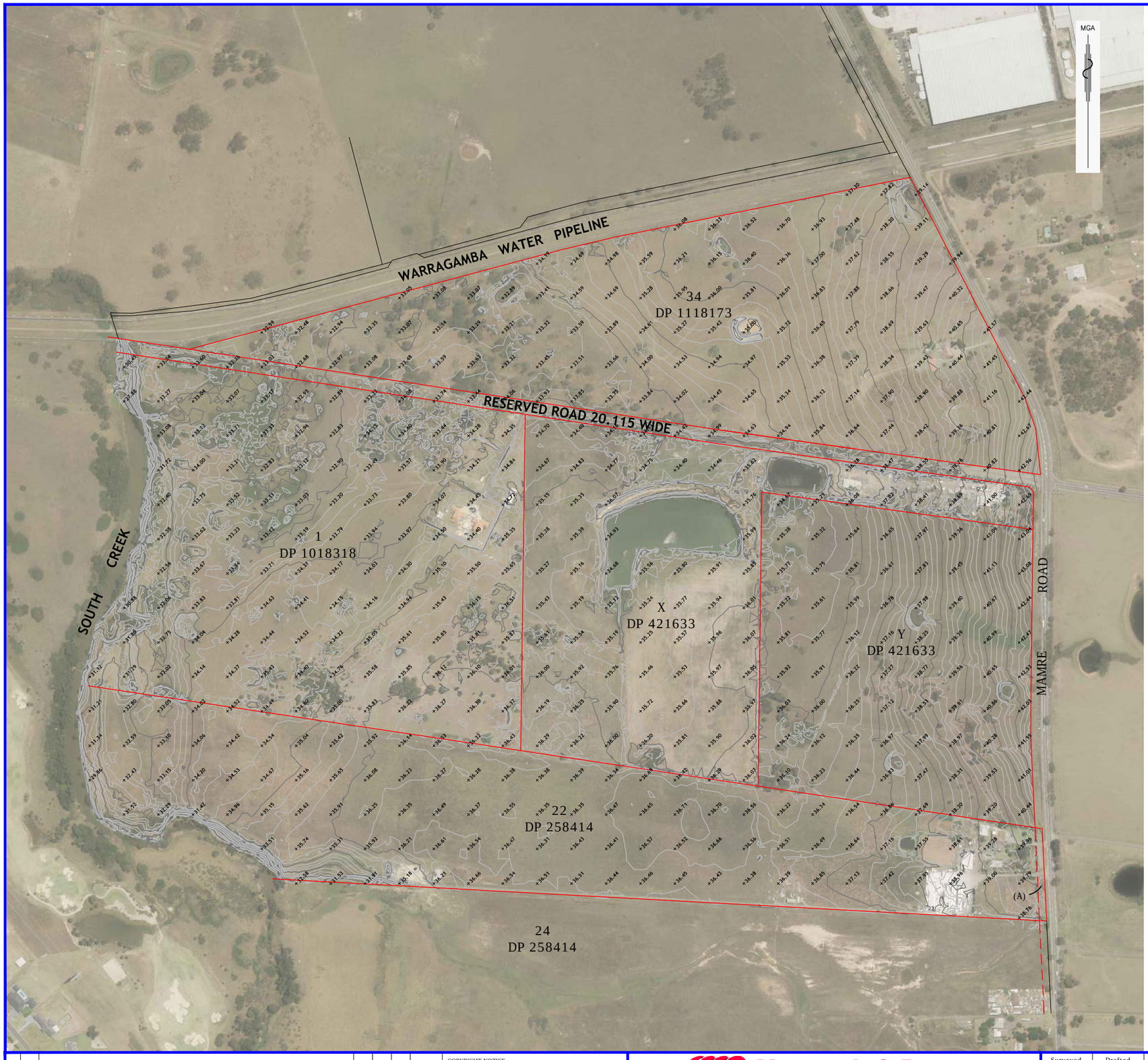
JBS&G

Job No: 54963	
Client: Altis Property Group	
Version: R01	Date: 05.02.2019
Drawn By: JS	Checked By: RH
Not to Scale	
Coord. Sys n/a	

657-703, 707-711, 707A, 713-755 and 757-769 Mamre Road, Kemps Creek, NSW

APPENDIX A: PHOTO LOG

Appendix B Site Topographical Survey



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IMPORTANT NOTES

1. INDEPENDENT INQUIRIES FOR UP TO DATE SERVICE LOCATIONS THROUGH THE RELEVANT AUTHORITIES MUST BE UNDERTAKEN PRIOR TO COMMENCEMENT OF ANY WORKS/EXCAVATION. EXACT SERVICE POSITIONS SHOULD BE ESTABLISHED BY APPROPRIATE MEANS. WE RECOMMEND PROFESSIONAL SERVICE LOCATORS.
2. THE BOUNDARIES SHOWN ON THIS PLAN HAVE BEEN COMPILED FROM SURVEY PLANS, DP421633, DP1018318, DP1118173, DP258414, DP1153854, DP229770, DP154739 AND DP67335 ON PUBLIC RECORD. NO FIELD SURVEY HAS BEEN UNDERTAKEN TO DETERMINE THE ACCURACY OF THE BOUNDARIES AS SHOWN. AS SUCH THESE DIMENSIONS COULD BE OUT OF DATE AND INCORRECT BY MODERN STANDARDS. THIS PLAN SHOULD NOT BE USED FOR BUILDING WORKS CLOSE TO OR ON THE BOUNDARY, OR TO PROSCRIBED SET-BACKS WITHOUT FURTHER SURVEY INVESTIGATION.
3. CONTOURS SHOWN DEPICT THE TOPOGRAPHY. CONTOURS DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT, EXCEPT AT SPOT LEVELS SHOWN.
4. SPOT HEIGHTS AND CONTOURS HAVE BEEN DERIVED FROM MKP (MODEL KEY POINTS) LIDAR DATA SET OBTAINED FROM NSW LPI, CAPTURED BETWEEN 25/02/2011 AND 23/03/2011. STATED VERTICAL ACCURACY OF LIDAR POINTS ±0.3m. STATED HORIZONTAL ACCURACY OF LIDAR POINTS ±0.8m
5. LIMITED FIELD VALIDATION OF LIDAR DATA OCCURRED ON 17/03/2017 ALONG MAMRE ROAD, BAKERS LANE AND WITHIN LOT Y DP421633, USING RTK GNSS DATA (VRS)
6. THIS PLAN MUST REMAIN UNALTERED AS ISSUED BY MONTEATH AND POWYS. ALTERING ANY PART OF THIS PLAN DESTROYS THE INTEGRITY OF THE PLAN. ANY REVISIONS REQUESTED MUST BE ISSUED BY MONTEATH AND POWYS.
7. THESE NOTES ARE AN INTEGRAL PART OF THIS PLAN. REPRODUCTION OF THIS PLAN OR OF ANY PART OF THIS PLAN WITHOUT THESE NOTES BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH REPRODUCTION INVALID AND NOT SUITABLE FOR USE.

SURVEY INFORMATION

1. THE SURVEY IS ON GRID MAP GRID OF AUSTRALIA (MGA). BASED ON PM 33569 – E294164.376 N6255436.559
2. ALL REDUCED LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (A.H.D)
3. ORIGIN OF LEVELS PM 33569 RL35.732 (A.H.D)
4. CONTOUR INTERVAL IS 0.25m.

(A) – RESTRICTION ON USER (H107598)

REVISIONS

No	REVISION	SVY	DFT	CHK	DATE
.	.				

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SURVEYING PLANNING ENGINEERING DESIGN PROJECT MANAGEMENT
125 Bull Street Newcastle NSW 2300 | PO Box 2270 Dangar NSW 2309 | T 61 2 4926 1388 F 61 2 4929 3475
Level 11, 205 Pacific Highway St Leonards NSW 2065 | T 61 2 94364210
88 Marquis St Gunnedah NSW 2380 | PO Box 328 Gunnedah NSW 2380 | T 61 2 6742 0166
E survey@monteathpowys.com.au W www.monteathpowys.com.au

Surveyed	Drafted	Checked
PS	AJM	PS

REGISTERED SURVEYOR

Scale @A1 : 1:3000
@A3 : 1:6000
DO NOT SCALE

Original Size A1

Client: HBB PROPERTY

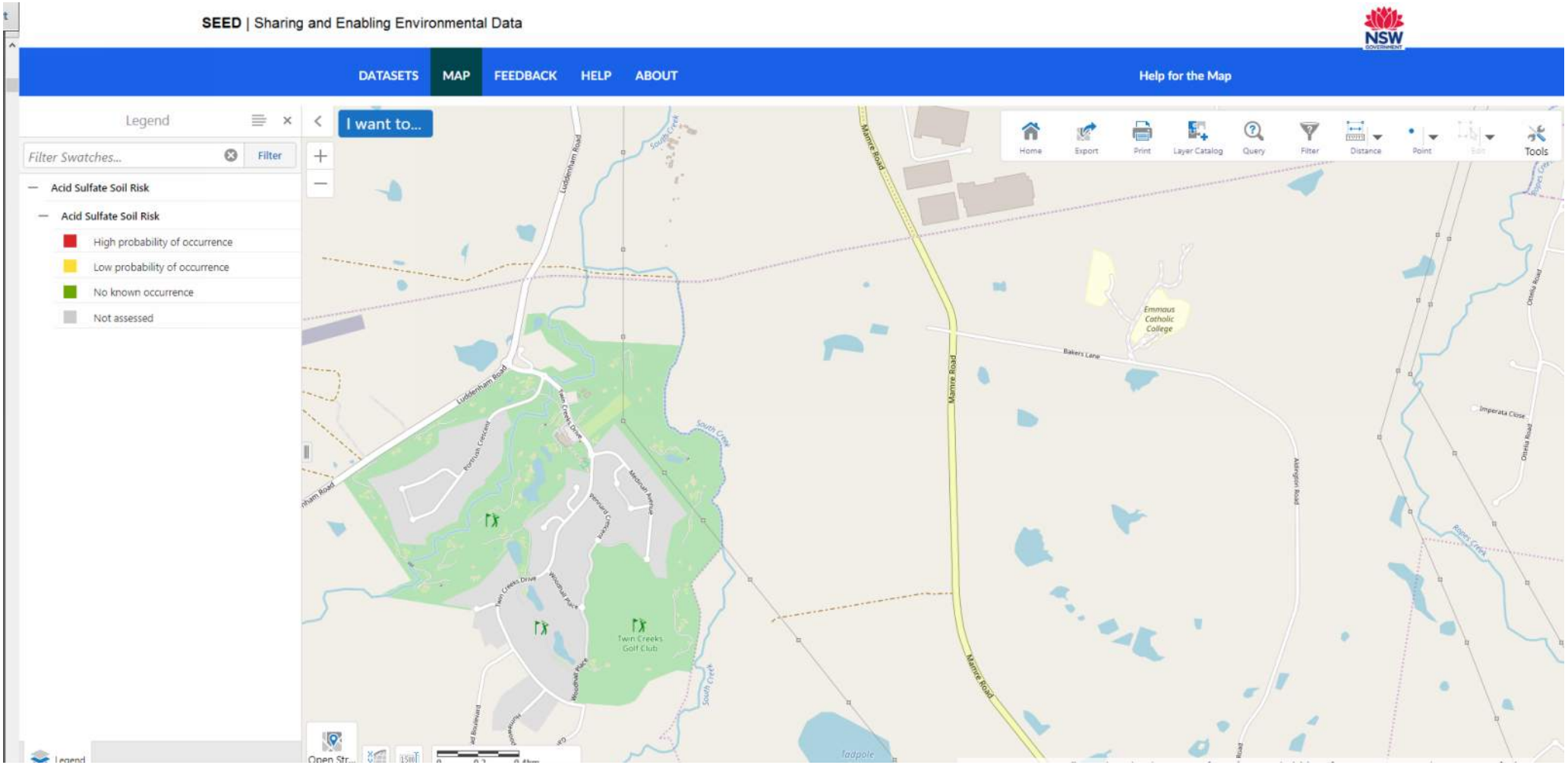
Title: AERIAL PHOTOGRAPHY AND LIDAR CONTOURS
KEMPS CREEK
.

CAD File: 170115A_01 | Ref No: 17/0115 | Date: 20/03/2017

Sheet No. 1/1

Revision 1

Appendix C Acid Sulfate Soil Risk Map (SEED)


SEED | Sharing and Enabling Environmental Data
DATASETS
MAP
FEEDBACK
HELP
ABOUT
Help for the Map
Legend
Filter Swatches...
Filter
Acid Sulfate Soil Risk
Acid Sulfate Soil Risk
High probability of occurrence
Low probability of occurrence
No known occurrence
Not assessed
I want to...
Home
Export
Print
Layer Catalog
Query
Filter
Distance
Point
Tools
Luddenham Road
Mamre Road
Bakers Lane
Emmaus Catholic College
Twin Creeks Golf Club
South Creek
Twin Creeks Drive
Woodhall Place
Imperata Close
Oteria Road
Addington Road
Tadpole

Appendix D Planning Certificates

PENRITH CITY COUNCIL

Civic Centre
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PO Box 60 Penrith NSW 2751

Telephone: 02 4732 7777
Facsimile: 02 4732 7958

Email: pencit@penrithcity.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 402326
Your Reference:
Contact No:

Issue Date: 15 March 2017
Certificate No: 17/01246

Issued to: Nicola Wells/jbsg
50 Margaret Street
SYDNEY NSW 2000

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND **Parish: MELVILLE**

Location: 713-755 Mamre Road KEMPS CREEK NSW 2178
Land Description: Lot Y DP 421633

- PART 1 PRESCRIBED MATTERS –

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 *NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs*

1(1) The name of each environmental planning instrument that applies to the carrying out of development on the land:

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):
State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)
State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.30 - Intensive Agriculture.

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State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land). (Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)
State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies to the land.

1(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act:
(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.
Draft State Environmental Planning Policy (Education Establishments and Child Care Facilities) 2017 applies to the land.
State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016 applies to the land

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 *ZONING AND LAND USE UNDER RELEVANT LEPs*

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

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(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

Zone RU2 Rural Landscape
(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To preserve and improve natural resources through appropriate land management practices.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals

4 Prohibited

Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Flood planning

All or part of the subject land is identified in Penrith Local Environmental Plan 2010 (PLEP 2010) Clause 7.2 Flood Planning. Development consent is required for any development on land to which Clause 7.2 of PLEP 2010 applies.

Rural subdivision

Under the terms of Clause 4.2 of Penrith Local Environmental Plan 2010 land in Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots or Zone RU6 Transition may, with development consent, be subdivided for the purpose of primary production to

create a lot of a size that is less than the minimum size shown on the Penrith Local Environmental Plan 2010 Lot Size Map in relation to that land. Such a lot cannot be created if an existing dwelling would, as a result of the subdivision, be situated on the lot; and a dwelling cannot be erected on such a lot.

Residential development and subdivision prohibited in certain rural, residential and environment protection zones

Under the terms of Clause 4.2A of Penrith Local Environmental Plan 2010 (PLEP 2010) on land within Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots, Zone RU5 Village, Zone R5 Large Lot Residential, Zone E3 Environmental Management or Zone E4 Environmental Living development consent must not be granted for the erection of a dwelling house on a lot resulting from the closure of part or all of a road, whether before or after the commencement of this Plan. This requirement does not apply to a lot created by the consolidation of a lot resulting from a road closure with an adjoining lot that did not result from a road closure.

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed:

(Information is provided in this section only if any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE

(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the General Housing Code **may** be carried out on the land if the land is within one of the abovementioned zones.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the Rural Housing Code **may** be carried out on the land if the land is within one of the abovementioned zones.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the Commercial and Industrial (New Buildings and Alterations) Code **may** be carried out on the land if the land is within one of the abovementioned zones.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

The land is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

6 ROAD WIDENING AND ROAD REALIGNMENT

The land is not affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) an environmental planning instrument, or
(c) a resolution of council.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies
The land is affected by the Asbestos Policy adopted by Council.
The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies
The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.
The land is not affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of

group homes or seniors housing) (if such uses are permissible on the land) is subject to flood related development controls.

(2) Development on the land or part of the land for industrial or commercial purposes (if such uses are permissible on the land) is subject to flood related development controls.
Development on the land or part of the land for purposes other than industrial or commercial, or for purposes other than those referred to in (1) above, will be considered on a merits based approach and flood related development controls may apply.

Note: The land is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning. On application and payment of the prescribed fee Council may be able to provide in writing a range of advice in regard to the extent of flooding affecting the property.

8 LAND RESERVED FOR ACQUISITION

No environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See <http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning__Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf>

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).)

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

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11 BUSH FIRE PRONE LAND

All of the land is identified as bush fire prone land according to Council records. Guidance as to restrictions that may be placed on the land as a result of the land being bush fire prone can be obtained by contacting Council. Such advice would be subject to further requirements of the NSW Rural Fire Services.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if there is a direction by the Minister in force under section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.)

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

(a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

149(5) Certificate
This Certificate is directed to the following relevant matters affecting the land

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au . Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

* Threatened Species Conservation Act 1995

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

* Agricultural Activities Within Rural Areas

This property is located in a rural area and there may be certain agricultural activities occurring that some people may find offensive (for example noise, dust and odours). This should be considered if you purchase the subject property or build a dwelling thereon.
If you do purchase the subject property or build a dwelling, the potential impact that your activities (for example pets, inadequate fencing, drainage, litter and poor weed control) might have on the agricultural activities in the area should also be considered.

* Broader Western Sydney Employment Area (WSEA) Draft Structure Plan

The land is affected by the Broader Western Sydney Employment Area (WSEA) draft Structure Plan. The draft Structure Plan outlines a broad framework for the area including the location of future employment land and centres, a road network, potential freight and transport corridors and staging scenarios. Contact the Department of Planning and Environment for details.

* Scenic and Landscape Values

The land is identified as "Land with Scenic and Landscape Values" on the Penrith Local Environmental Plan 2010 Scenic and Landscape Values Map. See Clause 7.5 of Penrith Local Environmental Plan 2010 and Chapter C1 Site Planning and Design of Penrith Development Control Plan 2014.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Dual Occupancy and Secondary Dwellings Controls

See Clause 7.10 of Penrith Local Environmental Plan 2010 for specific controls relating to dual occupancy and secondary dwellings in Zones RU1, RU2, RU4, E3 and E4.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles
- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.
The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley

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- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair,
- St Marys / St Marys North, and
- Sydney Science Park.

Penrith Development Control Plan 2014 may be accessed at https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/

Alan Stoneham
General Manager

PER



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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 783877
Your Reference: PCC LOT 34 KEMPS CREEK
Contact No:

Issue Date: 15 March 2017
Certificate No: 17/01243

Issued to: Nicola Wells/JBSG
50 Margaret Street
SYDNEY NSW 2000

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND **Parish: MELVILLE**

Location: 657-703 Mamre Road KEMPS CREEK NSW 2178
Land Description: Lot 34 DP 1118173

- PART 1 PRESCRIBED MATTERS –

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 *NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs*

1(1) The name of each environmental planning instrument that applies to the carrying out of development on the land:

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):
State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)
State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.30 - Intensive Agriculture.

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State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land). (Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)
State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies to the land.

1(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act:
(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.
Draft State Environmental Planning Policy (Education Establishments and Child Care Facilities) 2017 applies to the land.
State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016 applies to the land

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 *ZONING AND LAND USE UNDER RELEVANT LEPs*

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

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(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

Zone RU2 Rural Landscape
(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To preserve and improve natural resources through appropriate land management practices.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals

4 Prohibited

Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Zone SP2 Infrastructure - Classified Road
(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

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2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Environmental protection works; Flood mitigation works; Roads

4 Prohibited

Any development not specified in item 2 or 3

Flood planning

All or part of the subject land is identified in Penrith Local Environmental Plan 2010 (PLEP 2010) Clause 7.2 Flood Planning. Development consent is required for any development on land to which Clause 7.2 of PLEP 2010 applies.

Rural subdivision

Under the terms of Clause 4.2 of Penrith Local Environmental Plan 2010 land in Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots or Zone RU6 Transition may, with development consent, be subdivided for the purpose of primary production to create a lot of a size that is less than the minimum size shown on the Penrith Local Environmental Plan 2010 Lot Size Map in relation to that land. Such a lot cannot be created if an existing dwelling would, as a result of the subdivision, be situated on the lot; and a dwelling cannot be erected on such a lot.

Residential development and subdivision prohibited in certain rural, residential and environment protection zones

Under the terms of Clause 4.2A of Penrith Local Environmental Plan 2010 (PLEP 2010) on land within Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots, Zone RU5 Village, Zone R5 Large Lot Residential, Zone E3 Environmental Management or Zone E4 Environmental Living development consent must not be granted for the erection of a dwelling house on a lot resulting from the closure of part or all of a road, whether before or after the commencement of this Plan. This requirement does not apply to a lot created by the consolidation of a lot resulting from a road closure with an adjoining lot that did not result from a road closure.

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed:

(Information is provided in this section only if any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE
(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2

Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

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PLANNING CERTIFICATE UNDER SECTION 149

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DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

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4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

The land is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

6 ROAD WIDENING AND ROAD REALIGNMENT

The land is affected by road widening or road realignment under
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) an environmental planning instrument, or
(c) a resolution of Council.
Note: Additional advice may be available in section 149(5) information.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies
The land is affected by the Asbestos Policy adopted by Council.
The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies
The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.
The land is not affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) (if such uses are permissible on the land) is subject to flood related development controls.

(2) Development on the land or part of the land for industrial or commercial purposes (if such uses are permissible on the land) is subject to flood related development controls.
Development on the land or part of the land for purposes other than industrial or commercial, or for purposes other than those referred to in (1) above, will be considered on a merits based approach and flood related development controls may apply.

Note: The land is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning. On application and payment of the prescribed fee Council may be able to provide in writing a range of advice in regard to the extent of flooding affecting the property.

8 LAND RESERVED FOR ACQUISITION

An environmental planning instrument or a proposed environmental planning instrument referred to in clause 1 of this certificate makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See <http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning__Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf>

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).)

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

All of the land is identified as bush fire prone land according to Council records. Guidance as to restrictions that may be placed on the land as a result of the land being bush fire prone can be obtained by contacting Council. Such advice would be subject to further requirements of the NSW Rural Fire Services.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

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13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if there is a direction by the Minister in force under section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.)

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

(a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

149(5) Certificate
This Certificate is directed to the following relevant matters affecting the land

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au . Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

* Threatened Species Conservation Act 1995

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

* Agricultural Activities Within Rural Areas

This property is located in a rural area and there may be certain agricultural activities occurring that some people may find offensive (for example noise, dust and odours). This should be considered if you purchase the subject property or build a dwelling thereon.
If you do purchase the subject property or build a dwelling, the potential impact that your activities (for example pets, inadequate fencing, drainage, litter and poor weed control) might have on the agricultural activities in the area should also be considered.

* Broader Western Sydney Employment Area (WSEA) Draft Structure Plan

The land is affected by the Broader Western Sydney Employment Area (WSEA) draft Structure Plan. The draft Structure Plan outlines a broad framework for the area including the location of future employment land and centres, a road network, potential freight and transport corridors and staging scenarios. Contact the Department of Planning and Environment for details.

* Scenic and Landscape Values

The land is identified as "Land with Scenic and Landscape Values" on the Penrith Local Environmental Plan 2010 Scenic and Landscape Values Map. See Clause 7.5 of Penrith Local Environmental Plan 2010 and Chapter C1 Site Planning and Design of Penrith Development Control Plan 2014.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Dual Occupancy and Secondary Dwellings Controls

See Clause 7.10 of Penrith Local Environmental Plan 2010 for specific controls relating to dual occupancy and secondary dwellings in Zones RU1, RU2, RU4, E3 and E4.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles

- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.

The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley
- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair,
- St Marys / St Marys North, and
- Sydney Science Park.

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PLANNING CERTIFICATE UNDER SECTION 149

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Penrith Development Control Plan 2014 may be accessed at https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/

Alan Stoneham
General Manager

PER



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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 402317
Your Reference: PCC LOT X
Contact No:

Issue Date: 15 March 2017
Certificate No: 17/01242

Issued to: Nicola Well/JBSG
50 Margaret Street
SYDNEY NSW 2000

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND **Parish: MELVILLE**

Location: 707-711 Mamre Road KEMPS CREEK NSW 2178
Land Description: Lot X DP 421633

- PART 1 PRESCRIBED MATTERS –

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 *NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs*

1(1) The name of each environmental planning instrument that applies to the carrying out of development on the land:

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):
State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)
State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.30 - Intensive Agriculture.

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State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land). (Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)
State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies to the land.

1(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act:
(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.
Draft State Environmental Planning Policy (Education Establishments and Child Care Facilities) 2017 applies to the land.
State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016 applies to the land

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 *ZONING AND LAND USE UNDER RELEVANT LEPs*

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

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(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

Zone RU2 Rural Landscape

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To preserve and improve natural resources through appropriate land management practices.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals

4 Prohibited

Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Use of certain land at 707-711 Mamre Road, Kemps Creek

Despite anything to the contrary detailed above, or any other provision of Penrith Local Environmental Plan 2010 (PLEP 2010), under the provisions of Clause 2.5 and Schedule 1 of PLEP 2010:

- Development for the purposes of rural supplies, with a maximum floor area of 950m^2, is permitted with consent on the subject land.
- Development for the purposes of landscaping material supplies and plant nursery, with a growing and propagation area not exceeding 1600m^2, is permitted with consent on the subject land.

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Flood planning

All or part of the subject land is identified in Penrith Local Environmental Plan 2010 (PLEP 2010) Clause 7.2 Flood Planning. Development consent is required for any development on land to which Clause 7.2 of PLEP 2010 applies.

Rural subdivision

Under the terms of Clause 4.2 of Penrith Local Environmental Plan 2010 land in Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots or Zone RU6 Transition may, with development consent, be subdivided for the purpose of primary production to create a lot of a size that is less than the minimum size shown on the Penrith Local Environmental Plan 2010 Lot Size Map in relation to that land. Such a lot cannot be created if an existing dwelling would, as a result of the subdivision, be situated on the lot; and a dwelling cannot be erected on such a lot.

Residential development and subdivision prohibited in certain rural, residential and environment protection zones

Under the terms of Clause 4.2A of Penrith Local Environmental Plan 2010 (PLEP 2010) on land within Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots, Zone RU5 Village, Zone R5 Large Lot Residential, Zone E3 Environmental Management or Zone E4 Environmental Living development consent must not be granted for the erection of a dwelling house on a lot resulting from the closure of part or all of a road, whether before or after the commencement of this Plan. This requirement does not apply to a lot created by the consolidation of a lot resulting from a road closure with an adjoining lot that did not result from a road closure.

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed:

(Information is provided in this section only if any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

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2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE
(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the General Housing Code **may** be carried out on the land if the land is within one of the abovementioned zones.

RURAL HOUSING CODE
(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the Rural Housing Code **may** be carried out on the land if the land is within one of the abovementioned zones.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

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COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE
(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

Complying development under the Commercial and Industrial (New Buildings and Alterations) Code **may** be carried out on the land if the land is within one of the abovementioned zones.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

The land is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

6 ROAD WIDENING AND ROAD REALIGNMENT

The land is not affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) an environmental planning instrument, or
(c) a resolution of council.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies
The land is affected by the Asbestos Policy adopted by Council.
The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies

The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.

The land is not affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) (if such uses are permissible on the land) is subject to flood related development controls.

(2) Development on the land or part of the land for industrial or commercial purposes (if such uses are permissible on the land) is subject to flood related development controls.

Development on the land or part of the land for purposes other than industrial or commercial, or for purposes other than those referred to in (1) above, will be considered on a merits based approach and flood related development controls may apply.

Note: The land is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning. On application and payment of the prescribed fee Council may be able to provide in writing a range of advice in regard to the extent of flooding affecting the property.

8 LAND RESERVED FOR ACQUISITION

No environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See <http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning__Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf>

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

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9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).)

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

All of the land is identified as bush fire prone land according to Council records. Guidance as to restrictions that may be placed on the land as a result of the land being bush fire prone can be obtained by contacting Council. Such advice would be subject to further requirements of the NSW Rural Fire Services.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if there is a direction by the Minister in force under section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.)

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

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16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

(a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

149(5) Certificate
This Certificate is directed to the following relevant matters affecting the land

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au . Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

* Threatened Species Conservation Act 1995

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

* Agricultural Activities Within Rural Areas

This property is located in a rural area and there may be certain agricultural activities occurring that some people may find offensive (for example noise, dust and odours). This should be considered if you purchase the subject property or build a dwelling thereon.
If you do purchase the subject property or build a dwelling, the potential impact that your activities (for example pets, inadequate fencing, drainage, litter and poor weed control) might have on the agricultural activities in the area should also be considered.

* Broader Western Sydney Employment Area (WSEA) Draft Structure Plan

The land is affected by the Broader Western Sydney Employment Area (WSEA) draft Structure Plan. The draft Structure Plan outlines a broad framework for the area including the location of future employment land and centres, a road network, potential freight and transport corridors and staging scenarios. Contact the Department of Planning and Environment for details.

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* Scenic and Landscape Values

The land is identified as "Land with Scenic and Landscape Values" on the Penrith Local Environmental Plan 2010 Scenic and Landscape Values Map. See Clause 7.5 of Penrith Local Environmental Plan 2010 and Chapter C1 Site Planning and Design of Penrith Development Control Plan 2014.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Dual Occupancy and Secondary Dwellings Controls

See Clause 7.10 of Penrith Local Environmental Plan 2010 for specific controls relating to dual occupancy and secondary dwellings in Zones RU1, RU2, RU4, E3 and E4.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles
- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.
The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook

- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley
- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair,
- St Marys / St Marys North, and
- Sydney Science Park.

Penrith Development Control Plan 2014 may be accessed at https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/

* Western Sydney Airport

The Australian Government announced on 15 April 2014 that Badgerys Creek will be the site for a new airport for Western Sydney. The Government released a draft Airport Plan and a draft Environmental Impact Statement (EIS) on 19 October 2015. On 15 September 2016, the Government announced the finalisation of the EIS, which has been presented to the Minister for the Environment and Energy for consideration. Enquiries regarding the airport should be made with the Department of Infrastructure and Regional Development. (Website: http://westernsydneyairport.gov.au)

Alan Stoneham
General Manager

PER



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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 779135
Your Reference: PCC LOT1
Contact No:

Issue Date: 15 March 2017
Certificate No: 17/01240

Issued to: Nicola Wells/JBSG
50 Margaret Street
SYDNEY NSW 2000

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND **Parish: CLAREMONT**

Location: 707a Mamre Road KEMPS CREEK NSW 2178
Land Description: Lot 1 DP 1018318

- PART 1 PRESCRIBED MATTERS –

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 *NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs*

1(1) The name of each environmental planning instrument that applies to the carrying out of development on the land:

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):
State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)
State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.30 - Intensive Agriculture.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land). (Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)
State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies to the land.

1(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act:
(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.
Draft State Environmental Planning Policy (Education Establishments and Child Care Facilities) 2017 applies to the land.
State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016 applies to the land

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 *ZONING AND LAND USE UNDER RELEVANT LEPs*

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

Zone E2 Environmental Conservation

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect, manage, restore and enhance the ecology, hydrology and scenic values of riparian corridors and waterways, wetlands, groundwater resources, biodiversity corridors, areas of remnant indigenous vegetation and dependent ecosystems.
- To allow for low impact passive recreational and ancillary land uses that are consistent with the retention of the natural ecological significance.

2 Permitted without consent

Nil

3 Permitted with consent

Environment facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

Zone RU2 Rural Landscape

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To preserve and improve natural resources through appropriate land management practices.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals

4 Prohibited

Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Flood planning

All or part of the subject land is identified in Penrith Local Environmental Plan 2010 (PLEP 2010) Clause 7.2 Flood Planning. Development consent is required for any development on land to which Clause 7.2 of PLEP 2010 applies.

Rural subdivision

Under the terms of Clause 4.2 of Penrith Local Environmental Plan 2010 land in Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots or Zone RU6 Transition may, with development consent, be subdivided for the purpose of primary production to create a lot of a size that is less than the minimum size shown on the Penrith Local Environmental Plan 2010 Lot Size Map in relation to that land. Such a lot cannot be created if an existing dwelling would, as a result of the subdivision, be situated on the lot; and a dwelling cannot be erected on such a lot.

Residential development and subdivision prohibited in certain rural, residential and environment protection zones

Under the terms of Clause 4.2A of Penrith Local Environmental Plan 2010 (PLEP 2010) on land within Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots, Zone RU5 Village, Zone R5 Large Lot Residential, Zone E3 Environmental Management or Zone E4 Environmental Living development consent must not be granted for the erection of a dwelling house on a lot resulting from the closure of part or all of a road, whether before or after the commencement of this Plan. This requirement does not apply to a lot created by the consolidation of a lot resulting from a road closure with an adjoining lot that did not result from a road closure.

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed:

(Information is provided in this section only if any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE
(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2

Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE

(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

The land is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

6 ROAD WIDENING AND ROAD REALIGNMENT

The land is not affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) an environmental planning instrument, or
(c) a resolution of council.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies
The land is affected by the Asbestos Policy adopted by Council.

The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

(b) Other Public Authority Policies
The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.
The land is not affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) (if such uses are permissible on the land) is subject to flood related development controls.

(2) Development on the land or part of the land for industrial or commercial purposes (if such uses are permissible on the land) is subject to flood related development controls.
Development on the land or part of the land for purposes other than industrial or commercial, or for purposes other than those referred to in (1) above, will be considered on a merits based approach and flood related development controls may apply.

Note: The land is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning. On application and payment of the prescribed fee Council may be able to provide in writing a range of advice in regard to the extent of flooding affecting the property.

8 LAND RESERVED FOR ACQUISITION

No environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See
<http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning__Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf>

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).)

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

All of the land is identified as bush fire prone land according to Council records. Guidance as to restrictions that may be placed on the land as a result of the land being bush fire prone can be obtained by contacting Council. Such advice would be subject to further requirements of the NSW Rural Fire Services.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if there is a direction by the Minister in force under section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.)

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

(a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

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(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 – a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

149(5) Certificate
This Certificate is directed to the following relevant matters affecting the land

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au . Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

* Threatened Species Conservation Act 1995

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

* Agricultural Activities Within Rural Areas

This property is located in a rural area and there may be certain agricultural activities occurring that some people may find offensive (for example noise, dust and odours). This should be considered if you purchase the subject property or build a dwelling thereon.
If you do purchase the subject property or build a dwelling, the potential impact that your activities (for example pets, inadequate fencing, drainage, litter and poor weed control) might have on the agricultural activities in the area should also be considered.

PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

* Broader Western Sydney Employment Area (WSEA) Draft Structure Plan

The land is affected by the Broader Western Sydney Employment Area (WSEA) draft Structure Plan. The draft Structure Plan outlines a broad framework for the area including the location of future employment land and centres, a road network, potential freight and transport corridors and staging scenarios. Contact the Department of Planning and Environment for details.

* Scenic and Landscape Values

The land is identified as "Land with Scenic and Landscape Values" on the Penrith Local Environmental Plan 2010 Scenic and Landscape Values Map. See Clause 7.5 of Penrith Local Environmental Plan 2010 and Chapter C1 Site Planning and Design of Penrith Development Control Plan 2014.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Dual Occupancy and Secondary Dwellings Controls

See Clause 7.10 of Penrith Local Environmental Plan 2010 for specific controls relating to dual occupancy and secondary dwellings in Zones RU1, RU2, RU4, E3 and E4.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles
- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.

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The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley
- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair,
- St Marys / St Marys North, and
- Sydney Science Park.

Penrith Development Control Plan 2014 may be accessed at https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/

* Western Sydney Airport

The Australian Government announced on 15 April 2014 that Badgerys Creek will be the site for a new airport for Western Sydney. The Government released a draft Airport Plan and a draft Environmental Impact Statement (EIS) on 19 October 2015. On 15 September 2016, the Government announced the finalisation of the EIS, which has been presented to the Minister for the Environment and Energy for consideration. Enquiries regarding the airport should be made with the Department of Infrastructure and Regional Development. (Website: http://westernsydneyairport.gov.au)

Alan Stoneham
General Manager

PER



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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Property No: 402335
Your Reference: PCC LOT 22
Contact No:

Issue Date: 15 March 2017
Certificate No: 17/01230

Issued to: Nicola Wells/JBSG
50 Margaret Street
SYDNEY NSW 2000

PRECINCT 2010

DESCRIPTION OF LAND

County: CUMBERLAND **Parish: MELVILLE**

Location: 757-769 Mamre Road KEMPS CREEK NSW 2178
Land Description: Lot 22 DP 258414

- PART 1 PRESCRIBED MATTERS –

In accordance with the provisions of Section 149(2) of the Act the following information is furnished in respect of the abovementioned land:

1 *NAMES OF RELEVANT PLANNING INSTRUMENTS AND DCPs*

1(1) The name of each environmental planning instrument that applies to the carrying out of development on the land:

Penrith Local Environmental Plan 2010, published 22nd September 2010, as amended, applies to the land.

Sydney Regional Environmental Plan No.9 - Extractive Industry (No.2), gazetted 15 September 1995, as amended, applies to the local government area of Penrith.

Sydney Regional Environmental Plan No. 20 - Hawkesbury-Nepean River (No. 2 - 1997), gazetted 7 November 1997, as amended, applies to the local government area of Penrith (except land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies).

The following State environmental planning policies apply to the land (subject to the exclusions noted below):
State Environmental Planning Policy No.1 - Development Standards. (Note: This policy does not apply to the land to which Penrith Local Environmental Plan 2010 or State Environmental Planning Policy (Western Sydney Employment Area) 2009 apply.)
State Environmental Planning Policy No.19 - Bushland in Urban Areas. (Note: This policy does not apply to certain land referred to in the National Parks and Wildlife Act 1974 and the Forestry Act 1916.)
State Environmental Planning Policy No.21 - Caravan Parks.
State Environmental Planning Policy No.30 - Intensive Agriculture.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

State Environmental Planning Policy No.32 - Urban Consolidation (Redevelopment of Urban Land). (Note: This policy does not apply to land identified as coastal protection, environmental protection, escarpment, floodway, natural hazard, non-urban, rural, rural residential, water catchment or wetland.)
State Environmental Planning Policy No.33 - Hazardous and Offensive Development.
State Environmental Planning Policy No.50 - Canal Estate Development. (Note: This policy does not apply to the land to which State Environmental Planning Policy (Penrith Lakes Scheme) 1989 applies.
State Environmental Planning Policy No.55 - Remediation of Land.
State Environmental Planning Policy No.62 - Sustainable Aquaculture.
State Environmental Planning Policy No.64 - Advertising and Signage.
State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy No.70 - Affordable Housing (Revised Schemes).
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (Note: This policy applies to land within New South Wales that is land zoned primarily for urban purposes or land that adjoins land zoned primarily for urban purposes, but only as detailed in clause 4 of the policy.)
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004.
State Environmental Planning Policy (Major Development) 2005.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007.
State Environmental Planning Policy (Infrastructure) 2007.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
State Environmental Planning Policy (Affordable Rental Housing) 2009.
State Environmental Planning Policy (State and Regional Development) 2011.

State Environmental Planning Policy (Western Sydney Employment Area) 2009 applies to the land.

1(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act:
(Information is provided in this section only if a proposed environmental planning instrument that is or has been the subject of community consultation or on public exhibition under the Act will apply to the carrying out of development on the land.)

Draft State Environmental Planning Policy (Infrastructure) Amendment (Shooting Ranges) 2013 applies to the land.
Draft State Environmental Planning Policy (Education Establishments and Child Care Facilities) 2017 applies to the land.
State Environmental Planning Policy (Infrastructure) Amendment (Review) 2016 applies to the land

1(3) The name of each development control plan that applies to the carrying out of development on the land:

Penrith Development Control Plan 2014 applies to the land.

2 *ZONING AND LAND USE UNDER RELEVANT LEPs*

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2(a)-(d) the identity of the zone; the purposes that may be carried out without development consent; the purposes that may not be carried out except with development consent; and the purposes that are prohibited within the zone. Any zone(s) applying to the land is/are listed below and/or in annexures.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

(Note: If no zoning appears in this section see section 1(1) for zoning and land use details (under the Sydney Regional Environmental Plan or State Environmental Planning Policy that zones this property).)

Zone E2 Environmental Conservation

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect, manage, restore and enhance the ecology, hydrology and scenic values of riparian corridors and waterways, wetlands, groundwater resources, biodiversity corridors, areas of remnant indigenous vegetation and dependent ecosystems.
- To allow for low impact passive recreational and ancillary land uses that are consistent with the retention of the natural ecological significance.

2 Permitted without consent

Nil

3 Permitted with consent

Environment facilities; Environmental protection works; Flood mitigation works; Recreation areas; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

Zone RU2 Rural Landscape

(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To preserve and improve natural resources through appropriate land management practices.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agricultural produce industries; Agriculture; Animal boarding or training establishments; Building identification signs; Business identification signs; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Environmental facilities; Environmental protection works; Farm buildings; Flood mitigation works; Forestry; Funeral homes; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural supplies; Schools; Secondary dwellings; Stock and sale yards; Tourist and visitor accommodation; Veterinary hospitals

4 Prohibited

Hotel or motel accommodation; Serviced apartments; Any other development not specified in item 2 or 3

Zone SP2 Infrastructure - Classified Road
(Penrith Local Environmental Plan 2010)

1 Objectives of zone

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

2 Permitted without consent

Nil

3 Permitted with consent

The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose; Environmental protection works; Flood mitigation works; Roads

4 Prohibited

Any development not specified in item 2 or 3

Flood planning

All or part of the subject land is identified in Penrith Local Environmental Plan 2010 (PLEP 2010) Clause 7.2 Flood Planning. Development consent is required for any development on land to which Clause 7.2 of PLEP 2010 applies.

Rural subdivision

Under the terms of Clause 4.2 of Penrith Local Environmental Plan 2010 land in Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots or Zone RU6 Transition may, with development consent, be subdivided for the purpose of primary production to create a lot of a size that is less than the minimum size shown on the Penrith Local Environmental Plan 2010 Lot Size Map in relation to that land. Such a lot cannot be created if an existing dwelling would, as a result of the subdivision, be situated on the lot; and a dwelling cannot be erected on such a lot.

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PLANNING CERTIFICATE UNDER SECTION 149

Environmental Planning and Assessment Act, 1979

Residential development and subdivision prohibited in certain rural, residential and environment protection zones

Under the terms of Clause 4.2A of Penrith Local Environmental Plan 2010 (PLEP 2010) on land within Zone RU1 Primary Production, Zone RU2 Rural Landscape, Zone RU4 Primary Production Small Lots, Zone RU5 Village, Zone R5 Large Lot Residential, Zone E3 Environmental Management or Zone E4 Environmental Living development consent must not be granted for the erection of a dwelling house on a lot resulting from the closure of part or all of a road, whether before or after the commencement of this Plan. This requirement does not apply to a lot created by the consolidation of a lot resulting from a road closure with an adjoining lot that did not result from a road closure.

Additional information relating to Penrith Local Environmental Plan 2010

Note 1: Under the terms of Clause 2.4 of Penrith Local Environmental Plan 2010 development may be carried out on unzoned land only with development consent.

Note 2: Under the terms of Clause 2.6 of Penrith Local Environmental Plan 2010 land may be subdivided but only with development consent, except for the exclusions detailed in the clause.

Note 3: Under the terms of Clause 2.7 of Penrith Local Environmental Plan 2010 the demolition of a building or work may be carried out only with development consent.

Note 4: A temporary use may be permitted with development consent subject to the requirements of Clause 2.8 of Penrith Local Environmental Plan 2010.

Note 5: Under the terms of Clause 4.1A of Penrith Local Environmental Plan 2010, despite any other provision of this plan, development consent must not be granted for dual occupancy on an internal lot in Zone R2 Low Density Residential.

Note 6: Under the terms of Clause 5.1 of Penrith Local Environmental Plan 2010 development on land acquired by an authority of the State under the owner-initiated acquisition provisions may, before it is used for the purpose for which it is reserved, be carried out, with development consent, for any purpose.

Note 7: Under the terms of Clause 5.3 of Penrith Local Environmental Plan 2010 development consent may be granted to development of certain land for any purpose that may be carried out in an adjoining zone.

Note 8: Under the terms of Clause 5.9 of Penrith Local Environmental Plan 2010 trees or other vegetation subject to relevant sections of Penrith Development Control Plan 2014 must not be ringbarked, cut down, topped, lopped, removed, injured or wilfully destroyed without the authority conferred by a development consent or a Council permit.

Note 9: Under the terms of Clause 5.9AA of Penrith Local Environmental Plan 2010 (PLEP 2010) any tree or other vegetation that is not of a species or kind prescribed for the purposes of Clause 5.9 of PLEP 2010 by Penrith Development Control Plan 2014 may be ringbarked, cut down, topped, lopped, removed, injured or destroyed without development consent.

Note 10: Clause 5.10 of Penrith Local Environmental Plan 2010 details when development consent is required/not required in relation to heritage conservation.

Note 11: Under the terms of Clause 5.11 of Penrith Local Environmental Plan 2010 bush fire hazard reduction work authorised by the *Rural Fires Act 1997* may be carried out on any land without development consent.

Note 12: Under the terms of Clause 7.1 of Penrith Local Environmental Plan 2010 (PLEP 2010) development consent is required for earthworks unless the work is exempt development under PLEP 2010 or another applicable environmental planning instrument, or the work is ancillary to other development for which development consent has been given.

Note 13: Sex services premises and restricted premises may only be permitted subject to the requirements of Clause 7.23 of Penrith Local Environmental Plan 2010.

2(e) whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed:

(Information is provided in this section only if any development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.)

2(f) whether the land includes or comprises critical habitat:

(Information is provided in this section only if the land includes or comprises critical habitat.)

2(g) whether the land is in a conservation area (however described):

(Information is provided in this section only if the land is in a conservation area (however described).)

2(h) whether an item of environmental heritage (however described) is situated on the land:

(Information is provided in this section only if an item of environmental heritage (however described) is situated on the land.)

2A ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

(Information is provided in this section only if the land is within any zone under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.)

3 COMPLYING DEVELOPMENT

GENERAL HOUSING CODE

(The General Housing Code only applies if the land is within Zones R1, R2, R3, R4 or RU5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the General Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

RURAL HOUSING CODE

(The Rural Housing Code only applies if the land is within Zones RU1, RU2, RU3, RU4, RU6 or R5 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Rural Housing Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section

"environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

HOUSING ALTERATIONS CODE

Complying development under the Housing Alterations Code **may** be carried out on the land.

GENERAL DEVELOPMENT CODE

Complying development under the General Development Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL ALTERATIONS CODE

Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

SUBDIVISIONS CODE

Complying development under the Subdivisions Code **may** be carried out on the land.

DEMOLITION CODE

Complying development under the Demolition Code **may** be carried out on the land.

COMMERCIAL AND INDUSTRIAL (NEW BUILDINGS AND ADDITIONS) CODE
(The Commercial and Industrial (New Buildings and Additions) Code only applies if the land is within Zones B1, B2, B3, B4, B5, B6, B7, B8, IN1, IN2, IN3, IN4 or SP3 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument.)

- The land is affected by a reservation for a public purpose. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land that is reserved for a public purpose by an environmental planning instrument. Complying development **may** be carried out on any part of the land that is not reserved for a public purpose by an environmental planning instrument. For the purposes of this section "public purpose" means any land that is zoned either Zone E1, RE1, SP1 or SP2 under Penrith Local Environmental Plan 2010 or an equivalent zone in a non standard template planning instrument, or land that is subject to acquisition.

- The land is affected by environmentally sensitive land identified by an environmental planning instrument. If the land is within the relevant zones complying development under the Commercial and Industrial (New Buildings and Additions) Code **may not** be carried out on any part of the land identified by an environmental planning instrument as being

environmentally sensitive land. Complying development **may** be carried out on any part of the land that is not identified by an environmental planning instrument as being environmentally sensitive land. For the purposes of this section "environmentally sensitive land" means any land that is identified in Schedule 3 of Sydney Regional Environmental Plan No. 9 - Extractive Industry (No. 2); any land defined as "environmentally sensitive areas" in Sydney Regional Environmental Plan No 20 - Hawkesbury-Nepean River (No 2 - 1997); any land zoned Zone E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009; any Natural Resources Sensitive Land under Penrith Local Environmental Plan 2010; and any land zoned either Zone E1 National Parks and Nature Reserves, Zone E2 Environmental Conservation, Zone W1 Natural Waterways or Zone W2 Recreational Waterways under Penrith Local Environmental Plan 2010.

FIRE SAFETY CODE

Complying development under the Fire Safety Code **may** be carried out on the land.

(NOTE: (1) Council has relied on Planning and Infrastructure Circulars and Fact Sheets in the preparation of this information. Applicants should seek their own legal advice in relation to this matter with particular reference to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

(2) Penrith Local Environmental Plan 2010 (if it applies to the land) contains additional complying development not specified in State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.)

4 COASTAL PROTECTION

The land is not affected by the operation of sections 38 or 39 of the Coastal Protection Act 1979, to the extent that council has been so notified by the Department of Public Works.

5 MINE SUBSIDENCE

The land is not proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961.

6 ROAD WIDENING AND ROAD REALIGNMENT

The land is affected by road widening or road realignment under
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) an environmental planning instrument, or
(c) a resolution of Council.
Note: Additional advice may be available in section 149(5) information.

7 COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS

(a) Council Policies
The land is affected by the Asbestos Policy adopted by Council.
The land is not affected by any other policy adopted by the council that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding and the item Noted below).
Note: Council has adopted by resolution a policy on contaminated land which may restrict the

development of the land. This policy, Chapter C4 of Penrith Development Control Plan 2014, is implemented when zoning or land use changes are proposed on lands which have previously been used for certain purposes. Consideration of council's adopted policy and the application of provisions under relevant State legislation is warranted.

(b) Other Public Authority Policies

The Bush Fire Co-ordinating Committee has adopted a Bush Fire Risk Management Plan that covers the local government area of Penrith City Council, and includes public, private and Commonwealth lands.

The land is not affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

7A FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(1) Development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) (if such uses are permissible on the land) is subject to flood related development controls.

(2) Development on the land or part of the land for industrial or commercial purposes (if such uses are permissible on the land) is subject to flood related development controls.

Development on the land or part of the land for purposes other than industrial or commercial, or for purposes other than those referred to in (1) above, will be considered on a merits based approach and flood related development controls may apply.

Note: The land is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning. On application and payment of the prescribed fee Council may be able to provide in writing a range of advice in regard to the extent of flooding affecting the property.

8 LAND RESERVED FOR ACQUISITION

An environmental planning instrument or a proposed environmental planning instrument referred to in clause 1 of this certificate makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

9 CONTRIBUTIONS PLANS

The Cultural Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith.

The Penrith City Local Open Space Development Contributions Plan 2007 applies anywhere residential development is permitted within the City of Penrith, excluding industrial areas and the release areas identified in Appendix B of the Plan (Penrith Lakes, Cranebrook, Sydney Regional Environmental Plan No. 30 - St Marys, Waterside, Thornton, the WELL Precinct, Glenmore Park and Erskine Park). See <http://www.penrithcity.nsw.gov.au/uploadedFiles/Content/Website/Our_Services/Planning_and_Development/Planning__Zoning_Information/Local_Planning_Documents/LocalOpenSpaceDCP(1).pdf>

The Penrith City District Open Space Facilities Development Contributions Plan applies anywhere residential development is permitted within the City of Penrith, with the exclusion of industrial lands and the Penrith Lakes development site.

9A BIODIVERSITY CERTIFIED LAND

(Information is provided in this section only if the land is biodiversity certified land (within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*).)

10 BIOBANKING AGREEMENTS

(Information is provided in this section only if Council has been notified by the Director-General of the Department of Environment, Climate Change and Water that the land is land to which a biobanking agreement under Part 7A of the *Threatened Species Conservation Act 1995* relates.)

11 BUSH FIRE PRONE LAND

Some of the land is identified as bush fire prone land according to Council records. Guidance as to restrictions that may be placed on the land as a result of the land being bush fire prone can be obtained by contacting Council. Such advice would be subject to further requirements of the NSW Rural Fire Services.

12 PROPERTY VEGETATION PLANS

(Information is provided in this section only if Council has been notified that the land is land to which a property vegetation plan under the Native Vegetation Act 2003 applies.)

13 ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

(Information is provided in this section only if Council has been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.)

14 DIRECTIONS UNDER PART 3A

(Information is provided in this section only if there is a direction by the Minister in force under section 75P(2)(c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.)

15 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS AFFECTING SENIORS HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (seniors housing), of which the council is aware, issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.)

16 SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE

(Information is provided in this section only if there is a valid site compatibility certificate (infrastructure), of which council is aware, in respect of proposed development on the land.)

17 SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING

(Information is provided in this section only if:

(a) there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land; and/or

(b) any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 have been imposed as a condition of consent to a development application in respect of the land.)

18 PAPER SUBDIVISION INFORMATION

(Information is provided in this section only if a development plan adopted by a relevant authority applies to the land or is proposed to be subject to a consent ballot, or a subdivision order applies to the land.)

19 SITE VERIFICATION CERTIFICATES

(Information is provided in this section only if there is a current site verification certificate, of which council is aware, in respect of the land.)

NOTE: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate

(a) (Information is provided in this section only if, as at the date of this certificate, the land (or part of the land) is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.)

(b) (Information is provided in this section only if, as at the date of this certificate, the land is subject to a management order within the meaning of the Contaminated Land Management Act 1997.)

(c) (Information is provided in this section only if, as at the date of this certificate, the land is the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.)

(d) (Information is provided in this section only if, at the date of this certificate, the land subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.)

PENRITH CITY COUNCIL

Civic Centre
601 High Street, Penrith

PO Box 60 Penrith NSW 2751

Telephone: 02 4732 7777
Facsimile: 02 4732 7958

Email: pencit@penrithcity.nsw.gov.au

(e) (Information is provided in this section only if the land is the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 - a copy of which has been provided to Council.)

Note: Section 149(5) information for this property may contain additional information regarding contamination issues.

Note: The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation 1998 and Environmental Planning and Assessment Regulation 2000.

Information is provided only to the extent that Council has been notified by relevant government departments.

149(5) Certificate
This Certificate is directed to the following relevant matters affecting the land

When information pursuant to section 149(5) is requested the Council is under no obligation to furnish any of the information supplied herein pursuant to that section. Council draws your attention to section 149(6) which states that a council shall not incur any liability in respect of any advice provided in good faith pursuant to sub-section (5). The absence of any reference to any matter affecting the land shall not imply that the land is not affected by any matter not referred to in this certificate.

Note:

- Council's 149(5) information does not include development consent or easement information. Details of development consents may be obtained by making enquiries with Council's Development Services Department pursuant to section 12 of the Local Government Act 1993 or (for development applications lodged after January 2007) by viewing the Online Services area at www.penrithcity.nsw.gov.au . Details of any easements may be obtained from a Title Search at Land and Property Information New South Wales.
- This certificate does not contain information relating to Complying Development Certificates.
- This certificate may not provide full details of development rights over the land.
-

* Threatened Species Conservation Act 1995

When considering any development application Council must have regard to the Threatened Species Conservation Act 1995. Please note that this legislation may have application to any land throughout the city. Interested persons should make their own enquiries in regard to the impact that this legislation could have on this land.

* Agricultural Activities Within Rural Areas

This property is located in a rural area and there may be certain agricultural activities occurring that some people may find offensive (for example noise, dust and odours). This should be considered if you purchase the subject property or build a dwelling thereon.
If you do purchase the subject property or build a dwelling, the potential impact that your activities (for example pets, inadequate fencing, drainage, litter and poor weed control) might have on the agricultural activities in the area should also be considered.

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* Broader Western Sydney Employment Area (WSEA) Draft Structure Plan

The land is affected by the Broader Western Sydney Employment Area (WSEA) draft Structure Plan. The draft Structure Plan outlines a broad framework for the area including the location of future employment land and centres, a road network, potential freight and transport corridors and staging scenarios. Contact the Department of Planning and Environment for details.

* Scenic and Landscape Values

The land is identified as "Land with Scenic and Landscape Values" on the Penrith Local Environmental Plan 2010 Scenic and Landscape Values Map. See Clause 7.5 of Penrith Local Environmental Plan 2010 and Chapter C1 Site Planning and Design of Penrith Development Control Plan 2014.

* Preservation of Trees and Vegetation

See Clauses 5.9 and 5.9AA of Penrith Local Environmental Plan 2010 and Chapter C2 of Penrith Development Control Plan 2014 for specific controls relating to the preservation of trees and vegetation.

* Dual Occupancy and Secondary Dwellings Controls

See Clause 7.10 of Penrith Local Environmental Plan 2010 for specific controls relating to dual occupancy and secondary dwellings in Zones RU1, RU2, RU4, E3 and E4.

* Development Control Plan General Information

Penrith Development Control Plan 2014 which applies to the land, sets out requirements for a range of issues that apply across the Penrith Local Government Area, including:

- Site Planning and Design Principles
- Vegetation Management
- Water Management
- Land Management
- Waste Management
- Landscape Design
- Culture and Heritage
- Public Domain
- Advertising and Signage
- Transport, Access and Parking
- Subdivision
- Noise and Vibration, and
- Infrastructure and Services.

The Development Control Plan also specifies requirements relating to various types of land uses including:

- Rural Land Uses
- Residential Development
- Commercial and Retail Development, and
- Industrial Development

as well as for a number of specific activities, including child care centres; health consulting rooms; educational establishments; parent friendly amenities; places of public worship; vehicle repair stations; cemeteries, crematoria and funeral homes; extractive industries; and telecommunication facilities.

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The Development Control Plan also details requirements relating to key precincts within the Penrith Local Government Area, including:

- Caddens
- Claremont Meadows Stage 2
- Cranebrook
- Emu Heights
- Emu Plains
- Erskine Business Park
- Glenmore Park
- Kingswood
- Mulgoa Valley
- Orchard Hills
- Penrith
- Penrith Health and Education Precinct
- Riverlink Precinct
- St Clair,
- St Marys / St Marys North, and
- Sydney Science Park.

Penrith Development Control Plan 2014 may be accessed at https://www.penrithcity.nsw.gov.au/Building-and-Development/Planning-and-Zoning/Planning-Controls/Development-Control-Plans/

* Council has information that fill material of unknown source and quantity has been placed on this property. This material has been placed on the property without the approval of Council. (File 402335)

* Western Sydney Airport
The Australian Government announced on 15 April 2014 that Badgerys Creek will be the site for a new airport for Western Sydney. The Government released a draft Airport Plan and a draft Environmental Impact Statement (EIS) on 19 October 2015. On 15 September 2016, the Government announced the finalisation of the EIS, which has been presented to the Minister for the Environment and Energy for consideration. Enquiries regarding the airport should be made with the Department of Infrastructure and Regional Development. (Website: http://westernsydneyairport.gov.au)

Alan Stoneham
General Manager

PER



Appendix E Registered Groundwater Bores

help · contact · customise

State Overview
State Overview

Rivers and Streams
favourites · search · download sites · find a site
Real Time Data - Rivers And Streams

Daily River Reports
Daily River Reports

Dams
favourites · search · download sites · find a site
Real Time Data - Major Dams

Groundwater (Telemetered data)
favourites · search · download sites · find a site
Real Time Data - Bores

All Groundwater Site details
search · download sites · find a site
All Groundwater Map
North Coast Region
Hunter Region
Greater Sydney Region
Hawkesbury River Basin
Georges River Basin
Wollongong Basin
South Coast Region
Northwest Region
Central West Region
Southwest Region
Far West Region
Great Artesian Basin
Coal Basins

Meteorology
favourites · search · download sites · find a site
Real Time Data - Weather Stations

Hunter Integrated Telemetry System
Hunter Integrated Telemetry System

bandwidth high low

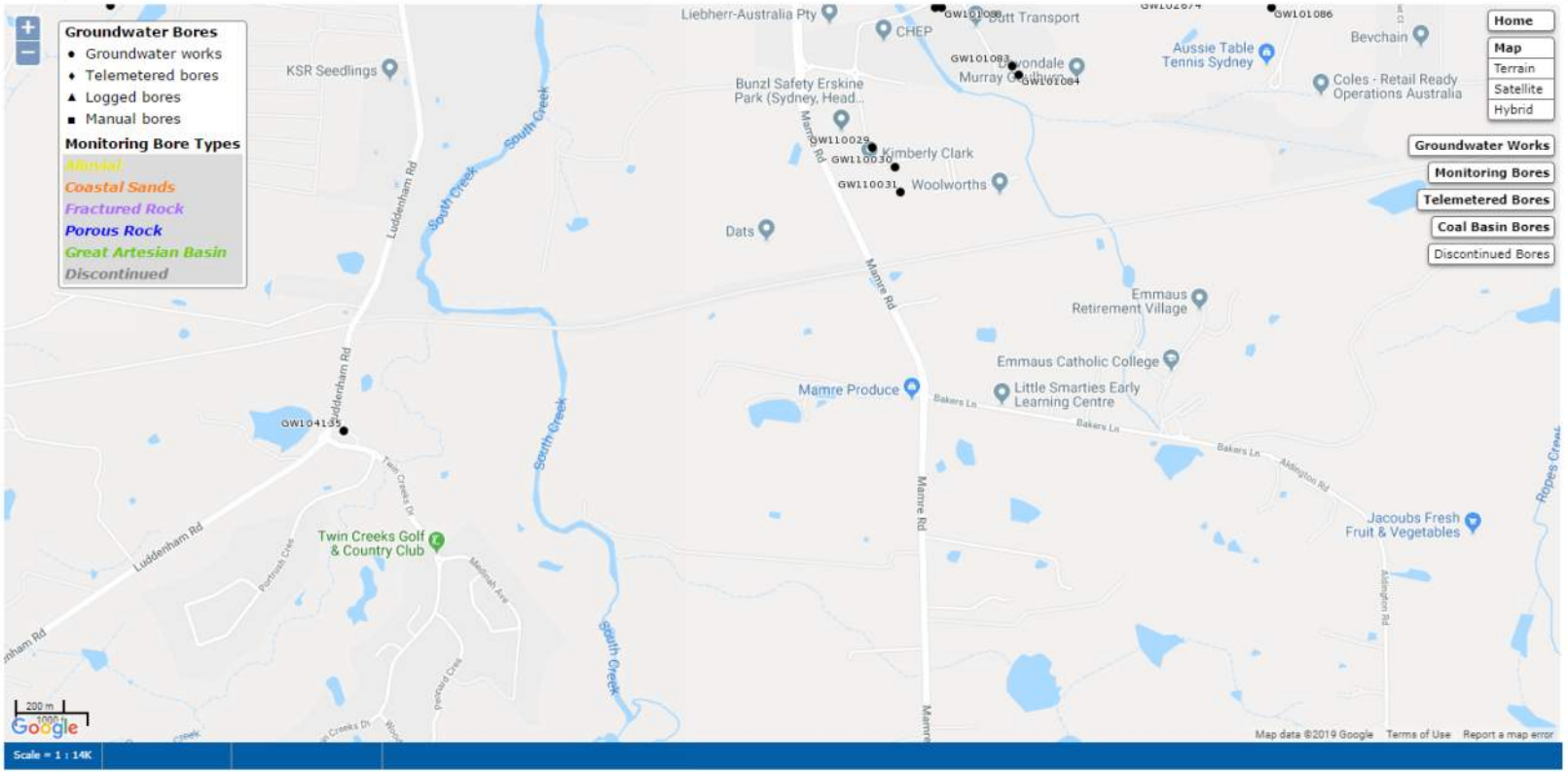
glossary and metadata

Hawkesbury River Basin

bookmark this page

All data times are Eastern Standard Time

Map



NSW Office of Water
Work Summary

GW110031

Licence: 10BL162687 **Licence Status:** ACTIVE

Authorised Purpose (s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method: Hand Auger
Owner Type: Private

Commenced Date:
Completion Date: 01/02/2004
Final Depth: 0.75 m
Drilled Depth: 0.75 m

Contractor Name:
Driller: Unkown Unknown
Assistant Driller:

Property: AUSTRALIA PIPES 576 MAMRE RD ERSKINE PARK 2164
Standing Water Level:
GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.32	3//1124329
Licensed:			

Region: 10 - Sydney South Coast
CMA Map:
River Basin: - Unknown
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6255058.0
Easting: 294555.0
Latitude: 33°49'29.1"S
Longitude: 150°46'48.3"E

GS Map: -
MGA Zone: 0
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	0.75	65			Hand Auger
1	1	Casing	Lining	0.00	0.75				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	TOPSOIL	Topsoil	
0.20	0.40	0.20	SILTY CLAY	Silty Clay	
0.40	0.75	0.35	HEAVY CLAY	Haematite	

Remarks

***** End of GW110031 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water
Work Summary

GW110030

Licence: 10BL162687 **Licence Status:** ACTIVE

Authorised Purpose (s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method: Hand Auger
Owner Type: Private

Commenced Date:
Completion Date: 01/02/2004
Final Depth: 0.75 m
Drilled Depth: 0.75 m

Contractor Name:
Driller: Unkown Unknown
Assistant Driller:

Property: AUSTRALIA PIPES 576 MAMRE RD ERSKINE PARK 2164
Standing Water Level:
GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.32	3//1124329
Licensed:			

Region: 10 - Sydney South Coast
CMA Map:
River Basin: - Unknown
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6255146.0
Easting: 294533.0
Latitude: 33°49'26.3"S
Longitude: 150°46'47.5"E

GS Map: -
MGA Zone: 0
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	0.75	65			Hand Auger
1	1	Casing	Lining	0.00	0.75				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	TOPSOIL	Topsoil	
0.20	0.60	0.40	SILTY CLAY	Silty Clay	
0.60	0.75	0.15	HEAVY CLAY	Haematite	

Remarks

***** End of GW110030 *****

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NSW Office of Water
Work Summary

GW110029

Licence: 10BL162687 **Licence Status:** ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method: Hand Auger
Owner Type: Private

Commenced Date:
Completion Date: 01/02/2004
Final Depth: 0.75 m
Drilled Depth: 0.75 m

Contractor Name:
Driller: Unkown Unknown
Assistant Driller:

Property: AUSTRALIA PIPES 576 MAMRE RD ERSKINE PARK 2164
Standing Water Level:
GWMA:
GW Zone:
Salinity:
Yield:

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBE	CUMBE.32	141//843899
Licensed:			

Region: 10 - Sydney South Coast
CMA Map:
River Basin: - Unknown
Area/District:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6255217.0
Easting: 294449.0
Latitude: 33°49'23.9"S
Longitude: 150°46'44.3"E

GS Map: -
MGA Zone: 0
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	0.75	65			Hand Dug
1	1	Casing	Lining	0.00	0.75				

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)

Geologists Log
Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	TOPSOIL	Topsoil	
0.20	0.50	0.30	SILTY CLAY	Silty Clay	
0.50	0.75	0.25	HEAVY CLAY	Haematite	

Remarks

***** End of GW110029 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Appendix F Laboratory Analytical Reports

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 210739

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Rohan Hammond, M Noujaim
Address	Level 1, 50 Margaret St, Sydney, NSW, 2000

Sample Details

Your Reference	**54963, Mamre Road Kemps Creek**
Number of Samples	4 Soil
Date samples received	05/02/2019
Date completed instructions received	05/02/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	11/02/2019
Date of Issue	11/02/2019

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Asbestos Approved By
Analysed by Asbestos Approved Identifier: Matt Tang
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Organics Supervisor
Lucy Zhu, Asbestos Analyst
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By



Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		210739-1	210739-3	210739-4
Your Reference	UNITS	QC20190130MN_01	QC20190130MN_03	QC20190130MN_04
Type of sample		Soil	Soil	Soil
Date extracted	-	06/02/2019	06/02/2019	06/02/2019
Date analysed	-	07/02/2019	07/02/2019	07/02/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	89	107	104

svTRH (C10-C40) in Soil				
Our Reference		210739-1	210739-3	210739-4
Your Reference	UNITS	QC20190130MN_01	QC20190130MN_03	QC20190130MN_04
Type of sample		Soil	Soil	Soil
Date extracted	-	06/02/2019	06/02/2019	06/02/2019
Date analysed	-	07/02/2019	07/02/2019	07/02/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	170	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	210	<100
TRH >C_{34} -C_{40}	mg/kg	<100	170	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	380	<50
Surrogate o-Terphenyl	%	88	84	91

PAHs in Soil		
Our Reference		210739-3
Your Reference	UNITS	QC20190130MN_03
Type of sample		Soil
Date extracted	-	06/02/2019
Date analysed	-	07/02/2019
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	0.1
Pyrene	mg/kg	0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	87

Organochlorine Pesticides in soil			
Our Reference		210739-3	210739-4
Your Reference	UNITS	QC20190130MN_03	QC20190130MN_04
Type of sample		Soil	Soil
Date extracted	-	06/02/2019	06/02/2019
Date analysed	-	07/02/2019	07/02/2019
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	88	88

PCBs in Soil		
Our Reference		210739-3
Your Reference	UNITS	QC20190130MN_03
Type of sample		Soil
Date extracted	-	06/02/2019
Date analysed	-	07/02/2019
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	88

Acid Extractable metals in soil				
Our Reference		210739-1	210739-3	210739-4
Your Reference	UNITS	QC20190130MN_01	QC20190130MN_03	QC20190130MN_04
Type of sample		Soil	Soil	Soil
Date prepared	-	06/02/2019	06/02/2019	06/02/2019
Date analysed	-	06/02/2019	06/02/2019	06/02/2019
Arsenic	mg/kg	10	7	<4
Cadmium	mg/kg	0.6	<0.4	<0.4
Chromium	mg/kg	23	18	14
Copper	mg/kg	27	45	14
Lead	mg/kg	74	36	12
Mercury	mg/kg	<0.1	0.1	<0.1
Nickel	mg/kg	14	13	5
Zinc	mg/kg	91	85	13

Misc Soil - Inorg		
Our Reference		210739-3
Your Reference	UNITS	QC20190130MN_03
Type of sample		Soil
Date prepared	-	06/02/2019
Date analysed	-	06/02/2019
Total Phenolics (as Phenol)	mg/kg	<5

Moisture				
Our Reference		210739-1	210739-3	210739-4
Your Reference	UNITS	QC20190130MN_01	QC20190130MN_03	QC20190130MN_04
Type of sample		Soil	Soil	Soil
Date prepared	-	06/02/2019	06/02/2019	06/02/2019
Date analysed	-	07/02/2019	07/02/2019	07/02/2019
Moisture	%	9.7	10	16

Asbestos ID - soils NEPM - ASB-001		
Our Reference		210739-3
Your Reference	UNITS	QC20190130MN_03
Type of sample		Soil
Date analysed	-	06/02/2019
Sample mass tested	g	742.36
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected
Total Asbestos#1	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	–
FA and AF Estimation*	g	–
ACM >7mm Estimation*	%(w/w)	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	98	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	80	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	103	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-003	83	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	109	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	87	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	87	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	110	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	106	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	100	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

210739 RS

Enviro Sample NSW

To: Nibha Vaidya; COC NSW
Cc: Charl Du Preez
Subject: RE: 5 DAY TAT - FW: Schedule of Analysis - Mamre Road 54963

From: Rohan Hammond [mailto:RHammond@jbsg.com.au]
Sent: Friday, 1 February 2019 9:59 AM
To: Nibha Vaidya
Cc: sample_syd_1@eurofins.com.au; Milad Noujaim
Subject: FW: Schedule of Analysis - Mamre Road 54963

EXTERNAL EMAIL*

Hi Nibha,

Just following up. There is also a potential ACM frag from TP01 which was missed on the COC. Can you please analyse for presence/absence of ACM.

Additionally, please forward on to Envirolab (Sydney):

1. QC20190130MN_01
2. QC20190130MN_02
3. QC20190130MN_03
4. QC20190130MN_04

With note to contact me upon receipt.
Rohan.

From: Rohan Hammond
Sent: Friday, 1 February 2019 9:53 AM
To: 'Nibha Vaidya' <NibhaVaidya@eurofins.com>
Cc: 'Sample Receipt 1 Syd' <sample_syd_1@eurofins.com.au>; Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: Schedule of Analysis - Mamre Road 54963

Hi Nibha,

Please see attached COC and schedule of analysis for samples received on 29 and 31 January, job number 54963.

Please feel free to have sample receipt call Milda (0401230032) to discuss any discrepancies with sample jars/COCs. For any queries regarding analysis, please contact me.

Regards,

Rohan Hammond | Environmental Consultant | JBS&G
Sydney | Melbourne | Adelaide | Perth | Brisbane | Canberra | Darwin | Wollongong
Level 1, 50 Margaret Street Sydney NSW 2000
T: 02 8245 0300 | M: 0430 379 445 | E: rhammond@jbsg.com.au | W: www.jbsg.com.au
Contaminated Land | Groundwater Remediation | Auditing and Compliance | Assessments and Approvals | Occupational Hygiene and Monitoring

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12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 210739

Date Received: 4/2/19
Time Received: 14:25
Received by: RS
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Sampled by: Milad Noujaim

Received by: Luca D.
Eurofins MGT
01-02-19 11:21 AM

638491

JBS&G Australia Pty Ltd
Project: 54983
Project Name: Moreno Road Kemps Creek
Turn around: Standard

Contact: mnoujaim@jbsg.com.au
mnoujaim@jbsg.com.au

Sample Name	Depth	Matrix	Date	Containers				Analysis											
				250 mL Jar	500 mL Jar	250 mL Jar													
TP02	0-0.15	Soil	30/01/2019	1	1			1		1		1		1				1	1
TP07	0.2-0.3	Soil	30/01/2019	1	1														
TP02	1.0-1.1	Soil	30/01/2019	1	1			1											1
TP01	0.2-0.3	Soil	30/01/2019	1	1			1		1		1		1		1			1
TP01	0.4-0.5	Soil	30/01/2019	1	1			1		1		1		1					
TP01	1-1.1	Soil	30/01/2019	1	1														1
TP03	0-0.15	Soil	30/01/2019	1	1			1		1		1		1		1		1	1
TP03	1-1.1	Soil	30/01/2019	1	1														
TP05	0-0.1	Soil	30/01/2019	1	1			1											
TP05	0.2-0.3	Soil	30/01/2019	1	1			1		1		1		1					
TP05	1.0-1.1	Soil	30/01/2019	1	1														
TP05	1.5-1.6	Soil	30/01/2019	1														1	1
TP11	0-0.1	Soil	30/01/2019	1	1			1		1				1					1
TP11	0.3-0.4	Soil	30/01/2019	1	1														
TP11	1.1-1.2	Soil	30/01/2019	1	1			1											
TP11	1.7-1.8	Soil	30/01/2019	2															
TP12	0-0.1	Soil	30/01/2019	1	1			1		1				1		1			
TP12	1.0-1.1	Soil	30/01/2019	1	1			1											
TP12	1.8-1.9	Soil	30/01/2019	1															1
TP13	0-0.1	Soil	30/01/2019	1	1			1		1		1		1				1	1
TP13	1.0-1.1	Soil	30/01/2019	1	1			1											
TP13	1.8-1.9	Soil	30/01/2019	1															
TP09	0-0.1	Soil	30/01/2019	1	1			1		1									
TP09	1.0-1.1	Soil	30/01/2019	1	1														
TP09	1.7-1.8	Soil	30/01/2019	1				1											
TP18	0-0.1	Soil	30/01/2019	1	1			1		2		1		1				1	1
TP18	1.0-1.1	Soil	30/01/2019	1	1			1											
TP18	1.7-1.8	Soil	30/01/2019	1															1
TP17	0-0.1	Soil	30/01/2019	1	1														
TP17	0.3-0.4	Soil	30/01/2019	1	1			1		1		1		1					
TP17	1.0-1.1	Soil	30/01/2019	1	1														
TP17	1.7-1.8	Soil	30/01/2019	1				1											
TP16	0-0.1	Soil	30/01/2019	1	1			1						1					
TP16	1.0-1.1	Soil	30/01/2019	1	1			1											
TP16	1.7-1.8	Soil	30/01/2019	1															
TP20	0-0.1	Soil	31/01/2019	1	1			1											
TP20	0.4-0.5	Soil	31/01/2019	1	1			1		1									
TP20	1.0-1.1	Soil	31/01/2019	1	1														
TP20	1.7-1.8	Soil	31/01/2019	1															1
TP21	0-0.1	Soil	31/01/2019	1	1			1										1	1
TP21	0.4-0.5	Soil	31/01/2019	1	1			1		1									
TP21	1.0-1.1	Soil	31/01/2019	1	1														
TP21	1.7-1.8	Soil	31/01/2019	2															
TP22	0-0.1	Soil	31/01/2019	1	1			1		1		1		1					
TP22	0.6-0.7	Soil	31/01/2019	1	1			1											
TP22	1.5-1.6	Soil	31/01/2019	1														1	1
TP24	0-0.1	Soil	31/01/2019	1	1			1											1
TP24	0.2-0.3	Soil	31/01/2019	1	1			1		1		1							
TP24	1.0-1.1	Soil	31/01/2019	1	1														
TP24	1.7-1.8	Soil	31/01/2019	1															
TP28	0-0.1	Soil	31/01/2019	1	1			1				1							
TP28	0.4-0.5	Soil	31/01/2019	1	1			1		1				1					
TP28	1.0-1.1	Soil	31/01/2019	1															
TP28	1.7-1.8	Soil	31/01/2019	1															
TP32	0-0.1	Soil	31/01/2019	1	1			1		1		1							
TP32	0.7-0.8	Soil	31/01/2019	1	1														1
TP32	1.7-1.8	Soil	31/01/2019	1				1										1	1
TP34	0-0.1	Soil	31/01/2019	1	1			1											1
TP34	0.4-0.5	Soil	31/01/2019	1	1			1		1									
TP34	1-1.1	Soil	31/01/2019	1															
TP34	1.7-1.8	Soil	31/01/2019	1															
TP30	0-0.1	Soil	31/01/2019	1	1			1		1		1		1					
TP30	1.0-1.1	Soil	31/01/2019	1	1			1										1	1
TP30	1.7-1.8	Soil	31/01/2019	1															
TP26	0-0.1	Soil	31/01/2019	1	1			1				1							
TP26	0.4-0.5	Soil	31/01/2019	1	1			1		1									
TP26	1.5-1.6	Soil	31/01/2019	1															
TP31	0-0.1	Soil	31/01/2019	1	1			1		1									
TP31	0.4-0.5	Soil	31/01/2019	1	1													1	1
TP31	1.5-1.6	Soil	31/01/2019	1				1											
TP33	0-0.1	Soil	31/01/2019	1	1			1		1									
TP33	0.8-0.9	Soil	31/01/2019	1	1			1											
TP33	1.7-1.8	Soil	31/01/2019	1															
1 * QA20190130MN_01	-	Soil	30/01/2019	1	1			1		1									
2 * QA20190130MN_02	-	Soil	30/01/2019	1	1														
3 * QA20190130MN_03	-	Soil	30/01/2019	1	1			1		1		1		1		1			
TP00	0-0.15	Soil	30/01/2019	1								1		1					
TP00	0.2-0.3	Soil	30/01/2019	1															
TP00	0.4-0.5	Soil	30/01/2019	1															1
TP00	1-1.1	Soil	30/01/2019	1														1	1
TP04	0-0.1	Soil	30/01/2019	1				1		1		1							1
TP04	0.2-0.3	Soil	30/01/2019	1				1		1		1		1		1			
TP04	1.0-1.1	Soil	30/01/2019	1															
TP05	0-0.2	Soil	29/01/2019	1	1			1		2		1		1		1			1
TP06	0.8-0.9	Soil	29/01/2019	1	1														
TP07	0-0.1	Soil	29/01/2019	1	1			1		1		1		1				1	1
TP07	0.4-0.5	Soil	29/01/2019	1	1														
TP07	1.3-1.4	Soil	29/01/2019	1															
TP15	0-0.1	Soil	30/01/2019	1	1														
TP15	0.3-0.4	Soil	30/01/2019	1	1													1	1
TP15	1.0-1.1	Soil	30/01/2019	1															1
TP15	1.7-1.8	Soil	30/01/2019	1															
MW01	0-0.2	Soil	29/01/2019	1	1							1							1
MW01	0.4-0.5	Soil	29/01/2019	1	1														
MW01	1-1.1	Soil	29/01/2019	1	1											1			1
MW01	1.5-1.6	Soil	29/01/2019	1	1													1	1
MW01	2-2.1	Soil	29/01/2019	1	1														1
MW01	5.5-5.6	Soil	29/01/2019	1															
MW02	0-0.1	Soil	29/01/2019	1	1													1	1
MW02	0.4-0.5	Soil	29/01/2019	1	1													1	1
MW02	1.2-1.3	Soil	29/01/2019	1	1			1		1									
MW02	1.9-2.0	Soil	29/01/2019	1	1														1
MW02	3.0-3.1	Soil	29/01/2019	1	1													1	1
MW02	6.0-6.1	Soil	29/01/2019	1	1														1
MW03	0-0.2	Soil	29/01/2019	1	1													1	1
MW03	0.4-0.5	Soil	29/01/2019	1	1														1
MW03	1.5-1.6	Soil	29/01/2019	1	1													1	1
MW03	2.9-3.0	Soil	29/01/2019	1	1													1	1
4 * QA20190130MN_04	-	Soil	30/01/2019	1	1			1		1		1							
Trip Spike/Blank (29-1)	-	Soil	29/01/2019	1		1		1											
Trip Spike/Blank (31-1)	-	Soil	31/01/2019	1		1		1											
Rinsate (29-1)	-	Soil	29/01/2019	1		1		1		1		1		1					
Rinsate (30-1)	-	Soil	30/01/2019	1		1		1		1		1		1					
Rinsate (31-1)	-	Soil	31/01/2019	1		1		1		1		1		1					

210739

	Bore/Pit	Depth	Matrix	Date Sampled	250 mL Jar	500 mL Base	Bottles/Vials	Metals	BTEX	TRH/BTEX	OCP	PAH/Phenols	Asbestos	PCBs	VOCs	ASLP/TCLP	B20	L2	SH&CEC
1	QC20150130MN_01	-	Soil	30/01/2019	1	1		1		1									
2	QC20150130MN_02	-	Soil	30/01/2019	1	1													
3	QC20150130MN_03	-	Soil	30/01/2019	1	1		1		1	1	1	1	1					
4	QC20150130MN_04	-	Soil	30/01/2019	1	1		1		1	1								

Jessica Hie 210739

From: Rohan Hammond <RHammond@jbsg.com.au>
Sent: Tuesday, 5 February 2019 8:34 AM
To: Jessica Hie
Subject: RE: Mamre Rd Kemps Creek

Hi Jessica,

Thanks for that, analysis is as follows:

Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH/Phenols
QC20190130MN_01	-	Soil	30/01/2019	1	1		1		1		
QC20190130MN_02	-	Soil	30/01/2019	1	1						
QC20190130MN_03	-	Soil	30/01/2019	1	1		1		1	1	1
QC20190130MN_04	-	Soil	30/01/2019	1	1		1		1	1	

From: Jessica Hie <JHie@envirolab.com.au>
Sent: Monday, 4 February 2019 6:38 PM
To: Rohan Hammond <RHammond@jbsg.com.au>
Cc: Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: Mamre Rd Kemps Creek

Hi Rohan,

We have received instructions in the attached email to contact you upon sample receipt of this job.
But can we just proceed with the testing marked on the 2nd page?

Regards,

Jessica Hie | Customer Service / Asbestos Analyst | Envirolab Services Pty Ltd
(Monday to Friday 11am to 7pm)

Great Science. Great Service.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Rohan Hammond, M Noujaim

Sample Login Details

Your reference	54963, Mamre Road Kemps Creek
Envirolab Reference	210739
Date Sample Received	05/02/2019
Date Instructions Received	05/02/2019
Date Results Expected to be Reported	11/02/2019

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	4 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	19.7
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils NEPM - ASB-001	On Hold
QC20190130MN_01	✓	✓				✓			
QC20190130MN_02									✓
QC20190130MN_03	✓	✓	✓	✓	✓	✓	✓	✓	
QC20190130MN_04	✓	✓		✓		✓			

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 210811

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Rohan Hammond, M Noujaim
Address	Level 1, 50 Margaret St, Sydney, NSW, 2000

Sample Details

Your Reference	**54963, Mamre Road Kemps Creek**
Number of Samples	1 Water
Date samples received	05/02/2019
Date completed instructions received	05/02/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/02/2019
Date of Issue	12/02/2019

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Organics Supervisor
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference		210811-1
Your Reference	UNITS	QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date extracted	-	06/02/2019
Date analysed	-	07/02/2019
TRH C_6 - C_9	µg/L	<10
TRH C_6 - C_{10}	µg/L	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	95
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	93

svTRH (C10-C40) in Water		
Our Reference	UNITS	210811-1
Your Reference		QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date extracted	-	06/02/2019
Date analysed	-	06/02/2019
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	84

PAHs in Water - Low Level		
Our Reference	UNITS	210811-1
Your Reference		QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date extracted	-	06/02/2019
Date analysed	-	07/02/2019
Naphthalene	µg/L	<0.2
Acenaphthylene	µg/L	<0.1
Acenaphthene	µg/L	<0.1
Fluorene	µg/L	<0.1
Phenanthrene	µg/L	<0.1
Anthracene	µg/L	<0.1
Fluoranthene	µg/L	<0.1
Pyrene	µg/L	<0.1
Benzo(a)anthracene	µg/L	<0.1
Chrysene	µg/L	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2
Benzo(a)pyrene	µg/L	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	87

Total Phenolics in Water		
Our Reference		210811-1
Your Reference	UNITS	QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date extracted	-	08/02/2019
Date analysed	-	08/02/2019
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference	UNITS	210811-1
Your Reference		QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date prepared	-	06/02/2019
Date analysed	-	06/02/2019
Arsenic-Dissolved	µg/L	3
Cadmium-Dissolved	µg/L	0.3
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	7
Zinc-Dissolved	µg/L	26

Miscellaneous Inorganics		
Our Reference	UNITS	210811-1
Your Reference		QA20190201
Date Sampled		01/02/2019
Type of sample		Water
Date prepared	-	11/02/2019
Date analysed	-	11/02/2019
pH	pH Units	6.6
Electrical Conductivity	µS/cm	23,000
Chloride, Cl	mg/L	8,300
Sulphate, SO4	mg/L	930
Bicarbonate Alkalinity as $CaCO_3$	mg/L	1,200
Total Alkalinity as $CaCO_3$	mg/L	1,200

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Alternatively determined by colourimetry/turbidity using Discrete Analyer.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	93	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	95	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate 4-BFB	%		Org-016	89	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	70	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	70	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate o-Terphenyl	%		Org-003	126	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			07/02/2019	[NT]	[NT]	[NT]	[NT]	07/02/2019	[NT]
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	71	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	83	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	88	[NT]	[NT]	[NT]	[NT]	78	[NT]

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			08/02/2019	[NT]	[NT]	[NT]	[NT]	08/02/2019	[NT]
Date analysed	-			08/02/2019	[NT]	[NT]	[NT]	[NT]	08/02/2019	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Date analysed	-			06/02/2019	[NT]	[NT]	[NT]	[NT]	06/02/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	83	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			11/02/2019	[NT]	[NT]	[NT]	[NT]	11/02/2019	[NT]
Date analysed	-			11/02/2019	[NT]	[NT]	[NT]	[NT]	11/02/2019	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	115	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

PH: sample analysed out holding time as client's request.

JBS&G Australia Pty Ltd
Project: 54963
Project Name: Mamre Road Kemps Creek
Turn around Standard

Contact: rhammond@jbsg.com.au
mnoujaim@jbsg.com.au

Sampled by: Milad Noujaim

#638673

Sample Name				Containers			Analysis													
Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH (LL)/Phenols	Asbestos	PCBs	% Clay	ASLP/TCLP	B20	L2	Alkalinity (total and bicarbonate)	pH & EC
TP10	0-0.1	Soil	1/02/2019	1	1		1	1		1	1								
TP10	0.4-0.5	Soil	1/02/2019	1	1		1												
TP14	0-0.1	Soil	1/02/2019	1	1		1	1	1	1									
TP14	0.4-0.5	Soil	1/02/2019	1	1														
TP19	0-0.1	Soil	1/02/2019	1	1		1	1			1								
TP19	0.4-0.5	Soil	1/02/2019	1	1														
TP23	0-0.1	Soil	1/02/2019	1	1		1		1	1	1								
TP23	0.4-0.5	Soil	1/02/2019	1	1														
TP25	0-0.1	Soil	1/02/2019	1	1		1												
TP25	0.4-0.5	Soil	1/02/2019	1	1														
TP27	0-0.1	Soil	1/02/2019	1	1		1	1											
TP27	0.4-0.5	Soil	1/02/2019	1	1														
TP24	0-0.1	Soil	1/02/2019	1	1		1												
TP24	0.4-0.5	Soil	1/02/2019	1	1			1											
TP08	0-0.1	Soil	1/02/2019	1	1		1	1											
TP08	0.4-0.5	Soil	1/02/2019	1	1														
MW01	-	Water	1/02/2019			1	1		1		1							1	1
MW02	-	Water	1/02/2019			1	1		1		1							1	1
MW03	-	Water	1/02/2019			1	1		1		1							1	1
QA20190201	-	Water	1/02/2019			1	1		1		1							1	1
QC20190201	-	Soil	1/02/2019			1													
Trip Spike/Blank (1-2)	-	Soil	1/02/2019			1		1											
Rinsate (1-2)	-	Soil	1/02/2019			1	1		1	1	1								

* Please forward QC20190201 to Envirolab

Ulong 2/2 11.32am Eurofins Mgt 2.23°C

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 210811

Date Received: 5.2.19
Time Received: 12:17
Received by: ID
Temp: Cool/Ambient 10.7°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Received: Tanya Duffy

Andrew Fitzsimons

From: Rohan Hammond <RHammond@jbsg.com.au>
Sent: Wednesday, 6 February 2019 8:56 AM
To: Andrew Fitzsimons
Subject: RE: Sample Receipt for 210811 54963, Mamre Road Kemps Creek

Thanks Andrew,

Can we please add the following analytes to that sample:

- pH, Chloride and Sulphate

From: Andrew Fitzsimons <AFitzsimons@envirolab.com.au>
Sent: Tuesday, 5 February 2019 7:17 PM
To: AdminNSW <adminNSW@jbsg.com.au>; Rohan Hammond <RHammond@jbsg.com.au>; Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: Sample Receipt for 210811 54963, Mamre Road Kemps Creek

Please refer to attached for:
a copy of the COC/paperwork received from you
a copy of our Sample Receipt Advice (SRA)
Please open and read the SRA as it contains important information.
Please let the lab know immediately if there are any issues.

Results will be available by 6.30pm on the date indicated.

PLEASE NOTE COMBO PRICES WILL ONLY APPLY IF COMBOS ARE SELECTED ON COC.

We have a new reporting format and would welcome your feedback. Sydney@envirolab.com.au

Please note that subcontracted testing or non routine testing may take significantly longer than just the standard 5 day TAT, contact the lab to get an approximate due date.

Enquiries should be made directly to:
customerservice@envirolab.com.au

Regards

Envirolab Services
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Regards,

Andrew Fitzsimons | Customer Service & Chemist | Envirolab Services Pty Ltd

Great Science, Great Service.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JBS & G (NSW & WA) Pty Ltd
Attention	Rohan Hammond, M Noujaim

Sample Login Details

Your reference	54963, Mamre Road Kemps Creek
Envirolab Reference	210811
Date Sample Received	05/02/2019
Date Instructions Received	05/02/2019
Date Results Expected to be Reported	12/02/2019

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10.7
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	Total Phenolicsin Water	HM in water - dissolved	pH	Electrical Conductivity	Chloride, Cl	Sulphate, SO4	Bicarbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3
QA20190201	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

JBS&G Australia Pty Ltd
Project: **54963**
Project Name: **Mamre Road Kemps Creek**
Turn around **Standard**

Contact: rhammond@jbsg.com.au
mnoujaim@jbsg.com.au

Sampled by: Milad Noujaim

Received by: Luca D.
Eurofins mat
01-02-19 11:21 AM # 638491

Sample Name				Containers			Analysis												
Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH/Phenols	Asbestos	PCBs	% Clay	ASLP/TCLP	B20	L2	pH & EC
TP02	0-0.15	Soil	30/01/2019	1	1		1		1	1	1	1				1	1	
TP02	0.2-0.3	Soil	30/01/2019	1	1													1
TP02	1.0-1.1	Soil	30/01/2019	1	1		1											1
TP01	0.2-0.3	Soil	30/01/2019	1	1		1		1	1	1	1	1					
TP01	0.4-0.5	Soil	30/01/2019	1	1		1											1
TP01	1-1.1	Soil	30/01/2019	1	1									1		1	1	
TP03	0-0.15	Soil	30/01/2019	1	1		1		1	1	1	1	1					
TP03	1-1.1	Soil	30/01/2019	1	1													
TP05	0-0.1	Soil	30/01/2019	1	1		1					1						
TP05	0.2-0.3	Soil	30/01/2019	1	1		1		1	1	1	1						
TP05	1.0-1.1	Soil	30/01/2019	1	1											1	1	
TP05	1.5-1.6	Soil	30/01/2019	1														1
TP11	0-0.1	Soil	30/01/2019	1	1		1		1		1	1						
TP11	0.3-0.4	Soil	30/01/2019	1	1													
TP11	1.1-1.2	Soil	30/01/2019	1	1		1											
TP11	1.7-1.8	Soil	30/01/2019	1														
TP12	0-0.1	Soil	30/01/2019	1	1		1		1			1		1				
TP12	1.0-1.1	Soil	30/01/2019	1	1		1											
TP12	1.8-1.9	Soil	30/01/2019	1														1
TP13	0-0.1	Soil	30/01/2019	1	1		1		1		1	1				1	1	
TP13	1.0-1.1	Soil	30/01/2019	1	1		1											
TP13	1.8-1.9	Soil	30/01/2019	1														
TP09	0-0.1	Soil	30/01/2019	1	1		1		1									
TP09	1.0-1.1	Soil	30/01/2019	1	1													
TP09	1.7-1.8	Soil	30/01/2019	1			1											
TP18	0-0.1	Soil	30/01/2019	1	1		1		1	1	1	1				1	1	
TP18	1.0-1.1	Soil	30/01/2019	1	1		1											
TP18	1.7-1.8	Soil	30/01/2019	1														1
TP17	0-0.1	Soil	30/01/2019	1	1		1											
TP17	0.3-0.4	Soil	30/01/2019	1	1		1		1	1	1	1						
TP17	1.0-1.1	Soil	30/01/2019	1	1													
TP17	1.7-1.8	Soil	30/01/2019	1			1											
TP16	0-0.1	Soil	30/01/2019	1	1		1		1			1						
TP16	1.0-1.1	Soil	30/01/2019	1	1		1											
TP16	1.7-1.8	Soil	30/01/2019	1														
TP20	0-0.1	Soil	31/01/2019	1	1		1											
TP20	0.4-0.5	Soil	31/01/2019	1	1		1		1									
TP20	1.0-1.1	Soil	31/01/2019	1	1													
TP20	1.7-1.8	Soil	31/01/2019	1														1
TP21	0-0.1	Soil	31/01/2019	1	1		1									1	1	
TP21	0.4-0.5	Soil	31/01/2019	1	1		1		1									
TP21	1.0-1.1	Soil	31/01/2019	1	1													
TP21	1.7-1.8	Soil	31/01/2019	1														
TP22	0-0.1	Soil	31/01/2019	1	1		1		1	1	1							
TP22	0.6-0.7	Soil	31/01/2019	1	1		1											
TP22	1.5-1.6	Soil	31/01/2019	1												1	1	
TP24	0-0.1	Soil	31/01/2019	1	1		1											1
TP24	0.2-0.3	Soil	31/01/2019	1	1		1		1	1								
TP24	1.0-1.1	Soil	31/01/2019	1	1													
TP24	1.7-1.8	Soil	31/01/2019	1														
TP28	0-0.1	Soil	31/01/2019	1	1		1			1								
TP28	0.4-0.5	Soil	31/01/2019	1	1		1		1		1							
TP28	1.0-1.1	Soil	31/01/2019	1														
TP28	1.7-1.8	Soil	31/01/2019	1														
TP32	0-0.1	Soil	31/01/2019	1	1		1		1	1								1
TP32	0.7-0.8	Soil	31/01/2019	1	1											1	1	
TP32	1.7-1.8	Soil	31/01/2019	1			1											1
TP34	0-0.1	Soil	31/01/2019	1	1		1											
TP34	0.4-0.5	Soil	31/01/2019	1	1		1		1									
TP34	1-1.1	Soil	31/01/2019	1														
TP34	1.7-1.8	Soil	31/01/2019	1														
TP30	0-0.1	Soil	31/01/2019	1	1		1		1	1	1					1	1	
TP30	1.0-1.1	Soil	31/01/2019	1	1		1											
TP30	1.7-1.8	Soil	31/01/2019	1														
TP26	0-0.1	Soil	31/01/2019	1	1		1			1								
TP26	0.4-0.5	Soil	31/01/2019	1	1		1		1									
TP26	1.5-1.6	Soil	31/01/2019	1														
TP31	0-0.1	Soil	31/01/2019	1	1		1		1									
TP31	0.4-0.5	Soil	31/01/2019	1	1											1	1	
TP31	1.5-1.6	Soil	31/01/2019	1			1											
TP33	0-0.1	Soil	31/01/2019	1	1		1		1									
TP33	0.8-0.9	Soil	31/01/2019	1	1		1											
TP33	1.7-1.8	Soil	31/01/2019	1														
QA20190130MN_01	-	Soil	30/01/2019	1	1		1		1									
QA20190130MN_02	-	Soil	30/01/2019	1	1													
QA20190130MN_03	-	Soil	30/01/2019	1	1		1		1	1	1	1	1					
TP00	0-0.15	Soil	30/01/2019	1						1		1	1					
TP00	0.2-0.3	Soil	30/01/2019	1														1
TP00	0.4-0.5	Soil	30/01/2019	1												1	1	
TP00	1-1.1	Soil	30/01/2019	1														1
TP04	0-0.1	Soil	30/01/2019	1			1		1	1								
TP04	0.2-0.3	Soil	30/01/2019	1			1		1	1	1	1	1					
TP04	1.0-1.1	Soil	30/01/2019	1														
TP06	0-0.2	Soil	29/01/2019	1	1		1		1	1		1		1				1
TP06	0.8-0.9	Soil	29/01/2019	1	1											1	1	
TP07	0-0.1	Soil	29/01/2019	1	1		1		1	1		1						
TP07	0.4-0.5	Soil	29/01/2019	1	1													
TP07	1.3-1.4	Soil	29/01/2019	1														
TP15	0-0.1	Soil	30/01/2019	1	1											1	1	
TP15	0.3-0.4	Soil	30/01/2019	1	1													1
TP15	1.0-1.1	Soil	30/01/2019	1														
TP15	1.7-1.8	Soil	30/01/2019	1														1
MW01	0-0.2	Soil	29/01/2019	1	1					1								
MW01	0.4-0.5	Soil	29/01/2019	1	1													1
MW01	1-1.1	Soil	29/01/2019	1	1									1		1	1	
MW01	1.5-1.6	Soil	29/01/2019	1	1													1
MW01	2-2.1	Soil	29/01/2019	1	1													
MW01	5.5-5.6	Soil	29/01/2019	1												1	1	
MW02	0-0.2	Soil	29/01/2019	1	1													
MW02	0.4-0.5	Soil	29/01/2019	1	1											1	1	
MW02	1.2-1.3	Soil	29/01/2019	1	1		1		1									
MW02	1.9-2.0	Soil	29/01/2019	1	1													1
MW02	3.0-3.1	Soil	29/01/2019	1	1											1	1	
MW02	6.0-6.1	Soil	29/01/2019	1	1													1
MW03	0-0.2	Soil	29/01/2019	1	1											1	1	
MW03	0.4-0.5	Soil	29/01/2019	1	1													1
MW03	1.5-1.6	Soil	29/01/2019	1	1											1	1	
MW03	2.9-3.0	Soil	29/01/2019	1	1											1	1	
QA20190130MN_04	-	Soil	30/01/2019	1	1		1		1	1								
Trip Spike/Blank (29-1)	-	Soil	29/01/2019	1		1		1										
Trip Spike/Blank (31-1)	-	Soil	31/01/2019	1		1		1										
Rinsate (29-1)	-	Soil	29/01/2019	1		1	1		1	1	1	1						
Rinsate (30-1)	-	Soil	30/01/2019	1		1	1		1	1	1	1						
Rinsate (31-1)	-	Soil	31/01/2019	1		1	1		1	1	1	1						

Enviro Sample NSW

From: Nibha Vaidya
Sent: Friday, 1 February 2019 11:31 AM
To: Enviro Sample NSW; COC NSW
Cc: Charl Du Preez
Subject: 5 DAY TAT - FW: Schedule of Analysis - Mamre Road 54963
Attachments: Lab Schedule Sheet 02-01.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Massive COC, guys.

Just following up. There is also a potential ACM frag from TP01 which was missed on the COC. Can you please analyse for presence/absence of ACM.

Additionally, please forward on to Envirolab (Sydney):

- QC20190130MN_01;
- QC20190130MN_02;
- QC20190130MN_03;
- QC20190130MN_04;

With note to contact me upon receipt.

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Rohan Hammond [mailto:RHammond@jbsg.com.au]
Sent: Friday, 1 February 2019 11:21 AM
To: Nibha Vaidya
Subject: RE: Schedule of Analysis - Mamre Road 54963

EXTERNAL EMAIL*

Sorry Nibha, should be more legible now.

Rohan.

From: Nibha Vaidya <NibhaVaidya@eurofins.com>
Sent: Friday, 1 February 2019 11:08 AM
To: Rohan Hammond <RHammond@jbsg.com.au>
Cc: Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: RE: Schedule of Analysis - Mamre Road 54963

Thanks Rohan,

It is not quite clear on the COC as to which lines '1's belong. Would you be able to adjust the COC and resend?

Enviro Sample NSW

From: Rohan Hammond <RHammond@jbsg.com.au>
Sent: Saturday, 2 February 2019 11:14 AM
To: Enviro Sample NSW
Cc: Milad Noujaim
Subject: RE: Eurofins | mgt Sample Receipt Advice - Report 638491 : Site MAMRE ROAD KEMPS CREEK (54963)

Follow Up Flag: Follow up
Flag Status: Flagged

Hi EnviroSample,

Cancelled Analysis:
Please move all analyses of samples per the following:

- TP01 0.4-0.5 to TP01 0.2-0.3;
- TP05 0.2-0.3 to TP05 0-0.1 (cancel additional asbestos and metals analysis);
- Confirm no additional rinsate samples were received (other than 31-1). If additional rinsate samples were received please move analysis of 29-1 and 30-1 to those samples. If no additional rinsate, cancel analysis.

Asbestos bags
Acknowledged bags not received. Given no analysis scheduled, no problem at this stage.

Extra Bags
Place all extra bags on hold, identify additional containers on SRA.

Trip Spike and Trip Blank
Please analyse both sets of TS/TBs. Are you able to identify which TS/TB set was received on 29-1 and which was received on 31-1? IF so, please note on SRA.

Samples Received
Confirm to move any anaylsis scheduled on the samples received with alternate naming per the final statement of your email.

Any further issues, please call to discuss.

Rohan.

From: EnviroSampleNSW@eurofins.com <EnviroSampleNSW@eurofins.com>
Sent: Friday, 1 February 2019 9:04 PM
To: Rohan Hammond <RHammond@jbsg.com.au>
Cc: Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: Eurofins | mgt Sample Receipt Advice - Report 638491 : Site MAMRE ROAD KEMPS CREEK (54963)

Dear Valued Client,

Samples TP01 0.4-0.5, TP05 0.2-0.3, RINSATE 29-1, RINSATE 30-1 not received, analysis cancelled.

Asbestos bags not received for samples TP24 1.0-1.1, TP31 0.4-0.5, TP33 0.8-0.9. Extra sample received TP01 0-0.1 (Jar + Bag) placed on hold.

Extra Asbestos bags received for samples TP00 0-0.15, TP00 0.2-0.3, TP00 0.4-0.5, TP04 0-0.1, TP04 1.0-1.1, TP05 1.5-1.6.

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NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name: **JBS & G Australia (NSW) P/L**

Contact name: Rohan Hammond
Project name: MAMRE ROAD KEMPS CREEK
Project ID: 54963
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Feb 1, 2019 11:21 AM
Eurofins | mgt reference: **638491**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 3.4 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Asbestos bags not received for samples TP24 1.0-1.1, TP31 0.4-0.5, TP33 0.8-0.9. Extra sample received TP01 0-0.1 (Jar + Bag) placed on hold. Extra Asbestos bags received for samples TP00 0-0.15, TP00 0.2-0.3, TP00 0.4-0.5, TP04 0-0.1, TP04 1.0-1.1, TP05 1.5-1.6. Samples QC20190130MN_01, QC20190130MN_02, QC20190130MN_03, QC20190130MN_04 forwarded to Envirolab.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Rohan Hammond - rhammond@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (NSW) P/L email address.

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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
External Laboratory																							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																		
1	TP02 0-0.15	Jan 30, 2019		Soil	S19-Fe01404		X							X					X	X	X		X
2	TP02 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01405					X		X									X		
3	TP02 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01406					X		X				X					X		
4	TP01 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01407		X			X		X		X	X						X		X
5	TP01 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01408				X														
6	TP01 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01409	X													X	X	X		
7	TP03 0-0.15	Jan 30, 2019		Soil	S19-Fe01410		X							X	X						X		X
8	TP05 0-0.1	Jan 30, 2019		Soil	S19-Fe01411		X						X	X		X	X	X			X	X	
9	TP05 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01412				X														

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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
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Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Polycyclic Aromatic Hydrocarbons	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
10	TP05 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01413														X	X	X		
11	TP05 1.5-1.6	Jan 30, 2019		Soil	S19-Fe01414					X		X									X		
12	TP11 0-0.1	Jan 30, 2019		Soil	S19-Fe01415		X														X		X
13	TP11 1.1-1.2	Jan 30, 2019		Soil	S19-Fe01416											X					X		
14	TP12 0-0.1	Jan 30, 2019		Soil	S19-Fe01417	X	X									X		X			X	X	
15	TP12 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01418					X		X				X					X		
16	TP12 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01419														X	X	X		
17	TP13 0-0.1	Jan 30, 2019		Soil	S19-Fe01420		X														X		X
18	TP13 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01421											X					X		
19	TP09 0.0-0.1	Jan 30, 2019		Soil	S19-Fe01422											X		X			X	X	
20	TP09 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01423											X					X		
21	TP18 0-0.1	Jan 30, 2019		Soil	S19-Fe01424		X							X					X	X	X		X

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Company Name: JBS & G Australia (NSW) P/L
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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
22	TP18 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01425					X		X				X					X		
23	TP17 0-0.1	Jan 30, 2019		Soil	S19-Fe01426											X					X		
24	TP17 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01427		X							X							X		X
25	TP17 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01428											X					X		
26	TP16 0-0.1	Jan 30, 2019		Soil	S19-Fe01429		X									X		X			X	X	
27	TP16 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01430											X					X		
28	TP20 0-0.1	Jan 31, 2019		Soil	S19-Fe01431											X					X		
29	TP20 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01432											X		X			X	X	
30	TP20 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01433					X		X									X		
31	TP20 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01434														X	X	X		
32	TP21 0.0-0.1	Jan 31, 2019		Soil	S19-Fe01435											X					X		
33	TP21 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01436											X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
34	TP22 0-0.1	Jan 31, 2019		Soil	S19-Fe01437									X							X		X
35	TP22 0.6-0.7	Jan 31, 2019		Soil	S19-Fe01438											X			X	X	X		
36	TP22 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01439					X		X									X		
37	TP24 0-0.1	Jan 31, 2019		Soil	S19-Fe01440											X					X		
38	TP24 0.2-0.3	Jan 31, 2019		Soil	S19-Fe01441									X		X		X			X	X	
39	TP28 0-0.1	Jan 31, 2019		Soil	S19-Fe01442									X		X					X		
40	TP28 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01443																X		X
41	TP32 0-0.1	Jan 31, 2019		Soil	S19-Fe01444					X		X		X		X		X			X	X	
42	TP32 0.7-0.8	Jan 31, 2019		Soil	S19-Fe01445														X	X	X		
43	TP32 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01446					X		X				X					X		
44	TP34 0-0.1	Jan 31, 2019		Soil	S19-Fe01447											X					X		
45	TP34 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01448											X		X			X	X	

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
46	TP30 0-0.1	Jan 31, 2019		Soil	S19-Fe01449									X					X	X	X		X
47	TP30 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01450											X					X		
48	TP26 0-0.1	Jan 31, 2019		Soil	S19-Fe01451									X		X					X		
49	TP26 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01452											X		X			X	X	
50	TP31 0-0.1	Jan 31, 2019		Soil	S19-Fe01453											X		X			X	X	
51	TP31 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01454														X	X	X		
52	TP31 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01455											X					X		
53	TP33 0-0.1	Jan 31, 2019		Soil	S19-Fe01456											X		X			X	X	
54	TP33 0.8-0.9	Jan 31, 2019		Soil	S19-Fe01457											X					X		
55	QA20190130MN_01	Jan 30, 2019		Soil	S19-Fe01458											X		X			X	X	
56	QA20190130MN_03	Jan 30, 2019		Soil	S19-Fe01459		X							X	X						X		X

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NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
57	TP00 0-0.15	Jan 30, 2019		Soil	S19-Fe01460		X							X	X						X		
58	TP00 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01461					X		X									X		
59	TP00 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01462														X	X	X		
60	TP00 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01463					X		X									X		
61	TP04 0-0.1	Jan 30, 2019		Soil	S19-Fe01464									X		X		X			X	X	
62	TP04 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01465		X							X	X						X		X
63	TP06 0-0.2	Jan 29, 2019		Soil	S19-Fe01466	X	X							X		X		X			X	X	
64	TP06 0.8-0.9	Jan 29, 2019		Soil	S19-Fe01467														X	X	X		
65	TP07 0-0.1	Jan 29, 2019		Soil	S19-Fe01468		X							X		X		X			X	X	
66	TP15 0-0.1	Jan 30, 2019		Soil	S19-Fe01469														X	X	X		
67	TP15 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01470					X		X									X		
68	TP15 1.7-1.8	Jan 29, 2019		Soil	S19-Fe01471					X		X									X		

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
69	MW01 0-0.2	Jan 29, 2019		Soil	S19-Fe01472									X							X		
70	MW01 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01473					X		X									X		
71	MW01 1.0-1.1	Jan 29, 2019		Soil	S19-Fe01474	X													X	X	X		
72	MW01 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01475					X		X									X		
73	MW01 5.5-5.6	Jan 29, 2019		Soil	S19-Fe01476														X	X	X		
74	MW02 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01477														X	X	X		
75	MW02 1.2-1.3	Jan 29, 2019		Soil	S19-Fe01478											X		X			X	X	
76	MW02 1.9-2.0	Jan 29, 2019		Soil	S19-Fe01479					X		X									X		
77	MW02 3.0-3.1	Jan 29, 2019		Soil	S19-Fe01480														X	X	X		
78	MW02 6.0-6.1	Jan 29, 2019		Soil	S19-Fe01481					X		X									X		
79	MW03 0-0.2	Jan 29, 2019		Soil	S19-Fe01482														X	X	X		
80	MW03 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01483					X		X									X		

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
81	MW03 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01484														X	X	X		
82	MW03 2.9-3.0	Jan 29, 2019		Soil	S19-Fe01485														X	X	X		
83	QA20190130MN_04	Jan 30, 2019		Soil	S19-Fe01486									X		X		X			X	X	
84	TRIP BLANK 29-1	Jan 29, 2019		Water	S19-Fe01487													X					
85	TRIP SPIKE 29-1	Jan 29, 2019		Water	S19-Fe01488													X					
86	TRIP BLANK 31-1	Jan 31, 2019		Water	S19-Fe01489													X					
87	TRIP SPIKE 31-1	Jan 31, 2019		Water	S19-Fe01490													X					
88	RINSATE 29-1	Jan 29, 2019		Water	S19-Fe01491				X														
89	RINSATE 30-1	Jan 30, 2019		Water	S19-Fe01492				X														

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
90	RINSATE 31-1	Jan 31, 2019		Water	S19-Fe01493									X	X								X
91	TP03 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01541						X												
92	TP11 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01542						X												
93	TP11 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01543						X												
94	TP13 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01544						X												
95	TP09 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01545						X												
96	TP18 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01546						X												
97	TP17 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01547						X												
98	TP16 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01548						X												
99	TP21 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01549						X												
100	TP21 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01550						X												
101	TP24 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01551						X												

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
102	TP24 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01552						X												
103	TP28 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01553						X												
104	TP28 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01554						X												
105	TP34 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01555						X												
106	TP34 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01556						X												
107	TP30 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01557						X												
108	TP26 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01558						X												
109	TP33 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01559						X												
110	QA2019013MN_02	Jan 30, 2019		Soil	S19-Fe01560						X												
111	TP04 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01561						X												
112	TP07 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01562						X												

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X														
Brisbane Laboratory - NATA Site # 20794						X																	
Perth Laboratory - NATA Site # 23736																							
113	TP07 1.3-1.4	Jan 29, 2019		Soil	S19-Fe01563						X												
114	TP15 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01564						X												
115	MW01 2.0-2.1	Jan 29, 2019		Soil	S19-Fe01565						X												
116	MW02 0-0.2	Jan 29, 2019		Soil	S19-Fe01566						X												
117	TP01	Jan 30, 2019		Building Materials	S19-Fe01567			X															
118	TP01 0-0.1	Jan 30, 2019		Soil	S19-Fe01594						X												
Test Counts						4	15	1	4	19	27	19	1	21	6	38	1	22	20	20	81	18	13

Certificate of Analysis

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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention:	Rohan Hammond
Report	638491-AID
Project Name	MAMRE ROAD KEMPS CREEK
Project ID	54963
Received Date	Feb 01, 2019
Date Reported	Feb 08, 2019

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

Project Name MAMRE ROAD KEMPS CREEK
Project ID 54963
Date Sampled Jan 29, 2019 to Jan 30, 2019
Report 638491-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP02 0-0.15	19-Fe01404	Jan 30, 2019	Approximate Sample 586g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP01 0.2-0.3	19-Fe01407	Jan 30, 2019	Approximate Sample 479g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP03 0-0.15	19-Fe01410	Jan 30, 2019	Approximate Sample 805g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP05 0-0.1	19-Fe01411	Jan 30, 2019	Approximate Sample 742g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP11 0-0.1	19-Fe01415	Jan 30, 2019	Approximate Sample 475g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP12 0-0.1	19-Fe01417	Jan 30, 2019	Approximate Sample 570g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP13 0-0.1	19-Fe01420	Jan 30, 2019	Approximate Sample 714g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP18 0-0.1	19-Fe01424	Jan 30, 2019	Approximate Sample 585g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
TP17 0.3-0.4	19-Fe01427	Jan 30, 2019	Approximate Sample 513g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP16 0-0.1	19-Fe01429	Jan 30, 2019	Approximate Sample 707g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
QA20190130MN_03	19-Fe01459	Jan 30, 2019	Approximate Sample 855g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP00 0-0.15	19-Fe01460	Jan 30, 2019	Approximate Sample 655g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP04 0.2-0.3	19-Fe01465	Jan 30, 2019	Approximate Sample 548g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP06 0-0.2	19-Fe01466	Jan 29, 2019	Approximate Sample 445g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP07 0-0.1	19-Fe01468	Jan 29, 2019	Approximate Sample 396g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No respirable fibres detected.
TP01	19-Fe01567	Jan 30, 2019	Approximate Sample 60g / 111x66x4mm Sample consisted of: Grey compressed fibre cement sheet	Chrysotile, amosite and crocidolite asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Feb 01, 2019	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Feb 01, 2019	Indefinite

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Company Name: JBS & G Australia (NSW) P/L
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NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
External Laboratory																						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																	
1	TP02 0-0.15	Jan 30, 2019		Soil	S19-Fe01404		X						X					X	X	X		X
2	TP02 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01405					X		X								X		
3	TP02 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01406					X		X			X					X		
4	TP01 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01407		X			X		X	X	X						X		X
5	TP01 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01408				X													
6	TP01 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01409	X												X	X	X		
7	TP03 0-0.15	Jan 30, 2019		Soil	S19-Fe01410		X						X	X						X		X
8	TP05 0-0.1	Jan 30, 2019		Soil	S19-Fe01411		X						X			X				X	X	X
9	TP05 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01412				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
10	TP05 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01413													X	X	X		
11	TP05 1.5-1.6	Jan 30, 2019		Soil	S19-Fe01414					X		X								X		
12	TP11 0-0.1	Jan 30, 2019		Soil	S19-Fe01415		X													X		X
13	TP11 1.1-1.2	Jan 30, 2019		Soil	S19-Fe01416										X					X		
14	TP12 0-0.1	Jan 30, 2019		Soil	S19-Fe01417	X	X								X		X			X	X	
15	TP12 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01418					X		X			X					X		
16	TP12 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01419													X	X	X		
17	TP13 0-0.1	Jan 30, 2019		Soil	S19-Fe01420		X													X		X
18	TP13 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01421										X					X		
19	TP09 0.0-0.1	Jan 30, 2019		Soil	S19-Fe01422										X		X			X	X	
20	TP09 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01423										X					X		
21	TP18 0-0.1	Jan 30, 2019		Soil	S19-Fe01424		X						X					X	X	X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
22	TP18 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01425					X		X			X					X		
23	TP17 0-0.1	Jan 30, 2019		Soil	S19-Fe01426										X					X		
24	TP17 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01427		X						X							X		X
25	TP17 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01428										X					X		
26	TP16 0-0.1	Jan 30, 2019		Soil	S19-Fe01429		X								X		X			X	X	
27	TP16 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01430										X					X		
28	TP20 0-0.1	Jan 31, 2019		Soil	S19-Fe01431										X					X		
29	TP20 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01432										X		X			X	X	
30	TP20 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01433					X		X								X		
31	TP20 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01434													X	X	X		
32	TP21 0.0-0.1	Jan 31, 2019		Soil	S19-Fe01435										X					X		
33	TP21 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01436										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
34	TP22 0-0.1	Jan 31, 2019		Soil	S19-Fe01437								X							X		X
35	TP22 0.6-0.7	Jan 31, 2019		Soil	S19-Fe01438										X			X	X	X		
36	TP22 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01439					X		X								X		
37	TP24 0-0.1	Jan 31, 2019		Soil	S19-Fe01440										X					X		
38	TP24 0.2-0.3	Jan 31, 2019		Soil	S19-Fe01441								X		X		X			X	X	
39	TP28 0-0.1	Jan 31, 2019		Soil	S19-Fe01442								X		X					X		
40	TP28 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01443															X		X
41	TP32 0-0.1	Jan 31, 2019		Soil	S19-Fe01444					X		X	X		X		X			X	X	
42	TP32 0.7-0.8	Jan 31, 2019		Soil	S19-Fe01445													X	X	X		
43	TP32 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01446					X		X			X					X		
44	TP34 0-0.1	Jan 31, 2019		Soil	S19-Fe01447										X					X		
45	TP34 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01448										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
46	TP30 0-0.1	Jan 31, 2019		Soil	S19-Fe01449								X					X	X	X		X
47	TP30 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01450										X					X		
48	TP26 0-0.1	Jan 31, 2019		Soil	S19-Fe01451								X		X					X		
49	TP26 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01452										X		X			X	X	
50	TP31 0-0.1	Jan 31, 2019		Soil	S19-Fe01453										X		X			X	X	
51	TP31 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01454													X	X	X		
52	TP31 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01455										X					X		
53	TP33 0-0.1	Jan 31, 2019		Soil	S19-Fe01456										X		X			X	X	
54	TP33 0.8-0.9	Jan 31, 2019		Soil	S19-Fe01457										X					X		
55	QA20190130MN_01	Jan 30, 2019		Soil	S19-Fe01458										X		X			X	X	
56	QA20190130MN_03	Jan 30, 2019		Soil	S19-Fe01459		X						X	X						X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
57	TP00 0-0.15	Jan 30, 2019		Soil	S19-Fe01460		X						X	X						X		
58	TP00 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01461					X		X								X		
59	TP00 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01462													X	X	X		
60	TP00 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01463					X		X								X		
61	TP04 0-0.1	Jan 30, 2019		Soil	S19-Fe01464								X		X		X			X	X	
62	TP04 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01465		X						X	X						X		X
63	TP06 0-0.2	Jan 29, 2019		Soil	S19-Fe01466	X	X						X		X		X			X	X	
64	TP06 0.8-0.9	Jan 29, 2019		Soil	S19-Fe01467													X	X	X		
65	TP07 0-0.1	Jan 29, 2019		Soil	S19-Fe01468		X						X		X		X			X	X	
66	TP15 0-0.1	Jan 30, 2019		Soil	S19-Fe01469													X	X	X		
67	TP15 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01470					X		X								X		
68	TP15 1.7-1.8	Jan 29, 2019		Soil	S19-Fe01471					X		X								X		

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
69	MW01 0-0.2	Jan 29, 2019		Soil	S19-Fe01472								X							X		
70	MW01 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01473					X		X								X		
71	MW01 1.0-1.1	Jan 29, 2019		Soil	S19-Fe01474	X												X	X	X		
72	MW01 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01475					X		X								X		
73	MW01 5.5-5.6	Jan 29, 2019		Soil	S19-Fe01476													X	X	X		
74	MW02 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01477													X	X	X		
75	MW02 1.2-1.3	Jan 29, 2019		Soil	S19-Fe01478										X		X			X	X	
76	MW02 1.9-2.0	Jan 29, 2019		Soil	S19-Fe01479					X		X								X		
77	MW02 3.0-3.1	Jan 29, 2019		Soil	S19-Fe01480													X	X	X		
78	MW02 6.0-6.1	Jan 29, 2019		Soil	S19-Fe01481					X		X								X		
79	MW03 0-0.2	Jan 29, 2019		Soil	S19-Fe01482													X	X	X		
80	MW03 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01483					X		X								X		

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NATA # 1261 Site # 18217

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Perth
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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
81	MW03 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01484													X	X	X		
82	MW03 2.9-3.0	Jan 29, 2019		Soil	S19-Fe01485													X	X	X		
83	QA20190130MN_04	Jan 30, 2019		Soil	S19-Fe01486								X		X		X			X	X	
84	TRIP BLANK 29-1	Jan 29, 2019		Water	S19-Fe01487												X					
85	TRIP SPIKE 29-1	Jan 29, 2019		Water	S19-Fe01488												X					
86	TRIP BLANK 31-1	Jan 31, 2019		Water	S19-Fe01489												X					
87	TRIP SPIKE 31-1	Jan 31, 2019		Water	S19-Fe01490												X					
88	RINSATE 29-1	Jan 29, 2019		Water	S19-Fe01491				X													
89	RINSATE 30-1	Jan 30, 2019		Water	S19-Fe01492				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
90	RINSATE 31-1	Jan 31, 2019		Water	S19-Fe01493								X	X								X
91	TP03 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01541						X											
92	TP11 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01542						X											
93	TP11 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01543						X											
94	TP13 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01544						X											
95	TP09 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01545						X											
96	TP18 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01546						X											
97	TP17 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01547						X											
98	TP16 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01548						X											
99	TP21 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01549						X											
100	TP21 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01550						X											
101	TP24 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01551						X											

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Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
102	TP24 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01552						X											
103	TP28 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01553						X											
104	TP28 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01554						X											
105	TP34 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01555						X											
106	TP34 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01556						X											
107	TP30 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01557						X											
108	TP26 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01558						X											
109	TP33 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01559						X											
110	QA2019013MN_02	Jan 30, 2019		Soil	S19-Fe01560						X											
111	TP04 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01561						X											
112	TP07 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01562						X											

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Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
113	TP07 1.3-1.4	Jan 29, 2019		Soil	S19-Fe01563						X											
114	TP15 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01564						X											
115	MW01 2.0-2.1	Jan 29, 2019		Soil	S19-Fe01565						X											
116	MW02 0-0.2	Jan 29, 2019		Soil	S19-Fe01566						X											
117	TP01	Jan 30, 2019		Building Materials	S19-Fe01567			X														
118	TP01 0-0.1	Jan 30, 2019		Soil	S19-Fe01594						X											
Test Counts						4	15	1	4	19	27	19	21	6	37	1	21	20	20	81	18	14

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Fe01407, Fe01415 , Fe01466 and Fe01468: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Rohan Hammond**

Report **638491-S**
Project name MAMRE ROAD KEMPS CREEK
Project ID 54963
Received Date Feb 01, 2019

Client Sample ID			**TP02 0-0.15**	**TP02 0.2-0.3**	**TP02 1.0-1.1**	**TP01 0.2-0.3**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01404**	**S19-Fe01405**	**S19-Fe01406**	**S19-Fe01407**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	100	-	-	< 50
TRH C29-C36	50	mg/kg	150	-	-	< 50
TRH C10-36 (Total)	50	mg/kg	250	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	66	-	-	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	< 20
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	200	-	-	< 100
TRH >C34-C40	100	mg/kg	130	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	330	-	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	-	< 0.5

Client Sample ID			TP02 0-0.15	TP02 0.2-0.3	TP02 1.0-1.1	TP01 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01404	S19-Fe01405	S19-Fe01406	S19-Fe01407
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	58	-	-	92
p-Terphenyl-d14 (surr.)	1	%	60	-	-	95
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	< 0.05
a-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
b-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
d-BHC	0.05	mg/kg	< 0.05	-	-	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	-	-	< 0.05
Toxaphene	1	mg/kg	< 1	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	51	-	-	113
Tetrachloro-m-xylene (surr.)	1	%	65	-	-	102
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	113
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	102

Client Sample ID			TP02 0-0.15	TP02 0.2-0.3	TP02 1.0-1.1	TP01 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01404	S19-Fe01405	S19-Fe01406	S19-Fe01407
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-	< 1
Pentachlorophenol	1	mg/kg	< 1	-	-	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	< 0.4
4-Nitrophenol	5	mg/kg	< 5	-	-	< 5
Dinoseb	20	mg/kg	< 20	-	-	< 20
Phenol	0.5	mg/kg	< 0.5	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	< 20
Phenol-d6 (surr.)	1	%	74	-	-	66
Chloride	5	mg/kg	21	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	100	94	280	140
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.9	8.4	5.7	6.4
Resistivity*	0.5	ohm.m	98	-	-	-
Sulphate (as SO4)	30	mg/kg	< 30	-	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	1.0	-	-	-
Magnesium (exchangeable)	0.1	meq/100g	1.7	-	-	-
Potassium (exchangeable)	0.1	meq/100g	0.5	-	-	-
Sodium (exchangeable)	0.1	meq/100g	0.4	-	-	-
% Moisture	1	%	21	11	13	10
Heavy Metals						
Arsenic	2	mg/kg	26	-	7.5	15
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	1.3
Chromium	5	mg/kg	41	-	21	49
Copper	5	mg/kg	67	-	18	83
Lead	5	mg/kg	47	-	15	150
Mercury	0.1	mg/kg	0.2	-	< 0.1	< 0.1
Nickel	5	mg/kg	26	-	7.4	38
Zinc	5	mg/kg	360	-	24	240
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	36	-	-	-
Cation Exchange Capacity	0.05	meq/100g	38	-	-	-

Client Sample ID			TP01 1.0-1.1	TP03 0-0.15	TP05 0-0.1	TP05 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01409	S19-Fe01410	S19-Fe01411	S19-Fe01413
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	120	170	-
TRH C29-C36	50	mg/kg	-	150	220	-
TRH C10-36 (Total)	50	mg/kg	-	270	390	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	76	67	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	-
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	210	310	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	210	310	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	-
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	89	88	-
p-Terphenyl-d14 (surr.)	1	%	-	101	73	-

Client Sample ID			TP01 1.0-1.1	TP03 0-0.15	TP05 0-0.1	TP05 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01409	S19-Fe01410	S19-Fe01411	S19-Fe01413
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Toxaphene	1	mg/kg	-	< 1	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	82	117	-
Tetrachloro-m-xylene (surr.)	1	%	-	106	119	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	-
Total PCB*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	82	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	106	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	< 1	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	-	< 1	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	-	< 1	< 1	-
Pentachlorophenol	1	mg/kg	-	< 1	< 1	-
Tetrachlorophenols - Total	1	mg/kg	-	< 1	< 1	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	< 1	-

Client Sample ID			TP01 1.0-1.1	TP03 0-0.15	TP05 0-0.1	TP05 1.0-1.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01409**	**S19-Fe01410**	**S19-Fe01411**	**S19-Fe01413**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	< 0.2	-
2-Nitrophenol	1.0	mg/kg	-	< 1	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	< 0.4	-
4-Nitrophenol	5	mg/kg	-	< 5	< 5	-
Dinoseb	20	mg/kg	-	< 20	< 20	-
Phenol	0.5	mg/kg	-	< 0.5	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	< 20	-
Phenol-d6 (surr.)	1	%	-	78	27	-
% Clay	1	%	27	-	-	-
Chloride	5	mg/kg	910	-	-	580
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	700	-	-	450
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.0	-	-	5.2
Resistivity*	0.5	ohm.m	14	-	-	22
Sulphate (as SO4)	30	mg/kg	310	-	-	90
Exchangeable Sodium Percentage (ESP)	0.1	%	26	-	-	23
Magnesium (exchangeable)	0.1	meq/100g	9.3	-	-	2.8
Potassium (exchangeable)	0.1	meq/100g	0.2	-	-	< 0.1
Sodium (exchangeable)	0.1	meq/100g	3.4	-	-	1.0
% Moisture	1	%	10	12	12	12
Heavy Metals						
Arsenic	2	mg/kg	-	8.1	7.1	-
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	-
Chromium	5	mg/kg	-	24	16	-
Copper	5	mg/kg	-	27	25	-
Lead	5	mg/kg	-	41	26	-
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	-
Nickel	5	mg/kg	-	17	9.0	-
Zinc	5	mg/kg	-	100	57	-
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.3	-	-	0.3
Cation Exchange Capacity	0.05	meq/100g	13	-	-	4.1

Client Sample ID			TP05 1.5-1.6	TP11 0-0.1	TP11 1.1-1.2	TP12 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01414**	**S19-Fe01415**	**S19-Fe01416**	**S19-Fe01417**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	63
TRH C29-C36	50	mg/kg	-	180	-	120
TRH C10-36 (Total)	50	mg/kg	-	180	-	183

Client Sample ID			TP05 1.5-1.6	TP11 0-0.1	TP11 1.1-1.2	TP12 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01414	S19-Fe01415	S19-Fe01416	S19-Fe01417
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	67	-	68
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	170	-	150
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	170	-	150
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	67	-	-
p-Terphenyl-d14 (surr.)	1	%	-	64	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	-	< 1	-	-
Pentachlorophenol	1	mg/kg	-	< 1	-	-
Tetrachlorophenols - Total	1	mg/kg	-	< 1	-	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	-	-

Client Sample ID			TP05 1.5-1.6	TP11 0-0.1	TP11 1.1-1.2	TP12 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01414**	**S19-Fe01415**	**S19-Fe01416**	**S19-Fe01417**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	-	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
Dinoseb	20	mg/kg	-	< 20	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	-	-
Phenol-d6 (surr.)	1	%	-	79	-	-
% Clay	1	%	-	-	-	8.4
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	880	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.4	-	-	-
% Moisture	1	%	19	20	18	17
Heavy Metals						
Arsenic	2	mg/kg	-	4.1	4.5	5.1
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	14	14	14
Copper	5	mg/kg	-	15	15	27
Lead	5	mg/kg	-	14	11	42
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	-	7.3	5.5	13
Zinc	5	mg/kg	-	40	16	220

Client Sample ID			TP12 1.0-1.1	TP12 1.8-1.9	TP13 0-0.1	TP13 1.0-1.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01418**	**S19-Fe01419**	**S19-Fe01420**	**S19-Fe01421**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	73	-

Client Sample ID			TP12 1.0-1.1	TP12 1.8-1.9	TP13 0-0.1	TP13 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01418	S19-Fe01419	S19-Fe01420	S19-Fe01421
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Total PAH*	0.5	mg/kg	-	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	-	73	-
p-Terphenyl-d14 (surr.)	1	%	-	-	65	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	-	-	< 1	-
Pentachlorophenol	1	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	1	mg/kg	-	-	< 1	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Nitrophenol	1.0	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP12 1.0-1.1 Soil S19-Fe01418 Jan 30, 2019	TP12 1.8-1.9 Soil S19-Fe01419 Jan 30, 2019	TP13 0-0.1 Soil S19-Fe01420 Jan 30, 2019	TP13 1.0-1.1 Soil S19-Fe01421 Jan 30, 2019
Phenols (non-Halogenated)						
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-
Phenol-d6 (surr.)	1	%	-	-	87	-
Chloride	5	mg/kg	-	210	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	200	160	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.7	6.2	-	-
Resistivity*	0.5	ohm.m	-	63	-	-
Sulphate (as SO4)	30	mg/kg	-	43	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	-	29	-	-
Magnesium (exchangeable)	0.1	meq/100g	-	11	-	-
Potassium (exchangeable)	0.1	meq/100g	-	0.3	-	-
Sodium (exchangeable)	0.1	meq/100g	-	5.6	-	-
% Moisture	1	%	17	13	7.3	13
Heavy Metals						
Arsenic	2	mg/kg	4.7	-	5.9	4.5
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	14	-	19	13
Copper	5	mg/kg	16	-	7.1	12
Lead	5	mg/kg	11	-	15	6.9
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	5.2	-	< 5	5.7
Zinc	5	mg/kg	18	-	9.5	17
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	2.0	-	-
Cation Exchange Capacity	0.05	meq/100g	-	19	-	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP09 0.0-0.1 Soil S19-Fe01422 Jan 30, 2019	TP09 1.7-1.8 Soil S19-Fe01423 Jan 30, 2019	TP18 0-0.1 Soil S19-Fe01424 Jan 30, 2019	TP18 1.0-1.1 Soil S19-Fe01425 Jan 30, 2019
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	110	-	59	-

Client Sample ID			TP09 0.0-0.1	TP09 1.7-1.8	TP18 0-0.1	TP18 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01422	S19-Fe01423	S19-Fe01424	S19-Fe01425
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Total PAH*	0.5	mg/kg	-	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	-	109	-
p-Terphenyl-d14 (surr.)	1	%	-	-	74	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-

Client Sample ID			TP09 0.0-0.1	TP09 1.7-1.8	TP18 0-0.1	TP18 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01422	S19-Fe01423	S19-Fe01424	S19-Fe01425
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	114	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	131	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
2.4.5-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.4.6-Trichlorophenol	1	mg/kg	-	-	< 1	-
2.6-Dichlorophenol	0.5	mg/kg	-	-	< 0.5	-
4-Chloro-3-methylphenol	1	mg/kg	-	-	< 1	-
Pentachlorophenol	1	mg/kg	-	-	< 1	-
Tetrachlorophenols - Total	1	mg/kg	-	-	< 1	-
Total Halogenated Phenol*	1	mg/kg	-	-	< 1	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	< 20	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	< 5	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
2-Nitrophenol	1.0	mg/kg	-	-	< 1	-
2.4-Dimethylphenol	0.5	mg/kg	-	-	< 0.5	-
2.4-Dinitrophenol	5	mg/kg	-	-	< 5	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
4-Nitrophenol	5	mg/kg	-	-	< 5	-
Dinoseb	20	mg/kg	-	-	< 20	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Total Non-Halogenated Phenol*	20	mg/kg	-	-	< 20	-
Phenol-d6 (surr.)	1	%	-	-	66	-
Chloride	5	mg/kg	-	-	42	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	83	130
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	5.4	5.8
Resistivity*	0.5	ohm.m	-	-	120	-
Sulphate (as SO4)	30	mg/kg	-	-	99	-
Exchangeable Sodium Percentage (ESP)	0.1	%	-	-	16	-
Magnesium (exchangeable)	0.1	meq/100g	-	-	10	-
Potassium (exchangeable)	0.1	meq/100g	-	-	0.3	-
Sodium (exchangeable)	0.1	meq/100g	-	-	2.3	-
% Moisture	1	%	12	16	13	14
Heavy Metals						
Arsenic	2	mg/kg	11	< 2	6.5	4.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	45	5.5	15	9.0
Copper	5	mg/kg	8.9	6.5	18	16

Client Sample ID			TP09 0.0-0.1	TP09 1.7-1.8	TP18 0-0.1	TP18 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01422	S19-Fe01423	S19-Fe01424	S19-Fe01425
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	23	5.4	11	12
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	7.4	9.3
Zinc	5	mg/kg	9.3	9.5	27	31
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	-	1.3	-
Cation Exchange Capacity	0.05	meq/100g	-	-	14	-

Client Sample ID			TP17 0-0.1	TP17 0.3-0.4	TP17 1.7-1.8	TP16 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01426	S19-Fe01427	S19-Fe01428	S19-Fe01429
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	-	< 20
TRH C10-C14	20	mg/kg	-	< 20	-	< 20
TRH C15-C28	50	mg/kg	-	< 50	-	< 50
TRH C29-C36	50	mg/kg	-	< 50	-	< 50
TRH C10-36 (Total)	50	mg/kg	-	< 50	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	68	-	62
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	-	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	-	< 20
TRH >C10-C16	50	mg/kg	-	< 50	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	-	< 50
TRH >C16-C34	100	mg/kg	-	< 100	-	< 100
TRH >C34-C40	100	mg/kg	-	< 100	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			TP17 0-0.1	TP17 0.3-0.4	TP17 1.7-1.8	TP16 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01426	S19-Fe01427	S19-Fe01428	S19-Fe01429
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	68	-	-
p-Terphenyl-d14 (surr.)	1	%	-	65	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	89	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	81	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	-	< 1	-	-
Pentachlorophenol	1	mg/kg	-	< 1	-	-
Tetrachlorophenols - Total	1	mg/kg	-	< 1	-	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	-	-

Client Sample ID			TP17 0-0.1	TP17 0.3-0.4	TP17 1.7-1.8	TP16 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01426	S19-Fe01427	S19-Fe01428	S19-Fe01429
Date Sampled			Jan 30, 2019	Jan 30, 2019	Jan 30, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	-	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
Dinoseb	20	mg/kg	-	< 20	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	-	-
Phenol-d6 (surr.)	1	%	-	30	-	-
% Moisture	1	%	12	9.0	16	12
Heavy Metals						
Arsenic	2	mg/kg	4.1	3.0	12	7.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	17	13	20	16
Copper	5	mg/kg	7.4	5.9	24	9.8
Lead	5	mg/kg	11	9.0	24	9.5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.3	< 5	6.3	5.4
Zinc	5	mg/kg	11	7.8	25	11

Client Sample ID			TP16 1.0-1.1	TP20 0-0.1	TP20 0.4-0.5	TP20 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01430	S19-Fe01431	S19-Fe01432	S19-Fe01433
Date Sampled			Jan 30, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	65	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-

Client Sample ID			TP16 1.0-1.1	TP20 0-0.1	TP20 0.4-0.5	TP20 1.0-1.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01430	S19-Fe01431	S19-Fe01432	S19-Fe01433
Date Sampled			Jan 30, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	-	330
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	-	5.1
% Moisture	1	%	19	10	15	11
Heavy Metals						
Arsenic	2	mg/kg	5.2	5.1	5.6	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	15	22	18	-
Copper	5	mg/kg	15	38	17	-
Lead	5	mg/kg	11	12	11	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	6.2	8.2	5.5	-
Zinc	5	mg/kg	23	35	15	-

Client Sample ID			TP20 1.7-1.8	TP21 0.0-0.1	TP21 0.4-0.5	TP22 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01434	S19-Fe01435	S19-Fe01436	S19-Fe01437
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	64	70
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP20 1.7-1.8 Soil S19-Fe01434 Jan 31, 2019	TP21 0.0-0.1 Soil S19-Fe01435 Jan 31, 2019	TP21 0.4-0.5 Soil S19-Fe01436 Jan 31, 2019	TP22 0-0.1 Soil S19-Fe01437 Jan 31, 2019
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	109
p-Terphenyl-d14 (surr.)	1	%	-	-	-	79
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	136
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	148

Client Sample ID			TP20 1.7-1.8	TP21 0.0-0.1	TP21 0.4-0.5	TP22 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01434	S19-Fe01435	S19-Fe01436	S19-Fe01437
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	1	mg/kg	-	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	65
Chloride	5	mg/kg	530	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	350	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.3	-	-	-
Resistivity*	0.5	ohm.m	28	-	-	-
Sulphate (as SO4)	30	mg/kg	81	-	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	28	-	-	-
Magnesium (exchangeable)	0.1	meq/100g	5.0	-	-	-
Potassium (exchangeable)	0.1	meq/100g	0.1	-	-	-
Sodium (exchangeable)	0.1	meq/100g	2.3	-	-	-
% Moisture	1	%	11	8.6	8.1	12
Heavy Metals						
Arsenic	2	mg/kg	-	3.0	2.7	2.9
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	10.0	12	13
Copper	5	mg/kg	-	8.7	< 5	< 5
Lead	5	mg/kg	-	11	7.2	11
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	-	5.2	< 5	< 5
Zinc	5	mg/kg	-	17	< 5	7.1
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.6	-	-	-
Cation Exchange Capacity	0.05	meq/100g	8.1	-	-	-

Client Sample ID			TP22 0.6-0.7	TP22 1.5-1.6	TP24 0-0.1	TP24 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01438	S19-Fe01439	S19-Fe01440	S19-Fe01441
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	< 20
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	72
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	< 100
TRH >C34-C40	100	mg/kg	-	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	97
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	115

Client Sample ID			TP22 0.6-0.7	TP22 1.5-1.6	TP24 0-0.1	TP24 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01438**	**S19-Fe01439**	**S19-Fe01440**	**S19-Fe01441**
Date Sampled			**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	49	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	92	84	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.2	5.1	-	-
Resistivity*	0.5	ohm.m	110	-	-	-
Sulphate (as SO4)	30	mg/kg	82	-	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	25	-	-	-
Magnesium (exchangeable)	0.1	meq/100g	5.2	-	-	-
Potassium (exchangeable)	0.1	meq/100g	0.2	-	-	-
Sodium (exchangeable)	0.1	meq/100g	2.2	-	-	-
% Moisture	1	%	14	15	7.0	15
Heavy Metals						
Arsenic	2	mg/kg	< 2	-	6.3	5.3
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	< 0.4
Chromium	5	mg/kg	9.5	-	26	17
Copper	5	mg/kg	6.4	-	6.8	13
Lead	5	mg/kg	8.1	-	17	10
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	-	< 5	< 5
Zinc	5	mg/kg	8.3	-	11	14
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	1.3	-	-	-
Cation Exchange Capacity	0.05	meq/100g	8.8	-	-	-

Client Sample ID			TP28 0-0.1	TP28 0.4-0.5	TP32 0-0.1	TP32 0.7-0.8
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01442**	**S19-Fe01443**	**S19-Fe01444**	**S19-Fe01445**
Date Sampled			**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	< 50	< 50	-
TRH C29-C36	50	mg/kg	-	< 50	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	78	77	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	-
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP28 0-0.1 Soil S19-Fe01442 Jan 31, 2019	TP28 0.4-0.5 Soil S19-Fe01443 Jan 31, 2019	TP32 0-0.1 Soil S19-Fe01444 Jan 31, 2019	TP32 0.7-0.8 Soil S19-Fe01445 Jan 31, 2019
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C16-C34	100	mg/kg	-	< 100	< 100	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	75	-	-
p-Terphenyl-d14 (surr.)	1	%	-	74	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-

Client Sample ID			TP28 0-0.1	TP28 0.4-0.5	TP32 0-0.1	TP32 0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01442	S19-Fe01443	S19-Fe01444	S19-Fe01445
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	65	-	73	-
Tetrachloro-m-xylene (surr.)	1	%	97	-	99	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	-	< 1	-	-
Pentachlorophenol	1	mg/kg	-	< 1	-	-
Tetrachlorophenols - Total	1	mg/kg	-	< 1	-	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	-	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
Dinoseb	20	mg/kg	-	< 20	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	-	-
Phenol-d6 (surr.)	1	%	-	63	-	-
Chloride	5	mg/kg	-	-	-	1600
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	210	1100
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	5.2	4.7
Resistivity*	0.5	ohm.m	-	-	-	8.9
Sulphate (as SO4)	30	mg/kg	-	-	-	180
Exchangeable Sodium Percentage (ESP)	0.1	%	-	-	-	39
Magnesium (exchangeable)	0.1	meq/100g	-	-	-	8.9
Potassium (exchangeable)	0.1	meq/100g	-	-	-	0.2
Sodium (exchangeable)	0.1	meq/100g	-	-	-	5.9
% Moisture	1	%	7.1	16	6.1	14
Heavy Metals						
Arsenic	2	mg/kg	9.4	5.5	4.1	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	31	16	11	-
Copper	5	mg/kg	6.5	15	7.6	-
Lead	5	mg/kg	20	12	15	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Nickel	5	mg/kg	7.0	< 5	< 5	-
Zinc	5	mg/kg	10	11	15	-

Client Sample ID			TP28 0-0.1	TP28 0.4-0.5	TP32 0-0.1	TP32 0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01442	S19-Fe01443	S19-Fe01444	S19-Fe01445
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	-	-	0.2
Cation Exchange Capacity	0.05	meq/100g	-	-	-	15

Client Sample ID			TP32 1.7-1.8	TP34 0-0.1	TP34 0.4-0.5	TP30 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01446	S19-Fe01447	S19-Fe01448	S19-Fe01449
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	74	80
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP32 1.7-1.8 Soil S19-Fe01446 Jan 31, 2019	TP34 0-0.1 Soil S19-Fe01447 Jan 31, 2019	TP34 0.4-0.5 Soil S19-Fe01448 Jan 31, 2019	TP30 0-0.1 Soil S19-Fe01449 Jan 31, 2019
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	50
p-Terphenyl-d14 (surr.)	1	%	-	-	-	55
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	-	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	-	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	70
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	65
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	1	mg/kg	-	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1

Client Sample ID			TP32 1.7-1.8	TP34 0-0.1	TP34 0.4-0.5	TP30 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01446**	**S19-Fe01447**	**S19-Fe01448**	**S19-Fe01449**
Date Sampled			**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	106
Chloride	5	mg/kg	-	-	-	41
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	1200	-	-	120
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.2	-	-	6.1
Resistivity*	0.5	ohm.m	-	-	-	83
Sulphate (as SO4)	30	mg/kg	-	-	-	65
Exchangeable Sodium Percentage (ESP)	0.1	%	-	-	-	12
Magnesium (exchangeable)	0.1	meq/100g	-	-	-	6.3
Potassium (exchangeable)	0.1	meq/100g	-	-	-	0.2
Sodium (exchangeable)	0.1	meq/100g	-	-	-	1.5
% Moisture	1	%	14	9.9	15	14
Heavy Metals						
Arsenic	2	mg/kg	3.1	6.1	8.2	8.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	8.9	24	14	24
Copper	5	mg/kg	11	8.9	18	15
Lead	5	mg/kg	6.1	16	11	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	6.9	< 5	7.8
Zinc	5	mg/kg	8.6	22	15	15
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	-	-	4.2
Cation Exchange Capacity	0.05	meq/100g	-	-	-	12

Client Sample ID			TP30 1.0-1.1	TP26 0-0.1	TP26 0.4-0.5	TP31 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01450**	**S19-Fe01451**	**S19-Fe01452**	**S19-Fe01453**
Date Sampled			**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	< 50	< 50
TRH C29-C36	50	mg/kg	-	-	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2

Client Sample ID			TP30 1.0-1.1	TP26 0-0.1	TP26 0.4-0.5	TP31 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01450	S19-Fe01451	S19-Fe01452	S19-Fe01453
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
BTEX						
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	76	66
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	< 100	< 100
TRH >C34-C40	100	mg/kg	-	-	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	< 100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	-
a-BHC	0.05	mg/kg	-	< 0.05	-	-
Aldrin	0.05	mg/kg	-	< 0.05	-	-
b-BHC	0.05	mg/kg	-	< 0.05	-	-
d-BHC	0.05	mg/kg	-	< 0.05	-	-
Dieldrin	0.05	mg/kg	-	< 0.05	-	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	-
Endrin	0.05	mg/kg	-	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	-
Heptachlor	0.05	mg/kg	-	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-	-
Toxaphene	1	mg/kg	-	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	-
Dibutylchlorendate (surr.)	1	%	-	85	-	-
Tetrachloro-m-xylene (surr.)	1	%	-	119	-	-
% Moisture	1	%	13	13	15	6.7
Heavy Metals						
Arsenic	2	mg/kg	8.1	4.6	3.5	8.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	28	15	34
Copper	5	mg/kg	20	12	9.6	< 5
Lead	5	mg/kg	12	15	12	19
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			TP30 1.0-1.1	TP26 0-0.1	TP26 0.4-0.5	TP31 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01450	S19-Fe01451	S19-Fe01452	S19-Fe01453
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	7.1	11	< 5	5.7
Zinc	5	mg/kg	24	17	6.2	12

Client Sample ID			TP31 0.4-0.5	TP31 1.5-1.6	TP33 0-0.1	TP33 0.8-0.9
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01454	S19-Fe01455	S19-Fe01456	S19-Fe01457
Date Sampled			Jan 31, 2019	Jan 31, 2019	Jan 31, 2019	Jan 31, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	66	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Chloride	5	mg/kg	83	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	120	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.0	-	-	-
Resistivity*	0.5	ohm.m	80	-	-	-
Sulphate (as SO4)	30	mg/kg	< 30	-	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	30	-	-	-
Magnesium (exchangeable)	0.1	meq/100g	12	-	-	-
Potassium (exchangeable)	0.1	meq/100g	0.3	-	-	-
Sodium (exchangeable)	0.1	meq/100g	5.4	-	-	-
% Moisture	1	%	15	13	5.8	13
Heavy Metals						
Arsenic	2	mg/kg	-	2.4	15	4.3
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	8.8	53	16
Copper	5	mg/kg	-	13	6.3	11
Lead	5	mg/kg	-	8.1	31	8.5

Client Sample ID			TP31 0.4-0.5	TP31 1.5-1.6	TP33 0-0.1	TP33 0.8-0.9
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01454**	**S19-Fe01455**	**S19-Fe01456**	**S19-Fe01457**
Date Sampled			**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
Heavy Metals						
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	-	< 5	5.5	5.7
Zinc	5	mg/kg	-	20	12	14
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.2	-	-	-
Cation Exchange Capacity	0.05	meq/100g	18	-	-	-

Client Sample ID			QA20190130MN_01	QA20190130MN_03	TP00 0-0.15	TP00 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01458**	**S19-Fe01459**	**S19-Fe01460**	**S19-Fe01461**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	< 50	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	66	67	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	-	-
Acenaphthene	0.5	mg/kg	-	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	-	-
Anthracene	0.5	mg/kg	-	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	-	-

Client Sample ID			QA20190130MN_01	QA20190130MN_03	TP00 0-0.15	TP00 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01458**	**S19-Fe01459**	**S19-Fe01460**	**S19-Fe01461**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	-	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	-	-
Fluoranthene	0.5	mg/kg	-	< 0.5	-	-
Fluorene	0.5	mg/kg	-	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	-	-
Naphthalene	0.5	mg/kg	-	< 0.5	-	-
Phenanthrene	0.5	mg/kg	-	< 0.5	-	-
Pyrene	0.5	mg/kg	-	< 0.5	-	-
Total PAH*	0.5	mg/kg	-	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	-	90	-	-
p-Terphenyl-d14 (surr.)	1	%	-	73	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	-
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	-	< 0.05	< 0.05	-
Toxaphene	1	mg/kg	-	< 1	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	104	96	-
Tetrachloro-m-xylene (surr.)	1	%	-	102	89	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	< 0.1	-
Total PCB*	0.1	mg/kg	-	< 0.1	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	104	96	-
Tetrachloro-m-xylene (surr.)	1	%	-	102	89	-

Client Sample ID			QA20190130MN_01	QA20190130MN_03	TP00 0-0.15	TP00 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01458**	**S19-Fe01459**	**S19-Fe01460**	**S19-Fe01461**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
2.4.5-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.4.6-Trichlorophenol	1	mg/kg	-	< 1	-	-
2.6-Dichlorophenol	0.5	mg/kg	-	< 0.5	-	-
4-Chloro-3-methylphenol	1	mg/kg	-	< 1	-	-
Pentachlorophenol	1	mg/kg	-	< 1	-	-
Tetrachlorophenols - Total	1	mg/kg	-	< 1	-	-
Total Halogenated Phenol*	1	mg/kg	-	< 1	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	< 20	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	< 5	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	< 0.2	-	-
2-Nitrophenol	1.0	mg/kg	-	< 1	-	-
2.4-Dimethylphenol	0.5	mg/kg	-	< 0.5	-	-
2.4-Dinitrophenol	5	mg/kg	-	< 5	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	< 0.4	-	-
4-Nitrophenol	5	mg/kg	-	< 5	-	-
Dinoseb	20	mg/kg	-	< 20	-	-
Phenol	0.5	mg/kg	-	< 0.5	-	-
Total Non-Halogenated Phenol*	20	mg/kg	-	< 20	-	-
Phenol-d6 (surr.)	1	%	-	40	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	-	-	20
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	-	-	6.0
% Moisture	1	%	13	10	13	15
Heavy Metals						
Arsenic	2	mg/kg	18	10	-	-
Cadmium	0.4	mg/kg	0.9	< 0.4	-	-
Chromium	5	mg/kg	47	28	-	-
Copper	5	mg/kg	64	32	-	-
Lead	5	mg/kg	380	47	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-
Nickel	5	mg/kg	30	15	-	-
Zinc	5	mg/kg	180	110	-	-

Client Sample ID			TP00 0.4-0.5	TP00 1.0-1.1	TP04 0-0.1	TP04 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01462**	**S19-Fe01463**	**S19-Fe01464**	**S19-Fe01465**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	< 20
TRH C10-C14	20	mg/kg	-	-	< 20	< 20
TRH C15-C28	50	mg/kg	-	-	220	< 50
TRH C29-C36	50	mg/kg	-	-	230	< 50
TRH C10-36 (Total)	50	mg/kg	-	-	450	< 50

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP00 0.4-0.5 Soil S19-Fe01462 Jan 30, 2019	TP00 1.0-1.1 Soil S19-Fe01463 Jan 30, 2019	TP04 0-0.1 Soil S19-Fe01464 Jan 30, 2019	TP04 0.2-0.3 Soil S19-Fe01465 Jan 30, 2019
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	70	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	-	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	< 20
TRH >C10-C16	50	mg/kg	-	-	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	< 50
TRH >C16-C34	100	mg/kg	-	-	340	< 100
TRH >C34-C40	100	mg/kg	-	-	100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	-	440	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	80
p-Terphenyl-d14 (surr.)	1	%	-	-	-	87
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	-	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	-	< 0.05	< 0.05

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	TP00 0.4-0.5 Soil S19-Fe01462 Jan 30, 2019	TP00 1.0-1.1 Soil S19-Fe01463 Jan 30, 2019	TP04 0-0.1 Soil S19-Fe01464 Jan 30, 2019	TP04 0.2-0.3 Soil S19-Fe01465 Jan 30, 2019
Organochlorine Pesticides						
Endosulfan I	0.05	mg/kg	-	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	-	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	-	-	< 0.05	< 0.05
Toxaphene	1	mg/kg	-	-	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	81	103
Tetrachloro-m-xylene (surr.)	1	%	-	-	81	94
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	103
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	94
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	-	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	-	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	-	-	-	< 1
Pentachlorophenol	1	mg/kg	-	-	-	< 1
Tetrachlorophenols - Total	1	mg/kg	-	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	-	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	-	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	-	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	-	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	-	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	-	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
4-Nitrophenol	5	mg/kg	-	-	-	< 5
Dinoseb	20	mg/kg	-	-	-	< 20

Client Sample ID			TP00 0.4-0.5	TP00 1.0-1.1	TP04 0-0.1	TP04 0.2-0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01462**	**S19-Fe01463**	**S19-Fe01464**	**S19-Fe01465**
Date Sampled			**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
Phenol	0.5	mg/kg	-	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	-	-	-	< 20
Phenol-d6 (surr.)	1	%	-	-	-	69
Chloride	5	mg/kg	36	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	46	420	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.3	5.5	-	-
Resistivity*	0.5	ohm.m	220	-	-	-
Sulphate (as SO4)	30	mg/kg	37	-	-	-
Exchangeable Sodium Percentage (ESP)	0.1	%	14	-	-	-
Magnesium (exchangeable)	0.1	meq/100g	4.4	-	-	-
Potassium (exchangeable)	0.1	meq/100g	0.1	-	-	-
Sodium (exchangeable)	0.1	meq/100g	1.0	-	-	-
% Moisture	1	%	9.6	9.5	10	14
Heavy Metals						
Arsenic	2	mg/kg	-	-	13	4.3
Cadmium	0.4	mg/kg	-	-	< 0.4	< 0.4
Chromium	5	mg/kg	-	-	14	16
Copper	5	mg/kg	-	-	69	16
Lead	5	mg/kg	-	-	47	12
Mercury	0.1	mg/kg	-	-	0.1	< 0.1
Nickel	5	mg/kg	-	-	8.7	5.7
Zinc	5	mg/kg	-	-	270	18
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	1.9	-	-	-
Cation Exchange Capacity	0.05	meq/100g	7.4	-	-	-

Client Sample ID			TP06 0-0.2	TP06 0.8-0.9	TP07 0-0.1	TP15 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe01466**	**S19-Fe01467**	**S19-Fe01468**	**S19-Fe01469**
Date Sampled			**Jan 29, 2019**	**Jan 29, 2019**	**Jan 29, 2019**	**Jan 30, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	62	-	< 50	-
TRH C29-C36	50	mg/kg	140	-	63	-
TRH C10-36 (Total)	50	mg/kg	202	-	63	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	72	-	74	-

Client Sample ID			TP06 0-0.2	TP06 0.8-0.9	TP07 0-0.1	TP15 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01466	S19-Fe01467	S19-Fe01468	S19-Fe01469
Date Sampled			Jan 29, 2019	Jan 29, 2019	Jan 29, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	180	-	< 100	-
TRH >C34-C40	100	mg/kg	120	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	300	-	< 100	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	87	-	85	-
Tetrachloro-m-xylene (surr.)	1	%	103	-	94	-
% Clay	1	%	14	-	-	-
Chloride	5	mg/kg	-	430	-	32
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	340	-	28
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	5.7	-	6.2
Resistivity*	0.5	ohm.m	-	29	-	350
Sulphate (as SO4)	30	mg/kg	-	240	-	33
Exchangeable Sodium Percentage (ESP)	0.1	%	-	26	-	11
Magnesium (exchangeable)	0.1	meq/100g	-	5.1	-	8.4
Potassium (exchangeable)	0.1	meq/100g	-	< 0.1	-	0.3
Sodium (exchangeable)	0.1	meq/100g	-	2.2	-	1.3
% Moisture	1	%	18	14	11	15

Client Sample ID			TP06 0-0.2	TP06 0.8-0.9	TP07 0-0.1	TP15 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01466	S19-Fe01467	S19-Fe01468	S19-Fe01469
Date Sampled			Jan 29, 2019	Jan 29, 2019	Jan 29, 2019	Jan 30, 2019
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	18	-	22	-
Cadmium	0.4	mg/kg	< 0.4	-	< 0.4	-
Chromium	5	mg/kg	27	-	24	-
Copper	5	mg/kg	57	-	27	-
Lead	5	mg/kg	25	-	18	-
Mercury	0.1	mg/kg	< 0.1	-	< 0.1	-
Nickel	5	mg/kg	14	-	13	-
Zinc	5	mg/kg	190	-	45	-
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	0.9	-	2.0
Cation Exchange Capacity	0.05	meq/100g	-	8.3	-	12

Client Sample ID			TP15 0.3-0.4	TP15 1.7-1.8	MW01 0-0.2	MW01 0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01470	S19-Fe01471	S19-Fe01472	S19-Fe01473
Date Sampled			Jan 30, 2019	Jan 29, 2019	Jan 29, 2019	Jan 29, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	-	87	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	103	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	30	400	-	550
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.9	5.9	-	5.0
% Moisture	1	%	12	12	15	17

Client Sample ID			MW01 1.0-1.1	MW01 1.5-1.6	MW01 5.5-5.6	MW02 0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01474	S19-Fe01475	S19-Fe01476	S19-Fe01477
Date Sampled			Jan 29, 2019	Jan 29, 2019	Jan 29, 2019	Jan 29, 2019
Test/Reference	LOR	Unit				
% Clay	1	%	25	-	-	-
Chloride	5	mg/kg	1500	-	880	660
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	830	290	670	350
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	4.8	6.5	9.1	6.2
Resistivity*	0.5	ohm.m	12	-	15	28
Sulphate (as SO4)	30	mg/kg	300	-	110	150
Exchangeable Sodium Percentage (ESP)	0.1	%	24	-	3.3	26
Magnesium (exchangeable)	0.1	meq/100g	11	-	4.8	8.9
Potassium (exchangeable)	0.1	meq/100g	0.2	-	0.5	0.1
Sodium (exchangeable)	0.1	meq/100g	3.7	-	1.2	3.4
% Moisture	1	%	14	9.9	17	17
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.6	-	28	0.3
Cation Exchange Capacity	0.05	meq/100g	15	-	35	13

Client Sample ID			MW02 1.2-1.3	MW02 1.9-2.0	MW02 3.0-3.1	MW02 6.0-6.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe01478	S19-Fe01479	S19-Fe01480	S19-Fe01481
Date Sampled			Jan 29, 2019	Jan 29, 2019	Jan 29, 2019	Jan 29, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	70	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
Chloride	5	mg/kg	-	-	1100	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	-	610	600	730
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	-	5.6	5.9	8.2
Resistivity*	0.5	ohm.m	-	-	17	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	MW02 1.2-1.3 Soil S19-Fe01478 Jan 29, 2019	MW02 1.9-2.0 Soil S19-Fe01479 Jan 29, 2019	MW02 3.0-3.1 Soil S19-Fe01480 Jan 29, 2019	MW02 6.0-6.1 Soil S19-Fe01481 Jan 29, 2019
Sulphate (as SO4)	30	mg/kg	-	-	91	-
Exchangeable Sodium Percentage (ESP)	0.1	%	-	-	37	-
Magnesium (exchangeable)	0.1	meq/100g	-	-	4.0	-
Potassium (exchangeable)	0.1	meq/100g	-	-	< 0.1	-
Sodium (exchangeable)	0.1	meq/100g	-	-	2.5	-
% Moisture	1	%	15	16	14	13
Heavy Metals						
Arsenic	2	mg/kg	5.3	-	-	-
Cadmium	0.4	mg/kg	< 0.4	-	-	-
Chromium	5	mg/kg	14	-	-	-
Copper	5	mg/kg	15	-	-	-
Lead	5	mg/kg	13	-	-	-
Mercury	0.1	mg/kg	< 0.1	-	-	-
Nickel	5	mg/kg	9.9	-	-	-
Zinc	5	mg/kg	28	-	-	-
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	-	0.2	-
Cation Exchange Capacity	0.05	meq/100g	-	-	6.8	-

Client Sample ID Sample Matrix Eurofins | mgt Sample No. Date Sampled Test/Reference	LOR	Unit	MW03 0-0.2 Soil S19-Fe01482 Jan 29, 2019	MW03 0.4-0.5 Soil S19-Fe01483 Jan 29, 2019	MW03 1.5-1.6 Soil S19-Fe01484 Jan 29, 2019	MW03 2.9-3.0 Soil S19-Fe01485 Jan 29, 2019
Chloride	5	mg/kg	230	-	1900	1900
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	190	1000	1100	1200
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.3	5.0	5.9	7.3
Resistivity*	0.5	ohm.m	52	-	9.1	8.7
Sulphate (as SO4)	30	mg/kg	45	-	230	170
Exchangeable Sodium Percentage (ESP)	0.1	%	14	-	43	44
Magnesium (exchangeable)	0.1	meq/100g	11	-	2.2	1.5
Potassium (exchangeable)	0.1	meq/100g	0.3	-	< 0.1	< 0.1
Sodium (exchangeable)	0.1	meq/100g	2.3	-	1.7	1.3
% Moisture	1	%	9.0	17	13	14
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	3.5	-	< 0.1	< 0.1
Cation Exchange Capacity	0.05	meq/100g	17	-	4.0	2.9

Client Sample ID			QA20190130MN_04
Sample Matrix			Soil
Eurofins | mgt Sample No.			S19-Fe01486
Date Sampled			Jan 30, 2019
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchlorendate (surr.)	1	%	109
Tetrachloro-m-xylene (surr.)	1	%	116

Client Sample ID			QA20190130MN_04
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S19-Fe01486**
Date Sampled			**Jan 30, 2019**
Test/Reference	LOR	Unit	
% Moisture	1	%	14
Heavy Metals			
Arsenic	2	mg/kg	2.7
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	8.5
Copper	5	mg/kg	8.7
Lead	5	mg/kg	8.4
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	10

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Feb 06, 2019	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Feb 06, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Feb 05, 2019	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Clay	Brisbane	Feb 05, 2019	6 Day
- Method: LTM-GEN-7040			
Chloride	Melbourne	Feb 06, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Feb 06, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-INO-4030 Conductivity			
Magnesium (exchangeable)	Melbourne	Feb 07, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Potassium (exchangeable)	Melbourne	Feb 07, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Sodium (exchangeable)	Melbourne	Feb 07, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Cation Exchange Capacity	Melbourne	Feb 08, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
Exchangeable Sodium Percentage (ESP)	Melbourne	Feb 07, 2019	28 Day
- Method: LTM-MET-3060 - Cation Exchange Capacity (CEC) & Exchangeable Sodium Percentage (ESP)			
% Moisture	Melbourne	Feb 01, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

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Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
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Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
External Laboratory																						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																	
1	TP02 0-0.15	Jan 30, 2019		Soil	S19-Fe01404		X						X					X	X	X		X
2	TP02 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01405					X		X								X		
3	TP02 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01406					X		X			X					X		
4	TP01 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01407		X			X		X	X	X						X		X
5	TP01 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01408				X													
6	TP01 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01409	X												X	X	X		
7	TP03 0-0.15	Jan 30, 2019		Soil	S19-Fe01410		X						X	X						X		X
8	TP05 0-0.1	Jan 30, 2019		Soil	S19-Fe01411		X						X			X				X	X	X
9	TP05 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01412				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
10	TP05 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01413													X	X	X		
11	TP05 1.5-1.6	Jan 30, 2019		Soil	S19-Fe01414					X		X								X		
12	TP11 0-0.1	Jan 30, 2019		Soil	S19-Fe01415		X													X		X
13	TP11 1.1-1.2	Jan 30, 2019		Soil	S19-Fe01416										X					X		
14	TP12 0-0.1	Jan 30, 2019		Soil	S19-Fe01417	X	X								X		X			X	X	
15	TP12 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01418					X		X			X					X		
16	TP12 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01419													X	X	X		
17	TP13 0-0.1	Jan 30, 2019		Soil	S19-Fe01420		X													X		X
18	TP13 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01421										X					X		
19	TP09 0.0-0.1	Jan 30, 2019		Soil	S19-Fe01422										X		X			X	X	
20	TP09 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01423										X					X		
21	TP18 0-0.1	Jan 30, 2019		Soil	S19-Fe01424		X						X					X	X	X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
22	TP18 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01425					X		X			X					X		
23	TP17 0-0.1	Jan 30, 2019		Soil	S19-Fe01426										X					X		
24	TP17 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01427		X						X							X		X
25	TP17 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01428										X					X		
26	TP16 0-0.1	Jan 30, 2019		Soil	S19-Fe01429		X								X		X			X	X	
27	TP16 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01430										X					X		
28	TP20 0-0.1	Jan 31, 2019		Soil	S19-Fe01431										X					X		
29	TP20 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01432										X		X			X	X	
30	TP20 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01433					X		X								X		
31	TP20 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01434													X	X	X		
32	TP21 0.0-0.1	Jan 31, 2019		Soil	S19-Fe01435										X					X		
33	TP21 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01436										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
34	TP22 0-0.1	Jan 31, 2019		Soil	S19-Fe01437								X							X		X
35	TP22 0.6-0.7	Jan 31, 2019		Soil	S19-Fe01438										X			X	X	X		
36	TP22 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01439					X		X								X		
37	TP24 0-0.1	Jan 31, 2019		Soil	S19-Fe01440										X					X		
38	TP24 0.2-0.3	Jan 31, 2019		Soil	S19-Fe01441								X		X		X			X	X	
39	TP28 0-0.1	Jan 31, 2019		Soil	S19-Fe01442								X		X					X		
40	TP28 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01443															X		X
41	TP32 0-0.1	Jan 31, 2019		Soil	S19-Fe01444					X		X	X		X		X			X	X	
42	TP32 0.7-0.8	Jan 31, 2019		Soil	S19-Fe01445													X	X	X		
43	TP32 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01446					X		X			X					X		
44	TP34 0-0.1	Jan 31, 2019		Soil	S19-Fe01447										X					X		
45	TP34 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01448										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
46	TP30 0-0.1	Jan 31, 2019		Soil	S19-Fe01449								X					X	X	X		X
47	TP30 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01450										X					X		
48	TP26 0-0.1	Jan 31, 2019		Soil	S19-Fe01451								X		X					X		
49	TP26 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01452										X		X			X	X	
50	TP31 0-0.1	Jan 31, 2019		Soil	S19-Fe01453										X		X			X	X	
51	TP31 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01454													X	X	X		
52	TP31 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01455										X					X		
53	TP33 0-0.1	Jan 31, 2019		Soil	S19-Fe01456										X		X			X	X	
54	TP33 0.8-0.9	Jan 31, 2019		Soil	S19-Fe01457										X					X		
55	QA20190130MN_01	Jan 30, 2019		Soil	S19-Fe01458										X		X			X	X	
56	QA20190130MN_03	Jan 30, 2019		Soil	S19-Fe01459		X						X	X						X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
57	TP00 0-0.15	Jan 30, 2019		Soil	S19-Fe01460		X						X	X						X		
58	TP00 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01461					X		X								X		
59	TP00 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01462													X	X	X		
60	TP00 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01463					X		X								X		
61	TP04 0-0.1	Jan 30, 2019		Soil	S19-Fe01464								X		X		X			X	X	
62	TP04 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01465		X						X	X						X		X
63	TP06 0-0.2	Jan 29, 2019		Soil	S19-Fe01466	X	X						X		X		X			X	X	
64	TP06 0.8-0.9	Jan 29, 2019		Soil	S19-Fe01467													X	X	X		
65	TP07 0-0.1	Jan 29, 2019		Soil	S19-Fe01468		X						X		X		X			X	X	
66	TP15 0-0.1	Jan 30, 2019		Soil	S19-Fe01469													X	X	X		
67	TP15 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01470					X		X								X		
68	TP15 1.7-1.8	Jan 29, 2019		Soil	S19-Fe01471					X		X								X		

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
69	MW01 0-0.2	Jan 29, 2019		Soil	S19-Fe01472								X							X		
70	MW01 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01473					X		X								X		
71	MW01 1.0-1.1	Jan 29, 2019		Soil	S19-Fe01474	X												X	X	X		
72	MW01 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01475					X		X								X		
73	MW01 5.5-5.6	Jan 29, 2019		Soil	S19-Fe01476													X	X	X		
74	MW02 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01477													X	X	X		
75	MW02 1.2-1.3	Jan 29, 2019		Soil	S19-Fe01478										X		X			X	X	
76	MW02 1.9-2.0	Jan 29, 2019		Soil	S19-Fe01479					X		X								X		
77	MW02 3.0-3.1	Jan 29, 2019		Soil	S19-Fe01480													X	X	X		
78	MW02 6.0-6.1	Jan 29, 2019		Soil	S19-Fe01481					X		X								X		
79	MW03 0-0.2	Jan 29, 2019		Soil	S19-Fe01482													X	X	X		
80	MW03 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01483					X		X								X		

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Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
81	MW03 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01484													X	X	X		
82	MW03 2.9-3.0	Jan 29, 2019		Soil	S19-Fe01485													X	X	X		
83	QA20190130MN_04	Jan 30, 2019		Soil	S19-Fe01486								X		X		X			X	X	
84	TRIP BLANK 29-1	Jan 29, 2019		Water	S19-Fe01487												X					
85	TRIP SPIKE 29-1	Jan 29, 2019		Water	S19-Fe01488												X					
86	TRIP BLANK 31-1	Jan 31, 2019		Water	S19-Fe01489												X					
87	TRIP SPIKE 31-1	Jan 31, 2019		Water	S19-Fe01490												X					
88	RINSATE 29-1	Jan 29, 2019		Water	S19-Fe01491				X													
89	RINSATE 30-1	Jan 30, 2019		Water	S19-Fe01492				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
90	RINSATE 31-1	Jan 31, 2019		Water	S19-Fe01493								X	X								X
91	TP03 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01541						X											
92	TP11 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01542						X											
93	TP11 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01543						X											
94	TP13 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01544						X											
95	TP09 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01545						X											
96	TP18 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01546						X											
97	TP17 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01547						X											
98	TP16 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01548						X											
99	TP21 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01549						X											
100	TP21 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01550						X											
101	TP24 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01551						X											

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
102	TP24 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01552						X											
103	TP28 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01553						X											
104	TP28 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01554						X											
105	TP34 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01555						X											
106	TP34 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01556						X											
107	TP30 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01557						X											
108	TP26 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01558						X											
109	TP33 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01559						X											
110	QA2019013MN_02	Jan 30, 2019		Soil	S19-Fe01560						X											
111	TP04 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01561						X											
112	TP07 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01562						X											

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
113	TP07 1.3-1.4	Jan 29, 2019		Soil	S19-Fe01563						X											
114	TP15 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01564						X											
115	MW01 2.0-2.1	Jan 29, 2019		Soil	S19-Fe01565						X											
116	MW02 0-0.2	Jan 29, 2019		Soil	S19-Fe01566						X											
117	TP01	Jan 30, 2019		Building Materials	S19-Fe01567			X														
118	TP01 0-0.1	Jan 30, 2019		Soil	S19-Fe01594						X											
Test Counts						4	15	1	4	19	27	19	21	6	37	1	21	20	20	81	18	14

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
% Clay	%	< 1			1	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	100			70-130	Pass	
TRH C10-C14	%	77			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	102			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
Xylenes - Total	%	99			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	89			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
TRH >C10-C16	%	90			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	82			70-130	Pass	
Acenaphthylene	%	99			70-130	Pass	
Anthracene	%	75			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	84			70-130	Pass	
Benzo(b&j)fluoranthene	%	83			70-130	Pass	
Benzo(g.h.i)perylene	%	89			70-130	Pass	
Benzo(k)fluoranthene	%	88			70-130	Pass	
Chrysene	%	73			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	88			70-130	Pass	
Fluorene	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	106			70-130	Pass	
Naphthalene	%	82			70-130	Pass	
Phenanthrene	%	88			70-130	Pass	
Pyrene	%	92			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	71			70-130	Pass	
4.4'-DDD	%	86			70-130	Pass	
4.4'-DDE	%	109			70-130	Pass	
4.4'-DDT	%	76			70-130	Pass	
a-BHC	%	75			70-130	Pass	
Aldrin	%	72			70-130	Pass	
b-BHC	%	87			70-130	Pass	
d-BHC	%	91			70-130	Pass	
Dieldrin	%	84			70-130	Pass	
Endosulfan I	%	87			70-130	Pass	
Endosulfan II	%	105			70-130	Pass	
Endosulfan sulphate	%	91			70-130	Pass	
Endrin	%	99			70-130	Pass	
Endrin aldehyde	%	95			70-130	Pass	
Endrin ketone	%	122			70-130	Pass	
g-BHC (Lindane)	%	86			70-130	Pass	
Heptachlor	%	84			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	%	77			70-130	Pass	
Hexachlorobenzene	%	88			70-130	Pass	
Methoxychlor	%	104			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1260	%	101			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	83			30-130	Pass	
2.4-Dichlorophenol	%	117			30-130	Pass	
2.4.5-Trichlorophenol	%	124			30-130	Pass	
2.4.6-Trichlorophenol	%	98			30-130	Pass	
2.6-Dichlorophenol	%	94			30-130	Pass	
4-Chloro-3-methylphenol	%	123			30-130	Pass	
Pentachlorophenol	%	89			30-130	Pass	
Tetrachlorophenols - Total	%	83			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	116			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	108			30-130	Pass	
2-Methylphenol (o-Cresol)	%	66			30-130	Pass	
2-Nitrophenol	%	100			30-130	Pass	
2.4-Dimethylphenol	%	65			30-130	Pass	
2.4-Dinitrophenol	%	117			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	118			30-130	Pass	
4-Nitrophenol	%	43			30-130	Pass	
Dinoseb	%	111			30-130	Pass	
Phenol	%	91			30-130	Pass	
LCS - % Recovery							
% Clay	%	107			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	114			80-120	Pass	
Cadmium	%	109			80-120	Pass	
Chromium	%	120			80-120	Pass	
Copper	%	120			80-120	Pass	
Lead	%	98			80-120	Pass	
Mercury	%	111			75-125	Pass	
Nickel	%	120			80-120	Pass	
Zinc	%	117			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Fe07985	NCP	%	79			70-130	Pass	
Acenaphthylene	M19-Fe07985	NCP	%	108			70-130	Pass	
Anthracene	M19-Fe07985	NCP	%	112			70-130	Pass	
Benz(a)anthracene	M19-Fe07985	NCP	%	91			70-130	Pass	
Benzo(a)pyrene	M19-Fe07985	NCP	%	75			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Fe07985	NCP	%	77			70-130	Pass	
Benzo(g.h.i)perylene	M19-Fe07985	NCP	%	98			70-130	Pass	
Benzo(k)fluoranthene	M19-Fe07985	NCP	%	96			70-130	Pass	
Chrysene	M19-Fe07985	NCP	%	75			70-130	Pass	
Dibenz(a.h)anthracene	M19-Fe07985	NCP	%	81			70-130	Pass	
Fluoranthene	M19-Fe07985	NCP	%	122			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Fluorene	M19-Fe07985	NCP	%	120			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Fe07985	NCP	%	122			70-130	Pass	
Naphthalene	M19-Fe07985	NCP	%	85			70-130	Pass	
Phenanthrene	M19-Fe07985	NCP	%	122			70-130	Pass	
Pyrene	M19-Fe07985	NCP	%	118			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M19-Fe07978	NCP	%	82			70-130	Pass	
4.4'-DDD	M19-Fe04821	NCP	%	89			70-130	Pass	
4.4'-DDE	M19-Fe04821	NCP	%	110			70-130	Pass	
4.4'-DDT	M19-Fe04821	NCP	%	98			70-130	Pass	
a-BHC	M19-Fe07978	NCP	%	96			70-130	Pass	
Aldrin	M19-Fe07978	NCP	%	88			70-130	Pass	
b-BHC	M19-Fe07978	NCP	%	71			70-130	Pass	
d-BHC	M19-Fe04821	NCP	%	95			70-130	Pass	
Dieldrin	M19-Fe07978	NCP	%	88			70-130	Pass	
Endosulfan I	M19-Fe07978	NCP	%	88			70-130	Pass	
Endosulfan II	M19-Fe07978	NCP	%	90			70-130	Pass	
Endosulfan sulphate	M19-Fe04821	NCP	%	118			70-130	Pass	
Endrin	M19-Fe04821	NCP	%	128			70-130	Pass	
Endrin aldehyde	M19-Fe07978	NCP	%	79			70-130	Pass	
g-BHC (Lindane)	M19-Fe07978	NCP	%	92			70-130	Pass	
Heptachlor	M19-Fe04821	NCP	%	84			70-130	Pass	
Heptachlor epoxide	M19-Fe04821	NCP	%	77			70-130	Pass	
Hexachlorobenzene	M19-Fe07978	NCP	%	114			70-130	Pass	
Methoxychlor	M19-Fe04821	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Fe07985	NCP	%	60			30-130	Pass	
2.4-Dichlorophenol	M19-Fe07985	NCP	%	88			30-130	Pass	
2.4.5-Trichlorophenol	M19-Fe07985	NCP	%	85			30-130	Pass	
2.4.6-Trichlorophenol	M19-Fe07985	NCP	%	75			30-130	Pass	
2.6-Dichlorophenol	M19-Fe07985	NCP	%	84			30-130	Pass	
4-Chloro-3-methylphenol	M19-Fe07985	NCP	%	89			30-130	Pass	
Pentachlorophenol	M19-Fe03337	NCP	%	88			30-130	Pass	
Tetrachlorophenols - Total	M19-Fe07985	NCP	%	50			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Fe03337	NCP	%	72			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M19-Fe03337	NCP	%	111			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Fe07985	NCP	%	93			30-130	Pass	
2-Nitrophenol	M19-Fe07985	NCP	%	74			30-130	Pass	
2.4-Dimethylphenol	M19-Fe07985	NCP	%	92			30-130	Pass	
2.4-Dinitrophenol	M19-Fe07985	NCP	%	38			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Fe07985	NCP	%	87			30-130	Pass	
4-Nitrophenol	M19-Fe07985	NCP	%	61			30-130	Pass	
Dinoseb	M19-Fe03337	NCP	%	100			30-130	Pass	
Phenol	M19-Fe07985	NCP	%	72			30-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S19-Fe01409	CP	%	86			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Fe01410	CP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Fe01410	CP	%	95			70-130	Pass	
Toluene	S19-Fe01410	CP	%	99			70-130	Pass	
Ethylbenzene	S19-Fe01410	CP	%	102			70-130	Pass	
m&p-Xylenes	S19-Fe01410	CP	%	93			70-130	Pass	
o-Xylene	S19-Fe01410	CP	%	104			70-130	Pass	
Xylenes - Total	S19-Fe01410	CP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Fe01410	CP	%	80			70-130	Pass	
TRH C6-C10	S19-Fe01410	CP	%	97			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Endrin ketone	M19-Fe00929	NCP	%	112			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Cadmium	S19-Fe01429	CP	%	81			75-125	Pass	
Chromium	S19-Fe01429	CP	%	114			75-125	Pass	
Mercury	S19-Fe01429	CP	%	85			70-130	Pass	
Nickel	S19-Fe01429	CP	%	104			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S19-Fe01437	CP	%	100			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S19-Fe01437	CP	%	102			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Fe01441	CP	%	95			75-125	Pass	
Cadmium	S19-Fe01441	CP	%	91			75-125	Pass	
Chromium	S19-Fe01441	CP	%	99			75-125	Pass	
Copper	S19-Fe01441	CP	%	98			75-125	Pass	
Lead	S19-Fe01441	CP	%	97			75-125	Pass	
Mercury	S19-Fe01441	CP	%	94			70-130	Pass	
Nickel	S19-Fe01441	CP	%	96			75-125	Pass	
Zinc	S19-Fe01441	CP	%	96			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Fe01452	CP	%	109			75-125	Pass	
Cadmium	S19-Fe01452	CP	%	101			75-125	Pass	
Chromium	S19-Fe01452	CP	%	114			75-125	Pass	
Copper	S19-Fe01452	CP	%	112			75-125	Pass	
Lead	S19-Fe01452	CP	%	109			75-125	Pass	
Mercury	S19-Fe01452	CP	%	107			70-130	Pass	
Nickel	S19-Fe01452	CP	%	114			75-125	Pass	
Zinc	S19-Fe01452	CP	%	114			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Fe01458	CP	%	93			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Fe01458	CP	%	95			70-130	Pass	
Toluene	S19-Fe01458	CP	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	S19-Fe01458	CP	%	91			70-130	Pass	
m&p-Xylenes	S19-Fe01458	CP	%	82			70-130	Pass	
o-Xylene	S19-Fe01458	CP	%	94			70-130	Pass	
Xylenes - Total	S19-Fe01458	CP	%	86			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Fe01458	CP	%	87			70-130	Pass	
TRH C6-C10	S19-Fe01458	CP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S19-Fe01459	CP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S19-Fe01459	CP	%	80			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	P19-Fe01569	NCP	%	78			70-130	Pass	
Aroclor-1260	P19-Fe01569	NCP	%	93			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Exchangeable Sodium Percentage (ESP)	S19-Fe01404	CP	%	1.0	1.0	2.0	30%	Pass	
Magnesium (exchangeable)	S19-Fe01404	CP	meq/100g	1.7	1.5	15	30%	Pass	
Potassium (exchangeable)	S19-Fe01404	CP	meq/100g	0.5	0.5	16	30%	Pass	
Sodium (exchangeable)	S19-Fe01404	CP	meq/100g	0.4	0.3	8.0	30%	Pass	
% Moisture	S19-Fe01404	CP	%	21	20	1.0	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Calcium (exchangeable)	S19-Fe01404	CP	meq/100g	36	33	6.0	30%	Pass	
Cation Exchange Capacity	S19-Fe01404	CP	meq/100g	38	36	7.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Fe01407	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Fe01407	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-Fe01407	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-Fe01407	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-Fe01407	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-Fe01407	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-Fe01407	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-Fe01407	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(g.h.i)perylene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S19-Fe01407	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S19-Fe01407	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S19-Fe01407	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S19-Fe01407	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S19-Fe01407	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S19-Fe01407	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S19-Fe01407	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-Fe01407	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S19-Fe01407	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S19-Fe01407	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S19-Fe01407	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
% Clay	M19-Ja22661	NCP	%	6.3	6.3	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01416	CP	%	18	18	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S19-Fe01424	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S19-Fe01424	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S19-Fe01424	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S19-Fe01424	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S19-Fe01424	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
2-Nitrophenol	S19-Fe01424	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S19-Fe01424	CP	mg/kg	< 5	< 5	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-Fe01424	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S19-Fe01424	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S19-Fe01424	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S19-Fe01424	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe01425	CP	uS/cm	130	150	18	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe01425	CP	pH Units	5.8	5.7	pass	30%	Pass	
Resistivity*	S19-Fe01425	CP	ohm.m	80	67	18	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01426	CP	%	12	12	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe01429	CP	mg/kg	7.1	7.6	8.0	30%	Pass	
Cadmium	S19-Fe01429	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe01429	CP	mg/kg	16	16	4.0	30%	Pass	
Copper	S19-Fe01429	CP	mg/kg	9.8	10	7.0	30%	Pass	
Lead	S19-Fe01429	CP	mg/kg	9.5	9.9	5.0	30%	Pass	
Mercury	S19-Fe01429	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe01429	CP	mg/kg	5.4	5.8	6.0	30%	Pass	
Zinc	S19-Fe01429	CP	mg/kg	11	12	8.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S19-Fe01436	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S19-Fe01436	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S19-Fe01436	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S19-Fe01436	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S19-Fe01436	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S19-Fe01436	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01436	CP	%	8.1	8.5	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe01441	CP	mg/kg	5.3	6.0	13	30%	Pass	
Cadmium	S19-Fe01441	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe01441	CP	mg/kg	17	19	12	30%	Pass	
Copper	S19-Fe01441	CP	mg/kg	13	14	13	30%	Pass	
Lead	S19-Fe01441	CP	mg/kg	10	11	12	30%	Pass	
Mercury	S19-Fe01441	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe01441	CP	mg/kg	< 5	5.0	10	30%	Pass	
Zinc	S19-Fe01441	CP	mg/kg	14	16	13	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe01445	CP	uS/cm	1100	1100	2.4	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe01445	CP	pH Units	4.7	4.7	pass	30%	Pass	
Resistivity*	S19-Fe01445	CP	ohm.m	8.9	9.1	2.4	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01446	CP	%	14	14	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe01451	CP	mg/kg	4.6	5.0	8.0	30%	Pass	
Cadmium	S19-Fe01451	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe01451	CP	mg/kg	28	24	15	30%	Pass	
Copper	S19-Fe01451	CP	mg/kg	12	9.9	17	30%	Pass	
Lead	S19-Fe01451	CP	mg/kg	15	15	2.0	30%	Pass	
Mercury	S19-Fe01451	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe01451	CP	mg/kg	11	11	2.0	30%	Pass	
Zinc	S19-Fe01451	CP	mg/kg	17	15	12	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe01452	CP	mg/kg	3.5	3.1	12	30%	Pass	
Cadmium	S19-Fe01452	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe01452	CP	mg/kg	15	14	4.0	30%	Pass	
Copper	S19-Fe01452	CP	mg/kg	9.6	9.3	4.0	30%	Pass	
Lead	S19-Fe01452	CP	mg/kg	12	12	3.0	30%	Pass	
Mercury	S19-Fe01452	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe01452	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S19-Fe01452	CP	mg/kg	6.2	6.0	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Fe01456	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Fe01456	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-Fe01456	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-Fe01456	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-Fe01456	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-Fe01456	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-Fe01456	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Fe01456	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-Fe01456	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01456	CP	%	5.8	5.8	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Exchangeable Sodium Percentage (ESP)	S19-Fe01462	CP	%	14	14	4.0	30%	Pass	
Magnesium (exchangeable)	S19-Fe01462	CP	meq/100g	4.4	4.5	3.0	30%	Pass	
Potassium (exchangeable)	S19-Fe01462	CP	meq/100g	0.1	0.1	8.0	30%	Pass	
Sodium (exchangeable)	S19-Fe01462	CP	meq/100g	1.0	1.1	8.0	30%	Pass	

Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Calcium (exchangeable)	S19-Fe01462	CP	meq/100g	1.9	1.9	2.0	30%	Pass	
Cation Exchange Capacity	S19-Fe01462	CP	meq/100g	7.4	7.6	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01466	CP	%	18	17	7.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Fe01466	CP	mg/kg	18	16	13	30%	Pass	
Cadmium	S19-Fe01466	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Fe01466	CP	mg/kg	27	26	2.0	30%	Pass	
Copper	S19-Fe01466	CP	mg/kg	57	54	5.0	30%	Pass	
Lead	S19-Fe01466	CP	mg/kg	25	23	8.0	30%	Pass	
Mercury	S19-Fe01466	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Fe01466	CP	mg/kg	14	15	7.0	30%	Pass	
Zinc	S19-Fe01466	CP	mg/kg	190	180	7.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Fe01467	CP	mg/kg	430	520	19	30%	Pass	
Sulphate (as SO4)	S19-Fe01467	CP	mg/kg	240	250	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01476	CP	%	17	17	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe01482	CP	uS/cm	190	180	6.9	30%	Pass	
Resistivity*	S19-Fe01482	CP	ohm.m	52	55	6.9	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe01486	CP	%	14	14	4.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Rohan Hammond**

Report **638491-W**
Project name MAMRE ROAD KEMPS CREEK
Project ID 54963
Received Date Feb 01, 2019

Client Sample ID			**TRIP BLANK 29-1**	**R20 TRIP SPIKE 29-1**	**TRIP BLANK 31-1**	**R20 TRIP SPIKE 31-1**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe01487**	**S19-Fe01488**	**S19-Fe01489**	**S19-Fe01490**
Date Sampled			**Jan 29, 2019**	**Jan 29, 2019**	**Jan 31, 2019**	**Jan 31, 2019**
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.001	mg/L	< 0.001	95	< 0.001	100
Toluene	0.001	mg/L	< 0.001	110	< 0.001	120
Ethylbenzene	0.001	mg/L	< 0.001	120	< 0.001	110
m&p-Xylenes	0.002	mg/L	< 0.002	110	< 0.002	110
o-Xylene	0.001	mg/L	< 0.001	120	< 0.001	120
Xylenes - Total	0.003	mg/L	< 0.003	120	< 0.003	110
4-Bromofluorobenzene (surr.)	1	%	127	124	122	112

Client Sample ID			**RINSATE 31-1**
Sample Matrix			**Water**
Eurofins | mgt Sample No.			**S19-Fe01493**
Date Sampled			**Jan 31, 2019**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	126
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene N02	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) N04	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2) N01	0.05	mg/L	< 0.05

Client Sample ID			RINSATE 31-1
Sample Matrix			Water
Eurofins | mgt Sample No.			S19-Fe01493
Date Sampled			Jan 31, 2019
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	68
p-Terphenyl-d14 (surr.)	1	%	89
Organochlorine Pesticides			
Chlordanes - Total	0.001	mg/L	< 0.001
4.4'-DDD	0.0001	mg/L	< 0.0001
4.4'-DDE	0.0001	mg/L	< 0.0001
4.4'-DDT	0.0001	mg/L	< 0.0001
a-BHC	0.0001	mg/L	< 0.0001
Aldrin	0.0001	mg/L	< 0.0001
b-BHC	0.0001	mg/L	< 0.0001
d-BHC	0.0001	mg/L	< 0.0001
Dieldrin	0.0001	mg/L	< 0.0001
Endosulfan I	0.0001	mg/L	< 0.0001
Endosulfan II	0.0001	mg/L	< 0.0001
Endosulfan sulphate	0.0001	mg/L	< 0.0001
Endrin	0.0001	mg/L	< 0.0001
Endrin aldehyde	0.0001	mg/L	< 0.0001
Endrin ketone	0.0001	mg/L	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	< 0.0001
Heptachlor	0.0001	mg/L	< 0.0001
Heptachlor epoxide	0.0001	mg/L	< 0.0001
Hexachlorobenzene	0.0001	mg/L	< 0.0001
Methoxychlor	0.0001	mg/L	< 0.0001
Toxaphene	0.01	mg/L	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	< 0.001

Client Sample ID			RINSATE 31-1
Sample Matrix			Water
Eurofins | mgt Sample No.			S19-Fe01493
Date Sampled			Jan 31, 2019
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Dibutylchlorendate (surr.)	1	%	83
Tetrachloro-m-xylene (surr.)	1	%	93
Polychlorinated Biphenyls			
Aroclor-1016	0.001	mg/L	< 0.001
Aroclor-1221	0.001	mg/L	< 0.001
Aroclor-1232	0.001	mg/L	< 0.001
Aroclor-1242	0.001	mg/L	< 0.001
Aroclor-1248	0.001	mg/L	< 0.001
Aroclor-1254	0.001	mg/L	< 0.001
Aroclor-1260	0.001	mg/L	< 0.001
Total PCB*	0.001	mg/L	< 0.001
Dibutylchlorendate (surr.)	1	%	83
Tetrachloro-m-xylene (surr.)	1	%	93
Phenols (Halogenated)			
2-Chlorophenol	0.003	mg/L	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01
Phenols (non-Halogenated)			
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03
Dinoseb	0.1	mg/L	< 0.1
Phenol	0.003	mg/L	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1
Phenol-d6 (surr.)	1	%	42
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B7A			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 05, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 05, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Melbourne	Feb 06, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Melbourne	Feb 05, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Organochlorine Pesticides	Melbourne	Feb 06, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polychlorinated Biphenyls	Melbourne	Feb 06, 2019	7 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			

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Address: Level 1, 50 Margaret St
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NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
External Laboratory																						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**																	
1	TP02 0-0.15	Jan 30, 2019		Soil	S19-Fe01404		X						X					X	X	X		X
2	TP02 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01405					X		X								X		
3	TP02 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01406					X		X			X					X		
4	TP01 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01407		X			X		X	X	X						X		X
5	TP01 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01408				X													
6	TP01 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01409	X												X	X	X		
7	TP03 0-0.15	Jan 30, 2019		Soil	S19-Fe01410		X						X	X						X		X
8	TP05 0-0.1	Jan 30, 2019		Soil	S19-Fe01411		X						X			X				X	X	X
9	TP05 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01412				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
10	TP05 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01413													X	X	X		
11	TP05 1.5-1.6	Jan 30, 2019		Soil	S19-Fe01414					X		X								X		
12	TP11 0-0.1	Jan 30, 2019		Soil	S19-Fe01415		X													X		X
13	TP11 1.1-1.2	Jan 30, 2019		Soil	S19-Fe01416										X					X		
14	TP12 0-0.1	Jan 30, 2019		Soil	S19-Fe01417	X	X								X		X			X	X	
15	TP12 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01418					X		X			X					X		
16	TP12 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01419													X	X	X		
17	TP13 0-0.1	Jan 30, 2019		Soil	S19-Fe01420		X													X		X
18	TP13 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01421										X					X		
19	TP09 0.0-0.1	Jan 30, 2019		Soil	S19-Fe01422										X		X			X	X	
20	TP09 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01423										X					X		
21	TP18 0-0.1	Jan 30, 2019		Soil	S19-Fe01424		X						X					X	X	X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
22	TP18 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01425					X		X			X					X		
23	TP17 0-0.1	Jan 30, 2019		Soil	S19-Fe01426										X					X		
24	TP17 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01427		X						X							X		X
25	TP17 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01428										X					X		
26	TP16 0-0.1	Jan 30, 2019		Soil	S19-Fe01429		X								X		X			X	X	
27	TP16 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01430										X					X		
28	TP20 0-0.1	Jan 31, 2019		Soil	S19-Fe01431										X					X		
29	TP20 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01432										X		X			X	X	
30	TP20 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01433					X		X								X		
31	TP20 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01434													X	X	X		
32	TP21 0.0-0.1	Jan 31, 2019		Soil	S19-Fe01435										X					X		
33	TP21 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01436										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
34	TP22 0-0.1	Jan 31, 2019		Soil	S19-Fe01437								X							X		X
35	TP22 0.6-0.7	Jan 31, 2019		Soil	S19-Fe01438										X			X	X	X		
36	TP22 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01439					X		X								X		
37	TP24 0-0.1	Jan 31, 2019		Soil	S19-Fe01440										X					X		
38	TP24 0.2-0.3	Jan 31, 2019		Soil	S19-Fe01441								X		X		X			X	X	
39	TP28 0-0.1	Jan 31, 2019		Soil	S19-Fe01442								X		X					X		
40	TP28 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01443															X		X
41	TP32 0-0.1	Jan 31, 2019		Soil	S19-Fe01444					X		X	X		X		X			X	X	
42	TP32 0.7-0.8	Jan 31, 2019		Soil	S19-Fe01445													X	X	X		
43	TP32 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01446					X		X			X					X		
44	TP34 0-0.1	Jan 31, 2019		Soil	S19-Fe01447										X					X		
45	TP34 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01448										X		X			X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
46	TP30 0-0.1	Jan 31, 2019		Soil	S19-Fe01449								X					X	X	X		X
47	TP30 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01450										X					X		
48	TP26 0-0.1	Jan 31, 2019		Soil	S19-Fe01451								X		X					X		
49	TP26 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01452										X		X			X	X	
50	TP31 0-0.1	Jan 31, 2019		Soil	S19-Fe01453										X		X			X	X	
51	TP31 0.4-0.5	Jan 31, 2019		Soil	S19-Fe01454													X	X	X		
52	TP31 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01455										X					X		
53	TP33 0-0.1	Jan 31, 2019		Soil	S19-Fe01456										X		X			X	X	
54	TP33 0.8-0.9	Jan 31, 2019		Soil	S19-Fe01457										X					X		
55	QA20190130MN_01	Jan 30, 2019		Soil	S19-Fe01458										X		X			X	X	
56	QA20190130MN_03	Jan 30, 2019		Soil	S19-Fe01459		X						X	X						X		X

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
57	TP00 0-0.15	Jan 30, 2019		Soil	S19-Fe01460		X						X	X						X		
58	TP00 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01461					X		X								X		
59	TP00 0.4-0.5	Jan 30, 2019		Soil	S19-Fe01462													X	X	X		
60	TP00 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01463					X		X								X		
61	TP04 0-0.1	Jan 30, 2019		Soil	S19-Fe01464								X		X		X			X	X	
62	TP04 0.2-0.3	Jan 30, 2019		Soil	S19-Fe01465		X						X	X						X		X
63	TP06 0-0.2	Jan 29, 2019		Soil	S19-Fe01466	X	X						X		X		X			X	X	
64	TP06 0.8-0.9	Jan 29, 2019		Soil	S19-Fe01467													X	X	X		
65	TP07 0-0.1	Jan 29, 2019		Soil	S19-Fe01468		X						X		X		X			X	X	
66	TP15 0-0.1	Jan 30, 2019		Soil	S19-Fe01469													X	X	X		
67	TP15 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01470					X		X								X		
68	TP15 1.7-1.8	Jan 29, 2019		Soil	S19-Fe01471					X		X								X		

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Site # 1254 & 14271

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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638491
Phone: 02 8245 0300
Fax:

Received: Feb 1, 2019 11:21 AM
Due: Feb 8, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						% Clay	Asbestos - WA guidelines	Asbestos Absence /Presence	CANCELLED	Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Organochlorine Pesticides	Polychlorinated Biphenyls	Metals M8	Phenols (IWRG 621)	BTEX	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set	Total Recoverable Hydrocarbons	Eurofins | mgt Suite B7A
Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
69	MW01 0-0.2	Jan 29, 2019		Soil	S19-Fe01472								X							X		
70	MW01 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01473					X		X								X		
71	MW01 1.0-1.1	Jan 29, 2019		Soil	S19-Fe01474	X												X	X	X		
72	MW01 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01475					X		X								X		
73	MW01 5.5-5.6	Jan 29, 2019		Soil	S19-Fe01476													X	X	X		
74	MW02 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01477													X	X	X		
75	MW02 1.2-1.3	Jan 29, 2019		Soil	S19-Fe01478										X		X			X	X	
76	MW02 1.9-2.0	Jan 29, 2019		Soil	S19-Fe01479					X		X								X		
77	MW02 3.0-3.1	Jan 29, 2019		Soil	S19-Fe01480													X	X	X		
78	MW02 6.0-6.1	Jan 29, 2019		Soil	S19-Fe01481					X		X								X		
79	MW03 0-0.2	Jan 29, 2019		Soil	S19-Fe01482													X	X	X		
80	MW03 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01483					X		X								X		

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
81	MW03 1.5-1.6	Jan 29, 2019		Soil	S19-Fe01484													X	X	X		
82	MW03 2.9-3.0	Jan 29, 2019		Soil	S19-Fe01485													X	X	X		
83	QA20190130MN_04	Jan 30, 2019		Soil	S19-Fe01486								X		X		X			X	X	
84	TRIP BLANK 29-1	Jan 29, 2019		Water	S19-Fe01487												X					
85	TRIP SPIKE 29-1	Jan 29, 2019		Water	S19-Fe01488												X					
86	TRIP BLANK 31-1	Jan 31, 2019		Water	S19-Fe01489												X					
87	TRIP SPIKE 31-1	Jan 31, 2019		Water	S19-Fe01490												X					
88	RINSATE 29-1	Jan 29, 2019		Water	S19-Fe01491				X													
89	RINSATE 30-1	Jan 30, 2019		Water	S19-Fe01492				X													

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
90	RINSATE 31-1	Jan 31, 2019		Water	S19-Fe01493								X	X								X
91	TP03 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01541						X											
92	TP11 0.3-0.4	Jan 30, 2019		Soil	S19-Fe01542						X											
93	TP11 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01543						X											
94	TP13 1.8-1.9	Jan 30, 2019		Soil	S19-Fe01544						X											
95	TP09 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01545						X											
96	TP18 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01546						X											
97	TP17 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01547						X											
98	TP16 1.7-1.8	Jan 30, 2019		Soil	S19-Fe01548						X											
99	TP21 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01549						X											
100	TP21 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01550						X											
101	TP24 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01551						X											

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
102	TP24 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01552						X											
103	TP28 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01553						X											
104	TP28 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01554						X											
105	TP34 1.0-1.1	Jan 31, 2019		Soil	S19-Fe01555						X											
106	TP34 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01556						X											
107	TP30 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01557						X											
108	TP26 1.5-1.6	Jan 31, 2019		Soil	S19-Fe01558						X											
109	TP33 1.7-1.8	Jan 31, 2019		Soil	S19-Fe01559						X											
110	QA2019013MN_02	Jan 30, 2019		Soil	S19-Fe01560						X											
111	TP04 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01561						X											
112	TP07 0.4-0.5	Jan 29, 2019		Soil	S19-Fe01562						X											

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Melbourne Laboratory - NATA Site # 1254 & 14271										X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217							X	X	X													
Brisbane Laboratory - NATA Site # 20794						X																
Perth Laboratory - NATA Site # 23736																						
113	TP07 1.3-1.4	Jan 29, 2019		Soil	S19-Fe01563						X											
114	TP15 1.0-1.1	Jan 30, 2019		Soil	S19-Fe01564						X											
115	MW01 2.0-2.1	Jan 29, 2019		Soil	S19-Fe01565						X											
116	MW02 0-0.2	Jan 29, 2019		Soil	S19-Fe01566						X											
117	TP01	Jan 30, 2019		Building Materials	S19-Fe01567			X														
118	TP01 0-0.1	Jan 30, 2019		Soil	S19-Fe01594						X											
Test Counts						4	15	1	4	19	27	19	21	6	37	1	21	20	20	81	18	14

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/L	< 0.001			0.001	Pass	
Aroclor-1221	mg/L	< 0.001			0.001	Pass	
Aroclor-1232	mg/L	< 0.001			0.001	Pass	
Aroclor-1242	mg/L	< 0.001			0.001	Pass	
Aroclor-1248	mg/L	< 0.001			0.001	Pass	
Aroclor-1254	mg/L	< 0.001			0.001	Pass	
Aroclor-1260	mg/L	< 0.001			0.001	Pass	
Total PCB*	mg/L	< 0.001			0.001	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9	%	110			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	76			70-130	Pass	
Toluene	%	115			70-130	Pass	
Ethylbenzene	%	118			70-130	Pass	
m&p-Xylenes	%	118			70-130	Pass	
Xylenes - Total	%	119			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	114			70-130	Pass	
TRH C6-C10	%	112			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	119			70-130	Pass	
Acenaphthylene	%	117			70-130	Pass	
Anthracene	%	103			70-130	Pass	
Benz(a)anthracene	%	98			70-130	Pass	
Benzo(a)pyrene	%	108			70-130	Pass	
Benzo(b&j)fluoranthene	%	88			70-130	Pass	
Benzo(g.h.i)perylene	%	114			70-130	Pass	
Benzo(k)fluoranthene	%	93			70-130	Pass	
Chrysene	%	125			70-130	Pass	
Dibenz(a.h)anthracene	%	124			70-130	Pass	
Fluoranthene	%	97			70-130	Pass	
Fluorene	%	122			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	84			70-130	Pass	
Naphthalene	%	115			70-130	Pass	
Phenanthrene	%	88			70-130	Pass	
Pyrene	%	103			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	97			70-130	Pass	
4.4'-DDD	%	99			70-130	Pass	
4.4'-DDE	%	101			70-130	Pass	
4.4'-DDT	%	129			70-130	Pass	
a-BHC	%	84			70-130	Pass	
Aldrin	%	83			70-130	Pass	
b-BHC	%	79			70-130	Pass	
d-BHC	%	96			70-130	Pass	
Dieldrin	%	102			70-130	Pass	
Endosulfan I	%	78			70-130	Pass	
Endosulfan II	%	88			70-130	Pass	
Endosulfan sulphate	%	90			70-130	Pass	
Endrin	%	87			70-130	Pass	
Endrin aldehyde	%	75			70-130	Pass	
Endrin ketone	%	116			70-130	Pass	
g-BHC (Lindane)	%	85			70-130	Pass	
Heptachlor	%	115			70-130	Pass	
Heptachlor epoxide	%	94			70-130	Pass	
Hexachlorobenzene	%	107			70-130	Pass	
Methoxychlor	%	118			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2-Chlorophenol	%	104			30-130	Pass	
2.4-Dichlorophenol	%	106			30-130	Pass	
2.4.5-Trichlorophenol	%	75			30-130	Pass	
2.4.6-Trichlorophenol	%	94			30-130	Pass	
2.6-Dichlorophenol	%	38			30-130	Pass	
4-Chloro-3-methylphenol	%	84			30-130	Pass	
Pentachlorophenol	%	33			30-130	Pass	
Tetrachlorophenols - Total	%	54			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	87			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	79			30-130	Pass	
2-Methylphenol (o-Cresol)	%	116			30-130	Pass	
2-Nitrophenol	%	110			30-130	Pass	
2.4-Dimethylphenol	%	82			30-130	Pass	
2.4-Dinitrophenol	%	78			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	107			30-130	Pass	
4-Nitrophenol	%	36			30-130	Pass	
Dinoseb	%	117			30-130	Pass	
Phenol	%	58			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	98			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	102			80-120	Pass	
Copper	%	101			80-120	Pass	
Lead	%	105			80-120	Pass	
Mercury	%	98			75-125	Pass	
Nickel	%	102			80-120	Pass	
Zinc	%	101			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M19-Fe00060	NCP	%	99			70-130	Pass	
Acenaphthylene	M19-Fe00060	NCP	%	97			70-130	Pass	
Anthracene	M19-Fe00060	NCP	%	90			70-130	Pass	
Benz(a)anthracene	M19-Fe00060	NCP	%	85			70-130	Pass	
Benzo(a)pyrene	M19-Fe00060	NCP	%	94			70-130	Pass	
Benzo(b&j)fluoranthene	M19-Fe00060	NCP	%	60			70-130	Fail	Q08
Benzo(g.h.i)perylene	M19-Fe00060	NCP	%	67			70-130	Fail	Q08
Benzo(k)fluoranthene	M19-Fe00060	NCP	%	85			70-130	Pass	
Chrysene	M19-Fe00060	NCP	%	112			70-130	Pass	
Dibenz(a.h)anthracene	M19-Fe00060	NCP	%	62			70-130	Fail	Q08
Fluoranthene	M19-Fe00060	NCP	%	123			70-130	Pass	
Fluorene	M19-Fe00060	NCP	%	103			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M19-Fe00060	NCP	%	71			70-130	Pass	
Naphthalene	M19-Fe00060	NCP	%	99			70-130	Pass	
Phenanthrene	M19-Fe00060	NCP	%	113			70-130	Pass	
Pyrene	M19-Fe00060	NCP	%	131			70-130	Fail	Q08
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S19-Ja23947	NCP	%	98			70-130	Pass	
4.4'-DDD	M19-Ja23029	NCP	%	89			70-130	Pass	
4.4'-DDE	S19-Ja23947	NCP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDT	S19-Ja23947	NCP	%	80			70-130	Pass	
a-BHC	S19-Ja23947	NCP	%	85			70-130	Pass	
Aldrin	S19-Ja23947	NCP	%	94			70-130	Pass	
b-BHC	S19-Ja23947	NCP	%	84			70-130	Pass	
d-BHC	S19-Ja23947	NCP	%	91			70-130	Pass	
Dieldrin	S19-Ja23947	NCP	%	78			70-130	Pass	
Endosulfan I	M19-Ja23029	NCP	%	78			70-130	Pass	
Endosulfan II	M19-Ja23029	NCP	%	95			70-130	Pass	
Endosulfan sulphate	M19-Ja23029	NCP	%	77			70-130	Pass	
Endrin	S19-Ja23947	NCP	%	82			70-130	Pass	
Endrin aldehyde	M19-Fe01757	NCP	%	105			70-130	Pass	
Endrin ketone	M19-Ja23029	NCP	%	79			70-130	Pass	
g-BHC (Lindane)	S19-Ja23947	NCP	%	83			70-130	Pass	
Heptachlor	S19-Ja23947	NCP	%	81			70-130	Pass	
Heptachlor epoxide	S19-Ja23947	NCP	%	79			70-130	Pass	
Hexachlorobenzene	S19-Ja23947	NCP	%	90			70-130	Pass	
Methoxychlor	M19-Ja23029	NCP	%	120			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Fe00060	NCP	%	97			30-130	Pass	
2.4-Dichlorophenol	M19-Fe00060	NCP	%	102			30-130	Pass	
2.4.5-Trichlorophenol	M19-Fe00060	NCP	%	110			30-130	Pass	
2.4.6-Trichlorophenol	M19-Fe00060	NCP	%	77			30-130	Pass	
2.6-Dichlorophenol	M19-Fe00060	NCP	%	102			30-130	Pass	
4-Chloro-3-methylphenol	M19-Fe00060	NCP	%	97			30-130	Pass	
Pentachlorophenol	M19-Fe00060	NCP	%	83			30-130	Pass	
Tetrachlorophenols - Total	M19-Fe00060	NCP	%	91			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Fe00060	NCP	%	120			30-130	Pass	
2-Methyl-4.6-dinitrophenol	M19-Fe00060	NCP	%	79			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Fe00060	NCP	%	83			30-130	Pass	
2-Nitrophenol	M19-Fe00060	NCP	%	116			30-130	Pass	
2.4-Dimethylphenol	M19-Fe00060	NCP	%	66			30-130	Pass	
2.4-Dinitrophenol	M19-Fe00060	NCP	%	110			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Fe00060	NCP	%	77			30-130	Pass	
4-Nitrophenol	M19-Fe00060	NCP	%	57			30-130	Pass	
Dinoseb	M19-Fe00060	NCP	%	100			30-130	Pass	
Phenol	M19-Fe00060	NCP	%	37			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Fe04668	NCP	%	97			75-125	Pass	
Cadmium	M19-Fe04668	NCP	%	103			75-125	Pass	
Chromium	M19-Fe04668	NCP	%	101			75-125	Pass	
Copper	M19-Fe04668	NCP	%	100			75-125	Pass	
Lead	M19-Fe04668	NCP	%	105			75-125	Pass	
Mercury	M19-Fe04668	NCP	%	94			70-130	Pass	
Nickel	M19-Fe04668	NCP	%	100			75-125	Pass	
Zinc	M19-Fe04668	NCP	%	101			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S19-Ja24391	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M19-Ja23028	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
4.4'-DDD	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDE	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
4.4'-DDT	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
a-BHC	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Aldrin	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
b-BHC	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
d-BHC	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Dieldrin	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan I	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan II	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endosulfan sulphate	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin aldehyde	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Endrin ketone	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
g-BHC (Lindane)	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Heptachlor epoxide	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Hexachlorobenzene	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Methoxychlor	M19-Ja23028	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	S19-Ja24391	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S19-Ja24391	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	S19-Ja24391	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	S19-Ja24391	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	S19-Ja24391	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S19-Ja24391	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S19-Ja24391	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	S19-Ja24391	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S19-Ja24391	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-Ja24391	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	S19-Ja24391	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Dinoseb	S19-Ja24391	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	S19-Ja24391	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe04668	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	M19-Fe04668	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	M19-Fe04668	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	M19-Fe04668	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Lead	M19-Fe04668	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	M19-Fe04668	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	M19-Fe04668	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Zinc	M19-Fe04668	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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JBS&G Australia Pty Ltd
Project: **54963**
Project Name: **Mamre Road Kemps Creek**
Turn around **Standard**

Contact: rhammond@jbsg.com.au
mnoujaim@jbsg.com.au

Sampled by: Milad Noujaim

#638673

Sample Name				Containers			Analysis												
Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH (LL)/Phenols	Asbestos	PCBs	% Clay	ASLP/TCLP	B20	L2	Alkalinity (total and bicarbonate)	pH & EC
TP10	0-0.1	Soil	1/02/2019	1	1		1	1		1	1								
TP10	0.4-0.5	Soil	1/02/2019	1	1		1												
TP14	0-0.1	Soil	1/02/2019	1	1		1	1	1	1									
TP14	0.4-0.5	Soil	1/02/2019	1	1														
TP19	0-0.1	Soil	1/02/2019	1	1		1	1			1								
TP19	0.4-0.5	Soil	1/02/2019	1	1														
TP23	0-0.1	Soil	1/02/2019	1	1		1		1	1	1								
TP23	0.4-0.5	Soil	1/02/2019	1	1														
TP25	0-0.1	Soil	1/02/2019	1	1		1												
TP25	0.4-0.5	Soil	1/02/2019	1	1														
TP27	0-0.1	Soil	1/02/2019	1	1		1	1											
TP27	0.4-0.5	Soil	1/02/2019	1	1														
TP24	0-0.1	Soil	1/02/2019	1	1		1												
TP24	0.4-0.5	Soil	1/02/2019	1	1			1											
TP08	0-0.1	Soil	1/02/2019	1	1		1	1											
TP08	0.4-0.5	Soil	1/02/2019	1	1														
MW01	-	Water	1/02/2019			1	1		1		1							1	1
MW02	-	Water	1/02/2019			1	1		1		1							1	1
MW03	-	Water	1/02/2019			1	1		1		1							1	1
QA20190201	-	Water	1/02/2019			1	1		1		1							1	1
QC20190201	-	Soil	1/02/2019			1													
Trip Spike/Blank (1-2)	-	Soil	1/02/2019			1		1											
Rinsate (1-2)	-	Soil	1/02/2019			1	1		1	1	1								

* Please forward QC20190201 to Envirolab

Chaya 2/2 11.32am Eurofins Mgt 2.23°C

Enviro Sample NSW

To: Nibha Vaidya; COC NSW
Cc: Alena Bounkeua
Subject: RE: Please add - FW: Schedule of Analysis - Mamre Road 54963

From: Rohan Hammond [mailto:RHammond@jbsg.com.au]
Sent: Wednesday, 6 February 2019 8:59 AM
To: Nibha Vaidya
Subject: FW: Schedule of Analysis - Mamre Road 54963

EXTERNAL EMAIL*

HI Nibha,

Forgot to also requested that the water samples MW01, MW02, MW03 and QA20190201 are analysed for pH, sulfate and chloride.

Rohan.

From: Rohan Hammond
Sent: Saturday, 2 February 2019 11:32 AM
To: 'Nibha Vaidya' <NibhaVaidya@eurofins.com>
Cc: 'EnviroSampleNSW@eurofins.com' <EnviroSampleNSW@eurofins.com>; Milad Noujaim <mnoujaim@jbsg.com.au>
Subject: FW: Schedule of Analysis - Mamre Road 54963

Nibha,

Please find attached schedule of analysis for sample dispatch Friday 1-2.

Please contact me to discuss any queries or discrepancies.

Rohan

From: Nibha Vaidya <NibhaVaidya@eurofins.com>
Sent: Friday, 1 February 2019 11:29 AM
To: Rohan Hammond <RHammond@jbsg.com.au>
Subject: RE: Schedule of Analysis - Mamre Road 54963

Perfect, thanks Rohan.

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Rohan Hammond [mailto:RHammond@jbsg.com.au]
Sent: Friday, 1 February 2019 11:21 AM
To: Nibha Vaidya
Subject: RE: Schedule of Analysis - Mamre Road 54963

eurofins | mgt

Melbourne
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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name: **JBS & G Australia (NSW) P/L**

Contact name: Rohan Hammond
Project name: MAMRE ROAD KEMPS CREEK
Project ID: 54963
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Feb 4, 2019 11:32 AM
Eurofins | mgt reference: **638673**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 2.2 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☑ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

QC20190201 sent to Envirolab for analysis. Samples TP24 0-0.1 & TP24 0.4-0.5 not received; analysis cancelled. Additional samples TP29 0-0.1 & TP29 0.4-0.5 received and placed on hold. Asbestos bag not received for TP14 0.4-0.5.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Rohan Hammond - rhammond@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (NSW) P/L email address.

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ABN– 50 005 085 521
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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	TP10 0-0.1	Feb 01, 2019		Soil	S19-Fe02489								X	X		X	X	X		X
2	TP10 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02490									X				X		
3	TP14 0-0.1	Feb 01, 2019		Soil	S19-Fe02491								X	X			X	X	X	
4	TP14 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02492				X											
5	TP19 0-0.1	Feb 01, 2019		Soil	S19-Fe02493									X		X	X	X		X
6	TP19 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02494				X											
7	TP23 0-0.1	Feb 01, 2019		Soil	S19-Fe02495								X	X		X	X	X	X	X
8	TP25 0-0.1	Feb 01, 2019		Soil	S19-Fe02496									X				X		
9	TP27 0-0.1	Feb 01, 2019		Soil	S19-Fe02497									X			X	X		

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web : www.eurofins.com.au

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NATA # 1261
Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
10	TP24 0-0.1	Feb 01, 2019		Soil	S19-Fe02498	X														
11	TP24 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02499	X														
12	TP08 0-0.1	Feb 01, 2019		Soil	S19-Fe02500									X			X	X		
13	MW01	Feb 01, 2019		Water	S19-Fe02501		X	X		X	X	X			X	X	X		X	X
14	MW02	Feb 01, 2019		Water	S19-Fe02502		X	X		X	X	X			X	X	X		X	X
15	MW03	Feb 01, 2019		Water	S19-Fe02503		X	X		X	X	X			X	X	X		X	X
16	QA20190201	Feb 01, 2019		Water	S19-Fe02504		X	X		X	X	X			X	X	X		X	X
17	TRIP SPIKE	Feb 01, 2019		Water	S19-Fe02505												X			
18	TRIP BLANK	Feb 01, 2019		Water	S19-Fe02506												X			
19	RINSATE	Feb 01, 2019		Water	S19-Fe02507								X	X		X	X		X	X
20	TP23 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02508				X											
21	TP25 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02509				X											

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Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
22	TP27 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02510				X											
23	TP08 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02511				X											
24	TP29 0-0.1	Feb 01, 2019		Soil	S19-Fe02512				X											
25	TP29 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02513				X											
Test Counts						2	4	4	8	4	4	4	4	9	4	8	13	8	7	8

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Rohan Hammond**

Report **638673-S**
Project name MAMRE ROAD KEMPS CREEK
Project ID 54963
Received Date Feb 04, 2019

Client Sample ID			**TP10 0-0.1**	**TP10 0.4-0.5**	**TP14 0-0.1**	**TP19 0-0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe02489**	**S19-Fe02490**	**S19-Fe02491**	**S19-Fe02493**
Date Sampled			**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	66	-	73	67
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-

Client Sample ID			TP10 0-0.1	TP10 0.4-0.5	TP14 0-0.1	TP19 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe02489	S19-Fe02490	S19-Fe02491	S19-Fe02493
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	1	mg/kg	< 1	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	81	-	87	-
Tetrachloro-m-xylene (surr.)	1	%	80	-	86	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-	< 1
Pentachlorophenol	1	mg/kg	< 1	-	-	< 1
Tetrachlorophenols - Total	1	mg/kg	< 1	-	-	< 1
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	< 0.2
2-Nitrophenol	1.0	mg/kg	< 1	-	-	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	< 5
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	< 0.4
4-Nitrophenol	5	mg/kg	< 5	-	-	< 5
Dinoseb	20	mg/kg	< 20	-	-	< 20
Phenol	0.5	mg/kg	< 0.5	-	-	< 0.5
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	< 20
Phenol-d6 (surr.)	1	%	74	-	-	72
Polycyclic Aromatic Hydrocarbons (Trace level)						
Acenaphthene	0.005	mg/kg	< 0.005	-	-	< 0.005
Acenaphthylene	0.005	mg/kg	< 0.005	-	-	< 0.005
Anthracene	0.005	mg/kg	< 0.005	-	-	< 0.005
Benz(a)anthracene	0.005	mg/kg	< 0.005	-	-	< 0.005
Benzo(a)pyrene	0.005	mg/kg	< 0.005	-	-	< 0.005
Benzo(b&j)fluoranthene	0.005	mg/kg	< 0.005	-	-	< 0.005
Benzo(g.h.i)perylene	0.005	mg/kg	< 0.005	-	-	< 0.005
Benzo(k)fluoranthene	0.005	mg/kg	< 0.005	-	-	< 0.005
Chrysene	0.005	mg/kg	< 0.005	-	-	< 0.005
Dibenz(a.h)anthracene	0.005	mg/kg	< 0.005	-	-	< 0.005

Client Sample ID			TP10 0-0.1	TP10 0.4-0.5	TP14 0-0.1	TP19 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe02489	S19-Fe02490	S19-Fe02491	S19-Fe02493
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (Trace level)						
Fluoranthene	0.005	mg/kg	< 0.005	-	-	< 0.005
Fluorene	0.005	mg/kg	< 0.005	-	-	< 0.005
Indeno(1.2.3-cd)pyrene	0.005	mg/kg	< 0.005	-	-	< 0.005
Naphthalene	0.005	mg/kg	< 0.005	-	-	< 0.005
Phenanthrene	0.005	mg/kg	< 0.005	-	-	< 0.005
Pyrene	0.005	mg/kg	< 0.005	-	-	< 0.005
Total PAH*	0.005	mg/kg	< 0.005	-	-	< 0.005
2-Fluorobiphenyl (surr.)	1	%	76	-	-	93
p-Terphenyl-d14 (surr.)	1	%	69	-	-	65
Heavy Metals						
Arsenic	2	mg/kg	3.9	12	9.2	7.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	31	26	21
Copper	5	mg/kg	11	17	9.9	9.0
Lead	5	mg/kg	15	16	23	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	6.2	< 5	< 5
Zinc	5	mg/kg	17	13	28	26
% Moisture	1	%	11	25	6.9	13

Client Sample ID			TP23 0-0.1	TP25 0-0.1	TP27 0-0.1	TP08 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe02495	S19-Fe02496	S19-Fe02497	S19-Fe02500
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	-	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	66	-	73	65
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-

Client Sample ID			TP23 0-0.1	TP25 0-0.1	TP27 0-0.1	TP08 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Fe02495	S19-Fe02496	S19-Fe02497	S19-Fe02500
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.05	mg/kg	< 0.05	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	-	-
Dibutylchlorendate (surr.)	1	%	99	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	90	-	-	-
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
2.4.5-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.4.6-Trichlorophenol	1	mg/kg	< 1	-	-	-
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	-	-	-
4-Chloro-3-methylphenol	1	mg/kg	< 1	-	-	-
Pentachlorophenol	1	mg/kg	< 1	-	-	-
Tetrachlorophenols - Total	1	mg/kg	< 1	-	-	-
Total Halogenated Phenol*	1	mg/kg	< 1	-	-	-
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	-	-	-
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	-	-	-
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	-	-	-
2-Nitrophenol	1.0	mg/kg	< 1	-	-	-
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	-	-	-
2.4-Dinitrophenol	5	mg/kg	< 5	-	-	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	-	-	-
4-Nitrophenol	5	mg/kg	< 5	-	-	-
Dinoseb	20	mg/kg	< 20	-	-	-
Phenol	0.5	mg/kg	< 0.5	-	-	-
Total Non-Halogenated Phenol*	20	mg/kg	< 20	-	-	-
Phenol-d6 (surr.)	1	%	95	-	-	-

Client Sample ID			TP23 0-0.1	TP25 0-0.1	TP27 0-0.1	TP08 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe02495**	**S19-Fe02496**	**S19-Fe02497**	**S19-Fe02500**
Date Sampled			**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons (Trace level)						
Acenaphthene	0.005	mg/kg	< 0.005	-	-	-
Acenaphthylene	0.005	mg/kg	< 0.005	-	-	-
Anthracene	0.005	mg/kg	< 0.005	-	-	-
Benz(a)anthracene	0.005	mg/kg	< 0.005	-	-	-
Benzo(a)pyrene	0.005	mg/kg	< 0.005	-	-	-
Benzo(b&j)fluoranthene	0.005	mg/kg	< 0.005	-	-	-
Benzo(g.h.i)perylene	0.005	mg/kg	< 0.005	-	-	-
Benzo(k)fluoranthene	0.005	mg/kg	< 0.005	-	-	-
Chrysene	0.005	mg/kg	< 0.005	-	-	-
Dibenz(a.h)anthracene	0.005	mg/kg	< 0.005	-	-	-
Fluoranthene	0.005	mg/kg	< 0.005	-	-	-
Fluorene	0.005	mg/kg	< 0.005	-	-	-
Indeno(1.2.3-cd)pyrene	0.005	mg/kg	< 0.005	-	-	-
Naphthalene	0.005	mg/kg	< 0.005	-	-	-
Phenanthrene	0.005	mg/kg	< 0.005	-	-	-
Pyrene	0.005	mg/kg	< 0.005	-	-	-
Total PAH*	0.005	mg/kg	< 0.005	-	-	-
2-Fluorobiphenyl (surr.)	1	%	77	-	-	-
p-Terphenyl-d14 (surr.)	1	%	79	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	7.6	4.9	14	6.1
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	26	21	42	15
Copper	5	mg/kg	8.2	36	13	17
Lead	5	mg/kg	20	21	40	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.4	6.2	10	10
Zinc	5	mg/kg	15	60	40	26
% Moisture	1	%	9.0	10	5.9	17

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Organochlorine Pesticides	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polycyclic Aromatic Hydrocarbons (Trace level)	Melbourne	Feb 07, 2019	0 Days
- Method:			
Metals M8	Melbourne	Feb 07, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Feb 07, 2019	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
% Moisture	Melbourne	Feb 04, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	TP10 0-0.1	Feb 01, 2019		Soil	S19-Fe02489								X	X		X	X	X		X
2	TP10 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02490									X				X		
3	TP14 0-0.1	Feb 01, 2019		Soil	S19-Fe02491								X	X			X	X	X	
4	TP14 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02492				X											
5	TP19 0-0.1	Feb 01, 2019		Soil	S19-Fe02493									X		X	X	X		X
6	TP19 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02494				X											
7	TP23 0-0.1	Feb 01, 2019		Soil	S19-Fe02495								X	X		X	X	X	X	X
8	TP25 0-0.1	Feb 01, 2019		Soil	S19-Fe02496									X				X		
9	TP27 0-0.1	Feb 01, 2019		Soil	S19-Fe02497									X			X	X		

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Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
10	TP24 0-0.1	Feb 01, 2019		Soil	S19-Fe02498	X														
11	TP24 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02499	X														
12	TP08 0-0.1	Feb 01, 2019		Soil	S19-Fe02500									X			X	X		
13	MW01	Feb 01, 2019		Water	S19-Fe02501		X	X		X	X	X			X	X	X		X	X
14	MW02	Feb 01, 2019		Water	S19-Fe02502		X	X		X	X	X			X	X	X		X	X
15	MW03	Feb 01, 2019		Water	S19-Fe02503		X	X		X	X	X			X	X	X		X	X
16	QA20190201	Feb 01, 2019		Water	S19-Fe02504		X	X		X	X	X			X	X	X		X	X
17	TRIP SPIKE	Feb 01, 2019		Water	S19-Fe02505												X			
18	TRIP BLANK	Feb 01, 2019		Water	S19-Fe02506												X			
19	RINSATE	Feb 01, 2019		Water	S19-Fe02507								X	X		X	X		X	X
20	TP23 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02508				X											
21	TP25 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02509				X											

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Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
22	TP27 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02510				X											
23	TP08 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02511				X											
24	TP29 0-0.1	Feb 01, 2019		Soil	S19-Fe02512				X											
25	TP29 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02513				X											
Test Counts						2	4	4	8	4	4	4	4	9	4	8	13	8	7	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 1			1	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
2-Nitrophenol	mg/kg	< 1			1.0	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons (Trace level)							
Total PAH*	mg/kg	< 0			0.005	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	105			70-130	Pass	
TRH C10-C14	%	88			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	116			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	106			70-130	Pass	
m&p-Xylenes	%	92			70-130	Pass	
Xylenes - Total	%	97			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	102			70-130	Pass	
TRH C6-C10	%	110			70-130	Pass	
TRH >C10-C16	%	87			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	112			70-130	Pass	
4.4'-DDD	%	84			70-130	Pass	
4.4'-DDE	%	118			70-130	Pass	
a-BHC	%	101			70-130	Pass	
Aldrin	%	104			70-130	Pass	
b-BHC	%	87			70-130	Pass	
d-BHC	%	96			70-130	Pass	
Dieldrin	%	103			70-130	Pass	
Endosulfan I	%	101			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	%	110			70-130	Pass	
Endosulfan sulphate	%	77			70-130	Pass	
Endrin	%	83			70-130	Pass	
Endrin aldehyde	%	88			70-130	Pass	
Endrin ketone	%	87			70-130	Pass	
g-BHC (Lindane)	%	117			70-130	Pass	
Heptachlor	%	76			70-130	Pass	
Heptachlor epoxide	%	89			70-130	Pass	
Hexachlorobenzene	%	122			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	99			30-130	Pass	
2.4-Dichlorophenol	%	96			30-130	Pass	
2.4.5-Trichlorophenol	%	95			30-130	Pass	
2.4.6-Trichlorophenol	%	106			30-130	Pass	
2.6-Dichlorophenol	%	96			30-130	Pass	
4-Chloro-3-methylphenol	%	96			30-130	Pass	
Pentachlorophenol	%	98			30-130	Pass	
Tetrachlorophenols - Total	%	98			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	34			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	74			30-130	Pass	
2-Methylphenol (o-Cresol)	%	102			30-130	Pass	
2-Nitrophenol	%	99			30-130	Pass	
2.4-Dimethylphenol	%	120			30-130	Pass	
2.4-Dinitrophenol	%	57			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	104			30-130	Pass	
4-Nitrophenol	%	108			30-130	Pass	
Dinoseb	%	87			30-130	Pass	
Phenol	%	96			30-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	120			80-120	Pass	
Cadmium	%	107			80-120	Pass	
Chromium	%	112			80-120	Pass	
Copper	%	119			80-120	Pass	
Lead	%	118			80-120	Pass	
Mercury	%	101			75-125	Pass	
Nickel	%	116			80-120	Pass	
Zinc	%	115			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	M19-Fe09278	NCP	%	111			70-130	Pass	
4.4'-DDD	M19-Fe09278	NCP	%	75			70-130	Pass	
4.4'-DDE	M19-Fe09278	NCP	%	109			70-130	Pass	
4.4'-DDT	M19-Fe05021	NCP	%	71			70-130	Pass	
a-BHC	M19-Fe09278	NCP	%	105			70-130	Pass	
Aldrin	M19-Fe09278	NCP	%	111			70-130	Pass	
b-BHC	M19-Fe09278	NCP	%	95			70-130	Pass	
d-BHC	M19-Fe09278	NCP	%	107			70-130	Pass	
Dieldrin	M19-Fe09278	NCP	%	116			70-130	Pass	
Endosulfan I	M19-Fe09278	NCP	%	89			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	M19-Fe09278	NCP	%	101			70-130	Pass	
Endosulfan sulphate	M19-Fe09278	NCP	%	80			70-130	Pass	
Endrin	M19-Fe09278	NCP	%	78			70-130	Pass	
Endrin aldehyde	M19-Fe09278	NCP	%	85			70-130	Pass	
Endrin ketone	M19-Fe09278	NCP	%	103			70-130	Pass	
g-BHC (Lindane)	M19-Fe09278	NCP	%	122			70-130	Pass	
Heptachlor	M19-Fe09278	NCP	%	82			70-130	Pass	
Heptachlor epoxide	M19-Fe09278	NCP	%	100			70-130	Pass	
Hexachlorobenzene	M19-Fe09278	NCP	%	121			70-130	Pass	
Methoxychlor	M19-Fe05021	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	M19-Fe04529	NCP	%	98			30-130	Pass	
2.4-Dichlorophenol	M19-Fe04529	NCP	%	95			30-130	Pass	
2.4.5-Trichlorophenol	M19-Fe04529	NCP	%	94			30-130	Pass	
2.4.6-Trichlorophenol	M19-Fe04529	NCP	%	98			30-130	Pass	
2.6-Dichlorophenol	M19-Fe04529	NCP	%	96			30-130	Pass	
4-Chloro-3-methylphenol	M19-Fe04529	NCP	%	98			30-130	Pass	
Pentachlorophenol	M19-Fe04529	NCP	%	39			30-130	Pass	
Tetrachlorophenols - Total	M19-Fe04529	NCP	%	92			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	M19-Fe03655	NCP	%	75			30-130	Pass	
2-Methylphenol (o-Cresol)	M19-Fe04529	NCP	%	91			30-130	Pass	
2-Nitrophenol	M19-Fe04529	NCP	%	101			30-130	Pass	
2.4-Dimethylphenol	M19-Fe04529	NCP	%	72			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M19-Fe04529	NCP	%	97			30-130	Pass	
4-Nitrophenol	M19-Fe04529	NCP	%	94			30-130	Pass	
Dinoseb	M19-Fe04529	NCP	%	37			30-130	Pass	
Phenol	M19-Fe04529	NCP	%	98			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M19-Fe00618	NCP	%	100			75-125	Pass	
Cadmium	M19-Fe00618	NCP	%	91			75-125	Pass	
Chromium	M19-Fe00618	NCP	%	103			75-125	Pass	
Copper	M19-Fe00618	NCP	%	102			75-125	Pass	
Lead	M19-Fe00618	NCP	%	100			75-125	Pass	
Mercury	M19-Fe00618	NCP	%	92			70-130	Pass	
Nickel	M19-Fe00618	NCP	%	101			75-125	Pass	
Zinc	M19-Fe00618	NCP	%	102			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	M19-Fe04529	NCP	%	105			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M19-Fe04529	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons (Trace level)				Result 1					
Acenaphthene	S19-Fe02493	CP	%	112			70-130	Pass	
Acenaphthylene	S19-Fe02493	CP	%	105			70-130	Pass	
Anthracene	S19-Fe02493	CP	%	92			70-130	Pass	
Benz(a)anthracene	S19-Fe02493	CP	%	113			70-130	Pass	
Benzo(a)pyrene	S19-Fe02493	CP	%	128			70-130	Pass	
Benzo(b&j)fluoranthene	S19-Fe02493	CP	%	74			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benzo(g.h.i)perylene	S19-Fe02493	CP	%	93			70-130	Pass	
Benzo(k)fluoranthene	S19-Fe02493	CP	%	97			70-130	Pass	
Chrysene	S19-Fe02493	CP	%	118			70-130	Pass	
Dibenz(a.h)anthracene	S19-Fe02493	CP	%	96			70-130	Pass	
Fluoranthene	S19-Fe02493	CP	%	94			70-130	Pass	
Fluorene	S19-Fe02493	CP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S19-Fe02493	CP	%	119			70-130	Pass	
Naphthalene	S19-Fe02493	CP	%	96			70-130	Pass	
Phenanthrene	S19-Fe02493	CP	%	103			70-130	Pass	
Pyrene	S19-Fe02493	CP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Fe02495	CP	%	87			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Fe02495	CP	%	79			70-130	Pass	
Toluene	S19-Fe02495	CP	%	76			70-130	Pass	
Ethylbenzene	S19-Fe02495	CP	%	86			70-130	Pass	
m&p-Xylenes	S19-Fe02495	CP	%	71			70-130	Pass	
o-Xylene	S19-Fe02495	CP	%	86			70-130	Pass	
Xylenes - Total	S19-Fe02495	CP	%	76			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Fe02495	CP	%	82			70-130	Pass	
TRH C6-C10	S19-Fe02495	CP	%	86			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M19-Fe01961	NCP	mg/kg	2.5	2.1	18	30%	Pass	
Cadmium	M19-Fe01961	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M19-Fe01961	NCP	mg/kg	97	89	9.0	30%	Pass	
Copper	M19-Fe01961	NCP	mg/kg	180	160	7.0	30%	Pass	
Lead	M19-Fe01961	NCP	mg/kg	63	56	13	30%	Pass	
Mercury	M19-Fe01961	NCP	mg/kg	0.7	0.6	11	30%	Pass	
Nickel	M19-Fe01961	NCP	mg/kg	28	24	15	30%	Pass	
Zinc	M19-Fe01961	NCP	mg/kg	200	180	12	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	M19-Fe06335	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M19-Fe06335	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M19-Fe06335	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M19-Fe06335	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M19-Fe06335	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M19-Fe06335	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe02491	CP	%	6.9	6.4	7.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Fe02493	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Fe02493	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-Fe02493	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-Fe02493	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-Fe02493	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-Fe02493	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-Fe02493	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Fe02493	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-Fe02493	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Site Number 18217

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The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Rohan Hammond**

Report **638673-W**
Project name MAMRE ROAD KEMPS CREEK
Project ID 54963
Received Date Feb 04, 2019

Client Sample ID			**MW01**	**MW02**	**MW03**	**QA20190201**
Sample Matrix			**Water**	**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe02501**	**S19-Fe02502**	**S19-Fe02503**	**S19-Fe02504**
Date Sampled			**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	0.17	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	0.4	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	0.2	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	0.77	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	84	63	82	86
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	0.24	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	0.24	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	0.4	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	0.74	< 0.1	< 0.1
Phenols (Halogenated)						
2-Chlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.6-Dichlorophenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Total Halogenated Phenol*	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			MW01	MW02	MW03	QA20190201
Sample Matrix			Water	Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe02501	S19-Fe02502	S19-Fe02503	S19-Fe02504
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2-Nitrophenol	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
2.4-Dimethylphenol	0.003	mg/L	< 0.003	< 0.003	< 0.003	< 0.003
2.4-Dinitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	< 0.006	< 0.006	< 0.006	< 0.006
4-Nitrophenol	0.03	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
Dinoseb	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	0.003	mg/L	< 0.003	0.003	< 0.003	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Phenol-d6 (surr.)	1	%	65	72	82	98
Polycyclic Aromatic Hydrocarbons (Trace level)						
Acenaphthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Acenaphthylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benz(a)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(g.h.i)perylene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Chrysene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Dibenz(a.h)anthracene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluoranthene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Fluorene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Indeno(1.2.3-cd)pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Naphthalene	0.00001	mg/L	< 0.00001	0.00055	0.00016	< 0.00001
Phenanthrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Pyrene	0.00001	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Total PAH*	0.00001	mg/L	< 0.00001	0.00055	0.00016	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	93	77	83	99
p-Terphenyl-d14 (surr.)	1	%	130	88	105	131
Chloride	1	mg/L	8400	9300	14000	8300
Conductivity (at 25°C)	1	uS/cm	27000	21000	40000	27000
pH (at 25°C)	0.1	pH Units	7.2	5.8	7.2	7.3
Sulphate (as SO4)	5	mg/L	850	820	1100	850
Alkalinity (speciated)						
Total Alkalinity (as CaCO3)	20	mg/L	1100	1000	1300	1100
Heavy Metals						
Arsenic (filtered)	0.001	mg/L	0.003	0.002	< 0.001	0.003
Cadmium (filtered)	0.0002	mg/L	0.0003	< 0.0002	< 0.0002	0.0003
Chromium (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Copper (filtered)	0.001	mg/L	< 0.001	0.003	0.001	0.003
Lead (filtered)	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Mercury (filtered)	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel (filtered)	0.001	mg/L	0.008	0.012	0.004	0.008
Zinc (filtered)	0.005	mg/L	0.020	0.009	0.023	0.041

Client Sample ID			TRIP SPIKE	TRIP BLANK	RINSATE
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe02505	S19-Fe02506	S19-Fe02507
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	0.02	mg/L	-	-	< 0.02
TRH C10-C14	0.05	mg/L	-	-	< 0.05
TRH C15-C28	0.1	mg/L	-	-	< 0.1
TRH C29-C36	0.1	mg/L	-	-	< 0.1
TRH C10-36 (Total)	0.1	mg/L	-	-	< 0.1
BTEX					
Comments			R20		
Benzene	0.001	mg/L	87	< 0.001	< 0.001
Toluene	0.001	mg/L	96	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	93	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	93	< 0.002	< 0.002
o-Xylene	0.001	mg/L	100	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	95	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	95	80	80
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.01	mg/L	-	-	< 0.01
TRH C6-C10	0.02	mg/L	-	-	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	-	-	< 0.02
TRH >C10-C16	0.05	mg/L	-	-	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	-	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	-	< 0.1
Organochlorine Pesticides					
Chlordanes - Total	0.001	mg/L	-	-	< 0.001
4.4'-DDD	0.0001	mg/L	-	-	< 0.0001
4.4'-DDE	0.0001	mg/L	-	-	< 0.0001
4.4'-DDT	0.0001	mg/L	-	-	< 0.0001
a-BHC	0.0001	mg/L	-	-	< 0.0001
Aldrin	0.0001	mg/L	-	-	< 0.0001
b-BHC	0.0001	mg/L	-	-	< 0.0001
d-BHC	0.0001	mg/L	-	-	< 0.0001
Dieldrin	0.0001	mg/L	-	-	< 0.0001
Endosulfan I	0.0001	mg/L	-	-	< 0.0001
Endosulfan II	0.0001	mg/L	-	-	< 0.0001
Endosulfan sulphate	0.0001	mg/L	-	-	< 0.0001
Endrin	0.0001	mg/L	-	-	< 0.0001
Endrin aldehyde	0.0001	mg/L	-	-	< 0.0001
Endrin ketone	0.0001	mg/L	-	-	< 0.0001
g-BHC (Lindane)	0.0001	mg/L	-	-	< 0.0001
Heptachlor	0.0001	mg/L	-	-	< 0.0001
Heptachlor epoxide	0.0001	mg/L	-	-	< 0.0001
Hexachlorobenzene	0.0001	mg/L	-	-	< 0.0001
Methoxychlor	0.0001	mg/L	-	-	< 0.0001
Toxaphene	0.01	mg/L	-	-	< 0.01
Aldrin and Dieldrin (Total)*	0.0001	mg/L	-	-	< 0.0001
DDT + DDE + DDD (Total)*	0.0001	mg/L	-	-	< 0.0001
Vic EPA IWRG 621 OCP (Total)*	0.001	mg/L	-	-	< 0.001
Vic EPA IWRG 621 Other OCP (Total)*	0.001	mg/L	-	-	< 0.001

Client Sample ID			TRIP SPIKE	TRIP BLANK	RINSATE
Sample Matrix			Water	Water	Water
Eurofins | mgt Sample No.			S19-Fe02505	S19-Fe02506	S19-Fe02507
Date Sampled			Feb 01, 2019	Feb 01, 2019	Feb 01, 2019
Test/Reference	LOR	Unit			
Organochlorine Pesticides					
Dibutylchlorendate (surr.)	1	%	-	-	133
Tetrachloro-m-xylene (surr.)	1	%	-	-	114
Phenols (Halogenated)					
2-Chlorophenol	0.003	mg/L	-	-	< 0.003
2.4-Dichlorophenol	0.003	mg/L	-	-	< 0.003
2.4.5-Trichlorophenol	0.01	mg/L	-	-	< 0.01
2.4.6-Trichlorophenol	0.01	mg/L	-	-	< 0.01
2.6-Dichlorophenol	0.003	mg/L	-	-	< 0.003
4-Chloro-3-methylphenol	0.01	mg/L	-	-	< 0.01
Pentachlorophenol	0.01	mg/L	-	-	< 0.01
Tetrachlorophenols - Total	0.03	mg/L	-	-	< 0.03
Total Halogenated Phenol*	0.01	mg/L	-	-	< 0.01
Phenols (non-Halogenated)					
2-Cyclohexyl-4.6-dinitrophenol	0.1	mg/L	-	-	< 0.1
2-Methyl-4.6-dinitrophenol	0.03	mg/L	-	-	< 0.03
2-Methylphenol (o-Cresol)	0.003	mg/L	-	-	< 0.003
2-Nitrophenol	0.01	mg/L	-	-	< 0.01
2.4-Dimethylphenol	0.003	mg/L	-	-	< 0.003
2.4-Dinitrophenol	0.03	mg/L	-	-	< 0.03
3&4-Methylphenol (m&p-Cresol)	0.006	mg/L	-	-	< 0.006
4-Nitrophenol	0.03	mg/L	-	-	< 0.03
Dinoseb	0.1	mg/L	-	-	< 0.1
Phenol	0.003	mg/L	-	-	< 0.003
Total Non-Halogenated Phenol*	0.1	mg/L	-	-	< 0.1
Phenol-d6 (surr.)	1	%	-	-	100
Polycyclic Aromatic Hydrocarbons (Trace level)					
Acenaphthene	0.00001	mg/L	-	-	< 0.00001
Acenaphthylene	0.00001	mg/L	-	-	< 0.00001
Anthracene	0.00001	mg/L	-	-	< 0.00001
Benz(a)anthracene	0.00001	mg/L	-	-	< 0.00001
Benzo(a)pyrene	0.00001	mg/L	-	-	< 0.00001
Benzo(b&j)fluoranthene	0.00001	mg/L	-	-	< 0.00001
Benzo(g.h.i)perylene	0.00001	mg/L	-	-	< 0.00001
Benzo(k)fluoranthene	0.00001	mg/L	-	-	< 0.00001
Chrysene	0.00001	mg/L	-	-	< 0.00001
Dibenz(a.h)anthracene	0.00001	mg/L	-	-	< 0.00001
Fluoranthene	0.00001	mg/L	-	-	< 0.00001
Fluorene	0.00001	mg/L	-	-	< 0.00001
Indeno(1.2.3-cd)pyrene	0.00001	mg/L	-	-	< 0.00001
Naphthalene	0.00001	mg/L	-	-	< 0.00001
Phenanthrene	0.00001	mg/L	-	-	< 0.00001
Pyrene	0.00001	mg/L	-	-	< 0.00001
Total PAH*	0.00001	mg/L	-	-	< 0.00001
2-Fluorobiphenyl (surr.)	1	%	-	-	108
p-Terphenyl-d14 (surr.)	1	%	-	-	123

Client Sample ID			TRIP SPIKE	TRIP BLANK	RINSATE
Sample Matrix			**Water**	**Water**	**Water**
Eurofins | mgt Sample No.			**S19-Fe02505**	**S19-Fe02506**	**S19-Fe02507**
Date Sampled			**Feb 01, 2019**	**Feb 01, 2019**	**Feb 01, 2019**
Test/Reference	LOR	Unit			
Heavy Metals					
Arsenic	0.001	mg/L	-	-	< 0.001
Cadmium	0.0002	mg/L	-	-	< 0.0002
Chromium	0.001	mg/L	-	-	< 0.001
Copper	0.001	mg/L	-	-	< 0.001
Lead	0.001	mg/L	-	-	< 0.001
Mercury	0.0001	mg/L	-	-	< 0.0001
Nickel	0.001	mg/L	-	-	< 0.001
Zinc	0.005	mg/L	-	-	< 0.005

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Feb 07, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Feb 07, 2019	7 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Melbourne	Feb 07, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Organochlorine Pesticides	Melbourne	Feb 07, 2019	7 Day
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Polycyclic Aromatic Hydrocarbons (Trace level)	Melbourne	Feb 07, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Chloride	Melbourne	Feb 07, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
Conductivity (at 25°C)	Melbourne	Feb 06, 2019	28 Day
- Method: LTM-INO-4030 Conductivity			
pH (at 25°C)	Melbourne	Feb 06, 2019	0 Hours
- Method: LTM-GEN-7090 pH in water by ISE			
Sulphate (as SO4)	Melbourne	Feb 07, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Alkalinity (speciated)	Melbourne	Feb 06, 2019	14 Day
- Method: APHA 2320 Alkalinity by Titration			
Metals M8	Melbourne	Feb 06, 2019	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Metals M8 filtered	Melbourne	Feb 06, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Phenols (IWRG 621)			
Phenols (Halogenated)	Melbourne	Feb 07, 2019	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Melbourne	Feb 07, 2019	7 Day
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
External Laboratory																				
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**															
1	TP10 0-0.1	Feb 01, 2019		Soil	S19-Fe02489								X	X		X	X	X		X
2	TP10 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02490									X				X		
3	TP14 0-0.1	Feb 01, 2019		Soil	S19-Fe02491								X	X			X	X	X	
4	TP14 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02492				X											
5	TP19 0-0.1	Feb 01, 2019		Soil	S19-Fe02493									X		X	X	X		X
6	TP19 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02494				X											
7	TP23 0-0.1	Feb 01, 2019		Soil	S19-Fe02495								X	X		X	X	X	X	X
8	TP25 0-0.1	Feb 01, 2019		Soil	S19-Fe02496									X				X		
9	TP27 0-0.1	Feb 01, 2019		Soil	S19-Fe02497									X			X	X		

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Project ID: 54963

Order No.:
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Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
10	TP24 0-0.1	Feb 01, 2019		Soil	S19-Fe02498	X														
11	TP24 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02499	X														
12	TP08 0-0.1	Feb 01, 2019		Soil	S19-Fe02500									X			X	X		
13	MW01	Feb 01, 2019		Water	S19-Fe02501		X	X		X	X	X			X	X	X		X	X
14	MW02	Feb 01, 2019		Water	S19-Fe02502		X	X		X	X	X			X	X	X		X	X
15	MW03	Feb 01, 2019		Water	S19-Fe02503		X	X		X	X	X			X	X	X		X	X
16	QA20190201	Feb 01, 2019		Water	S19-Fe02504		X	X		X	X	X			X	X	X		X	X
17	TRIP SPIKE	Feb 01, 2019		Water	S19-Fe02505												X			
18	TRIP BLANK	Feb 01, 2019		Water	S19-Fe02506												X			
19	RINSATE	Feb 01, 2019		Water	S19-Fe02507								X	X		X	X		X	X
20	TP23 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02508				X											
21	TP25 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02509				X											

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Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 638673
Phone: 02 8245 0300
Fax:

Received: Feb 4, 2019 11:32 AM
Due: Feb 11, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						CANCELLED	Chloride	Conductivity (at 25°C)	HOLD	pH (at 25°C)	Sulphate (as SO4)	Total Alkalinity (as CaCO3)	Organochlorine Pesticides	Metals M8	Metals M8 filtered	Phenols (IWRG 621)	BTEX	Moisture Set	Total Recoverable Hydrocarbons	Polycyclic Aromatic Hydrocarbons (Trace level)
Melbourne Laboratory - NATA Site # 1254 & 14271							X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217						X														
Brisbane Laboratory - NATA Site # 20794																				
Perth Laboratory - NATA Site # 23736																				
22	TP27 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02510				X											
23	TP08 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02511				X											
24	TP29 0-0.1	Feb 01, 2019		Soil	S19-Fe02512				X											
25	TP29 0.4-0.5	Feb 01, 2019		Soil	S19-Fe02513				X											
Test Counts						2	4	4	8	4	4	4	4	9	4	8	13	8	7	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.001			0.001	Pass	
4.4'-DDD	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDE	mg/L	< 0.0001			0.0001	Pass	
4.4'-DDT	mg/L	< 0.0001			0.0001	Pass	
a-BHC	mg/L	< 0.0001			0.0001	Pass	
Aldrin	mg/L	< 0.0001			0.0001	Pass	
b-BHC	mg/L	< 0.0001			0.0001	Pass	
d-BHC	mg/L	< 0.0001			0.0001	Pass	
Dieldrin	mg/L	< 0.0001			0.0001	Pass	
Endosulfan I	mg/L	< 0.0001			0.0001	Pass	
Endosulfan II	mg/L	< 0.0001			0.0001	Pass	
Endosulfan sulphate	mg/L	< 0.0001			0.0001	Pass	
Endrin	mg/L	< 0.0001			0.0001	Pass	
Endrin aldehyde	mg/L	< 0.0001			0.0001	Pass	
Endrin ketone	mg/L	< 0.0001			0.0001	Pass	
g-BHC (Lindane)	mg/L	< 0.0001			0.0001	Pass	
Heptachlor	mg/L	< 0.0001			0.0001	Pass	
Heptachlor epoxide	mg/L	< 0.0001			0.0001	Pass	
Hexachlorobenzene	mg/L	< 0.0001			0.0001	Pass	
Methoxychlor	mg/L	< 0.0001			0.0001	Pass	
Toxaphene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/L	< 0.003			0.003	Pass	
2.4-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
2.4.5-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.4.6-Trichlorophenol	mg/L	< 0.01			0.01	Pass	
2.6-Dichlorophenol	mg/L	< 0.003			0.003	Pass	
4-Chloro-3-methylphenol	mg/L	< 0.01			0.01	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pentachlorophenol	mg/L	< 0.01			0.01	Pass	
Tetrachlorophenols - Total	mg/L	< 0.03			0.03	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/L	< 0.1			0.1	Pass	
2-Methyl-4.6-dinitrophenol	mg/L	< 0.03			0.03	Pass	
2-Methylphenol (o-Cresol)	mg/L	< 0.003			0.003	Pass	
2-Nitrophenol	mg/L	< 0.01			0.01	Pass	
2.4-Dimethylphenol	mg/L	< 0.003			0.003	Pass	
2.4-Dinitrophenol	mg/L	< 0.03			0.03	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/L	< 0.006			0.006	Pass	
4-Nitrophenol	mg/L	< 0.03			0.03	Pass	
Dinoseb	mg/L	< 0.1			0.1	Pass	
Phenol	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons (Trace level)							
Acenaphthene	mg/L	< 0.00001			0.00001	Pass	
Acenaphthylene	mg/L	< 0.00001			0.00001	Pass	
Anthracene	mg/L	< 0.00001			0.00001	Pass	
Benz(a)anthracene	mg/L	< 0.00001			0.00001	Pass	
Benzo(a)pyrene	mg/L	< 0.00001			0.00001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.00001			0.00001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Chrysene	mg/L	< 0.00001			0.00001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.00001			0.00001	Pass	
Fluoranthene	mg/L	< 0.00001			0.00001	Pass	
Fluorene	mg/L	< 0.00001			0.00001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.00001			0.00001	Pass	
Naphthalene	mg/L	< 0.00001			0.00001	Pass	
Phenanthrene	mg/L	< 0.00001			0.00001	Pass	
Pyrene	mg/L	< 0.00001			0.00001	Pass	
Total PAH*	mg/L	< 0.00001			0.00001	Pass	
Method Blank							
Chloride	mg/L	< 1			1	Pass	
Sulphate (as SO4)	mg/L	< 5			5	Pass	
Method Blank							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	mg/L	< 20			20	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Arsenic (filtered)	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Cadmium (filtered)	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Chromium (filtered)	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Copper (filtered)	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Lead (filtered)	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Mercury (filtered)	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel (filtered)	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Zinc (filtered)	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	76			70-130	Pass	
TRH C10-C14	%	105			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	85			70-130	Pass	
Toluene	%	98			70-130	Pass	
Ethylbenzene	%	97			70-130	Pass	
m&p-Xylenes	%	97			70-130	Pass	
Xylenes - Total	%	98			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	73			70-130	Pass	
TRH >C10-C16	%	103			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	78			30-130	Pass	
2.4-Dichlorophenol	%	67			30-130	Pass	
2.4.5-Trichlorophenol	%	64			30-130	Pass	
2.4.6-Trichlorophenol	%	61			30-130	Pass	
2.6-Dichlorophenol	%	65			30-130	Pass	
4-Chloro-3-methylphenol	%	75			30-130	Pass	
Pentachlorophenol	%	46			30-130	Pass	
Tetrachlorophenols - Total	%	58			30-130	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	%	74			30-130	Pass	
2-Methyl-4.6-dinitrophenol	%	87			30-130	Pass	
2-Methylphenol (o-Cresol)	%	59			30-130	Pass	
2-Nitrophenol	%	73			30-130	Pass	
2.4-Dinitrophenol	%	50			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	%	66			30-130	Pass	
4-Nitrophenol	%	71			30-130	Pass	
Dinoseb	%	88			30-130	Pass	
Phenol	%	62			30-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons (Trace level)							
Acenaphthene	%	113			70-130	Pass	
Acenaphthylene	%	100			70-130	Pass	
Anthracene	%	88			70-130	Pass	
Benz(a)anthracene	%	85			70-130	Pass	
Benzo(a)pyrene	%	94			70-130	Pass	
Benzo(b&j)fluoranthene	%	89			70-130	Pass	
Benzo(g.h.i)perylene	%	82			70-130	Pass	
Benzo(k)fluoranthene	%	91			70-130	Pass	
Chrysene	%	88			70-130	Pass	
Dibenz(a.h)anthracene	%	94			70-130	Pass	
Fluoranthene	%	73			70-130	Pass	
Fluorene	%	97			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Indeno(1.2.3-cd)pyrene	%	100			70-130	Pass	
Naphthalene	%	97			70-130	Pass	
Phenanthrene	%	78			70-130	Pass	
Pyrene	%	75			70-130	Pass	
LCS - % Recovery							
Chloride	%	106			70-130	Pass	
Sulphate (as SO4)	%	101			70-130	Pass	
LCS - % Recovery							
Alkalinity (speciated)							
Total Alkalinity (as CaCO3)	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	108			80-120	Pass	
Arsenic (filtered)	%	93			80-120	Pass	
Cadmium	%	88			80-120	Pass	
Cadmium (filtered)	%	93			80-120	Pass	
Chromium	%	86			80-120	Pass	
Chromium (filtered)	%	93			80-120	Pass	
Copper	%	83			80-120	Pass	
Copper (filtered)	%	93			80-120	Pass	
Lead	%	89			80-120	Pass	
Lead (filtered)	%	95			80-120	Pass	
Mercury	%	83			75-125	Pass	
Mercury (filtered)	%	93			70-130	Pass	
Nickel	%	84			80-120	Pass	
Nickel (filtered)	%	94			80-120	Pass	
Zinc	%	84			80-120	Pass	
Zinc (filtered)	%	97			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S19-Fe06145	NCP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S19-Fe06145	NCP	%	85			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	M19-Fe01987	NCP	%	104			70-130	Pass	
Sulphate (as SO4)	M19-Fe02928	NCP	%	137			70-130	Fail	Q08
Spike - % Recovery									
Alkalinity (speciated)				Result 1					
Total Alkalinity (as CaCO3)	M19-Fe02432	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic (filtered)	S19-Fe02502	CP	%	100			70-130	Pass	
Cadmium (filtered)	S19-Fe02502	CP	%	87			70-130	Pass	
Chromium (filtered)	S19-Fe02502	CP	%	94			70-130	Pass	
Copper (filtered)	S19-Fe02502	CP	%	86			70-130	Pass	
Lead (filtered)	S19-Fe02502	CP	%	91			70-130	Pass	
Mercury (filtered)	S19-Fe02502	CP	%	89			70-130	Pass	
Nickel (filtered)	S19-Fe02502	CP	%	88			70-130	Pass	
Zinc (filtered)	S19-Fe02502	CP	%	88			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
TRH C6-C9	S19-Fe02503	CP	%	73			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Fe02503	CP	%	84			70-130	Pass	
Toluene	S19-Fe02503	CP	%	95			70-130	Pass	
Ethylbenzene	S19-Fe02503	CP	%	91			70-130	Pass	
m&p-Xylenes	S19-Fe02503	CP	%	92			70-130	Pass	
o-Xylene	S19-Fe02503	CP	%	94			70-130	Pass	
Xylenes - Total	S19-Fe02503	CP	%	93			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Fe02503	CP	%	91			70-130	Pass	
TRH C6-C10	S19-Fe02503	CP	%	71			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S18-Se37052	NCP	%	108			75-125	Pass	
Cadmium	S18-Se37052	NCP	%	95			75-125	Pass	
Chromium	S18-Se37052	NCP	%	102			75-125	Pass	
Copper	S18-Se37052	NCP	%	95			75-125	Pass	
Lead	S18-Se37052	NCP	%	96			75-125	Pass	
Mercury	S18-Se37052	NCP	%	94			70-130	Pass	
Nickel	S18-Se37052	NCP	%	98			75-125	Pass	
Zinc	S18-Se37052	NCP	%	51			75-125	Fail	Q08
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S19-Fe06144	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S19-Fe06144	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S19-Fe06144	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S19-Fe06144	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S19-Fe06144	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S19-Fe06144	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dichlorophenol	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4.5-Trichlorophenol	S19-Fe04220	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4.6-Trichlorophenol	S19-Fe04220	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.6-Dichlorophenol	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
4-Chloro-3-methylphenol	S19-Fe04220	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Pentachlorophenol	S19-Fe04220	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Tetrachlorophenols - Total	S19-Fe04220	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S19-Fe04220	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S19-Fe04220	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2-Nitrophenol	S19-Fe04220	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
2.4-Dimethylphenol	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
2.4-Dinitrophenol	S19-Fe04220	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S19-Fe04220	NCP	mg/L	< 0.006	< 0.006	<1	30%	Pass	
4-Nitrophenol	S19-Fe04220	NCP	mg/L	< 0.03	< 0.03	<1	30%	Pass	

Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
Dinoseb	S19-Fe04220	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Phenol	S19-Fe04220	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Fe02501	CP	mg/L	8400	8700	4.0	30%	Pass	
Sulphate (as SO4)	S19-Fe02501	CP	mg/L	850	870	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Fe02502	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S19-Fe02502	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S19-Fe02502	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Fe02502	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S19-Fe02502	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic (filtered)	S19-Fe02502	CP	mg/L	0.002	0.002	1.0	30%	Pass	
Cadmium (filtered)	S19-Fe02502	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium (filtered)	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper (filtered)	S19-Fe02502	CP	mg/L	0.003	0.003	2.0	30%	Pass	
Lead (filtered)	S19-Fe02502	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury (filtered)	S19-Fe02502	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel (filtered)	S19-Fe02502	CP	mg/L	0.012	0.012	3.0	30%	Pass	
Zinc (filtered)	S19-Fe02502	CP	mg/L	0.009	0.009	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (at 25°C)	S19-Fe02503	CP	uS/cm	40000	40000	1.0	30%	Pass	
pH (at 25°C)	S19-Fe02503	CP	pH Units	7.2	7.1	pass	30%	Pass	
Duplicate									
Alkalinity (speciated)				Result 1	Result 2	RPD			
Total Alkalinity (as CaCO3)	S19-Fe02503	CP	mg/L	1300	1400	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S18-Se37052	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S18-Se37052	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	S18-Se37052	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	S18-Se37052	NCP	mg/L	0.006	0.006	6.0	30%	Pass	
Lead	S18-Se37052	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Mercury	S18-Se37052	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	S18-Se37052	NCP	mg/L	0.027	0.026	6.0	30%	Pass	
Zinc	S18-Se37052	NCP	mg/L	0.16	0.15	4.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
R20	This sample is a Trip Spike and therefore all results are reported as a percentage

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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JBS&G Australia Pty Ltd
Project: **54963**
Project Name: **Mamre Road Kemps Creek**
Turn around **Standard**

Sampled by: Milad Noujaim

Contact: rhammond@jbsg.com.au
mnoujaim@jbsg.com.au

Sample Name				Containers			Analysis												
Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH (LL)/Phenols	Asbestos	PCBs	% Clay	ASLP/TCLP	B20	L2	Alkalinity (total and bicarbonate)	pH & EC
TP100	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP100	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP100	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP100	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP101	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP101	0.2-0.3	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP101	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP101	1.1-1.2	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP101	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP200	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP200	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP200	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP200	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP201	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP201	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP201	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP201	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP300	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP300	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP300	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP300	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP301	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	0.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP301	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	1.1-1.2	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP302	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP400	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP400	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP400	0.8-0.9	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP401	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP401	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TS/TB	-	Water	4/02/2019	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-

RCVD BY : 9:46 AM
Luca D. 06/02/2019
Eurofins MGT 5.67°C

#639238

JBS&G Australia Pty Ltd
Project: **54963**
Project Name: **Mamre Road Kemps Creek**
Turn around **Standard**

Sampled by: Milad Noujaim

Contact: rhammond@jbsg.com.au
mnoujaim@jbsg.com.au

Sample Name				Containers			Analysis												
Hole	Depth	Matrix	Date	250 mL Jar	500 mL Bag	Bottles/vials	Metals	BTEX	TRH/BTEX	OCPs	PAH (LL)/Phenols	Asbestos	PCBs	% Clay	ASLP/TCLP	B20	L2	Alkalinity (total and bicarbonate)	pH & EC
TP100	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP100	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP100	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP100	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP101	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP101	0.2-0.3	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP101	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP101	1.1-1.2	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP101	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP102	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP200	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP200	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP200	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP200	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP201	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP201	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP201	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP201	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP300	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP300	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP300	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP300	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP301	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	0.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP301	1.0-1.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP301	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	0.5-0.6	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP302	1.1-1.2	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP302	1.9-2.0	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
TP400	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP400	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP400	0.8-0.9	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP401	0-0.1	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TP401	0.4-0.5	Soil	4/02/2019	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-
TS/TB	-	Water	4/02/2019	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-

RCVD BY : 9:46 AM
Luca D. 06/02/2019
Eurofins MGT 5.67°C

#639238

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NATA # 1261 Site # 20794

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Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name:	**JBS & G Australia (NSW) P/L**
Contact name:	Rohan Hammond
Project name:	MAMRE ROAD KEMPS CREEK
Project ID:	54963
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Feb 6, 2019 9:46 AM
Eurofins | mgt reference:	**639238**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 5.7 degrees Celsius.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Split sample sent to requested external lab.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Extra sample received (TP401 0.8-0.9) placed on hold.

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Rohan Hammond - rhammond@jbsg.com.au.

Note: A copy of these results will also be delivered to the general JBS & G Australia (NSW) P/L email address.

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 639238
Phone: 02 8245 0300
Fax:

Received: Feb 6, 2019 9:46 AM
Due: Feb 13, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	TP100 0-0.1	Feb 04, 2019		Soil	S19-Fe07300				X	X	X
2	TP100 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07301	X		X			X
3	TP100 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07302				X	X	X
4	TP100 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07303	X		X			X
5	TP101 0.2-0.3	Feb 04, 2019		Soil	S19-Fe07304				X	X	X
6	TP101 1.1-1.2	Feb 04, 2019		Soil	S19-Fe07305	X		X			X
7	TP101 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07306				X	X	X
8	TP102 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07307				X	X	X
9	TP102 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07308				X	X	X

eurofins | mgt

ABN– 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

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NATA # 1261
Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 639238
Phone: 02 8245 0300
Fax:

Received: Feb 6, 2019 9:46 AM
Due: Feb 13, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
10	TP102 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07309	X		X			X
11	TP200 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07310				X	X	X
12	TP200 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07311				X	X	X
13	TP200 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07312	X		X			X
14	TP201 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07313				X	X	X
15	TP201 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07314	X		X			X
16	TP201 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07315				X	X	X
17	TP300 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07316				X	X	X
18	TP300 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07317				X	X	X
19	TP300 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07318	X		X			X
20	TP301 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07319				X	X	X
21	TP301 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07320	X		X			X

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Address: Level 1, 50 Margaret St
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Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 639238
Phone: 02 8245 0300
Fax:

Received: Feb 6, 2019 9:46 AM
Due: Feb 13, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
22	TP301 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07321				X	X	X
23	TP302 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07322				X	X	X
24	TP302 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07323				X	X	X
25	TP302 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07324	X		X			X
26	TP400 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07325				X	X	X
27	TP400 0.8-0.9	Feb 04, 2019		Soil	S19-Fe07326				X	X	X
28	TP401 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07327				X	X	X
29	TP401 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07328				X	X	X
30	TP101 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07329		X				
31	TP101 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07330		X				
32	TP200 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07331		X				
33	TP201 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07332		X				

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Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
34	TP300 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07333		X				
35	TP301 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07334		X				
36	TP302 1.1-1.2	Feb 04, 2019		Soil	S19-Fe07335		X				
37	TP400 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07336		X				
38	TS	Feb 04, 2019		Water	S19-Fe07337		X				
39	TB	Feb 04, 2019		Water	S19-Fe07338		X				
40	TP401 0.8-0.9	Feb 04, 2019		Soil	S19-Fe07339		X				
Test Counts						9	11	9	20	20	29

JBS & G Australia (NSW) P/L
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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Rohan Hammond**

Report **639238-S-V2**
Project name MAMRE ROAD KEMPS CREEK
Project ID 54963
Received Date Feb 06, 2019

Client Sample ID			**TP100 0-0.1**	**TP100 0.4-0.5**	**TP100 1.0-1.1**	**TP100 1.9-2.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07300**	**S19-Fe07301**	**S19-Fe07302**	**S19-Fe07303**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	160	-	270	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	180	400	320	430
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.3	5.1	5.5	5.2
Resistivity*	0.5	ohm.m	56	-	32	-
Sulphate (as SO4)	30	mg/kg	100	-	84	-
Exchangeable Sodium Percentage (ESP)	0.1	%	27	-	22	-
Magnesium (exchangeable)	0.1	meq/100g	8.3	-	5.5	-
Potassium (exchangeable)	0.1	meq/100g	0.2	-	0.2	-
Sodium (exchangeable)	0.1	meq/100g	3.5	-	1.7	-
% Moisture	1	%	11	11	13	14
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.7	-	0.4	-
Cation Exchange Capacity	0.05	meq/100g	13	-	7.8	-

Client Sample ID			**TP101 0.2-0.3**	**TP101 1.1-1.2**	**TP101 1.9-2.0**	**TP102 0.0-0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07304**	**S19-Fe07305**	**S19-Fe07306**	**S19-Fe07307**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	150	-	170	5.1
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	230	45	150	11
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.4	6.3	5.7	7.3
Resistivity*	0.5	ohm.m	43	-	69	930
Sulphate (as SO4)	30	mg/kg	120	-	< 30	< 30
Exchangeable Sodium Percentage (ESP)	0.1	%	31	-	27	11
Magnesium (exchangeable)	0.1	meq/100g	6.3	-	6.8	1.4
Potassium (exchangeable)	0.1	meq/100g	0.5	-	0.2	< 0.1
Sodium (exchangeable)	0.1	meq/100g	3.7	-	2.6	0.3
% Moisture	1	%	8.8	6.9	12	9.1
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	1.2	-	< 0.1	0.9
Cation Exchange Capacity	0.05	meq/100g	12	-	9.6	2.7

Client Sample ID			TP102 0.5-0.6	TP102 1.9-2.0	TP200 0.5-0.6	TP200 1.0-1.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07308**	**S19-Fe07309**	**S19-Fe07310**	**S19-Fe07311**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	120	-	1900	1500
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	110	430	660	1100
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	5.9	6.8	5.2	5.0
Resistivity*	0.5	ohm.m	89	-	15	8.7
Sulphate (as SO4)	30	mg/kg	51	-	250	160
Exchangeable Sodium Percentage (ESP)	0.1	%	27	-	19	28
Magnesium (exchangeable)	0.1	meq/100g	7.2	-	8.0	8.2
Potassium (exchangeable)	0.1	meq/100g	0.2	-	0.2	0.1
Sodium (exchangeable)	0.1	meq/100g	2.8	-	2.3	3.5
% Moisture	1	%	14	14	17	16
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	0.2	-	1.5	0.8
Cation Exchange Capacity	0.05	meq/100g	10	-	12	13

Client Sample ID			TP200 1.9-2.0	TP201 0.0-0.1	TP201 1.0-1.1	TP201 1.9-2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07312**	**S19-Fe07313**	**S19-Fe07314**	**S19-Fe07315**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	-	7.4	-	1200
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	330	550	810	810
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	4.9	7.0	5.1	5.0
Resistivity*	0.5	ohm.m	-	18	-	12
Sulphate (as SO4)	30	mg/kg	-	72	-	190
Exchangeable Sodium Percentage (ESP)	0.1	%	-	6.0	-	23
Magnesium (exchangeable)	0.1	meq/100g	-	6.0	-	9.7
Potassium (exchangeable)	0.1	meq/100g	-	0.2	-	0.3
Sodium (exchangeable)	0.1	meq/100g	-	0.6	-	3.1
% Moisture	1	%	19	9.2	17	15
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	2.5	-	0.4
Cation Exchange Capacity	0.05	meq/100g	-	9.2	-	13

Client Sample ID			TP300 0.4-0.5	TP300 1.0-1.1	TP300 1.9-2.0	TP301 0.4-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07316**	**S19-Fe07317**	**S19-Fe07318**	**S19-Fe07319**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	360	570	-	38
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	230	210	650	150
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.2	6.2	8.1	5.9
Resistivity*	0.5	ohm.m	43	47	-	68
Sulphate (as SO4)	30	mg/kg	150	290	-	120
Exchangeable Sodium Percentage (ESP)	0.1	%	21	26	-	10

Client Sample ID			TP300 0.4-0.5	TP300 1.0-1.1	TP300 1.9-2.0	TP301 0.4-0.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07316**	**S19-Fe07317**	**S19-Fe07318**	**S19-Fe07319**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Magnesium (exchangeable)	0.1	meq/100g	10	10	-	6.3
Potassium (exchangeable)	0.1	meq/100g	0.3	0.3	-	0.3
Sodium (exchangeable)	0.1	meq/100g	3.6	4.6	-	1.5
% Moisture	1	%	5.6	12	11	10
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	2.6	2.3	-	7.0
Cation Exchange Capacity	0.05	meq/100g	17	17	-	15

Client Sample ID			TP301 1.0-1.1	TP301 1.9-2.0	TP302 0.0-0.1	TP302 0.5-0.6
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07320**	**S19-Fe07321**	**S19-Fe07322**	**S19-Fe07323**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	-	410	13	5.5
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	67	300	61	32
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.9	5.6	6.6	6.7
Resistivity*	0.5	ohm.m	-	33	170	310
Sulphate (as SO4)	30	mg/kg	-	230	< 30	68
Exchangeable Sodium Percentage (ESP)	0.1	%	-	29	1.3	3.8
Magnesium (exchangeable)	0.1	meq/100g	-	9.7	2.4	5.2
Potassium (exchangeable)	0.1	meq/100g	-	0.2	0.5	0.2
Sodium (exchangeable)	0.1	meq/100g	-	4.4	0.2	0.4
% Moisture	1	%	9.2	13	10	10
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	0.9	8.8	5.5
Cation Exchange Capacity	0.05	meq/100g	-	15	12	11

Client Sample ID			TP302 1.9-2.0	TP400 0.4-0.5	TP400 0.8-0.9	TP401 0.0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Fe07324**	**S19-Fe07325**	**S19-Fe07326**	**S19-Fe07327**
Date Sampled			**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**	**Feb 04, 2019**
Test/Reference	LOR	Unit				
Chloride	5	mg/kg	-	44	320	< 5
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	30	170	310	20
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	7.4	7.1	7.2	6.0
Resistivity*	0.5	ohm.m	-	59	32	510
Sulphate (as SO4)	30	mg/kg	-	96	38	< 30
Exchangeable Sodium Percentage (ESP)	0.1	%	-	22	24	5.6
Magnesium (exchangeable)	0.1	meq/100g	-	3.8	8.3	0.8
Potassium (exchangeable)	0.1	meq/100g	-	< 0.1	0.2	0.3
Sodium (exchangeable)	0.1	meq/100g	-	1.2	2.9	0.1
% Moisture	1	%	8.8	11	18	7.0
Cation Exchange Capacity						
Calcium (exchangeable)	0.1	meq/100g	-	0.5	0.5	1.3
Cation Exchange Capacity	0.05	meq/100g	-	5.6	12	2.4

Client Sample ID			TP401 0.4-0.5
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**S19-Fe07328**
Date Sampled			**Feb 04, 2019**
Test/Reference	LOR	Unit	
Chloride	5	mg/kg	8.1
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	32
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.3
Resistivity*	0.5	ohm.m	320
Sulphate (as SO4)	30	mg/kg	68
Exchangeable Sodium Percentage (ESP)	0.1	%	14
Magnesium (exchangeable)	0.1	meq/100g	6.3
Potassium (exchangeable)	0.1	meq/100g	0.2
Sodium (exchangeable)	0.1	meq/100g	1.2
% Moisture	1	%	14
Cation Exchange Capacity			
Calcium (exchangeable)	0.1	meq/100g	0.8
Cation Exchange Capacity	0.05	meq/100g	8.4

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride	Melbourne	Feb 11, 2019	28 Day
- Method: LTM-INO-4090 Chloride by Discrete Analyser			
pH (1:5 Aqueous extract at 25°C as rec.)	Melbourne	Feb 11, 2019	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Sulphate (as SO4)	Melbourne	Feb 11, 2019	28 Day
- Method: LTM-INO-4110 Sulfate by Discrete Analyser			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Feb 11, 2019	7 Day
- Method: LTM-INO-4030 Conductivity			
Magnesium (exchangeable)	Melbourne	Feb 12, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Potassium (exchangeable)	Melbourne	Feb 12, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Sodium (exchangeable)	Melbourne	Feb 12, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity and ESP			
Cation Exchange Capacity	Melbourne	Feb 12, 2019	180 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			
Exchangeable Sodium Percentage (ESP)	Melbourne	Feb 12, 2019	28 Day
- Method: LTM-MET-3060 - Cation Exchange Capacity (CEC) & Exchangeable Sodium Percentage (ESP)			
% Moisture	Melbourne	Feb 06, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

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Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	TP100 0-0.1	Feb 04, 2019		Soil	S19-Fe07300				X	X	X
2	TP100 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07301	X		X			X
3	TP100 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07302				X	X	X
4	TP100 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07303	X		X			X
5	TP101 0.2-0.3	Feb 04, 2019		Soil	S19-Fe07304				X	X	X
6	TP101 1.1-1.2	Feb 04, 2019		Soil	S19-Fe07305	X		X			X
7	TP101 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07306				X	X	X
8	TP102 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07307				X	X	X
9	TP102 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07308				X	X	X

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Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
10	TP102 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07309	X		X			X
11	TP200 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07310				X	X	X
12	TP200 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07311				X	X	X
13	TP200 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07312	X		X			X
14	TP201 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07313				X	X	X
15	TP201 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07314	X		X			X
16	TP201 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07315				X	X	X
17	TP300 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07316				X	X	X
18	TP300 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07317				X	X	X
19	TP300 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07318	X		X			X
20	TP301 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07319				X	X	X
21	TP301 1.0-1.1	Feb 04, 2019		Soil	S19-Fe07320	X		X			X

ABN– 50 005 085 521
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Lane Cove West NSW 2066
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Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: MAMRE ROAD KEMPS CREEK
Project ID: 54963

Order No.:
Report #: 639238
Phone: 02 8245 0300
Fax:

Received: Feb 6, 2019 9:46 AM
Due: Feb 13, 2019
Priority: 5 Day
Contact Name: Rohan Hammond

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
22	TP301 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07321				X	X	X
23	TP302 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07322				X	X	X
24	TP302 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07323				X	X	X
25	TP302 1.9-2.0	Feb 04, 2019		Soil	S19-Fe07324	X		X			X
26	TP400 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07325				X	X	X
27	TP400 0.8-0.9	Feb 04, 2019		Soil	S19-Fe07326				X	X	X
28	TP401 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07327				X	X	X
29	TP401 0.4-0.5	Feb 04, 2019		Soil	S19-Fe07328				X	X	X
30	TP101 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07329		X				
31	TP101 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07330		X				
32	TP200 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07331		X				
33	TP201 0.5-0.6	Feb 04, 2019		Soil	S19-Fe07332		X				

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Company Name: JBS & G Australia (NSW) P/L
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Received: Feb 6, 2019 9:46 AM
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Sample Detail						Conductivity (1:5 aqueous extract at 25°C as rec.)	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Aggressivity Soil Set	Eurofins | mgt Suite B20	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217											
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
34	TP300 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07333		X				
35	TP301 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07334		X				
36	TP302 1.1-1.2	Feb 04, 2019		Soil	S19-Fe07335		X				
37	TP400 0.0-0.1	Feb 04, 2019		Soil	S19-Fe07336		X				
38	TS	Feb 04, 2019		Water	S19-Fe07337		X				
39	TB	Feb 04, 2019		Water	S19-Fe07338		X				
40	TP401 0.8-0.9	Feb 04, 2019		Soil	S19-Fe07339		X				
Test Counts						9	11	9	20	20	29

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Exchangeable Sodium Percentage (ESP)	%	< 0.1			0.1	Pass	
Magnesium (exchangeable)	meq/100g	< 0.1			0.1	Pass	
Potassium (exchangeable)	meq/100g	< 0.1			0.1	Pass	
Sodium (exchangeable)	meq/100g	< 0.1			0.1	Pass	
Method Blank							
Cation Exchange Capacity							
Calcium (exchangeable)	meq/100g	< 0.1			0.1	Pass	
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Sulphate (as SO4)	M19-Fe10624	NCP	%	107			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S19-Fe07302	CP	%	118			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chloride	S19-Fe07317	CP	%	105			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Fe07300	CP	mg/kg	160	220	30	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe07300	CP	uS/cm	180	210	18	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe07300	CP	pH Units	6.3	6.3	pass	30%	Pass	
Resistivity*	S19-Fe07300	CP	ohm.m	56	47	18	30%	Pass	
% Moisture	S19-Fe07300	CP	%	11	11	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Exchangeable Sodium Percentage (ESP)	S19-Fe07308	CP	%	27	26	<1	30%	Pass	
Magnesium (exchangeable)	S19-Fe07308	CP	meq/100g	7.2	7.2	<1	30%	Pass	
Potassium (exchangeable)	S19-Fe07308	CP	meq/100g	0.2	0.2	5.0	30%	Pass	
Sodium (exchangeable)	S19-Fe07308	CP	meq/100g	2.8	2.8	<1	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Calcium (exchangeable)	S19-Fe07308	CP	meq/100g	0.2	0.2	2.0	30%	Pass	
Cation Exchange Capacity	S19-Fe07308	CP	meq/100g	10	10	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe07310	CP	uS/cm	660	650	1.8	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe07310	CP	pH Units	5.2	5.1	pass	30%	Pass	
Resistivity*	S19-Fe07310	CP	ohm.m	15	15	1.8	30%	Pass	
% Moisture	S19-Fe07310	CP	%	17	17	2.0	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
Chloride	S19-Fe07316	CP	mg/kg	360	320	13	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe07316	CP	uS/cm	230	200	14	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe07316	CP	pH Units	7.2	7.0	pass	30%	Pass	
Resistivity*	S19-Fe07316	CP	ohm.m	43	49	14	30%	Pass	
Sulphate (as SO4)	S19-Fe07316	CP	mg/kg	150	160	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe07320	CP	%	9.2	9.3	2.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Exchangeable Sodium Percentage (ESP)	S19-Fe07327	CP	%	5.6	5.0	11	30%	Pass	
Magnesium (exchangeable)	S19-Fe07327	CP	meq/100g	0.8	0.8	7.0	30%	Pass	
Potassium (exchangeable)	S19-Fe07327	CP	meq/100g	0.3	0.3	4.0	30%	Pass	
Sodium (exchangeable)	S19-Fe07327	CP	meq/100g	0.1	0.1	4.0	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Calcium (exchangeable)	S19-Fe07327	CP	meq/100g	1.3	1.4	8.0	30%	Pass	
Cation Exchange Capacity	S19-Fe07327	CP	meq/100g	2.4	2.6	7.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S19-Fe07328	CP	uS/cm	32	30	4.9	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S19-Fe07328	CP	pH Units	6.3	6.3	pass	30%	Pass	
Resistivity*	S19-Fe07328	CP	ohm.m	320	330	4.9	30%	Pass	

Comments

This report has been revised (V2) to report repeat result of conductivity for sample S19-Fe07328.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Nibha Vaidya	Analytical Services Manager
Emily Rosenberg	Senior Analyst-Metal (VIC)
Julie Kay	Senior Analyst-Inorganic (VIC)



Glenn Jackson
General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

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Appendix G Borehole Logs

TP00

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				SM-SC	Silty clayey sand, brown, dry, heterogeneous, loose, poorly graded, medium sand, including rootlets	TP00 0.0-0.15 PID = 8.9 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown, dry, heterogeneous, firm, low plasticity, including rootlets	TP00 0.2-0.3 PID = 9.9 ppm	No ACM, odour or staining
	0.5	0.40		CL-ML	Silty clay, grey, dry, heterogeneous, firm, low plasticity, including rootlets and traces of ironstone gravel	TP00 0.4-0.5 PID = 2.4 ppm	No ACM, odour or staining
		0.60		CL-ML	Silty clay, brown with red/orange mottling, damp, stiff, medium plasticity, including traces of ironstone gravel		No ACM, odour or staining
	1.0					TP00 1.0-1.1	
	1.5						
	2.0						
		2.00			Test Pit TP00 terminated at 2m		
	2.5						

TP01

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Gravelly silty sand, brown/grey, dry, heterogeneous, medium dense, coarse gravel, poorly graded, medium sand, including rootlets	TP01 0.0-0.1	No ACM, odour or staining
		0.10		Fill	Silty clay, dark brown, dry, heterogeneous, very stiff, medium plasticity, including ironstone gravel		ACM observed, no odour or staining
						TP01 0.2-0.3 PID = 2.1 ppm	
		0.30		CL-ML	Silty clay, light brown changing to orange/red/grey with depth, dry, homogeneous, stiff, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP01 1.0-1.1 PID = 10.5 ppm	
	1.5						
	2.0						
		2.00			Test Pit TP01 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP02

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, brown/grey, damp, heterogeneous, firm, low plasticity, including rootlets and traces of ironstone gravel	TP02 0.0-0.15 PID = 6.5 ppm	No ACM, odour or staining
		0.20		Fill	Silty gravelly clay, brown/black, damp, heterogeneous, soft, low plasticity, including grey/black shale	TP02 0.2-0.3 PID = 3.6 ppm	No ACM, odour or staining
	0.5						
		0.50		CL-ML	Silty clay, brown with red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	1.0					TP02 1.0-1.1 PID = 4 ppm	
	1.5						
	2.0						
		2.00			Test Pit TP02 terminated at 2m		
	2.5						

TP03

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty gravelly sand, dark brown, dry, heterogeneous, dense, poorly graded, including rootlets, traces of slag, asphalt, black bark, and cobbles of concrete gravel	TP03 0.0-0.15 PID = 5 ppm	No ACM, odour or staining
		0.40		CL-ML	Silty clay, light brown/red/orange, dry, homogeneous, stiff, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP03 1.0-1.1 PID = 7 ppm	
	1.5						
	2.0						
		2.00			Test Pit TP03 terminated at 2m		
	2.5						

TP04

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Gravelly silty sand, brown/grey, dry, heterogeneous, dense, coarse gravel, poorly graded, including rootlets	TP04 0.0-0.1 PID = 8.1 ppm	No ACM, odour or staining
		0.10		Fill	Silty clay, brown/dark grey, dry, heterogeneous, stiff, high plasticity, including traces of ironstone gravel		Slight organic odour no ACM or staining
						TP04 0.2-0.3 PID = 10.2 ppm	
		0.30		CL-ML	Silty clay, red/orange, dry, homogeneous, stiff, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP04 1.0-1.1 PID = 15.3 ppm	
	1.5						
	2.0						
		2.00			Test Pit TP04 terminated at 2m		
	2.5						

TP05

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Gravelly silty sand, dark brown, damp, heterogeneous, medium dense, poorly graded, medium sand, including rootlets	TP05 0.0-0.1 PID = 7.9 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, red/orange with slight grey mottling, dry, hard, high plasticity		No ACM, odour or staining
	0.5						
						TP05 0.8-0.9 PID = 9.7 ppm	
	1.0						
	1.5					TP05 1.5-1.6 PID = 5.1 ppm	
	2.0						
		2.00			Test Pit TP05 terminated at 2m		
	2.5						

TP06

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 29/01/2019
Logged By: MN
Contractor: Terratest
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3): 150

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Push Tube				Fill	Silty clay, dark brown, dry, heterogeneous, firm, low plasticity, including rootlets	TP06 0.0-0.2 PID = 7.1 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay brown with grey/yellow/red mottling, dry, stiff, high plasticity		No ACM, odour or staining
	0.5						
						TP06 0.8-0.9 PID = 1.3 ppm	
	1.0						
		1.20			Test Pit TP06 terminated at 1.2m		
	1.5						
	2.0						
	2.5						

TP07

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 29/01/2019
Logged By: MN
Contractor: Terratest
Total Hole Depth (mbgs): 2.2
Pit Dimension (m3): 150

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Push Tube				Fill	Sandy silty clay, brown, dry, heterogeneous, firm, low plasticity, including rootlets	TP07 0.0-0.1 PID = 10.1 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown with grey mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP07 0.4-0.5 PID = 6 ppm	
	1.0						
		1.20		CL-ML	Silty clay, light brown/yellow with grey mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	1.5					TP07 1.3-1.4	
	2.0						
		2.20			Test Pit TP07 terminated at 2.2m		
	2.5						

TP08

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.8
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Silty clay, dark brown/grey, wet, heterogeneous, firm, high plasticity, including rootlets and ironstone gravel	TP08 0.0-0.1	No ACM, odour or staining
	0.5	0.40		CL-ML	Silty clay, light brown, moist, homogeneous, firm, high plasticity	TP08 0.4-0.5	No ACM, odour or staining
	1.0	0.80			Test Pit TP08 terminated at 0.8m		
	1.5						
	2.0						
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP09

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Clayey silty sand, light brown, damp, heterogeneous, loose, including rootlets and weathered ironstone gravel	TP09 0.0-0.1	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown/yellow with light grey/yellow mottling, damp, firm, high plasticity, including rootlets		No ACM, odour or staining
	0.5						
	1.0					TP09 1.0-1.1	
	1.5						
		1.50		CL-ML	Silty clay, yellow/brown/grey with slight red mottling, damp, soft, high plasticity, including rootlets		No ACM, odour or staining
						TP09 1.7-1.8	
	2.0						
		2.00			Test Pit TP09 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP10

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.7
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown, damp, heterogeneous, very loose, poorly graded, fine sand, including rootlets	TP10 0.0-0.1	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown with orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP10 0.4-0.5	
		0.70			Test Pit TP10 terminated at 0.7m		
	1.0						
	1.5						
	2.0						
	2.5						

TP100

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				CL-ML	Silty clay, grey, dry, heterogeneous, hard, medium plasticity, including rootlets	TP100 0.0-0.1 PID = 0.8 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, grey with slight red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP100 0.4-0.5	
		0.50		CL-ML	Silty clay, red/grey with slight red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	1.0					TP100 1.0-1.1 PID = 1.1 ppm	
	1.5						
	2.0					TP100 1.9-2.0	
		2.00			Test Pit TP100 terminated at 2m		
	2.5						

TP101

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				CL-ML	Silty clay, light yellow/grey, dry, heterogeneous, stiff, low plasticity, including rootlets	TP101 0.0-0.1	No ACM, odour or staining
		0.10		CL-ML	Silty clay, red/grey, dry, heterogeneous, stiff, low plasticity, including rootlets		No ACM, odour or staining
						TP101 0.2-0.3	
		0.30		CL-ML	Silty clay, light grey turning yellow/brown with red red/orange/grey mottling with depth, damp, firm, medium plasticity, including weathered ironstone gravel		No ACM, odour or staining
	0.5					TP101 0.5-0.6	
	1.0					TP101 1.1-1.2	
	1.5						
		1.60		CL-ML	Silty clay, red/grey with red red/orange/grey mottling with depth, damp, firm, medium plasticity		No ACM, odour or staining
	2.0					TP101 1.9-2.0	
		2.00			Test Pit TP101 terminated at 2m		
	2.5						

TP102

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				SM-SC	Silty clayey sand, light grey, dry, heterogeneous, loose, poorly graded, fine sand, including weathered ironstone gravel	TP102 0.0-0.1	No ACM, odour or staining
		0.30		CL-ML	Silty clay, grey/light brown/yellow with slight black mottling, damp, stiff, high plasticity		No ACM, odour or staining
	0.5					TP102 0.5-0.6	
	1.0						
	1.5						
	2.0					TP102 1.9-2.0	
		2.00			Test Pit TP102 terminated at 2m		
	2.5						

TP11

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty sand, dark brown, dry, heterogeneous, loose, poorly graded, fine sand, including rootlets and mulch	TP11 0.0-0.1 PID = 6 ppm	No ACM, odour or staining
		0.10		Fill	Sandy silty clay, light grey, heterogeneous, hard, medium palsticity, including rootlets		No ACM, odour or staining
						TP11 0.3-0.4 PID = 5 ppm	
		0.40		CL-ML	Silty clay, brown/grey with yellow/light brown mottling, dry, hard, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP11 1.1-1.2 PID = 9.3 ppm	
	1.5						
		1.50		CL-ML	Silty clay, brown/red with yellow/light brown mottling, dry, hard, high plasticity		No ACM, odour or staining
						TP11 1.7-1.8	
	2.0						
		2.00			Test Pit TP11 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP12

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Clayey silty sand, dark brown, dry, heterogeneous, loose, poorly graded, medium sand, including rootlets, glass, and can	TP12 0.0-0.1 PID = 5.4 ppm	No ACM, odour or staining
		0.10		CL-ML	Silty clay, yellow/light brown with light red mottling, dry, stiff, medium plasticity		No ACM, odour or staining
	0.5						
	1.0					TP12 1.0-1.1 PID = 4.6 ppm	
	1.5						
	2.0					TP12 1.8-1.9	
		2.00			Test Pit TP12 terminated at 2m		
	2.5						

TP13

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light brown, dry, heterogeneous, stiff, medium plasticity, including rootlets, elastic tube and traces of ironstone gravel	TP13 0.0-0.1 PID = 3.1 ppm	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown/yellow, dry, homogeneous, stiff, medium plasticity		No ACM, odour or staining
	0.5						
	1.0					TP13 1.0-1.1 PID = 11.5 ppm	
	1.5						
	2.0					TP13 1.8-1.9	
		2.00			Test Pit TP13 terminated at 2m		
	2.5						

TP14

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown, damp, heterogeneous, very loose, poorly graded, fine sand, including rootlets	TP14 0.0-0.1	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown with slight red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP14 0.4-0.5	
		0.60			Test Pit TP14 terminated at 0.6m		
	1.0						
	1.5						
	2.0						
	2.5						

TP15

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light brown/yellow, dry, heterogeneous, stiff, low plasticity, including rootlets	TP15 0.0-0.1 PID = 6.8 ppm	No ACM, odour or staining
		0.10		CL-ML	Silty clay, brown/red, dry, homogeneous, stiff, medium plasticity		No ACM, odour or staining
						TP15 0.3-0.4 PID = 2.2 ppm	
	0.5						
		0.50		CL-ML	Silty clay, yellow, dry, homogeneous, stiff, medium plasticity		No ACM, odour or staining
		0.60		CL-ML	Silty clay, brown, dry, homogeneous, stiff, medium plasticity		No ACM, odour or staining
	1.0					TP15 1.0-1.1	
	1.5						
						TP15 1.7-1.8	
	2.0						
		2.00			Test Pit TP15 terminated at 2m		
	2.5						

TP16

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				SM-SC	Silty clayey sand, light brown/yellow, dry, heterogeneous, loose, poorly graded, fine sand, including rootlets	TP16 0.0-0.1 PID = 8.5 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, light brown/yellow with some orange/red/grey mottling, damp, soft, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP16 1.0-1.1 PID = 8.2 ppm	
		1.20		CL-ML	Silty clay, light brown/yellow with some orange/red/grey mottling, moist, soft, high plasticity		
	1.5						
						TP16 1.7-1.8	
	2.0						
		2.00			Test Pit TP16 terminated at 2m		
	2.5						

TP17

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light brown/yellow, damp, heterogeneous, firm, medium plasticity, including rootlets and piece of plastic bag	TP17 0.0-0.1 PID = 10 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, light brown/grey, damp, heterogeneous, firm, medium plasticity, including weathered ironstone gravel		No ACM, odour or staining
	0.5					TP17 0.3-0.4 PID = 6.3 ppm	
		0.50		CL-ML	Silty clay, light brown/yellow changing to light red with depth with grey mottling, damp, homogeneous, stiff, medium plasticity, including weathered ironstone		No ACM, odour or staining
	1.0					TP17 1.0-1.1 PID = 6.2 ppm	
	1.5						
						TP17 1.7-1.8	
	2.0						
		2.00			Test Pit TP17 terminated at 2m		
	2.5						

TP18

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 30/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit	0.5			Fill	Silty clay, light brown/yellow, damp, heterogeneous, firm, medium plasticity, including rootlets	TP18 0.0-0.1 PID = 5.1 ppm	No ACM, odour or staining
		0.50		CL-ML	Silty clay, light brown/yellow with grey mottling, moist, soft, high plasticity		No ACM, odour or staining
	1.0					TP18 1.0-1.1 PID = 2.3 ppm	
	1.5						
	2.0					TP18 1.7-1.8	
		2.00			Test Pit TP18 terminated at 2m		
	2.5						

TP19

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown, damp, heterogeneous, very loose, including rootlets	TP19 0.0-0.1	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown with slight red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP19 0.4-0.5	
		0.60			Test Pit TP19 terminated at 0.6m		
	1.0						
	1.5						
	2.0						
	2.5						

TP20

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Clayey silty sand, light brown/yellow, dry, heterogeneous, loose, including rootlets and plastic bag pieces	TP20 0.0-0.1	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown/light red, dry, homogeneous, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP20 0.4-0.5 PID = 1.9 ppm	
		0.80		CL-ML	Silty clay, grey/orange/red/brown, homogeneous, very stiff, medium plasticity		No ACM, odour or staining
	1.0					TP20 1.0-1.1 PID = 3.4 ppm	
	1.5						
						TP20 1.7-1.8	
	2.0						
		2.00			Test Pit TP20 terminated at 2m		
	2.5						

TP200

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				CL-ML	Silty clay, grey, dry, heterogeneous, firm, low plasticity, including rootlets	TP200 0.0-0.1	No ACM, odour or staining
		0.20		CL-ML	Silty clay, light brown/yellow/grey with orange/light red mottling, damp, hard, high plasticity		No ACM, odour or staining
	0.5					TP200 0.5-0.6	
	1.0					TP200 1.0-1.1	
	1.5						
	2.0					TP200 1.9-2.0	
		2.00			Test Pit TP200 terminated at 2m		
	2.5						

TP201

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				CL-ML	Silty clay, brown/grey, dry, heterogeneous, low plasticity, hard, including rootlets	TP201 0.0-0.1	No ACM, odour or staining
		0.10		CL-ML	Silty clay, red with some grey as depth increases with grey/orange mottling, damp, firm, medium plasticity		No ACM, odour or staining
	0.5					TP201 0.5-0.6	
	1.0					TP201 1.0-1.1	
	1.5						
	2.0					TP201 1.9-2.0	
		2.00			Test Pit TP201 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP21

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Clayey silty sand, light brown/yellow, damp, heterogeneous, loose, fine sand, including rootlets	TP21 0.0-0.1 PID = 8.4 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, light brown/yellow, damp, heterogeneous, firm, medium plasticity, including weathered shale		No ACM, odour or staining
	0.5					TP21 0.4-0.5 PID = 4.2 ppm	
	1.0	1.00		CL-ML	Silty clay, brown/red with red/grey mottling, damp, firm, medium plasticity, including weathered shale	TP21 1.0-1.1 PID = 7.2 ppm	No ACM, odour or staining
	1.5					TP21 1.7-1.8	
	2.0	2.00			Test Pit TP21 terminated at 2m		
	2.5						

TP22

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				SC-SM	Clayey silty sand, light grey, damp, heterogeneous, loose, poorly graded, fine sand, including rootlets and weathered shale	TP22 0.0-0.1 PID = 3.5 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, light grey/yellow/brown, damp, homogeneous, firm, high plasticity		No ACM, odour or staining
	0.5					TP22 0.6-0.7 PID = 5 ppm	
	1.0						
	1.5					TP22 1.5-1.6	
	2.0						
		2.00			Test Pit TP22 terminated at 2m		
	2.5						

TP23

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.5
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown, damp, heterogeneous, very loose, poorly graded, fine sand, including rootlets	TP23 0.0-0.1 PID = 0.3 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown with slight red/orange mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5					TP23 0.4-0.5 PID = 0.5 ppm	
		0.50			Test Pit TP23 terminated at 0.5m		
	1.0						
	1.5						
	2.0						
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP24

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clayey sand, light grey, dry, heterogeneous, loose, poorly graded, medium sand, including rootlets, bark	TP24 0.0-0.1 PID = 3.9 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown/red, dry, homogeneous, hard, medium plasticity	TP24 0.2-0.3 PID = 5.7 ppm	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown/yellow/grey, homogeneous, damp, firm, medium plasticity		No ACM, odour or staining
	0.5						
	1.0	1.00				TP24 1.0-1.1	
	1.5					TP24 1.7-1.8	
	2.0				Test Pit TP24 terminated at 2m		
	2.5						

TP25

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown/grey, damp, heterogeneous, very loose, poorly graded, fine sand, including rootlets and plastic bag piece	TP25 0.0-0.1 PID = 0.3 ppm	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown, damp, homogeneous, firm, medium plasticity		No ACM, odour or staining
	0.5					TP25 0.4-0.5 PID = 0.3 ppm	
		0.60			Test Pit TP25 terminated at 0.6m		
	1.0						
	1.5						
	2.0						
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP26

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, brown/grey, dry, heterogeneous, firm, medium plasticity, including rootlets	TP26 0.0-0.1 PID = 4.6 ppm	No ACM, odour or staining
		0.30		CL-ML	Silty clay, brown/red with light brown/grey mottling, damp, stiff, high plasticity, including weathered shale		No ACM, odour or staining
	0.5					TP26 0.4-0.5 PID = 3.3 ppm	
	1.0						
	1.5						
		1.50		CL-ML	Silty clay, grey with light brown/grey mottling, damp, stiff, high plasticity, including weathered shale	TP26 1.5-1.6	No ACM, odour or staining
	2.0						
		2.00			Test Pit TP26 terminated at 2m		
	2.5						

TP27

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Hand Auger				Fill	Gravelly silty sand, brown/grey, damp, heterogeneous, medium dense, poorly graded, medium sand, including rootlets	TP27 0.0-0.1 PID = 0.3 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, grey/brown with slight red mottling, damp, firm, medium plasticity		No ACM, odour or staining
	0.5					TP27 0.4-0.5 PID = 0.2 ppm	
		0.60			Test Pit TP27 terminated at 0.6m		
	1.0						
	1.5						
	2.0						
	2.5						

TP28

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light grey, dry, heterogeneous, stiff, medium plasticity, including rootlets	TP28 0.0-0.1 PID = 6 ppm	No ACM, odour or staining
		0.10		CL-ML	Silty clay, light brown/red, damp, homogeneous, stiff/hard, medium plasticity		No ACM, odour or staining
							Slight staining due to organic roots, no ACM or odour
	0.5					TP28 0.4-0.5 PID = 6.7 ppm	No ACM, odour or staining
	1.0					TP28 1.0-1.1	
		1.40		CL-ML	Silty clay, light brown/yellow/grey/light red, damp, homogeneous, firm, high plasticity		No ACM, odour or staining
	1.5					TP28 1.7-1.8	
	2.0						
		2.00			Test Pit TP28 terminated at 2m		
	2.5						

TP29

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 01/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.6
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Hand Auger				Fill	Silty sand, brown/grey, damp, heterogeneous, very loose, poorly graded, fine sand, including rootlets and traces of ironstone gravel	TP29 0.0-0.1 PID = 0.3 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown/yellow, damp, homogeneous, firm, medium plasticity		No ACM, odour or staining
	0.5					TP29 0.4-0.5 PID = 0.5 ppm	
		0.60			Test Pit TP29 terminated at 0.6m		
	1.0						
	1.5						
	2.0						
	2.5						

TP30

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light brown, dry, heterogeneous, firm, low plasticity, including rootlets	TP30 0.0-0.1 PID = 13.1 ppm	No ACM, odour or staining
		0.30		CL-ML	Silty clay, light brown/yellow/grey, damp, homogeneous, soft, high plasticity		No ACM, odour or staining
	0.5						
	1.0					TP30 1.0-1.1 PID = 5.3 ppm	
		1.30		CL-ML	Silty clay, light brown/yellow/grey, moist, homogeneous, soft, high plasticity		
	1.5						
						TP30 1.7-1.8	
	2.0						
		2.00			Test Pit TP30 terminated at 2m		
	2.5						

TP300

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Silty clay, grey, dry, heterogeneous, firm, low plasticity, including rootlets and traces of ironstone gravel	TP300 0.0-0.1	No ACM, odour or staining
		0.10		Fill	Silty clay, grey/slight black wih red/orange mottling, dry, stiff, medium plasticity, including traces of ash		No ACM, odour or staining
	0.5					TP300 0.4-0.5	
		0.50		CL-ML	Silty clay, brown/light red, damp, homogeneous, stiff, medium plasticity, including weathered ironstone gravel		No ACM, odour or staining
	1.0					TP300 1.0-1.1	
	1.5						
	2.0					TP300 1.9-2.0	
		2.00			Test Pit TP300 terminated at 2m		
	2.5						

TP301

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Silty clay, light brown/grey, dry, heterogeneous, stiff, low plasticity, including rootlets, plastic bag pieces and plastic	TP301 0.0-0.1	No ACM, odour or staining
	0.5	0.40		CL-ML	Silty clay, light grey/white changing to darker grey with depth, dry, homogeneous, stiff, low plasticity	TP301 0.4-0.5	No ACM, odour or staining
	1.0					TP301 1.0-1.1	
		1.20		CL-ML	Silty clay, light brown/yellow, damp, homogeneous, stiff, medium plasticity		No ACM, odour or staining
	1.5						
	2.0					TP301 1.9-2.0	
		2.00			Test Pit TP301 terminated at 2m		
	2.5						

TP302

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, dark brown, dry, heterogeneous, stiff, low plasticity, including rootlets and plastic	TP302 0.0-0.1	No ACM, odour or staining
		0.10		CL	Clay, brown/dark brown, dry, heterogeneous, stiff, medium plasticity, including traces of ironstone gravel and weathered sandstone		No ACM, odour or staining
	0.5					TP302 0.5-0.6	
		0.80					
	1.0					TP302 1.1-1.2	
	1.5						
	2.0					TP302 1.9-2.0	
					Test Pit TP302 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP31

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Gravelly silty sand, grey, dry, heterogeneous, dense, rounded gravel, poorly graded, fine sand, including rootlets, plastic bag pieces, piece of rope	TP31 0.0-0.1 PID = 7.4 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown/light red with light brown/yellow/grey mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5						
						TP31 0.8-0.9	
	1.0						
	1.5						
						TP31 1.7-1.8	
	2.0						
		2.00			Test Pit TP31 terminated at 2m		
	2.5						

TP32

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, light grey, dry, heterogeneous, very stiff, low plasticity, including rootlets and plastic bag piece	TP32 0.0-0.1 PID = 5.8 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, red/grey with grey/light red mottling, damp, stiff, medium plasticity		No ACM, odour or staining
	0.5						
						TP32 0.7-0.8 PID = 5.6 ppm	
	1.0						
	1.5						
		1.50		CL-ML	Silty clay, light brown/yellow with grey/light red mottling, damp, stiff, medium plasticity		
						TP32 1.7-1.8	
	2.0						
		2.00			Test Pit TP32 terminated at 2m		
	2.5						

TP33

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Test Pit				Fill	Silty clay, grey, dry, heterogeneous, stiff, low plasticity, including rootlets and bark	TP33 0.0-0.1 PID = 2.7 ppm	No ACM, odour or staining
		0.20		CL-ML	Silty clay, brown with light brown/yellow/grey mottling, damp, firm, medium plasticity		No ACM, odour or staining
	0.5						
	1.0					TP33 1.0-1.1	
	1.5						
		1.80		CL-ML	Silty clay, grey/light brown/yellow mottling, damp, firm, medium plasticity	TP33 1.8-1.9	No ACM, odour or staining
	2.0						
		2.00			Test Pit TP33 terminated at 2m		
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP34

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 31/01/2019
Logged By: MN
Contractor: Excel
Total Hole Depth (mbgs): 2
Pit Dimension (m3): 300

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples / Tests / Remarks	Additional Observations
Test Pit				Fill	Silty clay, brown/grey, damp, heterogeneous, very stiff, medium plasticity, including rootlets and bark	TP34 0.0-0.1 PID = 4.8 ppm	No ACM, odour or staining
		0.10		CL-ML	Silty clay, red with light yellow/grey mottling, damp, hard, medium plasticity		No ACM, odour or staining
	0.5					TP34 0.4-0.5 PID = 16.3 ppm	
		0.60		CL-ML	Silty clay, grey/light brown/yellow, damp, firm, high plasticity		No ACM, odour or staining
	1.0					TP34 1.0-1.1	
	1.5						
						TP34 1.7-1.8	
	2.0						
		2.00			Test Pit TP34 terminated at 2m		
	2.5						

TP400

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 1.2
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				SM	Silty sand, grey/brown, damp, heterogeneous, loose, poorly graded, fine sand, including rootlets	TP400 0.0-0.1	No ACM, odour or staining
		0.30		CL-ML	Silty clay, grey/light brown with dark brown mottling, damp, soft, low plasticity, including weathered ironstone gravel		No ACM, odour or staining
	0.5					TP400 0.4-0.5	
		0.60		CL-ML	Silty clay, grey/light brown with dark brown mottling, moist, firm, high plasticity, including weathered ironstone gravel		No ACM, odour or staining
	1.0					TP400 0.8-0.9	
		1.20			Test Pit TP400 terminated at 1.2m		
	1.5						
	2.0						
	2.5						

TEST PIT JBSG TEST PIT - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

TP401

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 04/02/2019
Logged By: MN
Contractor:
Total Hole Depth (mbgs): 0.8
Pit Dimension (m3): 50

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Method	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Hand Auger				SM	Silty sand, grey/brown, damp, heterogeneous, loose, poorly graded, fine sand, including rootlets	TP401 0.0-0.1	No ACM, odour or staining
	0.5	0.40		CL-ML	Silty clay, grey/light brown with dark brown mottling, damp, soft, low plasticity, including weathered ironstone gravel	TP401 0.4-0.5	No ACM, odour or staining
	1.0	0.80			Test Pit TP401 terminated at 0.8m	TP401 0.8-0.9	
	1.5						
	2.0						
	2.5						

MW01

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 29/01/2019
Logged By: MN
Contractor: Terratest
Total Hole Depth (mbgs): 8.2
Bore Diameter (mm): 125

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Water Level Initial (mbgs): 5.5
Surface Finish: Standpipe
Casing / Screen Type: Class 18 PVC - 50mm
Casing Bottom Depth (mbgs): 5
Screen Bottom Depth (mbgs): 8

Method	Water (mbgs)	Well Details	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Push Tube						Fill	Sandy silty clay, dark brown, dry, heterogeneous, stiff, medium plasticity, including rootlets	MW01 0.0-0.2 PID = 1.5 ppm	No ACM, odour or staining
				0.30		CL-ML	Silty clay, red/brown with grey mottling, dry, hard, high plasticity	MW01 0.4-0.5 PID = 1.6 ppm	No ACM, odour or staining
			1					MW01 1.0-1.1 PID = 2 ppm	
				1.20		CL	Clay mixed with shale, light brown/grey, with grey mottling, dry, medium plasticity	MW01 1.5-1.6 PID = 0.8 ppm	No ACM, odour or staining
			2					MW01 2.0-2.1 PID = 1.3 ppm	
Solid Flight Auger				2.20		SHALE	Crushed weathered shale, grey, dry, firm, including brown clay mottled grey		No ACM, odour or staining
			3						
			4						
			5						
	▼			5.50		SHALE	Crushed weathered shale, grey, wet, firm, including brown clay mottled grey	MW01 5.5-5.6 PID = 2.4 ppm	No ACM, odour or staining
			6	6.00		SHALE	Crushed weathered shale, grey, saturated, firm, including brown clay mottled grey		
			7						No ACM, odour or staining
			8						
				8.20			Borehole MW01 terminated at 8.2m		
			9						

WELL JBSG WELL - 2017.GPJ GINT STD AUSTRALIA.GDT 12/2/19

MW02

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 29/01/2019
Logged By: MN
Contractor: Terratest
Total Hole Depth (mbgs): 8.2
Bore Diameter (mm): 125

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Water Level Initial (mbgs): 6.5
Surface Finish: Standpipe
Casing / Screen Type: Class 18 PVC - 50mm
Casing Bottom Depth (mbgs): 5.2
Screen Bottom Depth (mbgs): 8.2

Method	Water (mbgs)	Well Details	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Push Tube						CL-ML-SM	Sandy silty clay, brown, dry, heterogeneous, very stiff, medium plasticity, including rootlets	MW02 0.0-0.2 PID = 13.6 ppm	No ACM, odour or staining
				0.30		CL-ML	Silty clay, brown/grey with red/brown mottling, dry, very stiff, medium plasticity	MW02 0.4-0.5 PID = 13.5 ppm	No ACM, odour or staining
			1	1.20		CL-ML	Silty clay, brown/grey with grey mottling, damp, firm, high plasticity	MW02 1.2-1.3 PID = 21.2 ppm	No ACM, odour or staining
			2	1.80		CL-ML	Silty clay, brown/dark grey with grey/black mottling, damp, firm, high plasticity	MW02 1.9-2.0 PID = 16.8 ppm	No ACM, odour or staining
				2.40		CL-ML	Silty clay, brown/light grey with grey mottling, damp, firm, high plasticity		No ACM, odour or staining
			3	3.20		CL-GC	Gravelly clay, brown with red/grey mottling, damp, very stiff, high plasticity, including ironstone gravel	MW02 3.0-3.1 PID = 7.8 ppm	No ACM, odour or staining
				3.50		CL-ML	Silty clay, brown with grey mottling, damp, stiff, high plasticity		No ACM, odour or staining
			4	4.20		CL-GC	Gravelly clay, brown with red/grey mottling, damp, very stiff, high plasticity, including ironstone gravel		No ACM, odour or staining
				4.50		CL-ML	Silty clay, brown with grey mottling, damp, stiff, high plasticity		No ACM, odour or staining
			5	5.30		CL-GC	Gravelly clay, brown with red/grey mottling, damp, very stiff, high plasticity, including ironstone gravel		No ACM, odour or staining
			6	6.20		CL-ML	Silty clay, brown/yellow with grey mottling, damp, hard, high plasticity, including minor ironstone gravel	MW02 6.0-6.1 PID = 3.1 ppm	No ACM, odour or staining
Solid Flight Auger	▼			6.50		SHALE	Shale, grey, saturated		No ACM, odour or staining
			7						
			8						
				8.20			Borehole MW02 terminated at 8.2m		
			9						

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MW03

Project Number: 54963
Client: Altis Property Group
Project Name: Mamre Road DSI
Site Address: Mamre Road, Kemps Creek

Date: 29/01/2019
Logged By: MN
Contractor: Terratest
Total Hole Depth (mbgs): 7.5
Bore Diameter (mm): 125

Eastings (GDA 94):
Northings (GDA 94):
Zone/Area/Permit#:
Reference Level: Ground Surface
Elevation (m):

Water Level Initial (mbgs): 5.5
Surface Finish: Standpipe
Casing / Screen Type: Class 18 PVC - 50mm
Casing Bottom Depth (mbgs): 4.5
Screen Bottom Depth (mbgs): 7.5

Method	Water (mbgs)	Well Details	Depth (mbgs)	Contact (mbgs)	Graphic Log	Lithological Class	Lithological Description	Samples Tests Remarks	Additional Observations
Push Tube						Fill	Sandy silty clay, brown, dry, heterogeneous, stiff, medium plasticity, including rootlets	MW03 0.0-0.2 PID = 4.3 ppm	No ACM, odour or staining
				0.20		CL	Clay, red/brown with grey and slight orange mottling, dry, very stiff, high plasticity, including rootlets	MW03 0.4-0.5 PID = 4.4 ppm	
			1						No ACM, odour or staining
				1.50		CL	Clay, grey/light brown, damp, homogeneous, stiff, high plasticity	MW03 1.5-1.6 PID = 2.1 ppm	
			2						No ACM, odour or staining
				2.80		CL	Clay, grey, moist, homogeneous, stiff, high plasticity	MW03 2.9-3.0 PID = 4.5 ppm	No ACM, odour or staining
Solid Flight Auger				3.20		CL	Clay, light brown/yellow, moist, homogeneous, firm, high plasticity		
			4						No ACM, odour or staining
	▶		5						
				5.50		CL	Clay, light brown/yellow, saturated, homogeneous, firm, high plasticity		
			6						No ACM, odour or staining
			7						
				7.50			Borehole MW03 terminated at 7.5m		
			8						
			9						

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