APPENDIX 8

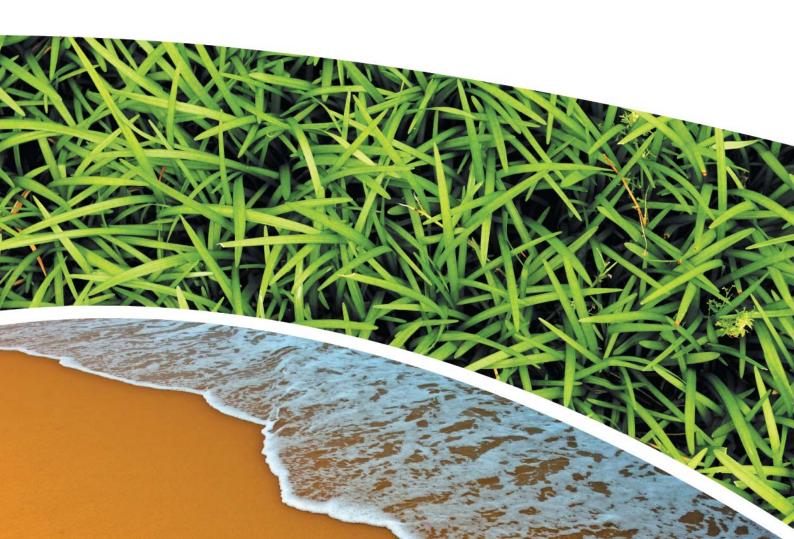
Preliminary Site Contamination Assessment



Prepared for UMWELT (AUSTRALIA) PTY LTD
Prepared by RCA Australia

RCA ref 15737-401/3 MARCH 2022





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RCA ref 15737-401/3 Client ref 21450

7 March 2022

Umwelt (Australia) Pty Limited 75 York Street Teralba NSW 2284

Attention: Marion O'Neil



Geotechnical Engineering

Engineering Geology

Environmental Engineering

Hydrogeology

Construction Materials Testing

Environmental Monitoring

Noise & Vibration

Occupational Hygiene

PRELIMINARY SITE (CONTAMINATION) ASSESSMENT KURRI KURRI LATERAL PIPELINE PROJECT, LENAGHAN TO KURRI KURRI

EXECUTIVE SUMMARY

The Kurri Kurri Lateral Pipeline Project (the Project) is proposed to be situated between Lenaghan and Kurri Kurri NSW to provide gas supply to the Hunter Power Project (HPP), to be situated at the former Hydro Australia Pty Ltd (Hydro) aluminium smelter at Kurri Kurri.

The Project comprises the following primary components:

- An underground transmission pipeline of approximately 20.1 kilometres in length.
- An underground storage pipeline, of around 24 kilometres in total, to hold a supply of gas ready to be delivered to the HPP as required.
- A compressor station at the termination of the transmission pipeline to transfer gas to a storage pipeline.
- An underground interconnect pipeline, of approximately 1.5 km in total length, providing an interface between the Project components.
- A delivery station to control temperature, pressure and flow rate prior to delivery of gas to the HPP.

Ancillary sites such as access tracks, material storage areas and works compounds will also be required during the construction.

A total of seventy-three (73) discrete parcels of land have been identified as within the Project footprint. These are shown within **Table 1** and on the drawings within **Appendix A**. Due to their location within the HPP boundary, the compressor and delivery stations have not been included in the Project footprint as part of this assessment.

Secretary's Environmental Assessment Requirements (SEAR, refer **Section 1.3**) were issued by the NSW Department of Planning, Industry and Environment (DPIE) on 23 July 2021 in regards to the Project and included requirements to consider acid sulfate soils and groundwater amongst other environmental aspects. The NSW EPA also made specific mention of the requirement to assess potential contamination.

This preliminary site (contamination) assessment has been prepared by RCA Australia to ascertain whether there is potential for contamination to be present within the Project footprint and whether there are potential constraints associated with the contamination such that further assessment / consideration is required.

This assessment has comprised review of historical documents, government records and registers, and inspection of available areas of the Project footprint (refer **Drawings 2**, **Appendix A** and **Appendix G** for inspection photographs) to assess whether there was potential for contamination to be present. Soil samples have been collected within proximity to the Chichester Trunk Gravity Main (CTGM) and from two (2) low-lying areas of the Project footprint in which mapping identified a risk of encountering acid sulfate soils. An assessment of the aggressivity characteristics of the soil and groundwater in the same low-lying areas has been reported separately.

Based on the reviewed historical information, the Project footprint has generally remained undisturbed or has been used for either agricultural or mining purpose. There has been some residential use in association with the agricultural use and the former Hydro Aluminium smelter is situated within the western end of the Project footprint (and utilised for the HPP).

Potential contaminant issues identified as part of the desktop assessment comprised:

- The CTGM which has previously been identified as a source of lead contamination to the soils in its vicinity due to the historical use of lead-based solder in the joins and it was considered that there was potential for chemical spraying to have been undertaken such that there may have been residues of pesticides and herbicides. The transmission pipeline crosses the CTGM at four (4) locations within the Project footprint by horizontal boring at a distance of approximately ten (10) metres from the CTGM and runs adjacent the CTGM for approximately four (4) kilometres.
- Parcel 10 (refer Drawing 2a, Appendix A) which was formerly a poultry farm. The Project footprint (the transmission pipeline) appears to intersect with three (3) former building footprints in which there is potential use of disinfectants, diesel and formaldehyde and there may be hydrocarbons and metals. The Project footprint is in proximity to additional building footprints and three (3) suspected waste burial areas which may include building waste, asbestos materials and biological waste.
- Parcel 12 which has previously had mining related and asphalt manufacturing infrastructure at the site. Potential asbestos containing materials were identified at the site however were not identified within the three (3) test pits excavated in proximity to the Project footprint (refer **Drawing 2a**, **Appendix A**). There is a Creek crossing within the Project footprint in the Parcel boundary and it is considered that the potential for asbestos fill to have been placed in this area cannot be discounted however no further investigation was recommended by the previous investigative report (Ref [11]) for the area of the Parcel associated with the Project footprint.
- Parcels 18 and 20 (refer **Drawing 2c**, **Appendix A**) which were part of the operational portion of the former Hydro Aluminium smelter site. Contamination primarily (Ref [12]) comprised polycyclic aromatic hydrocarbons (PAH) in shallow soils (<0.6m below the surface) however there are aesthetic issues with fill and buried waste material and asbestos is considered to be a potential contaminant. Additional contaminants, such as cyanide and fluoride are considered to be potentially present in some areas of the former Hydro smelter. A number of areas (refer **Drawing 2c**, **Appendix A**) have been identified as requiring additional investigation.



- Parcel 16 also has the potential to be contaminated by the irrigation of surface water collected at the former Hydro smelter.
- Acid sulfate soils which are mapped (refer **Drawings 2b** and **2c**, **Appendix A**) as being present within the central and western portions of the Project footprint in proximity to Wallis and Swamp Creeks respectively. It is noted that there are further acid sulfate soils mapped to the east of the Project footprint (refer **Drawing 2a**, **Appendix A**) however as these are not included within the Project footprint no further consideration has been undertaken.

The inspection did not identify significant additional items of concern. Potential asbestos materials were sighted (refer **Photograph 52**, **Appendix G**) in a stockpile within Parcel 23 near the Project footprint however this was a minor quantity. Two (2) areas of rehabilitation and an area of coal washery reject filling were identified (refer **Drawing 2b**, **Appendix A**). It was considered that these may pose potential contamination risks depending on the material used as fill. Potential burial pits were identified within Parcel 43 (refer **Photograph 7**, **Appendix G**).

Soil sampling undertaken in proximity to the CTGM did not identify any lead concentrations that were considered a constraint to the Project; no pesticide or herbicide concentrations were identified within the samples and as such chemical residues are not considered to be a risk.

Soil sampling undertaken in the proximity of Swamp and Wallis Creeks did not identify any hydrocarbons, metals or pesticide concentrations that were considered a constraint to the Project however did identify potential and actual acid sulfate soil at depths of approximately 2m below the surface. The current design for the transmission pipeline comprises horizontal drilling at >10m below the surface in the areas where the acid sulfate soil characteristics were identified such that acid sulfate soils are not considered likely to be encountered.

The remainder of the Project footprint is not considered likely to pose a significant contamination risk however there may be isolated areas of fill / waste deposition which has not been identified and that some low levels of pesticides, herbicides, hydrocarbons and metals may be present from the agricultural uses.

No assessment of the potential contamination of surface water has been undertaken; RCA understands that crossings of creeks will generally be by horizontal drilling such that there is no interaction with surface water.

No assessment of contamination in groundwater has been undertaken however based on previous reports (Ref [10] and [11]) groundwater is likely to be deep (>5m) in the majority of the Project footprint and won't be encountered by the construction works, although perched groundwater may be encountered above bedrock and within coal seams and shallow groundwater is expected in areas where the underlying geology comprises quaternary sediments ('Qa', refer **Drawing 3**, **Appendix A**) such as was encountered in proximity to Swamp and Wallis Creeks. There has been no potential for groundwater contamination identified across the majority of the Project footprint, however the potential for groundwater to be contaminated cannot be discounted. Groundwater within the former Hydro smelter (Parcels 18 and 20) is considered likely to be contaminated however the extent of contamination is unknown at this time; further works are recommended as part of the remediation (refer **Section 3.4.3**) to provide further quantification.



RCA considers that there are limited constraints associated with regards to contamination within the Project footprint: these can be appropriately managed during the construction process such that the Project footprint is considered able to be suitable for the proposed works.

No further assessment of the Project footprint in the vicinity of the CTGM is considered necessary unless the horizontal boring is moved to a closer proximity than what has been outlined by this assessment report.

The two (2) areas of significant contamination concern (Parcel 10 and the former Hydro smelter) have remedial action plans (RAP) which outline the remediation which is required to be undertaken to facilitate the commercial / industrial use of the areas. Both are subject to requirements for the issue of a Site Audit Statement by a NSW EPA accredited contaminated sites auditor such it is considered that the Parcels will be made suitable for the Project, although some management control measures may be in place following the completion of remediation.

The three (3) rehabilitation / fill areas within the central portion of the Project footprint (refer **Drawing 2b**, **Appendix A**) may present a risk of contamination depending on the type of material used.

Management is considered to be required for:

- The removal of waste within the Project footprint prior to the commencement of construction. This will include the asbestos material identified within Parcel 23, the fence posts identified within between Parcels 40 and 41, and potential refuse within Parcel 12 and as encountered in other areas of the Project footprint.
- Acid sulfate soil within the eastern extent of the storage pipeline and in the vicinity of Wallis Creek. Potential and actual acid sulfate soil has been identified and if there will be an impact from the Project construction, by way of excavation of the soils or dewatering, an acid sulfate soil must be compiled in accordance with the guidelines (Ref [16]) to outline the preparations, management measures, treatment processes and contingency planning for the excavated soil. It is noted that details provided with regards to the design and methodology indicate that there will be no disturbance of potential or actual acid sulfate soils.
- Groundwater being encountered in excavations or otherwise being extracted due to, dependent on locations, known or potential contamination / acidity issues. The management plan must outline the preparations, management measures, treatment processes and contingency planning for encountering groundwater within the excavations.

A management plan will be required in the event that construction of the Project is to be undertaken prior to the completion of remediation on Parcel 10 and/or the former Hydro smelter. The management plan may also be required after completion of the remediation, depending on the extent of the remediation and the potential for the Project construction works to be impacted by contaminated soil and / or groundwater. The plan will need to outline the controls and mitigation measures to be implemented for the protection of human health and the environment and will likely need to be undertaken in consultation with the remediation specialists undertaking the works.

An unexpected finds protocol is also considered to be required to outline the requirement for cessation of works and assessment with regards to identification of waste deposition, filling and any odorous soils that have not otherwise been discussed in this report.



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1 INTRODUCTION AND PROJECT DESCRIPTION

This report comprises a preliminary site (contamination) assessment which has been prepared by RCA Australia to address relevant items of Secretary's Environmental Assessment Requirements (SEAR, refer **Section 1.3**), issued by the NSW Department of Planning, Industry and Environment (DPIE) on 23 July 2021, for the proposed Kurri Kurri Lateral Pipeline Project (the Project) to be situated between Lenaghan and Kurri Kurri, NSW.

The purpose of the Project is to provide a gas supply solution to a gas-fired peaking power station, referred to as the Hunter Power Project (HPP), proposed by Snowy Hydro at the former Hydro Australia Pty Ltd (Hydro) aluminium smelter at Kurri Kurri. The HPP is proposed to provide up to 750 megawatts of 'on-demand' electricity to supplement Snowy Hydro's generation portfolio with dispatchable capacity when the needs of electricity consumers are highest.

The Project comprises the following primary components:

- A buried, steel, medium diameter (up to 350mm), medium pressure (up to 6.9 megapascal (Mpag)) transmission pipeline of approximately 20.1 kilometres in length to provide a gas supply from the existing Sydney to Newcastle Pipeline (SNP, formally referred to as the Plumpton to Hexham Northern Trunk), via receipt and delivery facilities, to the HPP.
- A compressor station at the termination of the transmission pipeline to boost gas pressure prior to transfer to a storage pipeline.
- A buried, steel, medium diameter (up to 350mm), high pressure (up to 15.3 Mpag) interconnect pipeline of approximately 1.5 km in total length, providing an interface between the compressor station, storage pipeline and delivery station.
- A buried, steel, large diameter (up to 1050mm), high pressure (up to 15.3 Mpag) storage pipeline of around 24 kilometres in total length downstream of the compressor station to hold approximately 70 terajoules (TJ) of gas ready to supply the HPP.
- A delivery station to receive gas from the storage pipeline and control temperature, pressure and flow rate prior to delivery of gas to the HPP.

The compressor station and delivery station are located within the HPP project boundary and have not been included as part of this assessment.

A schematic outlining the relationship of these project components, and the associated responsible parties, is provided in **Figure 1**.



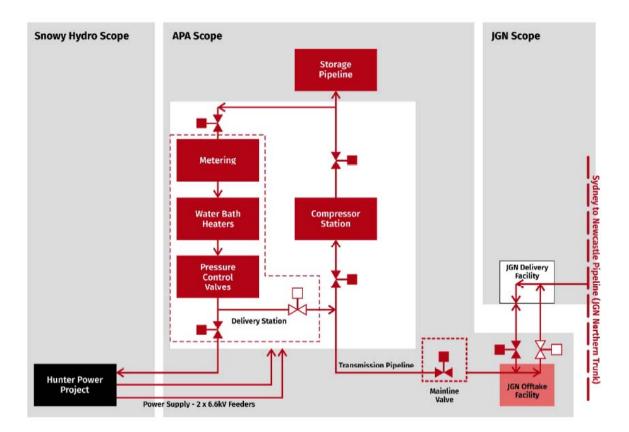


Figure 1 Relationship of project components (subject to change)

A compressor station and storage pipeline are required as part of the Project as the SNP does not provide sufficient gas volumes or pressure to meet the supply requirements of the HPP. As such, a direct pipeline connection between the SNP and the HPP is not a viable solution for gas supply to the HPP.

The Project footprint of the transmission pipeline would commence at the Project's proposed Jemena Gas Network (JGN) Offtake (refer **Figure 1** above) facility near Black Hill, approximately 15 km northwest of Newcastle, and terminate at the HPP, approximately 2 km north of Kurri Kurri, as shown on **Drawing 1**, **Appendix A**.

Construction is planned to commence during late 2022 with a gas supply to the HPP provided during late 2023. The HPP is planned to be operational by the end of 2023.

The Project, including the ancillary surface facilities, would be designed, constructed, commissioned and operated in accordance with the relevant Australian Standard (Ref [1]) and licenced under the *Pipelines Act 1967*.

The purpose of the assessment was to provide information regarding for the potential for contamination within the Project footprint (i.e., that within the APA scope in **Figure 1** above) to facilitate the current assessments in accordance with NSW and Commonwealth government frameworks.

RCA have been engaged by Umwelt (Australia) Pty Ltd (Umwelt) to undertake this work on behalf of the project's proponent: APA Group (APA).



1.1 OBJECTIVES

The objective of this assessment is to identify whether there is potential for contamination to be present within the Project footprint and whether there are potential constraints associated with the contamination such that require further assessment / consideration.

The objectives of this report are to detail the findings of the assessment in accordance with the NSW EPA guidelines (Ref [2]) such that the SEAR items regarding contamination are considered to be addressed or otherwise identify that further works are required to deem the proposed footprint suitable for the Project.

1.2 SCOPE OF WORK

The scope of work for the validation comprised:

- Site history assessment utilising Council, State Government and Federal Government resources.
- Inspection of as much of the Project footprint as could be accessed; noting that negotiations with some landowners were ongoing at the time of report issue.
- Collection of soil samples in the vicinity of the crossings of the Chichester Trunk Gravity Main (CTGM) and analysis of these for lead, pesticides and herbicides due to publicised history of contamination from lead-based paint on the CTGM and potential chemical residue from pest and weed spraying presumed to have been undertaken.
- Collection of soil samples as considered necessary based on the inspection observations.
- Collection of soil samples within the Project footprint in the vicinity of Swamp and Wallis
 Creeks to provide information regarding acidity and contamination constraints.
- Preparation of this report and liaison with Umwelt and APA prior to its finalisation.

1.3 REGULATORY COMPLIANCE

The investigation and preparation of this report was undertaken with reference to (but not limited to) the following regulatory guidance documents and standards:

- NSW EPA, Guidelines for Consultants Reporting on Contaminated Sites, (Ref [2]).
 - This document was used for reference as to what information was to be included in this report.
- NSW EPA, Guidelines for the NSW Site Auditor Scheme (3rd Ed, (Ref [3]).
 - This document was used for reference as to what information was to be included in this report.
- NSW Department of Urban Affairs and Planning, Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land, (Ref [4]).
 - This report has been provided to satisfy the requirements of SEPP 55 which require
 an assessment that the Project footprint is suitable or can be made suitable for the
 proposed use.
- National Environmental Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, (Ref [5]).



- These guidelines detail the exposure scenario relevant to the Project footprint and human health and ecological assessment criteria.
- NSW Acid Sulfate Soil Management Advisory Committee, Acid Sulfate Soil Manual, August, (Ref [6]).
 - These guidelines were used as assessment criteria for the characterisation of potential acid sulfate soils.

The SEAR for the Project identifies key issues and referenced guidelines that must be addressed in the Environmental Impact Statement (EIS). Standard SEAR Item 5 requires information regarding a number of features relevant to water and soils:

- Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map).
- Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method).
- Wetlands as described in s4.2 of the Biodiversity Assessment Method.
- Groundwater.
- Groundwater dependent ecosystems.
- Proposed intake and discharge locations.

This report has made comment regarding acid sulfate soils (refer **Sections 3.5**, **7.2.2** and **7.3.2**), and groundwater (refer **Sections 3.5**). Other components of SEAR Item 5 have been addressed by technical reports that form part of the EIS.

The NSW EPA response to the Project required the project to provide:

- Construction actions to address any existing soil contamination.
- Identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material.

This report has identified the existing conditions to facilitate the derivation of appropriate construction methodologies to address the NSW EPA response.

2 SITE IDENTIFICATION AND DESCRIPTION

The Project footprint is defined as the:

- Construction of a Right of Way, extra workspaces and access tracks associated with the transmission pipeline.
- Construction footprint of the storage pipeline and associated access tracks, situated north of the former Hydro smelter at Kurri Kurri, and up to approximately 160m wide (depending on final design) and 2km long.
- Associated surface facilities comprising the JGN takeoff facility, compressor station and delivery station.

The Project footprint encompasses an area of approximately 98 ha from the rural locality of Lenaghan, approximately 15 km northwest of Newcastle to approximately 2 km north of Kurri Kurri.



Drawing 1, Appendix A shows the locality and the layout of the Project footprint.

Seventy-three (73) distinct parcels of land are intersected by the Project footprint; these are presented in **Table 1** below along with the relevant details and their location and boundaries are included on **Drawing 1**, **Appendix A**. It is noted that the Parcels are presented in an east / west direction in **Table 1** below.



Table 1Project footprint Details

Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
45	51 DP1158920	C4 Environmental Living (Ref [7]).	Agricultural (grazing).	Un-named drainage line / creek traverses site; two (2) dams situated within Lot. Nearest residences within Lot, 100m to east and 350m to west.
52		Road within C4 Environmental Living (Ref [7]).	Lenaghan's Drive	Un-named drainage line / creek goes underneath Road between Parcels 64 and 45; a number of dams situated within Parcels 45 and 64. Nearest residences within Parcels 45 and 64.
53*				A dam is situated at >200m to the south-east; additional dams
61*		SP2: Classified Road (Ref [7]).	Pacific Motorway and easement	are situated to the east, south-east and south-west at greater distance.
01	61"	(1 (0) [1]).		There is a residence approximately 285m to the west.
60		SP2: Classified Road (Ref [7]).	Pacific Motorway and easement	A dam is situated at >200m to the south-east; additional dams are situated to the east, south-east and south-west at greater distance.
				There is a residence approximately 285m to the west.
59		Road within C4		A dam is situated in an adjacent property approximately 500m to the west and a further dam is approximately 500m to the south-east.
58		Environmental Living (Ref [7]).	Black Hill Road and easement.	There are residences situated to approximately 500m to the
57		(1)		west and approximately 250m to the east (across the Pacific Motorway).
56b	11 DP829154	C4 Environmental Living (Ref [7]).	Agricultural (grazing) on eastern portion; western portion heavily treed.	A dam and residence are situated within the Lot approximately 0.5km west of the Project footprint.
54		Road within C4 Environmental Living	Black Hill Road and easement.	A dam is situated in an adjacent property approximately 500m to the west. There are residences situated to approximately 500m to the
J-7		(Ref [7]).	Black Fill Road and Cascificht.	west and approximately 250m to the east (across the Pacific Motorway).

Umwelt (Australia) Pty Ltd Preliminary Site (Contamination) Assessment Kurri Kurri Lateral Pipeline Project RCA ref 15737-401/3, March 2022 Client ref 21450 AWS-TEM-003/9



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
56a	10 DP829154	C4 Environmental Living (Ref [7]).	Agricultural (grazing – Hunter Valley Equestrian Centre) on eastern portion; western portion heavily treed.	A residence is situated within the Lot approximately 0.1km and 0.3km south and west respectively of the Project footprint.
44	50 DP881157	C4 Environmental Living (Ref [7]).	Unused land between operational private land and Pacific Motorway.	Woods Gully crosses the Lot and there are two (2) dams, presumed to be former sedimentation dam associated with the construction of the Motorway, are situated 5m to the east and 15m to south of Lot. Nearest residences 315m to west and 160m to east across Motorway.
14	+	SP2 Infrastructure (Ref [7])	Pacific Motorway between Lot 51 DP1158920 & Lot 50 DP881157 Lot 50 DP881157 and Lot 30 DP870411.	Un-named drainage lines to the south of the crossing between Lot 51 DP1158920 & Lot 50 DP881157 and two (2) dams, at least one of which is presumed to be former sedimentation dam for Motorway construction.
12	30 DP870411	IN2: Light Industrial and C2: Environmental Conservation (Ref [7]).	Vacant former asphalt plant (decommissioned), former Ironbark Colliery infrastructure (refer Section 3.4.2) and bushland, approved for clearing and partial commercial / industrial development. High voltage electrical easement traverse Lot.	Viney Creek traverses the Lot. Residences are as close as 95m to the south and 230m to the east across Pacific Motorway.
10	1 DP1260203	IN2: Light Industrial and C2: Environmental Conservation (Ref [8]).	Vacant former agricultural (intense poultry) subject to approval for commercial / industrial and potentially residential use.	Weakleys Flat Creek and un-named tributaries are present in the northern portion of the Lot. Black Hill public school is approximately 800m to the south of the Lot and there is a house (although occupancy status is unknown) approximately 650m south of the Lot.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
11	119 DP1154904	IN2: Light Industrial, C2: Environmental Conservation and RU2: Rural Landscape (Ref [8]). Appears to carry same zoning as land is traversing.	Easement which traverses three (3) Lots. Presumed to be for CTGM and / or other services.	Lot is crossed by two (2) stretches of Viney Creek in the south, by Weakleys Flat Creek where the Lot crosses John Renshaw Drive. Four Mile Creek and un-named tributary cross the northern part of the Lot.
13		SP2 Infrastructure (Ref [8])	John Renshaw Drive between 1 DP1260203 and 1392 DP1126633	Weakleys Flat Creek approximately 120m to the south of the Drive where the pipeline is proposed to intersect.
8	1392 DP1126633	RU2: Rural Landscape (Ref [8]).	Mining and bushland. CTGM and various roads are present within the Lot.	Weakleys Flat Creek crosses the eastern portion of the Lot and Four Mile Creek is present through the western portion of the Lot. There are three (3) tributaries which may be natural or constructed drainage lines. Five (5) dams, presumed to be primarily water management structures, are contained within the Lot.
6	2 DP1129888	RU2: Rural Landscape (Ref [8]).	CTGM alignment and bushland within mining lease area. Access road is present.	Nil beyond the bushland.
0	12 DP241097	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area.	A dam, presumed to be associated with the nearby mining operations however is part of the Whytes Creek system/ channel, is situated a minimum of 50m to the east of the site.
5	39 DP755237	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and access (haulage) road for Donaldson Coal.	Four Mile Creek intersects the site.
4	38 DP755237	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and access (haulage) road for Donaldson Coal.	The un-named drainage channel, Whytes Creek and Four Mile Creek converge in the northern end of the Lot at a dam (presumed to be associated with the nearby mining operations).
3	37 DP755237	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and access (haulage) road for Donaldson Coal.	An un-named drainage line is present through the site and joins to a dam (presumed to be associated with nearby mining operations) with Four Mile Creek to the north.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
65	1	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and internal road.	An un-named drainage line is present through the site and joins to a dam (presumed to be associated with nearby mining operations) with Four Mile Creek to the north.
1	1 DP1045719	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and internal road.	An un-named drainage line is present through the site and joins to a dam (presumed to be associated with nearby mining operations) with Four Mile Creek to the north.
2	30 DP1113350	RU2: Rural Landscape (Ref [8]).	Bushland within mining lease area. Intersected by CTGM and internal road.	An un-named drainage line is present through the site and joins to a dam (presumed to be associated with nearby mining operations) with Four Mile Creek to the north.
66	1 DP42349	RU2: Rural Landscape (Ref [8]).	Gazetted easement (roads not constructed) within mining operations area between: • Lot 37 DP755238 & Lot 1 DP1045719 • Lot 30 DP1113350 & Lot 31 DP755237.	Un-named drainage line immediately adjacent, and dam (presumed water management structure) approximately 380m to north-east from pipeline's southern crossing point.
30	31 DP755237	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Dam, presumed to be water management structures for mining operations, situated adjacent to northern boundary. Further water management structures approximately 400m to east of Lot.
23	1 DP136865	RU2: Rural Landscape (Ref [8]).	Mining. Predominantly bushland however internal roads are present and part of site apparently used in conjunction with adjacent compound.	Nil beyond the bushland.
22	3 DP1045720	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Ewells Creek is present in the south-eastern portion of the site.
46	-	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Dam, presumed to be water management structures for mining operations, situated 535m to north-east of where pipeline crosses Parcel. Ewells Creek is present within 60m of the point where pipeline crosses Parcel.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
21	2 DP1045720	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Dam, presumed to be water management structures for mining operations, which is situated immediately to north of the Lot.
63	13 DP241097	RU2: Rural Landscape (Ref [8]).	Mining, including a works compound. Electrical lines and internal roads present.	Ewells Creek is situated in the north-eastern portion of the Lot and a dam, considered to be a water management structure for the mining operations is situated approximately 200m to the north.
47		RU2: Rural Landscape (Ref [8]).	Buchanan Road as intersects Lot 1 DP1045723	Dam, presumed to be water management structures for mining operations, situated 220m to north of where pipeline crosses Parcel. Un-named drainage line approximately 85m to north-east of point at which pipeline crosses Parcel.
29	14 DP241097	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Dam, presumed to be water management structures for mining operations, situated within the northern part of Lot.
25	1 DP241097	RU2: Rural Landscape (Ref [8]).	Easement, presumed for CTGM maintenance track, which the Project footprint crosses within the extents of Lot 14 DP241097.	Dam, presumed to be water management structures for mining operations, situated a minimum of 165m to the east of the Lot.
24	1 DP724270	RU2: Rural Landscape (Ref [8]).	Stoney Pinch reservoir and easement for CTGM which is crossed within the extents of: • Lot 14 DP241097 • Lot 1 DP456999.	Dam, presumed to be water management structures for mining operations, situated a minimum of 75m to the east of the Lot.
27	15 DP241097	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM; internal roads present.	Dam, presumed to be water management structures for mining operations, situated within central and northern part of Lot.
26	1 DP456999	RU2: Rural Landscape (Ref [8]).	Mining. Intersected by CTGM and what appear to be two (2) easements associated with roads or services; internal roads present.	Dam, presumed to be water management structures for mining operations, appears to extend to the eastern portion of Lot. Nearest residences approximately 215m to north-west and west.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
28	1 DP722209	RU2: Rural Landscape (Ref [8]).	Easement, presumed for not yet constructed road or for services, which the Project footprint crosses within the extents of Lot 1 DP456999.	Dam, presumed to be water management structures for mining operations, situated a minimum of 135m to the southeast of the Lot.
49		RU2: Rural Landscape (Ref [8]).	Access road for mining operations; intersects Parcel 9.	Residences are as close as 60m to the north and 125m to the east.
9	1 DP1045723	RU2: Rural Landscape and C2: Environmental Conservation (Ref [8]).	Bushland within mining lease area and grazing. Intersected by Buchanan Road, main access drive and CTGM; internal roads present.	Un-named drainage channel present across the site and discharges off site to wetland associated with Buttai Creek which forms the E2 zoned land. Five (5) dams are on the Lot, three (3) presumed to be primarily water management structures on the eastern side of Buchanan Road and two (2) others considered to be agricultural use. Residences are as close as 60m to the north and 125m to the east.
48		RU2: Rural Landscape (Ref [6]).	Buttai Road; intersects Parcel 9.	Dam, presumed to be water management structures for mining operations, approximately 205m to east of point pipeline crosses parcel. Nearest residences approximately 1km to west.
51		An easement, presumed to be non- constructed road or services within RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural (grazing).	Wetlands associated with Buttai Creek are present at the location the pipeline crosses Parcel. Nearest residence is approximately 340m to south-west within Parcel 41.
43	2 DP779342	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural (grazing). An easement, presumed to be non-constructed road or services, traverses Lot.	Wetlands associated with Buttai Creek are present within the eastern and northern portions of the Lot. Nearest residences are within Lot, immediately adjacent western boundary and 185m to south.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
41	1 DP779342	RU2: Rural Landscape and C2: Environmental	Agricultural (grazing).	Wetlands associated with Buttai Creek are present within the northern portion of the Lot.
		Conservation (Ref [9]).		Nearest residences are within Lot and 225m to west of Lot.
40	1 DP797210	RU2: Rural Landscape and C2: Environmental	Agricultural, grazing and potentially some cultivation.	Wetlands associated with Buttai Creek are present within the northern portion of the Lot and Wallis Creek is situated 400m to the west.
		Conservation (Ref [9]).	some cultivation.	Nearest residences are <30m to the west and 150m to east and south-east of Lot.
42	19 DP998606	RU2: Rural Landscape and C2: Environmental	Agricultural (grazing).	Wetlands associated with Buttai Creek are present within the northern portion of the Lot.
		Conservation (Ref [9]).		Nearest residences are within Lot and 350m to east of Lot.
34	3 DP71130	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural.	Wetlands, known as Testers Hollow, associated with Wallis Creek are present within the central portion of the Lot and Wallis Creek forms the eastern boundary.
				Nearest residences are <30m to the south of Lot and 215m to north of Lot.
31	4 DP1249763	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural although currently being used in conjunction with road improvement works and may	Wetlands, known as Testers Hollow, associated with Wallis Creek intersect the southern portion of the Lot and are situated to the east of Main Road. Wallis Creek itself is present 245m to the east.
		([-1)	become part of road reserve.	Nearest residences approximately 175m to north-east and 235m to west.
50		RU2: Rural Landscape (Ref [9]).	Main Road between Parcel 31 and	Wetlands, known as Testers Hollow, associated with Wallis Creek intersect the southern portion of the Parcel. Wallis Creek itself is present 245m to the east.
			34.	Nearest residences approximately 270m to north-east and 290m to north-west or where pipeline intersects Parcel.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
50	-	RU2: Rural Landscape (Ref [9]).	Main Road between Parcel 31 and 34.	Wetlands, known as Testers Hollow, associated with Wallis Creek intersect the southern portion of the Parcel. Wallis Creek itself is present 245m to the east. Nearest residences approximately 270m to north-east and 290m to north-west or where pipeline intersects Parcel.
32	2 DP1249763	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural.	Wetlands, known as Testers Hollow, associated with Wallis Creek are present within the southern portion of the Lot. Wallis Creek itself is present 300m to the east. There are three (3) further dams on the site which are considered to have been constructed for the purpose of stock watering however would connect to the wetlands in times of flooding or by overflow. A fourth water body is present in the north of the site; whether it is due to mine subsidence (refer Section 0) or whether it has been constructed is unknown. Nearest residences are within the Lot, <50m to the north of Lot and 350m to south of Lot.
68	70 DP975994	RU2: Rural Landscape (Ref [9]).	Agricultural (grazing).	An un-named creek is situated within the Lot, draining to Swamp Creek.
67	69 DP975994	RU2: Rural Landscape (Ref [9]).	Agricultural (grazing).	An un-named creek is situated within the Lot, draining to Swamp Creek. There is also a gully running north/south which is considered likely to convey water to Swamp Creek.
35	8 DP456946	RU2: Rural Landscape (Ref [9]).	Agricultural.	Two (2) dams situated approximately 115-130m to north-west and north-east however situated upgradient from Lot.
39	2 DP976895	SP2 Railway (Ref [9]).	Railway and associated corridor.	Dams situated approximately 95m to north; dam considered to be associated with Swamp Creek wetlands in some conditions situated 450m to west.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
33	22 DP1181574	RU2: Rural Landscape (Ref [9]).	Agricultural, potentially including horse training or recreational cycling / motor bikes.	Wetlands, known as Testers Hollow, associated with Wallis Creek are present within the southern portion of the Lot. There is one (1) dam on the site which is considered to have been constructed for the purpose of stock watering. An unnamed creek is present 50m to the north of the site. Nearest residences are within the Lot, <30m to the east of Lot and 95m to north of Lot.
37	9 DP456946	RU2: Rural Landscape (Ref [9]).	Agricultural. Road providing access to nearby residences traverses Lot as does railway line.	One dam situated within the Lot. Nearest residence 285m to north-west.
69	3 DP62332	RU2: Rural Landscape (Ref [9]).	Agricultural (grazing).	Testers Hollow is mapped as being within 200m south-east of the site however based on aerial imagery the distance could be as low as 55m.
36	1 DP976896	SP2 Railway (Ref [9]).	Railway and associated corridor.	Dam situated approximately 270m to west; considered to be associated with Swamp Creek wetlands in some conditions. A second dam situated approximately 110m to north.
38	10 DP456946	RU2: Rural Landscape (Ref [9]).	Agricultural. Road providing access to nearby residences traverses Lot.	One dam immediately adjacent western boundary the Lot and Swamp Creek wetlands approximately 170m to west of Lot. Nearest residence 240m to north.
15	1 DP62332	RU2: Rural Landscape (Ref [9]).	Agricultural (grazing).	Wetlands associated with Swamp Creek appear to extend into the Lot, depending on conditions. The main wetland body is approximately 175m to the west; noting that the extent is considered likely to vary with conditions.
7	13 DP1097621	RU2: Rural Landscape and IN2: light industrial (Ref [9]).	CTGM alignment and bushland within mining lease area.	Weakleys Flat Creek intersects the site.
16	1 DP543057	IN2: Light Industrial and C2: Environmental Conservation (Ref [9]).	Agricultural (grazing). Indications (refer Section 0) of the use of irrigation of wastewater were observed in the western portion of the site.	Swamp Creek runs along the southern boundary and then into wetlands within the eastern and northern portions of the Lot. One (1) other water body is present in the south-western portion of the Lot; it is unknown whether this is a constructed dam or natural. Nearest residence approximately 250m to south of Lot.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
62	1 DP73597	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Agricultural (grazing). Railway intersects south-eastern corner of Lot.	Swamp Creek wetlands take up the majority of the Lot. Nearest residence within Lot and 500m to east.
17	1 DP456769	RU2: Rural Landscape (Ref [9]).	Apparent access road in association with the former Hydro smelter. Intersects with a high voltage electrical easement.	Two (2) dams, presumed to be primarily for water management associated with the former Hydro smelter, are situated approximately 125m and 240m to the west. Informal drainage channel apparent crossing Lot, presumed to be associated with overflow of a one of the dams.
72	317 DP755231	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Bushland, presumed buffer to the former Hydro smelter. There are a number of access tracks present.	Black Waterholes Creek runs south/north and west/east through the Lot; appears to be of sufficient size to act as a wetland in the northern portion of the Lot.
20	Formerly 318 DP755231	RU2: Rural Landscape (Ref [9]).	Part developed in association with the former Hydro smelter, subject to remedial works (refer Section 3.4.2), and partially bushland which is presumed buffer to the former Hydro smelter. Intersects with high voltage electrical easement.	Two (2) dams and part of a third, all presumed to be primarily water management structures for the former Hydro smelter, situated in the Lot. One (1) of the dams has been (at least partially) backfilled.
18	Formerly 769 DP755231; now part Lot 1 DP1276814 and Part Lot 2 DP1276814	RU2: Rural Landscape (Ref [9]).	Former Hydro smelter, subject to remedial works (refer Section 3.4.2) proposed for gas fired power plant.	Un-named creek located in north-western portion of site. Former dam, presumed primarily water management structures for the former Hydro smelter, now (at least partially) backfilled situated in north-western portion of Lot.
71	316 DP755231	RU2: Rural Landscape (Ref [9]).	Bushland, presumed buffer to the former Hydro smelter. There are a number of access tracks present.	Black Waterholes Creek runs west/east in three (3) distinct channels through the Lot.
70	Part 1 DP166625	RU2: Rural Landscape and C2: Environmental Conservation (Ref [9]).	Bushland, presumed buffer to the former Hydro smelter. There are a number of access tracks present.	Black Waterholes Creek runs south/north through a portion of the Lot approximately in immediate (~50m) proximity to the Project footprint of sufficient size to act as a wetland.



Parcel	Lot and DP	Zoning	Land Use	Nearest Sensitive Receptors
73	Formerly 319 DP755231; now part Lot 1 DP1276814 and Part Lot 2 DP1276814	RU2: Rural Landscape (Ref [9]).	Part developed in association with the former Hydro smelter, subject to remedial works (refer Section 3.4.2), and partially bushland which is presumed buffer to the former Hydro smelter. Includes the 'clay borrow pit'. Access tracks present.	Black Waterholes Creek runs south/north through the Lot; it is understood that some of the Creek length is designated as a stormwater drainage channel (refer Drawing 2c , Appendix B and Section 3.4.3).

^{*} Parcels 53 and 61 appear to refer to same portion of land.

No Parcel 55 was identified.

Parcels 19 and 64 have been removed from the Project footprint.



3 HISTORY AND BACKGROUND INFORMATION

3.1 NOTIFICATIONS

The Section 10.7 Planning Certificate as specified under the Environmental Planning and Assessment Regulation 2000 (Schedule 4) includes information associated with any restrictions for the use of the land.

RCA obtained ten (10) Section 10.7 certificates for the Project footprint; the remainder of the Parcels were road alignments and / or considered to be covered by one of the other Section 10.7 due to common use (such as mining).

Information relevant to this obtained from the Section 10.7 certificate and relevant to the Project footprint is contained in **Table 2**.



 Table 2
 Planning Advice Contained in the Section 10.7 Certificates

Issue / Land Parcel	8	9	10	12	16	18	26	33*	40	63
Critical Habitat	*	×	×	*	*	*	*	*	*	*
Conservation Area	*	×	×	*	*	×	*	*	×	*
Item of Environmental Heritage	*	×	×	*	✓	×	*	✓	×	*
Coastal Protection				*						
Mine Subsidence	*	✓	✓	✓	*	*	*	✓	*	*
Road Widening / Realignment	*	×	×	*	*	×	*	*	×	*
Acid Sulfate Soil	×	×	×	Controls apply	×	*	×	×	Controls apply	×
Flood Prone	Controls apply	Controls apply	Controls apply	✓	Controls apply	Controls apply	Controls apply	Controls apply	✓	Controls apply
Identified for Acquisition	*	×	×	*	*	*	*	✓	*	*
Biodiversity Certified Land	*	×	×	*	*	×	*	*	×	*
Land Clearing Set Aside	*	×	×	×	*	×	*	*	×	*
Bushfire Prone	Some	Some	All	✓	Some	Some	Some	Some	All	All
Tree Disputes	*	×	×	×	*	×	*	*	×	*
Minister Direction(s)	*	×	×	×	*	×	*	*	×	*
Loose Fill Asbestos				*					*	
Building / Rectification Notice	*	×	×	×	*	×	*	*	×	*
Contamination#	*	×	×	✓	*	*	*	*	×	*
Additional Matters Noise Exposure	×	×	×		*	*	×	×		*

[★] Issue not applicable to Lot ✓ Issue applicable to Lot -- Issue not mentioned in Certificate.

[#] Refers to definition of 'significantly contaminated land' in the Contaminated Land Management Act (1997), application of Management Order, Voluntary Management Proposal, Ongoing Maintenance Order or Site Audit Statement.



^{*} Information relevant to the portion of land within Cessnock City Council area only.

The full certificates reviewed are included in **Appendix B** and include additional information such as applicable SEPP, land zoning and site compatibility certificates.

RCA note that while the Section 10.7 Certificates identify that Parcels 16 and 33 contain items of Environmental Heritage, no records could be identified within Schedule 5 of the LEP (Ref [8]). As such it is unknown what the items refer to.

RCA viewed the Heritage NSW heritage register¹ map for the Project footprint area and did not identify any items.

RCA undertook a search of the Department of Agriculture, Water and the Environment heritage register² for Lenaghan, Black Hill, Four Mile Creek, Buchanan, Louth Park, Cliftleigh, Gillieston Heights, Loxford, Sawyers Gully and Kurri Kurri. Only two (2) records were identified, both in Kurri Kurri:

- Kurri Kurri Hotel situated at 186 Lang Street. This location is more than 3.5km to the south of the Project footprint and as such not considered to be potentially impacted by works.
- Richmond Main Colliery situated off Mulbring Road, 3km south of Pelaw Main. This
 location is therefore more than 6km to the south of the Project footprint and as such not
 considered to be potentially impacted by works.

3.2 HISTORICAL MAPS AND PHOTOGRAPHS

RCA undertook a search through the University of Newcastle's Library records³ for Lenaghan, Black Hill, Four Mile Creek, Buchanan, Louth Park, Cliftleigh, Gillieston Heights, Loxford, Sawyers Gully and Kurri Kurri and identified a number of records:

- Two (2) images for Lenaghan including Minmi House and a timber contractor in 1967;
 neither were considered relevant to the Project footprint.
- Three (3) images titled "Locomotive No. 9 'Pelaw Main' approaches Lenaghans Drive Road Bridge, Richmond Vale Railway, February 1973". While the specifics of the location could not be identified, it is considered likely that the photograph is situated approximately 2.3km the south of the Project footprint.
- An image of Taylor's Bridge overpass of the Richmond Vale Railway which was situated approximately 2.3km south of the Project footprint.
- An image of the Ironbark Colliery Drift Engine House and Washery under construction in 1973. A 1985 report "Introducing the Ironbark Colliery Project" indicates that the colliery lease was situated across a large area (refer Drawing 1, Appendix A); the drift engine house could not be identified however the Colliery Administration Centre, the surface mine pit head, and the coal handling and preparation plant were identified as being within Parcel 8 at a distance of >100m from the Project footprint.
- Numerous photographs of 'buried continuous miner' in Black Hill section, Stockrington No. 2 Colliery; these are not considered to be relevant to the Project footprint.

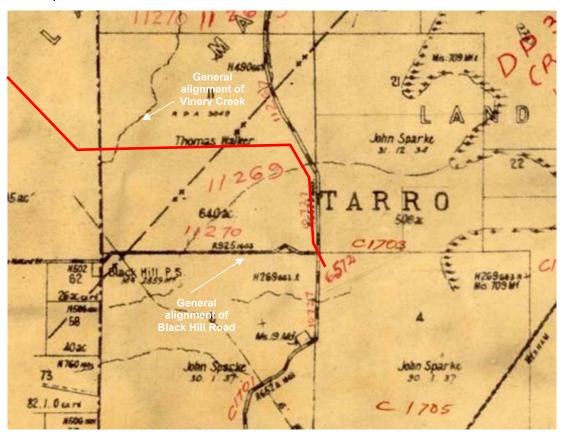


¹ http://www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx

² http://www.environment.gov.au/heritage/publications/australian-heritage-database

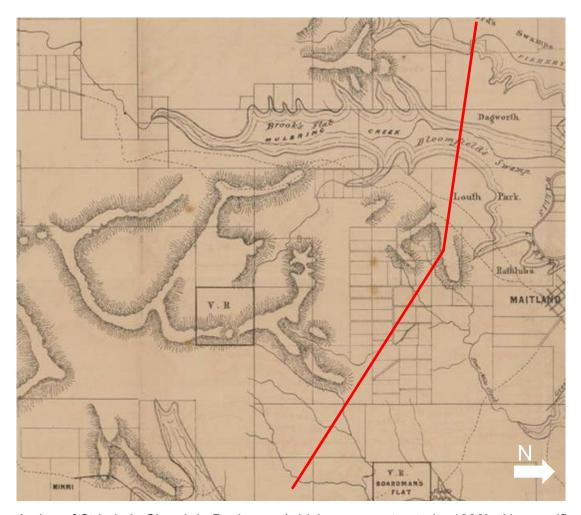
³ https://living.histories.newcastle.edu.au

A 1942 Hexham Parish map, as presented below, which identifies landowners in the
area and captures the eastern most portion of the Project footprint. A red line has been
superimposed by RCA to provide an indicative location of the presumed Project
footprint; this has not been georeferenced and is based on the identifiable features of
the map.



- Three (3) photographs of a shrine at Four Mile Creek.
- A map of flooding in 1857 in the lower Hunter. Areas of the transmission pipeline alignment were affected however the majority of the Project footprint is not included in the map; whether because it wasn't flooded or because it is outside the mapped extent is unknown. An extract is presented below; a red line has been superimposed by RCA to provide an indicative location of the presumed Project footprint; this has not been georeferenced and is based on the identifiable features of the map.





- A plan of St Luke's Church in Buchanan (which was constructed c.1880). No specific location is provided however the document refers to the Church being 4miles to Kurri and 8 miles to Mt Vincent and as such is considered to be in the order of 3.5km from the Project footprint.
- Numerous photographs of the Buchanan loading point for the Stockrington No. 2
 Colliery and other rail related infrastructure. These are not considered relevant to the
 Project footprint.
- Eight (8) photographs of buildings within Louth Park not considered relevant to the Project footprint.
- Four (4) photographs of houses and vehicles at Gillieston Heights; none were considered relevant to the Project footprint.
- Numerous aerial photographs of 'Wentworth Swamp' flooding in 1973. These may be within, or in close proximity to, the Project footprint area however there were insufficient landmarks to be confident of the location.



 More than 3000 photographs relating to Kurri Kurri. These were filtered to photographs before 1982; several of the former Hydro smelter were available from the late 1970s. One of the images, an aerial view from the south in 1978 is presented below. The Project footprint would be at the top of the photograph.



RCA undertook a similar search of the Historical Land Records Viewer⁴ and identified a number of records associated with Kurri Kurri only. These were all town maps and none extended to the point of the Project footprint.

RCA undertook a similar search through the collections of the Newcastle Library⁵ and the State Library of NSW⁶ and identified a number of records:

- Numerous photographs of the colliery at Four Mile Creek. These were specifically of people and a shaft and not considered to assist in the assessment of history. No dates were provided.
- Numerous photographs associated with Buchanan Borehole Colliery which was not located within the suburb of Buchanan and therefore not considered to assist in the assessment of history.



⁴ http://hlrv.nswlrs.com.au/pixel.htm

⁵ http://www.newcastle.nsw.gov.au/Library/Heritage-History/Search-the-Collection/Hunter-PhotoBank

⁶ http://archival.sl.nsw.gov.au/home

- Five (5) photographs relating to flooding in Louth Park and Maitland. There were insufficient landmarks to identify the specific location.
- Numerous photographs of a 1975 bushfire at Sawyers Gully.
- One photograph of Hart Road, Loxford in 1977, showing what appears to be some type
 of litter along the edge of the road. There were insufficient landmarks to identify the
 specific location.
- Numerous photographs of Kurri Kurri buildings and people however only a one related to the former Hydro smelter and this was similar to the photograph presented above.

RCA reviewed historical aerial photographs and **Table 3** summarises the observations at the Project footprint and the surrounding environment.

 Table 3
 Aerial Photograph Review

1954	The Stoney Pinch reservoir has been constructed and there is residential housing at Gillieston Heights, Heddon Greta and Loxford. The Project footprint traverses through cleared farmland in the east and west, and forest in the central section. There are some cleared portions of forest in the area of current mining which may be related this activity.
1966	There have been a number of easements cut through the forested section of the Project footprint and an open cut pit is visible within the area of mining. The Bloomfield underground entrance building is present and there appears to be infrastructure near where the transmission pipeline alignment crosses Buchanan Road. There is an operation which appears to be mining related to the south-east of the proposed transmission pipeline alignment, within or adjacent to Parcel 43, and there has been a large substation constructed between Heddon Greta and Kurri Kurri. Residential development, within the extent shown by the photograph, has increased.
1975	Land to the west of the current Pacific Motorway adjacent to Parcels 44 and 54 has been cleared (except along Viney Creek and a presumed waterway) however there is no apparent development. Clearing has also been undertaken at Parcel 10 and there are multiple poultry sheds present; there is some type of development in the northern portion of Parcel 12 which appears to be related to the former Ironbark Colliery (refer Section 3.4.2). The scale of the mining operations in Parcels 21-23, 63 and other nearby Parcels has increased significantly. Significant mining is apparent in Parcel 9 as well; an increase from 1966. The operations within Parcel 43 appear to have ceased. The remainder of the western portion is relatively unchanged with the exception of clearing in Parcel 32 and the construction of the former Hydro smelter.
1987	Vegetation has re-established in part of the land west of Parcels 44 and 54. What was formerly known as the Boral Asphalt Plant (refer Table 4) is present in the northern portion of Parcel 12. The Ironbark Colliery infrastructure on Parcel 12 appears to have been at least partially demolished / decommissioned. There has been further clearing and construction of poultry sheds on Parcel 10. The scale of the mining operations in Parcels 21-23, 63 and other nearby Parcels, as well as Parcel 9 has further increased significantly. The remainder of the western portion is relatively unchanged except for the former Hydro smelter which has expanded significantly.



1993	The eastern portion is generally unchanged with the exception of a structure of some type in the area of the former Ironbark Colliery infrastructure on Parcel 12. Mining within Parcel 30 has commenced and the current rail loop to the northeast of the Parcel has been constructed. There has been additional mining however the footprint within Parcels 21-23, 63 and 9 and associated Parcels is generally consistent. The western portion is generally unchanged.
1998	The Pacific Motorway has been constructed to the west of Lenaghans Road and there are two (2) dwellings to the west of Parcels 44 and 54. The structure from 1993 at Parcel 12 is no longer present; the ground in the area of the former Ironbark Colliery infrastructure appears disturbed. There has been some demolition and construction of poultry sheds at Parcel 10. The extent of mining through the central portion remains generally consistent. The western portion is generally unchanged.
2001	The Project footprint is generally unchanged with the exception of some construction in the area of the former Hydro smelter.
2010	All of the infrastructure at Parcel 10 has been demolished although the footprints of the former sheds are still visible at a number of locations. Significant clearing and mining have been undertaken to the north of John Renshaw Drive in Parcel 8. Rehabilitation of mining areas in Parcel 9 has been undertaken. The western portion is generally unchanged.
2015	The eastern portion is generally unchanged. Further clearing and mining have been undertaken in the south-western portion of Parcel 8 (and adjacent to Parcel 8). The western portion is generally unchanged although it is noted that there is significantly more surface water in the area than in 2010, however this may be a temporal or seasonal fluctuation.
2020	The eastern portion is generally unchanged except for the construction of dams to the west of the Project footprint. The central portion of the Project footprint is generally unchanged – there have been additional clearing and mining activities to the south of the Project footprint. The former Hydro smelter has been demolished; the remainder of the western portion is generally unchanged. The surface water levels have significantly reduced from the 2015 aerials.

Reviewed documentation is included in **Appendix B**.

3.3 CONTAMINATED LAND PUBLIC RECORD

RCA undertook a search of the NSW EPA public lands register⁷ for records of Environment Protection licences, applications, notices, audits or pollution studies and reduction programmes applicable to the suburbs of Lenaghan, Black Hill, Four Mile Creek, Buchanan, Louth Park, Cliftleigh, Gillieston Heights, Loxford, Sawyers Gully and Kurri Kurri. There were records relating to lands within these suburbs are listed below in **Table 4**; those which are within the scale of **Drawing 1**, **Appendix A** are included on the drawing.



⁷ http://www.epa.nsw.gov.au/publicregister/

Table 4 Sites with a Contaminated Land Public Record in Suburbs Surrounding the Project Footprint

Owner	Address	Comments
Royce Pearce trading as	67 – 75 Lenaghans Drive, Lenaghan	A clean up notice was issued following a report to the NSW EPA regarding illegal dumping on the premises. The clean-up notice indicates more than 1000tonne of waste was transported to the site over a period of 6 months. No information regarding potential contaminants were specified.
AAA Earthworks and Property Maintenance		The land is located approximately 2km south-west of the Project footprint and is considered to be too distant to be of potential impact.
Wallterland		A penalty notice was issued due to failure to pay fee within the scheduled timeframe.
Bitupave	Boral Asphalt Lenaghans Drive, Black Hill.	An EPL was in force for bitumen mixing at the site; the date at which is ceased is not identified. The EPL indicates that there was no requirement to monitor concentrations of pollutants.
Bitupave		The land is approximately 1.5km north of the proposed Project footprint and is considered to be too distant to be of potential impact.
Donaldson Coal	1132 John Renshaw Drive, Black Hill.	An EPL is in force for both underground and open cut coal mining. Air quality, surface water, groundwater and discharge quality monitoring are required as part of the EPL. Water quality monitoring is limited to conductivity, pH, and total suspended solids.
		It is not considered that there is potential for contamination within the Project footprint in association with the licenced activities.
Enviroking Investments	843 John Renshaw Drive, Black Hill.	An EPL is in force for non-thermal treatment of hazardous and other waste, and waste storage (hazardous, restricted solid, liquid, clinical, asbestos). No requirement for monitoring of potential contaminants is required by the EPL.
investments		The land is approximately 1.4km south-west of the proposed Project footprint and is considered to be too distant to be of potential impact.
Woodbury	Blackhill Quarry, Blackhill Road, Black Hill.	An EPL is in force for quarrying operations at the site. No requirement for monitoring of potential contaminants is required by the EPL.
Civil		The land is approximately 2km south-west of the pipeline and is considered to be too distant to be of potential impact.
Thiess Pty Ltd	1416 George Booth Drive, Buchanan.	The EPL was for the construction of the Hunter Expressway, Pacific Motorway to Kurri Kurri and was surrendered in 2010. Monitoring requirements were limited to the discharge of water and were related to the presence of oil and grease, pH and suspended solids. It is not considered that there is potential for contamination within the Project footprint in association with the licence.



Owner	Address	Comments		
Lend lease Engineering Pty Limited	1056 Old Maitland Road, Sawyers Gully.	The EPL was for the construction of the Hunter Expressway, Kurri Kurri to Branxton and was surrendered in 2010. Monitoring requirements were limited to the discharge of water and were related to the presence of oil and grease, pH and turbidity. It is not considered that there is potential for contamination within the Project footprint in association with the licence.		
Hydro Aluminium	Hart Road, Loxford.	An EPL is in force for the remediation of the former Hydro smelter. The EPL requires discharge water quality monitoring from sediment basins. Water quality monitoring is required for aluminium, cadmium, cyanide, fluoride and pH. The proposed compressor station is located within the former Hydro Aluminium lands. Further details regarding the contamination status of the site are provided below in Section 3.4.		
Regain Services Pty Ltd	Regain Spent Potliner Processing Facility Hart Road. Loxford.	An EPL was in force for non-thermal waste processing, crushing and grinding and waste storage however the EPL was surrendered in 2016. Air quality monitoring and monitoring of waste was required by the EPL however no other monitoring of potential contaminants in soil or water was required. The land is situated within the boundaries of the Hydro Aluminium premises and as such it is considered that information relating to the land would be represented by Section 3.4.		
Alfabs Engineering Group Pty Ltd	146 Mitchell Avenue, Kurri Kurri.	A clean up notice was issued regarding the deposition / storage of more than 1000tonne of waste at the site. The waste included soil stockpiles, concrete, demolition waste (including suspected asbestos), chemical containers and drums, and derelict machinery which was leaking oil to the ground. The NSW EPA considered that there were indications of historical waste deposition and flow paths to Swamp Creek. The land is approximately 2.5km south of the Project footprint and is considered to be too distant to be of potential impact.		
Central Waste Plant Pty Ltd	8 Styles Street, Kurri Kurri.	An EPL is in force for resource recovery and waste storage. There are limits to noise however there are no monitoring requirements. The land is approximately 2km south of the Project footprint and is considered to be too distant to be of potential impact.		



Owner	Address	Comments				
Weston Aluminium	129 Mitchell Avenue, Kurri	An EPL is in force for metallurgical activities, resource recovery, waste disposal (thermal treatment) and waste storage. The licence poses limits to the emissions of various air pollutants, the types of waste, noise limits, and discharge water quality (metals, cyanide, fluoride, conductivity, pH and suspended solids). The land is approximately 2km south of the Project footprint and is considered to be too distant to be of potential impact with the potential exception of air emissions.				
Pty Ltd	Kurri.	A clean up notice was issued after a fire at the site on 14 th November 2021 and water used to extinguish the fire had pooled at the premises and then discharged to Swamp Creek. Weston Aluminium was directed to contain remaining firewater and associated leachate, conduct an investigation regarding use of pollution control equipment and prepare a waste management plan. No scheduled activities were permitted until the NSW EPA granted approval.				
Tox Free Australia Pty Ltd	126 Mitchell Avenue, Kurri Kurri.	An EPL was in force for waste storage however was surrendered in 2015. There were restrictions to the type of waste however no monitoring requirements. The land is approximately 2.3km south of the Project footprint and is considered to be too distant to be of potential impact.				
Hunter and New England Health Service Kurri Kurri Hospital, Lan Street, Kurri Kurri.		An EPL is in force for the storage of up to 10tonne of waste. There are no monitoring requirements. The hospital is approximately 4.4km south of the Project footprint and is considered to be too distant to be of potential impact.				
Hunter Water Corporation	Kurri Kurri Wastewater Treatment Works, off McLeod Road, Kurri Kurri.	An EPL is in force for sewage treatment. Monitoring is required of effluent for nutrients, oil and grease, and suspended solids. The facility is approximately 1.6km south of the Project footprint and is considered to be too distant to be of potential impact.				



Owner	Address	Comments
Nationwide Oil Pty Ltd		An EPL was in force for waste storage however was surrendered in 2006. There were no monitoring requirements. The land is approximately 2.6km south of the Project footprint and is considered to be too distant to be of potential impact.
Worth	47 Wermol Street, Kurri Kurri.	A clean up notice was issued after a fire at the site on 9 th June 2015 and identification of a tank with liquid waste from various sources which appeared to have caused soil contamination in its vicinity and was furthermore associated with the fire. Worth Recycling was ordered to move the liquid waste to an appropriate receptacle, assess its chemical character and dispose to a licensed waste facility, and further undertake an assessment of potentially impacted soil.
Recycling Pty Ltd		Two (2) penalty notices were issued for the occupier of the site not holding a licence and transporter not complying with obligations prior to transporting waste.
		A further clean up notice was issued following the receipt of a report which identified that soil contamination was present in the area of the unauthorised tank. Worth Recycling was directed to remove the contaminated material to a licensed waste facility and to obtain a validation report confirming that all contaminated soil had been removed.

RCA undertook a search of premises notified to the NSW EPA as potentially requiring regulation⁸ (as updated 11 October 2021) within the suburbs of Lenaghan, Black Hill, Four Mile Creek, Buchanan, Louth Park, Cliftleigh, Gillieston Heights, Loxford, Sawyers Gully and Kurri Kurri and identified the following:

- Kurri Wastewater Treatment Plant located on McLeod Road, Loxford. The Plant is listed
 as not requiring regulation under the CLM Act. The site is located approximately 1.6km
 south-east of the pipeline and is considered too distant to potentially impact the Project
 footprint.
- Former Hydro smelter located on Hart Road, Kurri Kurri. Refer to Section 3.4 regarding the contamination status of the premises. Regulation under the CLM was not required.
- United Petroleum Service Station located at 279-281 Lang Street, Kurri Kurri. The lands were formerly regulated under the CLM Act however no information is presented. The premises is approximately 3.7km to the south of the Project footprint and considered too distant to be of potential impact.

The above lands which are within the scale of **Drawing 1**, **Appendix A** are included on the drawing.

RCA undertook a search of the NSW EPA gasworks database⁹ for the three (3) local government areas (Newcastle, Maitland, Cessnock) which it traverses and identified a total of eight (8) former gasworks:



⁸ http://www.epa.nsw.gov.au/clm/publiclist.htm

⁹ http://www.epa.nsw.gov.au/clm/gasworkslocation.htm

- There are five (5) former gasworks sites listed for Newcastle City Council; these are located within suburbs of Hamilton North, Waratah, Wallsend, Newcastle West and Newcastle, the closest of which is more than 5km south-east of the Project footprint.
- There are two (2) former gasworks sites within Maitland City Council; these sites were located on Charles Street, Maitland and Melbourne Street, East Maitland. The closest of these two (2) sites is approximately 4.5km north of the Project footprint.
- There is one (1) former gasworks site located within Cessnock City Council; this site is located at Maitland Road, Cessnock. The exact address of the site is unknown however Maitland Road Cessnock is greater than 10km south-east of the Project footprint.

Contaminants from gasworks primarily include tars, oils, hydrocarbon sludges, spent oxide wastes, ash and ammoniacal recovery wastes. These were sometimes buried on or near the gasworks and not removed when the gasworks were decommissioned. It is considered that the greatest potential for contamination from the gasworks is in the event of fill/waste having been transport to and placed within the Project footprint as all identified gasworks are considered too distant to have otherwise impacted the Project footprint.

RCA undertook a search of the NSW Department of Primary Industries (NSW DPI) register for cattle dip sites¹⁰ and determined that there are no known cattle dip sites within the Project footprint or within the three (3) relevant local government areas.

RCA undertook a search of the Department of Defence register for unexploded ordnance¹¹ and determined that there is no known unexploded ordnance within the Project footprint. The nearest mapped area of concern is approximately 1.6km to the north-east of Parcel 22 within the area of Ashtonfield which is noted to have been used for Military Training and Camps during WWII.

RCA undertook a search of the Department of Industry mapping of naturally occurring asbestos¹² and determined that there are no known point occurrences or geological units with medium to high asbestos potential.

3.4 Previous Investigations

3.4.1 PARCEL 10: FORMER POULTRY FARM

A Remedial Action Plan (RAP, Ref [10]) was prepared by JBS&G Australia Pty Ltd in 2018 for the former poultry farm situated at Black Hill. The purpose of the RAP was to facilitate the development of a portion of the land into thirty (30) individual industrial / commercial lots with associated roadways and infrastructure. Development was proposed to be undertaken in stages:



¹⁰ https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator

¹¹ https://www.whereisuxo.org.au

¹² https://trade.maps.arcgis.com/apps/PublicInformation/index.html?appid=87434b6ec7dd4aba8cb664d8e646fb06

- Clearing of proposed development area. No evidence of contamination was identified
 in the areas of the proposed clearing and due to the expected shallow soil disturbance,
 and the location of primary areas of concern outside of the proposed clearance areas,
 no remediation was considered necessary. An environmental management plan was
 recommended to be prepared.
- Site modification and civil works. This would comprise cut and fill across the area of development (approximately 170ha) and would exclude the areas of land with E2 (Environmental Conservation) zoning. The RAP was compiled for this stage of works to manage the excavation, segregation, movement and disposal / remediation of soils.

It was noted that both of the stages were likely to be undertaken in substages however that stage 2 works could not be undertaken on any component until the stage 1 works had been finished.

The RAP stated that historical assessments (37 since the late 1990s; 27 of these reviewed by JBS&G as part of the RAP compilation) had identified asbestos containing materials (ACM) contamination within the Parcel were considered to be associated with the demolition of the structures (between 2003 and 2009 – refer **Section 3.2**), and microbiological contamination associated with the burial of organic wastes (dead birds and rotten eggs) in three (3) designated areas. Incineration of diseased birds was undertaken and from circa 2000 all dead birds were incinerated with the ash disposed of both on and off the Parcel. Other contamination issues include:

- The presence of three (3) underground storage tanks; the RAP states that two (2) were adjacent the former workshop area, situated >100m to the south of the Project footprint, however the location of the third was unknown. All tanks were stated as being removed.
- One (1) above ground tank which was noted as having been previously present in the south-eastern portion of the Parcel. The RAP does not state any further information about its status.
- The use of disinfectants, diesel and formaldehyde around the sheds and hydrocarbons as a wood preservative on shed posts.
- Presence of elevated nitrogen levels across the Parcel, noting that there are no human health or ecological guidelines for nitrogen in soil.

Some capping with imported or site sourced soil has been undertaken, including the western and southern dump areas (refer **Drawing 2a**, **Appendix A**) and an area to the south of the intended development area.

The RAP stated that there have been ten (10) groundwater monitoring wells installed at the Parcel during previous investigations: no locations were provided however based on the descriptions the following appear to be relevant to the Project footprint:

- BH8 within Farm 9 (refer **Drawing 2a**, **Appendix A**) which was screened within sediment and / or the top of the shale bedrock to a maximum depth of 6m below the surface. It was noted as being dry in 2003.
- BH16 situated at the 'creek area' and screened within sediment and / or the top of the shale bedrock to a maximum depth of 6m below the surface. Standing water level in 2003 was 5.1m below the surface.



Groundwater was stated as being understood to be in two (2) aquifers; one perched above bedrock and likely to be influenced by rainfall whereas regional groundwater was situated at depths of 30-40m below the surface: within the bedrock and understood to flow in a north-easterly direction and likely influenced by mining activities in the area.

Elevated concentrations of ammonia, nitrate, nickel, zinc and microbiological compounds were identified within the groundwater. Surface water, which had not been assessed in the five (5) years prior to the compilation of the RAP in 2018, had previously indicated elevated concentrations of ammonia, copper, zinc and microbiological compounds.

Significant data gaps were identified due to the limited extent of sampling previously undertaken at the Parcel and increased soil sampling in accordance with the relevant guidance was recommended to reduce the risk of encountering unknown contamination during the development stage; the data was not considered critical to inform the remedial strategy. Additional groundwater assessment was recommended; initially associated with the perched groundwater with the determination of the need for assessment of the deeper groundwater table to be based on the findings of the shallow groundwater assessment. Additional surface water assessment was recommended.

The remedial strategy comprised:

- Excavation of identified ACM, and nutrient / bacteria impacted soils where in association with ACM, and encapsulation on site. No specific location for the encapsulation was identified.
- Excavation and onsite treatment, via drying and aeration, of nutrient / bacteria (only i.e., no ACM) impacted soils and reuse on site.
- Excavation and offsite disposal of waste material, especially intact poultry carcasses.
 Reuse of material was considered possible depending on geotechnical considerations (and presumably subject to validation of the absence of contaminants).

The Project footprint intersects, or is in close proximity to, at least a portion of Farm 1, Farm 7, Farm 8, Farm 9 and Farm 14. The Western Dump Area, Southern Dump Area and Area O are also within proximity to the Project footprint.



3.4.2 PARCEL 12: FORMER IRONBARK COLLIERY INFRASTRUCTURE AND BORAL ASPHALT PLANT

A preliminary geotechnical, contamination and mine subsidence assessment (Ref [11]) was undertaken by Douglas Partners in 2011¹³ to support rezoning of Coal and Allied owned land, of which Parcel 12 was part of. The intended use of Parcel 12 was for 'employment lands'. It was noted that the Parcel was subject to a mining consent which would lapse in June 2013.

The assessment (Ref [11]) comprised a review of geological mapping, historical information relating to the previous use of the Parcel, historical aerial photographs, inspection, collection of soil samples and analysis for geotechnical and contamination purposes.

At the time of the assessment the Boral Asphalt Plant was operating in the north-eastern corner of the Parcel and the remainder of the land was described as vacant bushland.

It was stated (Ref [11]) that underground mining was never undertaken by Coal and Allied however infrastructure comprising cut and cover portal, winding building, wash plant and site shed were constructed. The area of this infrastructure is presented on **Drawing 2a**, **Appendix A**. The report noted that underground mining was, at the time of writing the report, proposed by Abel Mine; the extent of the intended mining was included in the report (Ref [11]) and is within Parcel 12 however situated to the north of the Project footprint. The extent continues to the west under Parcel 10 however the extent of the drawing does not enable consideration of the extent of mining beneath the Project footprint within Parcel 10.

The Parcel use was summarised as:

- Vacant bushland prior to mid 1970s; timber from the Parcel was cut for use as coal props.
- Ironbark Colliery infrastructure constructed over a six (6) month period in 1972.
 Infrastructure subsequently demolished and backfilling undertaken with crushed concrete, original material and granulated slag.
 - No asbestos materials were known to have been used; structures were steel.
 - No polychlorinated biphenyl (PCB) type transformers were used at the Parcel.
- Asphalt operations commenced in 1980 in the area of the then Boral Asphalt Plant.

The inspection identified localised surface hydrocarbon staining and bitumen in the area of the Boral Asphalt Plant and potential contaminating activities (such as fuel storage) within the Plant.

¹³ The report is dated 2011 and fieldwork is identified as being undertaken in 2007.



The cleared area in the vicinity of the former Colliery infrastructure was grassed, with some areas of disturbed/uneven ground, gullies, and access tracks. A dam was also identified, and stockpiled soil and building rubble (including fibreglass) were observed. Gully formations, as well as the creek in the southern area, had been filled with crushed concrete and bricks, and scattered fibro fragments were observed 'along the southern boundary': no specific location is provided. Further illegal waste dumping was identified in the south-eastern portion of the Parcel and included fuel/oil drums (with surface oil staining), fibro and building rubble. Car wrecks and parts were identified in the eastern portion of the Parcel as well as further building rubble and fibro fragments.

A total of forty-one (41) test pits were excavated in the Parcel; three (3) of these are situated in proximity to the Project footprint (refer **Drawing 2a**, **Appendix A**). Of these pits, fill was identified in one test pit (28) only: comprising silty sand to a depth of 0.4m below the surface. Similarly groundwater seepage was identified only in test pit 28, at a depth of 2.1-2.5m below the surface; there was no visual or olfactory indications of contamination. No potentially combustible material (coal and chitter / coal reject) was identified in any of the three (3) test pits relevant to the Project footprint. Logs from the relevant test pits are included as **Appendix C**.

Two (2) soil samples were collected from test pit 28 and analysed for hydrocarbons, metals, pesticides and PCB. No specific comparison of the results to relevant contamination guidelines is provided however based on the laboratory report sheets:

- Hydrocarbons were not detected in either sample.
- Pesticides were not detected in either sample.
- PCB was not detected in either sample.
- Metals were detected at low concentrations below the commercial / industrial land use criteria (refer Appendix D); mercury was not detected.

No further investigation was recommended for the area of the Parcel associated with the Project footprint.

3.4.3 PARCELS 18 AND 20: HYDRO ALUMINIUM SMELTER

A RAP (Ref [12]) was prepared by Ramboll Environ in 2016 for the remediation of the former Hydro smelter located at Hart Road, Loxford (refer **Drawing 1**, **Appendix A**).

The RAP detailed the results of multiple site assessments conducted at the Parcel which identified several areas of concern with contamination identified to be associated with the following:

- Waste stockpiled at the Capped Waste Stockpile and the Anode Waste Pile.
- Fill importation at the Diesel Spray Area.
- Site operations at the Carbon Plant and Bake Furnace Scrubber.
- Burial of wastes at the area east of the playing fields.
- Drainage (presumed to be related to surface water) at the drainage lines and the east surge pond.

The areas of concern (AEC) are included on **Drawing 2c**, **Appendix A**.



Groundwater impacts were also identified as a leachate plume down gradient of the Capped Waste Stockpile.

Soil contamination was primarily identified to be carcinogenic polycyclic aromatic hydrocarbons (PAH) in the shallow soils, within the fill material and generally less than 0.6m below ground surface. The PAH contamination was reported to be limited in vertical extent and was reported to not have impacted underlying natural soils. One area of concern (AEC29), east of the playing fields, included aesthetic issues with fill material and buried wastes to a depth of 1m below ground surface. Asbestos was not identified as a contaminant of concern in the report however it is considered that the structures may contain asbestos materials.

Groundwater in the east of the former Hydro smelter was reported by Ramboll to be at shallow depths within the estuarine sands: between 1m and 5m depth below ground level. Groundwater at the clay borrow pit west of the former Hydro smelter was identified within residual clay at depths ranging between 8m and 9m below ground level. Several groundwater bores were reported to be located within shallow alluvium immediately east of the former Hydro smelter which were used for monitoring the leachate plume from the capped waste stockpile (AEC1) which is located to the south of the transmission pipeline alignment.

Remediation of the contaminated soils was recommended to be achieved by the excavation, relocation and consolidation of materials into a designated Containment Cell constructed as shown on **Drawing 2c**, **Appendix A** at the location of a clay borrow pit. Demolition of infrastructure and the movement of soil currently stockpiled on the area east of the clay borrow pit is to be undertaken prior to any soil remediation; further assessment of several areas was then to be undertaken and Ramboll stated that demolition may enable the identification of additional areas requiring remediation.

Remediation of the leachate plume in groundwater was recommended via a combination of leachate interception, source removal and monitored natural attenuation.

The location of the proposed pipeline and compressor station generally does not fall within the identified areas of concern.

It is noted that, aside from demolition and remediation, works associated with the construction of the HPP are not permitted to commence until a NSW EPA contaminated sites auditor has verified that the land is suitable for heavy industry use.



3.4.4 CHICHESTER TRUNK GRAVITY MAIN (CTGM)

Chichester Dam was constructed between 1915 and 1926¹⁴ with the construction of CTGM the completed in 1923¹⁵; upgrade works were undertaken in the 1960s and between 2009 and 2016¹⁵. Lead soldering of the joints of the CTGM has resulted in lead concentrations in soil of up to 20,600mg/kg¹⁶ extending up to ~10 m either side of the pipeline before surface soil lead values correspond more closely to natural background concentrations which are in the order of 26 mg/kg contamination. Depth of contamination isn't specified in the reviewed portion of the article¹⁶.

The central portion of the Project footprint (refer **Drawings 2b** and **2c**, **Appendix A**) follows the CTGM from kilometre point 6 (within Parcel 11) to kilometre point 10.5 (within Parcel 29) and crosses the CTGM (by horizontal boring) a total of four (4) times. The Project footprint is generally situated upgradient of the CTGM and is generally situated more than ten (10) metres from the CTGM pipe however the corridor does get as close as five (5) metres from the CTGM pipe in some instances. Therefore, there is considered potential for lead contamination to be present in soils which will be disturbed as part of the installation of the proposed pipeline in some areas.

3.5 GEOLOGY AND HYDROGEOLOGY

RCA reviewed published geological and hydrogeological maps and summarised the findings in **Table 5**.



¹⁴ https://www.hunterwater.com.au/our-water/water-supply/dams-and-catchments/chichester-dam

¹⁵ www.hunterwater.com.au/documents/assets/src/uploads/documents/Media-Releases/2018/Minister-Harwin-Media-Release---Pipeline-replacement-to-secure-the-Lower-Hunters-water-supply-(WEB).pdf

¹⁶ https://link.springer.com/article/10.1007/s11270-015-2397-3

Table 5 Geology and Hydrogeology

The Project footprint crosses several soil landscapes (generally in an easterly to westerly direction below):

- Bob's Farm remnant lake shore beach deposits.
- Beresfield Permian sediments. Yellow, brown and red Podzoic / Soloths depending on the drainage.
- Shamrock Hill Permian sediments. Yellow and red Podzoic soils with yellow Soloths and some Bleached Loams.
- Disturbed terrain.
- Wallis Creek Alluvial soils and siliceous sands on floodplains; alluvial soils on backswamps and oxbows.
- Bolwarra Heights Permian sediments. Yellow, red and brown Podzoic soils.
- Hunter Alluvial plains and terraces with brown clays and black earths within channels and tributary flats, loams and sands on levees and red Podzoic soils on old terraces.
- Neath Permian siltstone, sandstone and coal. Grey Solodic soils in poorly drained areas and yellow Solodic soils in better drained slopes.

The Project footprint crosses several geological profiles (generally in an east to west direction below):

- Tomago coal measures comprising siltstone, sandstone, coal, tuff, claystone.
- Quaternary sediments of gravel, sand, silt and clay.
- Maitland Group (Branxton formation) comprising conglomerate, sandstone and siltstone.
- Greta coal measures comprising sandstone, conglomerate, siltstone and coal.
- Dalwood Group (Rutherford formation) comprising siltstone, marl, minor sandstone.

The geological and soil landscape are presented on **Drawings 3 and 4**, **Appendix A**.

Acid sulfate soil

Soil type (Hunter Coalfield

and Newcastle Coalfield

1:100000

Geological Maps

Newcastle and Singleton Soil

Landscape

Maps)

The majority of the Project footprint is classified by the Beresfield and Cessnock acid sulfate soil risk maps as having no known occurrence of acid sulfate soils.

A portion of the central section (Parcels 9, 40-43) is situated in an area of high probability of acid sulfate soils between 1m and 3m of the surface.

Further portions (Parcels 32 and 34) are classified as a high probability of acid sulfate soils within 1m of the surface and (Parcels 32 and 33) as low probability of acid sulfate soils between 1m and 3m of the surface.

The western portion (Parcel 16) is situated within an area of high probability of acid sulfate soils between 1m and 3m of the surface and an area of low probability of acid sulfate soils at depths of greater than 3m below the surface.

The acid sulfate soils are presented on Drawings 2a, 2b and 2c, Appendix A.



RCA does not know of any groundwater use within the Project footprint however considers that it may be occurring, especially within the agricultural lands in the east and west of the Project footprint. Groundwater is documented (Ref [13] and [14]) as being extracted as part of mining operations/ maintenance within the central portion of the Project footprint

There are twenty-two (22) wells situated in proximity to the Project footprint, refer to map in **Appendix E**. The majority are clustered around the western end of the pipeline (associated with the former Hydro smelter). The four (4) closest wells are:

- GW078128 situated in Parcel 12 approximately 100m to the north of the Project footprint. This well was installed in 1997 as a monitoring bore to 30m below the surface. No standing water level (SWL) is reported however the well is screened from 18 to 30m below the surface in coal and siltstone / mudstone.
- Groundwater use and monitoring wells
- GW078123 situated in Parcel 8 approximately 85m to the west of the Project footprint (within the proposed access road). This well was installed in 1997 for an undisclosed purpose to 33m below the surface. No SWL is reported however the well is screened from 20 to 32m below the surface in bands of sandstone, coal, sandstone / claystone and sandstone / siltstone.
- GW078046 situated in Parcel 8 approximately 100m to the north of the Project footprint. This well was installed in 1997 as a monitoring bore to 30m below the surface. No SWL is reported however the well is screened from 6 to 19m below the surface in bands of siltstone / mudstone, coal, siltstone, siltstone / sandstone.
- GW079101 situated in Parcel 20 approximately 120m to the south of the Project footprint (horizontal drilling section). There are no details provided for the well.

It is noted that GW051647 – situated approximately 1.35km north of the Project footprint indicates it was installed to a depth of 12m below the surface. No SWL is identified however sand is stated as being 3-4.57m below the surface.

Groundwater wells installed as part of investigations on Parcel 10 do not appear to have been registered.

Groundwater usage around the Project footprint is indicated (via the search above) to be for irrigation and farming although it is noted that the majority of the groundwater wells within closest proximity to the Project footprint are for monitoring purposes.

Depth to groundwater

JBS&G (Ref [10]) indicated that perched groundwater is situated within six (6) metres of the surface in the eastern portion of the Project footprint with the regional groundwater table situated at depths of 30-40m below the surface. Given the similar geological profiles at Parcel 10 and the land to the east, it is considered that a similar groundwater profile would likely exist.

Ramboll (Ref [12]) reported groundwater to be between 1 to 5m depth from surface at the former Hydro smelter with deeper groundwater (between 8 to 9m depth) encountered west of the former Hydro smelter.

The central portion of the Project footprint is generally elevated within rock based geology and as such shallow groundwater would not be anticipated although there may be perched groundwater above bedrock and preferential flow through coal seams. The exception is the section of land within quaternary sediments (Parcels 34, 43-43) in which groundwater would be expected to be shallow (<3m below the surface).

Further details are contained with **Section 7**.



Estimated groundwater	JBS&G stated (Ref [10]) that groundwater flow would be the north-east, although may potentially be impacted by mining activities which could cause some variation. Ramboll (Ref [12]) reported that groundwater flows north to north-east across the
flow direction	former Hydro smelter. Groundwater flow west of the former Hydro smelter was reported to be expected to flow towards the north-east; following topography.
	Groundwater quality is unknown across the majority of the Project footprint although gross contamination is not considered likely outside of the Parcels specifically discussed within Section 3.4 . There may be contamination by microbiological compounds due to the use of septic systems for waste management.
Background water quality	Perched groundwater (no specific details about depth were provided, refer Section 3.4.1) in the area of the former poultry farm is understood (Ref [10]) to have some metals, nutrient and microbiological contamination; it is considered unlikely that the regional groundwater table would have been impacted however the possibility cannot be discounted.
	Groundwater beneath the former Hydro smelter has been impacted (Ref [12]) by fluoride, aluminium, cyanide and sodium.



4 SAMPLING AND ANALAYTICAL QUALITY PLAN

No formal sampling and analytical quality plan (SAQP) was developed for the Project, however **Table 6** provides detail and rationale regarding the scope of works undertaken.

 Table 6
 Data Quality Objectives of the Site Investigation

Data Quality Objective	Description
Step 1 – State the Problem	An application has been submitted for the construction of Kurri Kurri Lateral Pipeline Project. The SEAR required, among other things, an assessment of the potential for contamination to be identified such that appropriate management controls could be designed for the construction.
Step 2 – Identify the Goal	To adequately characterise the potential for contamination along the Project footprint such that there was sufficient understanding to derive management protocols or to identify the extent of additional investigation which may be required in order to meet that objective.
Step 3 – Identify the Inputs to the decisions	 Inputs to the assessment comprised: Site history information comprising government records, historical photographs and assessment documents that could be obtained for portions of the Project footprint. Previous sampling results as undertaken by others. Additional sampling results for crossing of the CTGM. Additional sampling results for areas in proximity to Swamp and Wallis Creeks. Guidelines for assessing risk to human health and the environment from contaminated and/or acidic soil. Commercial / industrial guidelines were considered the most suitable for the long-term land use. Guidelines for trench workers were also considered relevant noting that these are only for hydrocarbons.
	Full details of the relevant guidelines are included in Appendix D.

Data Quality Objective	Description					
	The lateral extent of the assessment has been defined by the extent of the Project footprint as presented on Drawing 1 , Appendix A , noting that the former Hydro smelter was not to be specifically assessed based on the scope of assessment by others and the requirement for remediation to be complete (refer Section 3.4.3). No assessment of surface water quality was included. The vertical extent was limited to 0.5m below the surface for this preliminary					
Step 4 – Define the	assessment for the majority of the area; although was to extend to 2.5m below the surface in the vicinity of Wallis Creek (Parcels 34, 40-43). Groundwater assessment was limited to the area in the vicinity of Swamp and Wallis Creeks.					
Boundaries of the investigation	Practical constraints that could have interfered with sampling comprised underground services and flooding; both impacted on fieldwork as per details in Section 5 . There were additional constraints associated with accessibility due to landowner permission to access sites such as Parcel 12, and safety issues associated with potential mine subsidence in Parcel 33.					
	No specific temporal constraints were identified.					
	No specific financial constraints were identified, noting that any variations to costs identified to client were to be confirmed with client prior to additional cost being incurred.					
Step 5- Develop the Decision Rules	Project specific data quality indicators (DQI) of accuracy, precision, completeness, representativeness and comparability are detailed in the Quality Assurance and Control Assessment for the project, Appendix F .					
	The following provides the basis of the data's useability assessment which is not in accordance with the DQI:					
	The result's closeness to the guideline concentrations.					
Step 6-	 Specific contaminant of concern (carcinogen, bioaccumulation potential, available exposure pathways). 					
Acceptable Limits on Decision Rules	 The area of sample location(s) in question including the potential lateral and vertical extent of questionable information. 					
	Whether the uncertainty can be effectively managed by site management controls.					
	Refer to the Quality Assurance and Control Assessment for the project, Appendix F.					

The scope of work, **Section 5**, is considered to comprise Step 7 of the DQO.



5 FIELDWORK

RCA undertook an inspection to the extent possible on the 13th, 15th and 22nd October 2021 and recorded the following observations in **Table 7**. Photographs taken during the inspections are identified on **Drawing 2**, **Appendix A** and presented in **Appendix G**; areas without photographs were not inspected.

 Table 7
 General Site Conditions and Observations

Topography	The eastern portion was generally flat except for Parcel 45 which sloped up to the north. There was a significant elevation difference between Parcel 45 and Parcel 57. The central portion was generally flat with localised slopes in the vicinity of creeks and a general increase in elevation in the northern section of Parcel 9; the Project footprint then sloped down gradient to the point of crossing Buchanan Road. The elevation remained generally level until crossing Cessnock / Main Road, following which the land sloped up to the northern boundary of Parcel 33. The elevation dropped down into floodplain within Parcel 16. The western portion was generally flat with localised undulations in the vicinity of the creeks.					
Site condition	The majority of the Project footprint was grassed, the level depending on the use of the land; agricultural land generally had low grass levels whereas the Parcel 10 had thick grasses. The mining land accessed was generally within bushland adjacent to access roads.					
Condition of buildings and roads	There were no structures situated along the Project footprint. There were a number of roads which the Project footprint runs alongside or crosses; the majority of these are gazetted roads managed by the RMS or Council and were asphalt sealed. The internal roads within the mining lands were gravelled and had some indications of erosion; there were a number of inundated areas. There were several sections in which there was no trafficable roads.					
Visual signs of contamination	No signs of contamination were observed.					
Signs of erosion	There were signs of erosion along some areas of the Project footprint, especially within the mining lands in proximity to the CTGM pipeline and the internal road network.					
Presence of drums or waste	Waste was observed at the surface in four (4) locations (refer Appendix G, Photographs 52, 98a, 118a and 149).					
Identification of potential asbestos containing materials	Asbestos containing materials were observed within one stockpile in Parcel 0 (refer Appendix G, Photograph 52). No other indications were observed.					
Visible signs of plant stress	No plant stress was identified during the inspections.					
Odours noticeable on site	There were no odours identified during the inspections.					
Evidence of current or former petroleum facilities	No evidence of petroleum facilities was identified within the Project footprint during the inspections.					



Chemicals stored on site	No evidence of chemical storage was identified within the inspection areas of the Project footprint during the inspections.
Evidence of waste burial: (anecdotal or otherwise)	No evidence of waste burial was identified with the exception of possible (horse carcass) burial pits within Parcel 43 however it is considered that rural properties may have buried domestic refuse and that there may be some waste deposition within mining voids. Undulations were observed with Parcel 10 however none that were considered to be definitively associated with waste burial.
(anecdotal of otherwise)	There were indications of irrigation occurring within Parcel 16, presumably from the former Hydro smelter (refer Appendix G , Photograph 129). It is understood that this water is surface water captured from the former Hydro smelter and is disposed of under licence (refer Table 4).

Inspection of Parcel 12 was not undertaken as landowner permission for access was not provided and a section of Parcel 33 could not be inspected due to potential mine subsidence risk within the area (refer **Drawing 2c**, **Appendix A**). Inspection of Parcels 18 and 20 were not considered necessary due to the intended remediation (refer Section 3.4.3) and additional Parcels (56a, 56b and 67-73) were not included within the Parcel footprint at the time of inspection and have not been considered specifically.

Soil sampling was undertaken during the inspection at the four (4) crossings of the CTGM: the approximate locations of which are presented on **Drawings 2a** and **2b**, **Appendix A**. Samples were collected at the surface, and at 0.1m and 0.2m below the surface. Depth of sampling was limited due to the understanding that there was some potential for services to be present such that ground disturbance was restricted to the use of a hand trowel. A total of eleven (11) samples were collected (bedrock was encountered at location 3 and the 0.2m depth sample could not be collected) and analysed for lead. The surface samples at each of the locations were further analysed for pesticides and herbicides.

5.1 ACID SULFATE AND GROUNDWATER ASSESSMENTS

5.1.1 SWAMP CREEK

A geotechnical engineer and geotechnician undertook fieldwork on the 8th December 2021 in the vicinity of Swamp Creek (Parcels 16 and 62) as per **Drawing 2c**, **Appendix A** for the assessment of acid sulfate soil and groundwater. Fieldwork comprised:

- Hand augering to up to 2.5m depth below existing ground surface level at three (3) locations (BH1 to BH3); the extent of works at BH3 was 2.0m below the surface due to collapse of the stratum below the groundwater table.
- Collection of soil samples from the surface at each borehole location and every 0.5m thereon below the surface.
- Collection of a groundwater sample at one location (BH3) which was encountered at 1.4m below the surface.
- Screening via peroxide oxidisation of all samples for acid sulfate soil properties.
 - This test is conservative and subject to false positives due to oxidisation of organic materials and as such, based on the results of the screening, ten (10) samples were selected for further chromium reducible sulfur analysis which is more specific for acid sulfate soil properties.



 Analysis of all surface soil samples for pesticides and metals, and one of the surface samples for hydrocarbons.

Engineering logs for each borehole are included in **Appendix H** and indicate that natural soil was encountered at all locations from the surface. Strata comprised topsoil overlying alluvial sands and silty clays. Groundwater was not encountered at either BH1 or BH2 however was encountered at approximately 1.4m below the surface at BH3. No visual or olfactory indications of contamination were identified during the works.

5.1.2 WALLIS CREEK

A geotechnical engineer and geotechnician undertook fieldwork on the 14th January 2022 in the vicinity of Wallis Creek (Parcels 34, 40-43) as per **Drawings 2b** and **2c**, **Appendix A** for the assessment of acid sulfate soil and groundwater. Fieldwork comprised:

- Hand augering to up to 2.5m depth below existing ground surface level at five (5) locations (BH4 to BH8); the extent of works at BH7 was 1.9m below the surface due to collapse of the stratum below the groundwater table.
- Collection of soil samples from the surface at each borehole location and every 0.5m thereon below the surface.
- Collection of a groundwater sample at one location (BH5).
- Screening via peroxide oxidisation of all samples for acid sulfate soil properties.
 - This test is conservative and subject to false positives due to oxidisation of organic materials and as such, based on the results of the screening, fifteen (15) samples were selected for further chromium reducible sulfur analysis which is more specific for acid sulfate soil properties.
- Analysis of all surface soil samples for pesticides and metals, and one of the surface samples for hydrocarbons.

Engineering logs for each borehole are included in **Appendix H** and indicate that natural soil was encountered at all locations from the surface. Strata typically comprised alluvial clays and sands. Groundwater was encountered at all borehole locations within the range of 0.9m and 2.1m depth. It is noted that in borehole BH8 free water was observed on the tip of the hand auger at 1.7m depth with the groundwater table measured to be 2.1m below the surface post drilling, potentially indicating the presence of a slightly perched groundwater table in the vicinity of this borehole location. No visual or olfactory indications of contamination were identified during the works.

6 QUALITY ASSURANCE/QUALITY CONTROL

RCA has assessed the quality assurance and control in **Appendix F** and found it to be acceptable for the purpose of assessment.

7 RESULTS AND DISCUSSION

Results are compared to relevant guidelines in **Appendix I**; laboratory report sheets are included in **Appendix F** noting that there are geotechnical results which are not discussed in this report.



The following sections present a summary.

7.1 SOIL IN VICINITY OF CTGM

Lead concentrations in all samples were low, ranging from not detected (<5mg/kg) to a maximum of 26mg/kg. It is noted that with the exception of P3a, the surface sample did not have the highest lead concentration.

No pesticides or herbicides were detected in any of the analysed samples.

7.2 SOIL IN VICINITY OF SWAMP CREEK

7.2.1 CONTAMINATION

Results of the analysis indicated:

- BTEX concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5] and 15]).
- TRH concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5] and [15]).
- PAH concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).
- Metals concentrations were not detected or were detected at concentrations below the relevant criteria (Ref [5]).
- Pesticide concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).
- Herbicide concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).

7.2.2 ACID SULFATE SOIL

Screening tests, via addition of peroxide such that all potential acid generating substances within the samples are oxidised, were undertaken on fifteen (15) samples recovered at the borehole test locations. The results of the ASS screening tests are summarised in **Table 8**.



 Table 8
 Acid Sulfate Screening Results – Swamp Creek.

Sample ID		pH₅	рН _{гох}	рНғ – рНғох	Reaction Rate
BH1b	BH1 0.4-0.5	4.66	3.64	1.02	Slight
BH1c	BH1 0.85-0.95	4.34	3.34	1.0	Slight
BH1d	BH1 1.4-1.5	3.93	3.18	0.75	Slight
BH1e	BH1 1.9-2.0	4.09	3.24	0.85	Slight
BH1f	BH1 2.4-2.5	4.08	3.17	0.91	Slight
BH2b	BH2 0.15-0.25	5.70 / 5.74	3.04 / 2.97	2.66 / 2.77	Moderate
BH2c	BH2 1.0-1.1	4.56	3.48	1.08	Slight
BH2d	BH2 1.45-1.55	4.4	3.42	0.98	Moderate
BH2e	BH2 2.0-2.1	4.35	3.42	0.93	Slight
BH2f	BH2 2.4-2.5	4.23	3.24	0.99	Slight
BH3b	BH3 0.15-0.25	5.41 / 5.37	2.79 / 2.82	2.62 / 2.55	Moderate
ВН3с	BH3 0.5-0.6	5.93	4.85	1.08	Slight
BH3d	BH3 1.0-1.1	5.88	5.04	0.34	Slight
BH3e	BH3 1.5-1.6	5.92	5.09	0.83	Slight
BH3f	BH3 1.9-2.0	5.86	4.96	0.9	Slight

Where two (2) results are presented this reflects the duplicate result.

Bold indicates result indicating potential acid sulfate soil properties.

Based on the ASSMAC guidelines (Ref [6]) the results of the ASS screening tests indicate that only one sample contains actual acid sulfate soils: BH1 at a depth of 1.4 - 1.5m below the surface with a pH of 3.93. The reaction rate was generally slight with the majority of the samples, with three (3) samples exhibiting a moderate reaction rate: BH2b, BH2d, and BH3b.

Based on the ASSMAC guidelines (Ref [6]) RCA considered that there was potential for acid forming conditions in eleven (11) of the fifteen (15) samples as the pH_{FOX} was less than 4.0 and / or the pH change was greater than 1.0 pH unit.

As the screening process is subject false positives, due to oxidisation of materials other than sulfidic sources of acid generation (such as organics), a total of ten (10) samples were submitted for further analysis by the chromium reducible sulfur (CRS) method which provides a specific assessment of sulfidic sources of acidity. The results of these analyses are summarised in **Table 9** compared to the criteria for >1000tonne and soil texture as relevant for the sample (refer **Appendix D**).

None of the samples had a pH of less than 4.0 and as such none are considered representative of actual acid sulfate soil.

Results from the sample BH1F, collected from 2.4-2.5m below the surface, are considered representative of potential acid sulfate. It is noted that the sample collected from the overlying material is not representative of acid sulfate soil and the acid sulfate characteristics of underlying material are unknown as this was the vertical extent of the assessment.



It is noted that the majority of samples indicated the presence of acidic soils. Section 1.2 of the guidelines Ref [6]) which state that *Not all acid soils in coastal areas are acid sulfate soils* and that acidity can be unrelated to iron sulphide sediments. Other forms of acidity do not have the ability to generate additional acid when exposed to air and therefore do not exhibit the same environmental risks as ASS. The guidelines *only deal with acid sulfate materials*. As such these results are not considered representative of potential ASS although there are some acidic properties that may need to be considered during design and construction.



 Table 9
 Summary of CRS Test Results

Sample Sample Identification Depth ^B			Sample Profile	Dominant Stratum ^c		рН	CRS (%S)	CRS (mol H ⁺ / tonne)	Net Acidity (%S)	Net Acidity (mol H ⁺ / tonne)	Liming Rate (kg/tonne)
identification	iuncation Depth -		-	Stratum	Stratum		(%3)		excluding neutralising capacity		
Equivalent Sulfur				Coarse			0.03				
			Equivalent Sulfur	Medium			0.03				
Out deline	/> 4000t	- \ A		Fine		-11	0.03				
Guideline	e (>1000tonn	e) ^		Coarse		<4		18			
			Equivalent Acidity	Medium				18			
				Fine				18			
BH1C	0.85	Silty	Silty clay, grey mottled red-brown			4.3	0.019	12	0.12	74	6
BH1D	1.4	brown, tra	Silty clay, grey and red-orange mottled orange- brown, trace of fine grained sand, with some pockets of organics (dark brown)			4.2	0.015	<10	0.15	92	7
BH1E	1.9		grey mottled orange-brown and red-	Fine		4.2	0.015	<10	0.1	61	4
BH1F	2.4		ace of fine grained sand, with some kets of organics (dark brown)	Fine		4.3	0.032	20	0.12	76	6
BH2B	0.15	Silty clay	ey sand, fine grained, grey-brown	Fine		5.1	0.014	<10	0.03	16	1
BH2C	1	red-orange,	Silty clay, grey mottled pale orange-brown and red-orange, with some pockets of organics (grey-brown), trace of fine grained sand			4.7	0.018	11	0.06	37	3
BH2D	1.45	Silty clay, grey mottled red-orange, with trace of fine grained sand		Fine		4.6	0.015	<10	0.05	32	2
внзв	0.15	Sand, fine to medium grained, brown, with silt		Coarse		5.3	0.018	11	0.02	16	1
внзс	0.5	Sand, fin	Sand, fine to medium grained, pale brown			5.7	0.014	<10	<0.02	<10	<1
BH3D	1	Sand, fine to	medium grained, pale yellow-brown, trace of fine gravel	Coarse		5.9	0.016	10	<0.02	10	<1

Blank Cell indicates no criterion available

Results shown in **BOLD shaded** are in excess of the guideline



^A NSW Acid Sulfate Soil Management Advisory Committee, Acid Sulfate Soil Manual, August 1998.

^B Start of sample in metre below the surface, generally over a 0.05-0.1m interval.

^C Note that this is a generalisation for the purpose of comparing to the criteria. Where two strata equally represented, most conservative criterion used.

7.3 SOIL IN VICINITY OF WALLIS CREEK

7.3.1 CONTAMINATION

Results of the analysis indicated:

- BTEX concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5] and 15]).
- TRH concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5] and 15]).
- PAH concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).
- Metals concentrations were not detected or were detected at concentrations below the relevant criteria (Ref [5]).
- Pesticide concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).
- Herbicide concentrations were not detected in the analysed sample and as such are considered below the relevant criteria (Ref [5]).

7.3.2 ACID SULFATE SOIL

Screening tests, via addition of peroxide such that all potential acid generating substances within the samples are oxidised, were undertaken on twenty-three (23) samples recovered at the borehole test locations. The results of the ASS screening tests are summarised in **Table 10**.

 Table 10
 Acid Sulfate Screening Results – Wallis Creek.

	Sample ID pH _F		pH _{FOX}	pH _F – pH _{FOX}	Reaction Rate
BH4b	BH4 0.4-0.5	6.38	3.21	3.17	High
BH4c	BH4 0.9-1.0	5.07	2.92	2.15	High
BH4d	BH4 1.4-1.5	4.75	2.72	2.03	Moderate
BH4e	BH4 1.8-1.9	5.79 / 5.85	3.81 / 3.89	1.98 / 1.96	Slight
BH4f	BH4 2.4-2.5	5.91	4.00	1.91	Slight
BH5b	BH5 0.5-0.6	4.69	2.61	2.08	Moderate
BH5c	BH5 0.95-1.05	4.10	2.34	1.76	Slight
BH5d	BH5 1.4-1.5	4.02	2.42	1.60	Slight
BH5e	BH5 1.9-2.0	3.62	2.69	0.93	Moderate
BH5f	BH5 2.4-2.5	3.84	2.37	1.47	Moderate
BH6b	BH6 0.5-0.6	5.32	2.98	2.34	Moderate
BH6c	BH6 1.0-1.1	4.20	2.89	1.31	Moderate
BH6d	BH6 1.4-1.5	4.45 / 4.46	3.17 / 3.16	1.28 / 1.30	Slight
BH6e	BH6 1.9-2.0	4.26	3.14	1.12	Slight



	Sample ID pH _F		pH _{FOX}	pH _F – pH _{FOX}	Reaction Rate
BH6f	BH6 2.4-2.5	4.30	3.49	0.81	Slight
BH7b	BH7 0.5-0.6	6.08 / 5.95	3.20 / 3.29	2.88 / 2.66	Slight
ВН7с	BH7 1.0-1.1	6.46	4.61	1.85	Slight
BH7d	BH7 1.5-1.6	5.68	3.40	2.28	Slight
BH8b	BH8 0.45-0.55	5.54	3.33	2.21	Slight
BH8c	BH8 1.05-1.15	4.69	3.56	1.13	Slight
BH8d	BH8 1.4-1.5	4.63	3.59	1.04	Slight
BH8e	BH8 1.9-2.0	4.87	4.00	0.87	Slight
BH8f	BH8 2.4-2.5	4.80	3.66	1.14	Slight

Where two (2) results are presented this reflects that a duplicate was conducted and both results have been reported.

Bold indicates result indicating potential acid sulfate soil properties.

Based on the ASSMAC guidelines (Ref [6]) the results of the ASS screening tests indicate that only one sample contains actual acid sulfate soils: BH1 at a depth of 1.4-1.5m below the surface with a pH of 3.93. The reaction rate was generally slight with the majority of the samples, with three (3) samples indicating a moderate reaction rate: BH2b, BH2d, and BH3b.

Based on the ASSMAC guidelines (Ref [6]) the results of the ASS screening tests indicate that only two (2) samples contain actual acid sulfate soils: BH5 at the depths of 1.9-2.0m and 2.4-2.5m below the surface with pH levels of 3.62 and 3.84 respectively. The reaction rate was generally slight / moderate with the majority of the samples, with two (2) samples in BH4 exhibiting a high reaction rate.

Based on the ASSMAC guidelines (Ref [6]) RCA considered that there was potential for acid forming conditions in twenty-two (22) of the twenty-three (23) samples as the pH_{FOX} was less than 4.0 and / or the pH change was greater than 1.0 pH unit.

As the screening process is subject false positives, due to oxidisation of materials other than sulfidic sources of acid generation (such as organics), a total of fifteen (15) samples were submitted for further analysis by the CRS method which provides a specific assessment of sulfidic sources of acidity. The results of these analyses are summarised in **Table 11** compared to the criteria for >1000tonne and soil texture as relevant for the sample (refer **Appendix D**).

The field pH of the sample from borehole BH5 from 1.4-1.5 and 1.9-2.0mm had a pH of less than 4.0 and as such would be classified as an actual acid sulfate soil. These samples were collected from below the groundwater table within a silty clay layer which was encountered from the surface to the end of the borehole at 2.5m below the surface. The sample above the groundwater table did not indicate a pH representative of actual acid sulfate soil nor did the sample from 2.4m below the surface although it was equal to the criterion and for conservative purpose may be appropriate to manage as ASS.

None of the remaining sample results are considered to be representative of either actual or potential acid sulfate soil based on the results of the CRS analysis.



It is noted that all samples indicated the presence of acidic soils. Section 1.2 of the guidelines Ref [6]) which state that *Not all acid soils in coastal areas are acid sulfate soils* and that acidity can be unrelated to iron sulphide sediments. Other forms of acidity do not have the ability to generate additional acid when exposed to air and therefore do not exhibit the same environmental risks as ASS. The guidelines *only deal with acid sulfate materials*. As such these results are not considered representative of potential ASS although there are some acidic properties that may need to be considered during design and construction.



 Table 11
 Summary of CRS Test Results

Sample Identification	Sample Depth ^B		Sample Profile		рН	CRS (%S)	CRS (mol H ⁺	Net Acidity (%S)	Net Acidity (mol H ⁺ / tonne)	Liming Rate (kg/tonne)
identification	псацоп Бериі		•	Stratum ^c		(%3)	/ tonne)	excluding neutralising capacity		
				Coarse		0.03				
		Equivalent Sulfur	Medium		0.03					
Out de line	· /> 1000t	- \ A		Fine	-14	0.03				
Guideline	e (>1000tonn	e) ^		Coarse	<4		18			
			Equivalent Acidity	Medium			18			
				Fine			18			
BH4b	0.4	Silty sandy clay, dark grey with orange- brown mottles, trace of fine weathered charcoal fragment, trace of gravel		Fine	5.4	0.019	12	0.04	25	2
BH4c	0.9		Silty clay, dark grey mottled dark brown, trace of fine grained sand		4.0	0.015	<10	0.23	146	11
BH4d	1.4	Silty clay, dark grey		Fine	4.0	0.02	13	0.26	161	12
BH5b	0.5	Silty clay,	dark grey mottled orange-brown	Fine	4.3	0.014	<10	0.21	130	10
BH5d	1.4	0.11		Fine	3.9	0.018	12	0.3	190	14
BH5e	1.9		dark grey mottled orange-brown be of fine weathered charcoal	Fine	3.9	0.01	<10	0.34	212	16
BH5f	2.4		fragments	Fine	4.0	0.013	<10	0.28	173	13
BH6b	0.5		Silty clay, dark brown		4.4	0.01	<10	0.12	73	5
BH6d	1.4	Sand, fine to medium grained, pale brown- grey mottled orange, with trace of silt		Coarse	4.8	0.02	12	0.04	27	2
BH6e	1.9	Sand, fine to medium grained, pale brown- grey mottled orange, with trace of silt with some clay		Coarse	5.2	0.01	<10	0.03	18	1
BH7b	0.5	,	to medium grained, pale brown- led orange-brown with clay/silt	Coarse	5.2	0.018	12	0.03	21	2



Sample Identification	Sample Depth ^B	Sample Profile		Dominant Stratum ^c	рН	CRS (%S)	CRS (mol H ⁺ / tonne)	Net Acidity (%S)	Net Acidity (mol H ⁺ / tonne)	Liming Rate (kg/tonne)
					-			excluding neutralising capacity		
			Equivalent Sulfur	Coarse		0.03				
		Medium			0.03					
Cuidalina (>1000tanna) A				Fine	-1	0.03				
Guideline (>1000tonne) ^A			Coarse	<4		18				
			Equivalent Acidity	Medium			18			
			Fine			18				
BH7d	1.5	Sandy clay / clayey sand, fine to medium grained sand, grey with some green-grey and orange-brown mottles		Medium	5.0	0.011	<10	0.03	19	1
BH8b	0.45	Silty clayey sand, fine to medium grained, brown		Coarse	4.7	0.012	<10	0.05	31	2
BH8d	1.4	Sandy clay, grey with orange-brown mottles, fine grained sand, with silt		Fine	4.3	0.014	<10	0.09	55	4
BH8f	2.4	Silty clayey sand, medium grained, dark orange-brown		Coarse	4.5	0.008	<10	0.05	33	2

Blank Cell indicates no criterion available.

Results shown in **BOLD** shaded are in excess of the guideline.



^A NSW Acid Sulfate Soil Management Advisory Committee, Acid Sulfate Soil Manual, August 1998.

 $^{^{\}rm B}$ Start of sample in metre below the surface, generally over a 0.05-0.1m interval.

^C Note that this is a generalisation for the purpose of comparing to the criteria. Where two strata equally represented, most conservative criterion used.

8 PRELIMINARY CONCEPTUAL SITE MODEL

Based on the reviewed historical information the Project footprint has generally remained undisturbed or has been used for either agricultural or mining purpose. There has been some residential use in association with the agricultural use and heavy industrial use (former Hydro smelter) was situated within the western end of the Project footprint.

Two (2) areas are known to be contaminated:

- The former poultry farm (Parcel 10) situated in the eastern portion of the Project footprint. The Project footprint appears to intersect three (3) former building footprints in which there is potential use of disinfectants, diesel and formaldehyde and there may be hydrocarbons and metals. The Project footprint is in proximity to additional building footprints and there are three (3) suspected waste burial areas which may include building waste, asbestos materials and/ or biological waste.
- The former Hydro smelter in the western end of the Project footprint occupies a number of Parcels however primarily related to Parcels 18 and 20. The Project footprint does not appear to specifically intersect any known areas of contamination however it is considered that PAH concentrations may be present in the shallow soils (<0.6m below the surface) that pose a risk: as may the surface water and/ or groundwater, which is present between 1m and 5m depth below ground level. The access road to the east of the smelter runs adjacent a number of areas of concern and may encounter PAH contamination and / or buried wastes if the contamination is present within the shallow depth of disturbance anticipated for the roadworks.</p>
 - The irrigation area associated with the former Hydro smelter (Parcel 16) may also have some contamination present depending on the quality of the water which has been applied.

Both of these areas have a RAP prepared for them outlining the remediation which is required to be undertaken for the proposed commercial / industrial use of the areas: the levels of remediation to this exposure scenario are considered to be appropriate for the Project footprint. It is noted that no construction in relation to the HPP can be undertaken until the issue of a Site Audit confirming that the former Hydro smelter is suitable for use by heavy industry. If construction works are to be undertaken on either of the pipelines prior to the completion of remediation of the former Hydro smelter there will be management controls required and some excavated soil may not be considered appropriate to re-use in association with the pipeline. Following the completion of remediation at the former Hydro smelter there may be management requirements associated with excavated soil, depending on whether the depth of disturbance is within contaminated soil, and contact with/extraction of groundwater and the remediation strategies employed (noting that these may vary across the areas).

Potential asbestos materials have been identified at the surface within Parcel 12 and in a stockpile within Parcel 23 near the Project footprint; if these, or other illegally dumped wastes, are present within the Project footprint there will be management requirements and the waste may require removal from site. Depending on the type of waste, verification of its removal may be required.



No lead contamination has been identified at the crossing points of the CTGM and as such it is not considered that any specific management controls will be required for soil excavated as part of horizontal boring works. Further assessment is only recommended in the event that the locations of crossings are altered to a smaller distance from the CTGM or if surplus material is generated which cannot remain onsite.

The central portion is occupied by mining and while there has been no identified contamination in these areas it is considered that there may be contamination associated with that use. This would be likely related to hydrocarbons and waste disposal. Further, some of the areas appear to have been rehabilitated, including two (2) areas which the Project footprint crosses or is otherwise in close proximity to (refer **Drawing 2b**, **Appendix A**); depending on the material used to fill voids (if undertaken as part of the rehabilitation) there may be contamination within these areas.

Contamination assessment in the area of Swamp and Wallis Creeks did not indicate the presence of contamination; concentrations of metals are present however not at levels which are considered to represent a constraint to the excavation works or use of the site for pipeline infrastructure. Specific assessment of excavated material as waste was not undertaken however the results indicate that material may be able to be suitable for beneficial re-use subject to confirmation of acid sulfate soil status.

The remainder of the Project footprint is not considered likely to have contamination which would pose a risk however there may be isolated areas of fill / waste deposition which has not been identified and some low levels of pesticides, herbicides, hydrocarbons and metals may be present from the agricultural uses. Fence posts situated within agricultural lands (refer **Photograph 8**, **Appendix G**) may be treated timber and may require disposal rather than re-use / recycling. Waste will require removal prior to the area being disturbed and may require additional works to confirm removal.

No assessment of the potential contamination of surface water has been undertaken and while no significant potential for contamination has been identified, it is recommended that interaction with surface water is to be minimised. Excavation works must be managed in a manner that prevents the potential for contamination of surface water, mobilisation of sediments and/or increased erosion.

Groundwater is likely to be deep (>5m) in the majority of the Project footprint, although perched groundwater may be encountered above bedrock and within coal seams. Where the underlying geology is within quaternary sediments, groundwater is expected to be shallow such as was identified in proximity to Swamp and Wallis Creeks: this will require management during excavations associated with the Project. There has been no potential for groundwater contamination identified across the majority of the Project footprint, however the potential for groundwater to be contaminated cannot be discounted. Groundwater within the former smelter (Parcels 18 and 20) is considered to be contaminated (refer Section 3.4.3) prior to remediation and the intended status following the completion of remediation is unknown; further works as recommended as part of the remediation (refer **Section 3.4.3**) may provide further quantification. The extent of contamination beyond the operational portion of the former Hydro smelter is also unknown at this time. Further the presence of potential acid sulfate soils in the lower lying areas of the Project footprint, as discussed below, present a risk of groundwater being acidic and may mobilise metals from soil. As such, any groundwater extraction will require management for the protection of human health and the environment.



Acid sulfate soils are considered to be limited to two (2) sections of the western portion of the Project footprint (refer **Drawings 2b** and **2c**) however based on testing undertaken in the proximity of Swamp and Wallis Creeks (Parcel 62, and Parcels 34, 40-43), ASS are limited and may not be encountered within the depth of excavation for the transmission or storage pipelines. Further consideration of the construction methodology is recommended to confirm the potential disturbance of actual and/or potential acid sulfate soils. Where potential acid sulfate soils are going to be excavated, an acid sulfate soils management plan (ASSMP) in accordance with the relevant ASSMAC guidelines (Ref [6]) will need to be implemented to protect the environment. The ASSMP must include consideration of groundwater extraction in regard to rates of extraction such that drawdown doesn't occur which may facilitate and increase the quantity of oxidised acid sulfate soils in the area as well as the capture, testing and treatment of extracted water prior to discharge.

8.1 EXPOSURE PATHWAYS AND RECEPTORS

The potential exposure pathways relate to:

- Inhalation of dust or asbestos fibres generated from ACM fragments. There has been no identification of volatile contaminants which may present a risk of vapour inhalation.
- Ingestion of dust and soil.
- Dermal contact with soil.
- Migration of contaminated soil into waterways.
- Leachate from contaminated soil migrating into waterways.
- Dermal contact and accidental ingestion of groundwater (due to seepage into trenches or dewatering), specifically within the vicinity, or downgradient, of the former Hydro smelter.

Potential receptors relate to:

- Personnel undertaking the construction works.
- Visitors / bystanders and landholders who may occasionally attend the area of the construction.
- Passers-by in areas where the Project footprint is close to public areas / roads.
- Ecological populations, especially those related to creeks in proximity to the Project footprint.

The risks of exposure will be highest during the construction phase of the Project however they are considered able to be appropriately managed with industry best practice dust, soil and water controls, and implementation of protocols relating to hygienic processes.



Based on the results of this assessment, and the plans on which the assessment has been based on (refer **Appendix A**), an ASSMP may be required in some area of the Project footprint depending on the depth of excavation at the eastern portion of the storage pipeline and within the area of Wallis Creek. Excavation for the storage pipeline will be restricted to the west of the identified potential ASS to allow space requirements for heavy machinery, string of pipe segments, welding of pipe bends and stockpiling of topsoils and subsoils. Furthermore, RCA has been informed that the horizontal drilling exit pad on the east of Wallis Creek will be relocated further to the east (close to BH6, refer **Drawing 2c**, **Appendix A**) such that the risk of flooding is reduced and no trenching within the area of actual ASS near BH5 will be required. As such, it is not considered likely that an ASSMP will be required.

A groundwater management plan will be required to outline the management measures and contingency items for the extraction of groundwater if encountered during the excavations for the Project; this plan should consider the potential for the groundwater to be contaminated and / or to be acidic.

Following the completion of the construction works it is considered that there will be limited potential for exposure to contamination except during maintenance works when soil is disturbed.

9 CONCLUSIONS AND RECOMMENDED MANAGEMENT MEASURES

This report has presented the findings, as available at the time of writing, of a preliminary site (contamination) assessment undertaken within the Project footprint.

The works have comprised a desktop assessment of government documents, review of specific assessment reports for some Parcels within the Project footprint; an inspection of the majority of the Project footprint; and collection of soil samples to assess for contamination associated with the CTGM and in agricultural land in areas of potential acid sulfate soil.

Potential for contamination is generally limited within the Project footprint. There are two (2) areas where contamination is known to be present and RAP have been compiled by others:

• Parcel 10 was a former poultry farm and contamination has been identified (Ref [10]) in the form of asbestos and waste and may further include hydrocarbons and pesticides. The Project footprint intersects with a number of former building footprints and is in close proximity to a number of other building footprints as well as waste deposition areas. Depending on the extent of remedial works undertaken and strategy used at the time of construction, specific management during construction may be required and some excavated soil may not be suitable to replace within the transmission pipeline trench.



- Parcels 18 and 20 (as well as a number of other small Parcels) comprise the former Hydro smelter which has been assessed (Ref [12]) as contaminated predominantly with PAH in shallow soil (<0.6m). While the Project footprint does not specifically intersect with identified AEC it is considered that there will be potential for exposure to contaminated soils. However as construction works associated with the HPP are not permitted to commence until the completion, to the satisfaction of a NSW EPA accredited contaminated sites auditor, of remediation it is considered that contamination issues will either not be encountered or can be managed in accordance with a management plan compiled following remediation completion.
 - The western portion of Parcel 16 may also be contaminated due to the irrigation of surface water collected from the former Hydro smelter. If this area is not included within the remediation of the former Hydro smelter such that it is either suitable for use or has a specific management plan with regards to contamination, additional works may be required to characterise the potential for contamination and/or provide management measures to be implemented during the construction works.
 - Groundwater at and associated with the former Hydro Smelter was impacted prior to remediation; leachate interception, source removal and monitored natural attenuation were identified as the preferred strategies, however the contamination status and timeline of the remediation of this media is unknown.

Minor issues associated with waste deposition and burial have been identified at Parcels 12, 23, 36 and 43 and may be encountered in other areas along the Project footprint. These are considered able to be appropriately managed during construction via standard industry practice and an unexpected finds protocol.

Groundwater at, and in the vicinity of the former Hydro smelter, has been identified (Ref [12]) to be contaminated and while there are no indications of the potential for groundwater to be contaminated elsewhere within the Project footprint, the possibility cannot be discounted. All groundwater is to be considered as contaminated for the purpose of management during any exposure during excavation works and prior to and during extraction. Assessment of groundwater will be required if intended to be extracted. Groundwater within the low-lying areas in proximity to Swamp and Wallis Creek is to be considered as acidic and is to be managed accordingly.

Acid sulfate soils are mapped as being present within two (2) areas of the Project footprint; a third area to the east of the Project footprint is also mapped. Testing at these areas identified a minor incidence of potential and actual acid sulfate soil in the eastern extent of the storage pipeline and in proximity to Wallis Creek respectively. Based on the construction details provided to RCA it is not considered that the identified ASS will be disturbed.

RCA considers that there are limited constraints associated with contamination risk within the Project footprint: these can be appropriately managed during the construction process such that the Project footprint is considered able to be suitable for the proposed works.

Management is considered to be required for:



- Waste encountered on the surface and requiring removal as part of the construction. Prior to the commencement of construction works the waste material is to be removed and disposed of at an appropriately licensed waste disposal / recycling facility. If asbestos material is identified (such as on Parcel 12) the removal of the material is to be certified by an appropriately accredited asbestos assessor prior to the commencement of construction. It is recommended that the process will require a minimum of two (2) weeks.
- Excavations within soils at greater than 2m below the surface in the eastern area of the storage pipeline (Parcel 62) will require an acid sulfate soil management plan compiled in accordance with the guidelines (Ref [6]) to outline the preparations, management measures, treatment processes and contingency planning for the excavated soil. Current planning details indicates that this will not occur and as such a management plan will not be necessary.
- Excavations within soils between 1 and 2.4m below the surface in the vicinity of Wallis Creek (Parcel 42). Currently the design includes horizontal drilling at a depth of >10m below the surface, and RCA has been informed that the exit pad will be moved beyond the area of identified ASS, and as such actual acid sulfate soils will not be encountered. If, following the final design completion, acid sulfate soils will be disturbed an acid sulfate soil management plan must be compiled in accordance with the guidelines (Ref [6]) to outline the preparations, management measures, treatment processes and contingency planning for the excavated soil.
- Groundwater being encountered in excavations. There is the potential for groundwater to be contaminated, particularly within the former Hydro smelter (Parcels 18 and 20), and / or acidic, such as in proximity to Wallis Creek and exposure to groundwater as part of construction will present risks to human health and to the environment. The management plan must outline the preparations, management measures, treatment processes and contingency planning for encountering groundwater within the excavations.
- Groundwater being extracted. This will require management in relation to exposure to
 potential contamination and acidity however will also require management to avoid
 knock on effects to acid sulfate soil if being undertaken within low-lying areas in
 proximity to Swamp and Wallis Creeks. The management plan must outline the
 preparations, management measures, treatment processes, disposal and contingency
 planning for extracted groundwater.

An unexpected finds protocol is also considered to be required to outline the requirement for cessation of works and assessment with regards to identification of waste deposition, filling and any odorous soils.

10 LIMITATIONS

This report has been prepared for Umwelt (Australia) Pty Ltd in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.



This report has been prepared for the sole use of Umwelt (Australia) Pty Ltd as part of the application for the lateral gas pipeline to be situated between Lenaghan and Kurri Kurri as described in this report. The report may not contain sufficient information for purposes of other uses or for parties other than Umwelt (Australia) Pty Ltd. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the inspected portions (as evidenced by the photographs within **Appendix G**) of the Project footprint. Conditions can vary across any site that cannot be explicitly defined by investigation and there are areas of the Project footprint which were not inspected.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

RCA AUSTRALIA



Kalyparice

Fiona Brooker
Manager of Environmental Services (BEng(Env))

Katy Davies Senior Environmental Scientist

REFERENCES

- [1] Standards Australia, *Pipelines Gas and Liquid Petroleum*, AS 2885-2018.
- [2] NSW EPA, Guidelines for Consultants Reporting on Contaminated Sites, April 2020.
- [3] NSW EPA, Guidelines for the NSW Site Auditor Scheme (3rd Edition), October 2017
- [4] Department of Urban Affairs and Planning, State Environmental Planning Policy (SEPP): Remediation of Land, August 1998.
- [5] NEPC, National Environment Protection (Assessment of Site Contamination)
 Measure, 1999 as amended 2013.
- [6] NSW Acid Sulfate Soil Management Advisory Committee, *Acid Sulfate Soil Manual*, August 1998.



[7] Newcastle Local Environmental Plan 2012 noting that at the time of writing the Standard Instrument (Local Environmental Plans) Amendment (Land Use Zones) Order 2021 had been enacted and altered previous references to "E" to "C" as per below.

Column 1	Column 2				
Zone E1 National Parks and Nature Reserves	Zone C1 National Parks and Nature Reserves				
Zone E2 Environmental Conservation	Zone C2 Environmental Conservation				
Zone E3 Environmental Management	Zone C3 Environmental Management				
Zone E4 Environmental Living	Zone C4 Environmental Living				

- [8] Cessnock Local Environmental Plan 2011, Current version for 14 July 2021 to date noting that at the time of writing the *Standard Instrument (Local Environmental Plans) Amendment (Land Use Zones) Order 2021* had been enacted and altered previous references to "E" to "C" as per above.
- [9] <u>www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address</u> noting that at the time of writing the *Standard Instrument (Local Environmental Plans) Amendment (Land Use Zones) Order 2021* had been enacted and altered previous references to "E" to "C" as per above.
- [10] JBS&G Australia Pty Ltd, Former Black Hill Steggles Poultry Farm, Remedial Action Plan Stage 2 Civil Works, John Renshaw Drive, Black Hill NSW, Ref: 54892-116888 / Rev 0, 14 August 2018.
- [11] Douglas Partners, Report on Preliminary Geotechnical, Contamination and Mine Subsidence Assessment, Proposed Employment Lands Development, Black Hill, Project 39664.03, February 2011.
- [12] Ramboll Environ, *Remedial Action Plan, Hydro Aluminium Smelter Kurri Kurri*, Ref: AS130349 Final V2, July 2016.
- [13] AECOM Australia Pty Ltd, *Bloomfield Mining Operations WMP, Water Management Plan*, 13 August 2020, reference Job No: 60289290,
- [14] Yancoal Australia Group and Donaldson Coal, *Abel Underground Coal Mine, Water Management Plan, Car and Maintenance, Version 4*, 3 June 2019.
- [15] CRC Care, Technical Report 10, Health screening levels for petroleum in soil and groundwater, September 2011.
- [16] Standards Association of Australia, *Australian Standard, Piling Design and Installation, AS 2159-2009*, November 2009.

GLOSSARY

95%UCL_{ave} A statistical calculation – 95% Upper Confidence Limit of the

arithmetic mean of the data set.

AHD Australian height datum, based on a mean sea level.

Alignment The centreline of the transmission pipeline Right of Way (ROW)

selected for assessment in the EIS.



Ancillary facilities Include additional workspaces, stockpile sites, pipe laydown

areas and site access tracks required for the Project during

construction.

ASC NEPM National Environment Protection (Assessment of Site

Contamination) Measure.

Construction footprint The total area of land directly disturbed for construction of the

Project consisting of the transmission pipeline construction right of way, storage pipeline construction footprint, extra workspaces, temporary laydown areas, temporary access tracks and any other associated facilities required to construct the Project

other associated facilities required to construct the Project.

A right held by the proponent to make use of the land for a specific purpose. The easement for the transmission pipeline will

typically be 25 m wide.

EIL Ecological investigation level. Relates to soil concentrations

which may pose a risk to ecological health.

EMP Environmental management plan.

Easement

ESL Ecological screening level. Relates to vapour risk from petroleum

hydrocarbons which may pose a risk to ecological health.

Horizontal boring A 'trenchless technology' by which a pipeline tunnel is drilled at

a shallow angle under a crossing (e.g., a waterway, wetland, road

or railway) through which the pipe is then threaded.

HPP Hunter Power Project: is the proposed gas-fired power station

located at the former Hydro Aluminium smelter at Kurri Kurri. Snowy Hydro is proposing to construct the gas fired power station and electrical switchyard with capacity to generate 750MW of 'on-demand' electricity. The proposed HPP will operate as a 'peak load' electricity generation facility, capable of

supplying electricity at short notice as needed.

HIL Health investigation level. Relates to soil concentrations which

may pose a risk to human health in soil.

HSL Health screening level. Relates to the vapour risk from petroleum

hydrocarbons which may pose a risk to human health in soil.

Intralaboratory A sample split into two and sent blind to the sample laboratory

for comparative analysis.

ISL Investigation screening levels for soil. Comprised of HIL/EIL and

HSL/ESL

kg kilogram, 1000 gram.

Landholder A general term used to refer to the legal owner or manager of a

parcel of land. It may be a private landholder, Government or private utility, or a Government Agency responsible for management of a particular parcel of Crown land (e.g., National

Parks or Forestry areas).



LEP Local environment plan. A planning tool for the Local

Government.

μg microgram, 1/1000 milligram.

mg milligram, 1/1000 gram.

NEPC National Environment Protection Council.

NSW EPA NSW Environment Protection Authority – made a separate entity

in 2011 to regulates the contaminated land industry.

PQL Practical Quantitation Limit.

QA Quality Assurance.

QC Quality Control.

RPD Relative Percentage Difference.

Storage pipeline An approximately 23.6 km long buried, steel, 42" high pressure

(15.2 MPa) pipeline downstream of the compressor station, located in the former Hydro smelter buffer zone, to hold up to 70 terajoules of gas ready to supply the HPP at the required inlet

pressure.

The Project The proposed construction, operation and maintenance of the

Kurri Kurri Lateral Pipeline Project (KKLP) which includes a transmission pipeline, a storage pipeline and a compressor

station, including associated surface facilities.

Transmission pipeline An approximately 20.1km long buried, steel, 14" medium

pressure (6.9 MPa) pipeline, connecting the proposed HPP to the

existing NSW gas transmission network.

Chemical Compounds

BTEX Benzene, toluene, ethylbenzene, xylene.

OCP Organochlorin pesticides.

PAH Polycyclic aromatic hydrocarbons. Multi-ring compounds found

in fuels, oils and creosote. These are also common combustion

products.

PCB Poly chlorinated biphenyls.

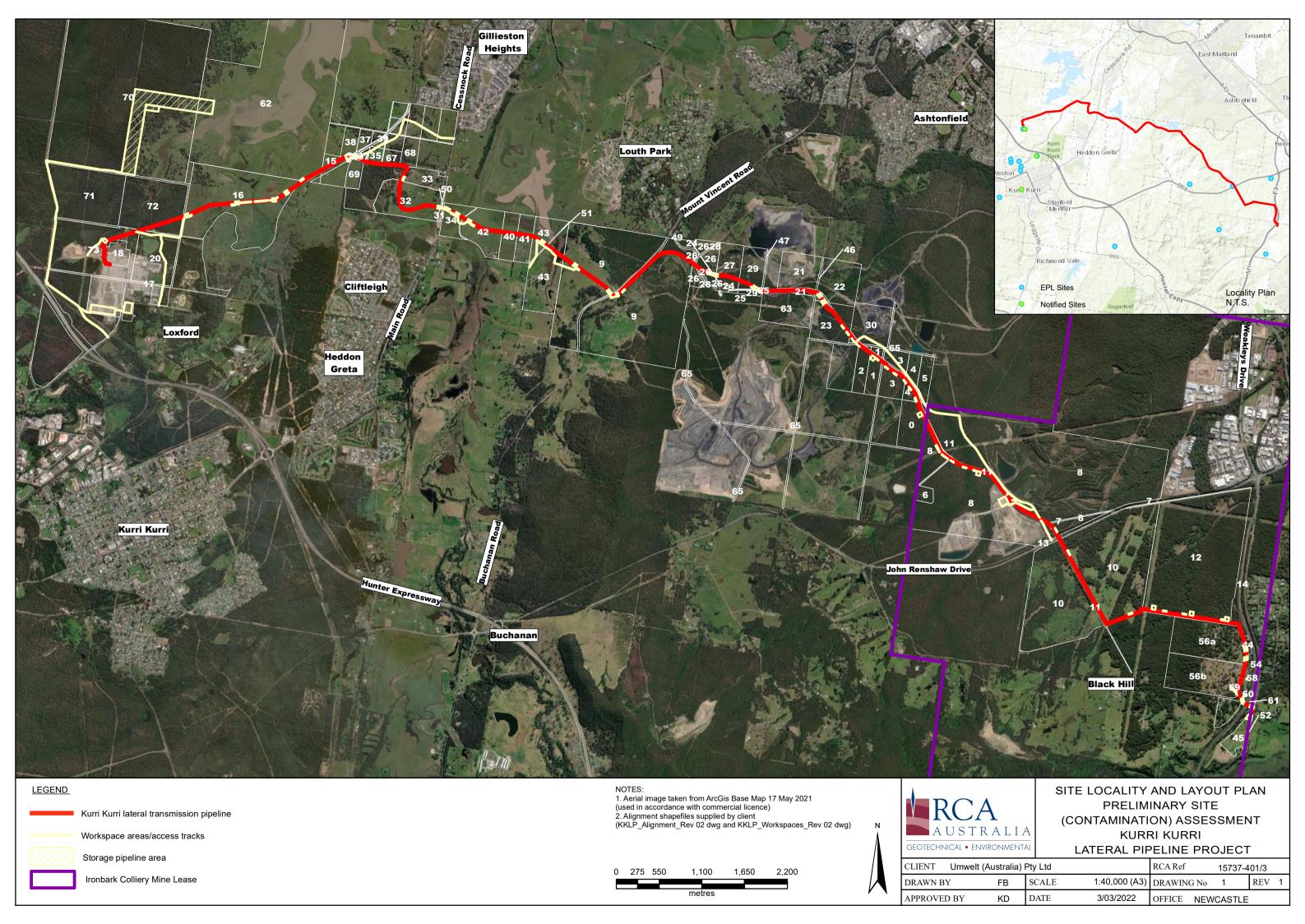
TPH Total petroleum hydrocarbons.

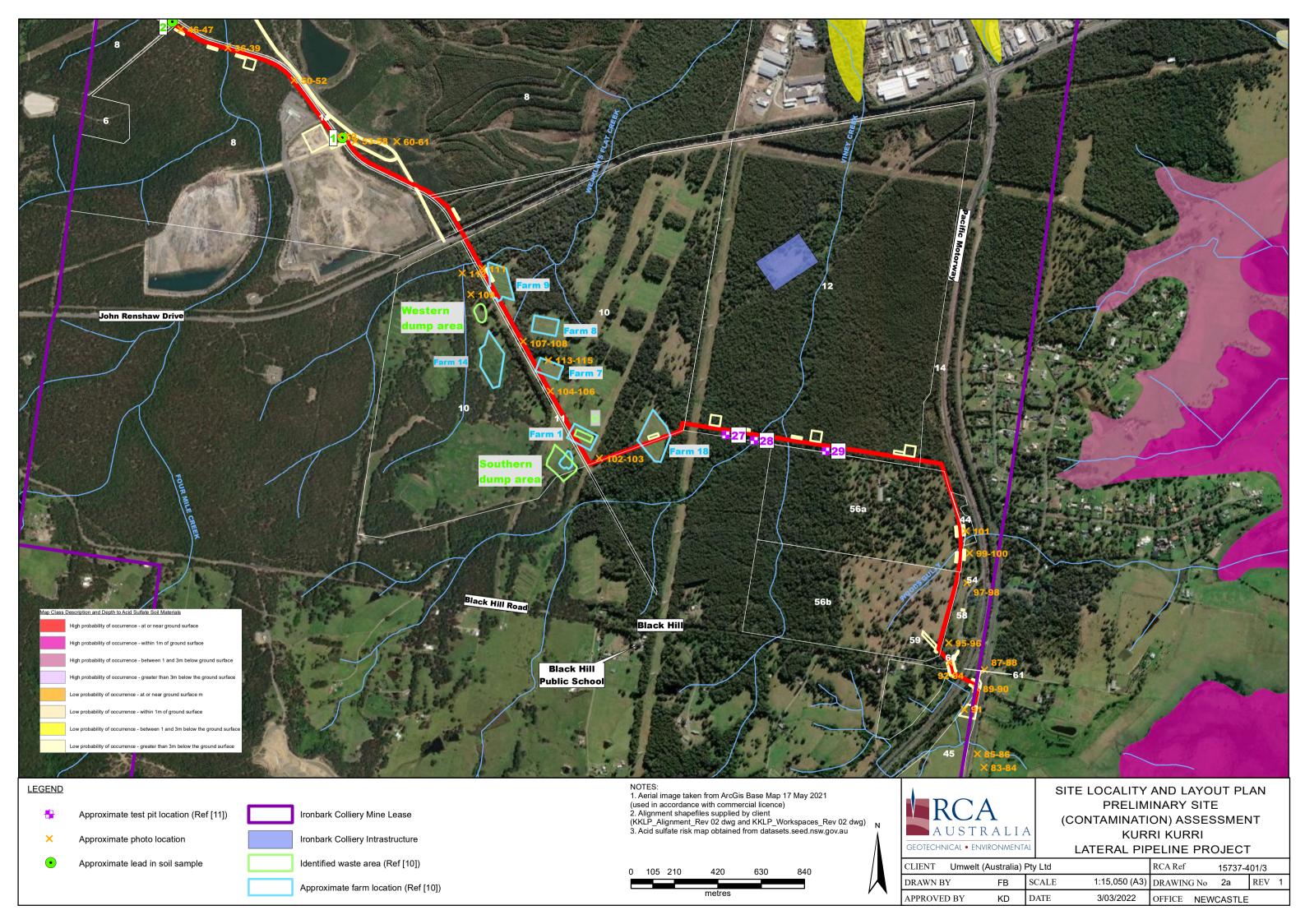
TRH Total recoverable hydrocarbons

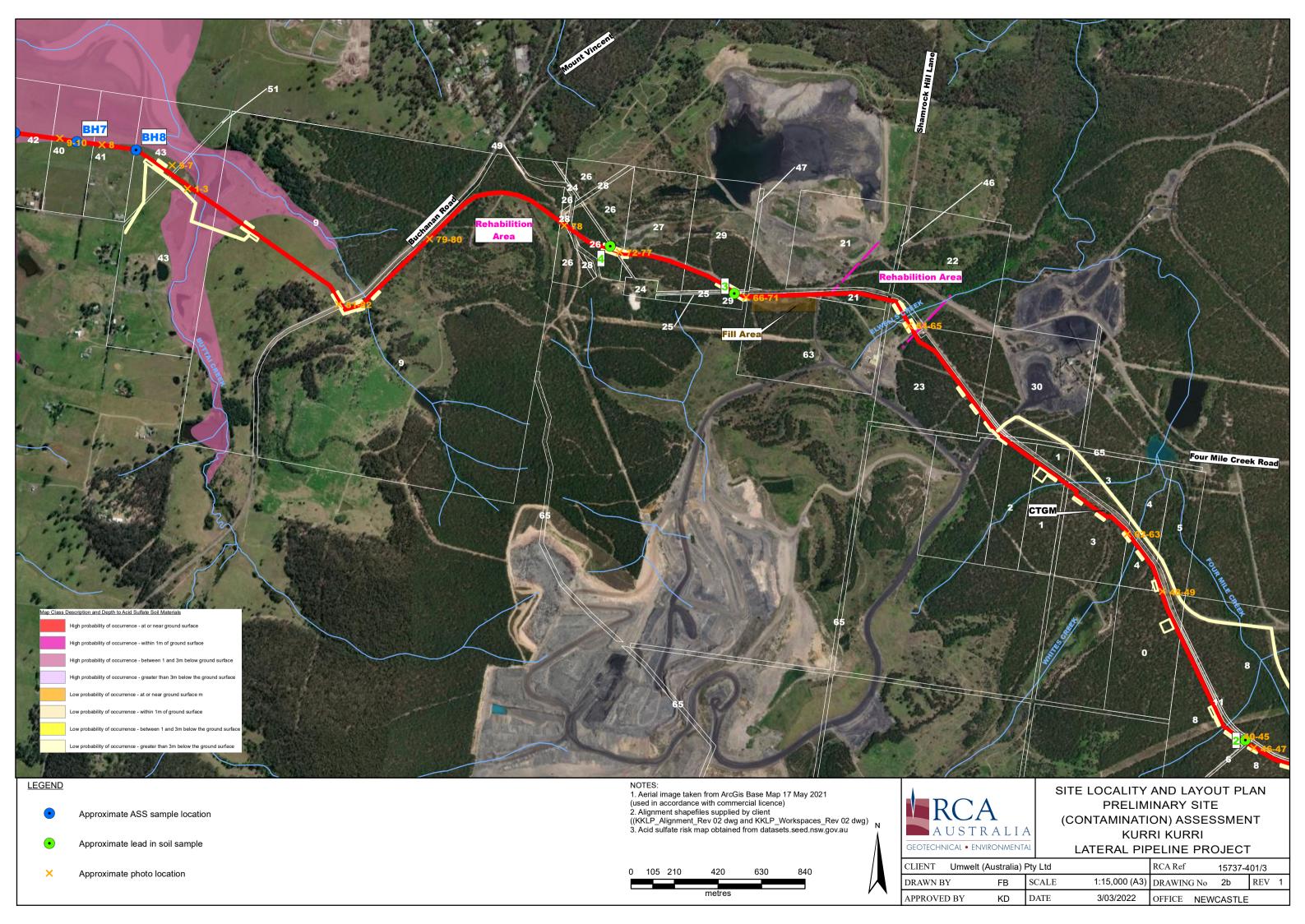


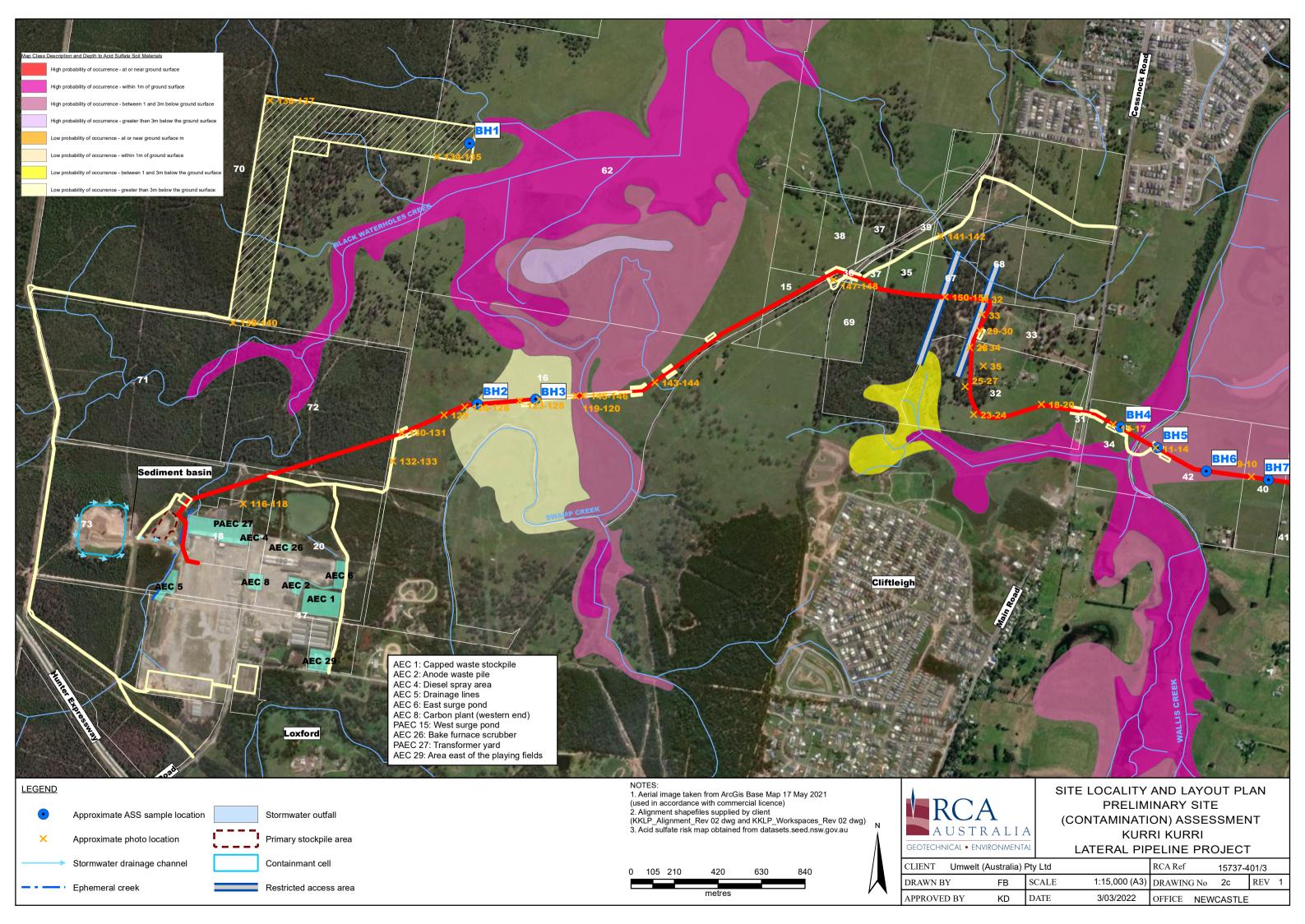
Appendix A

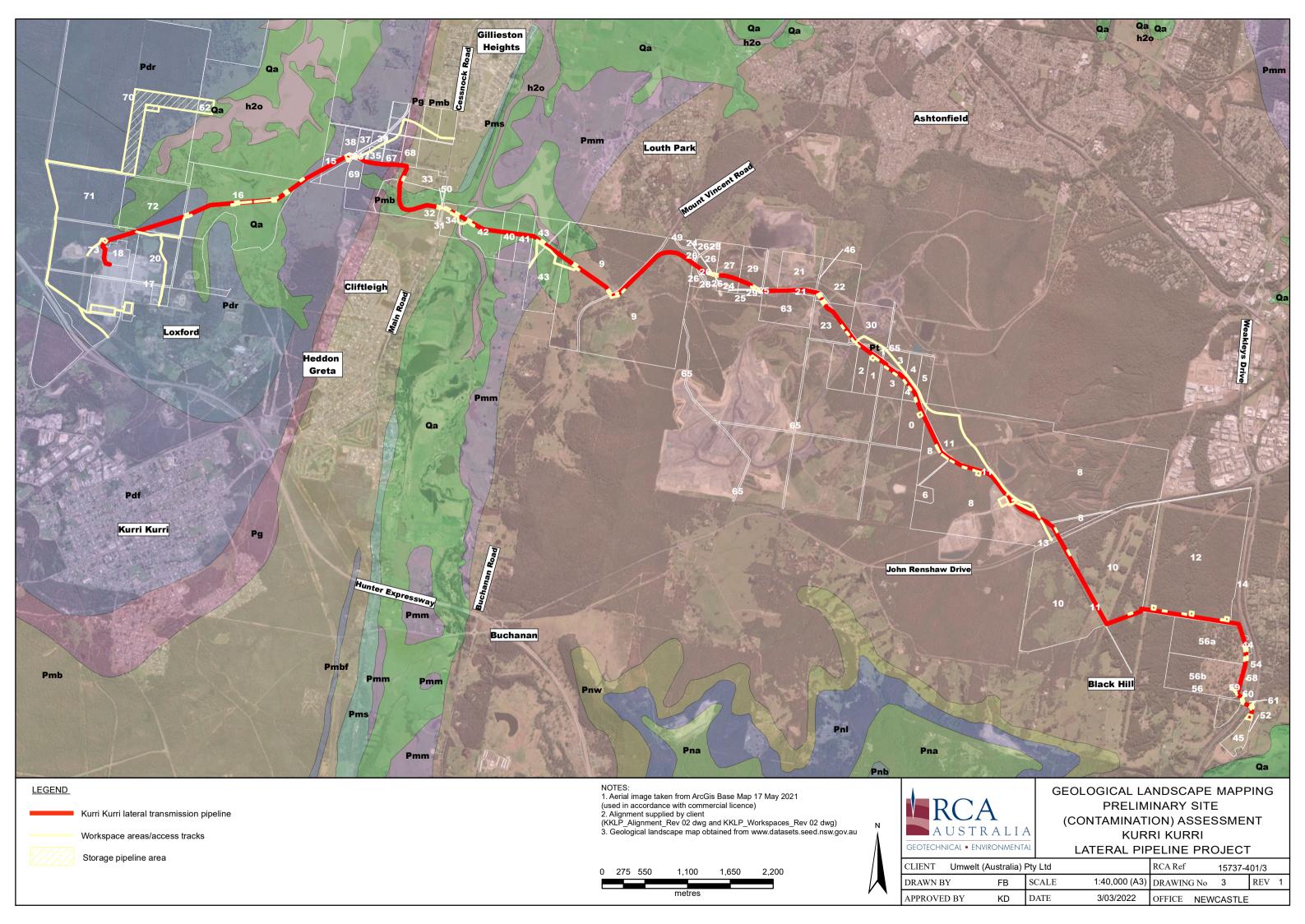
Drawings

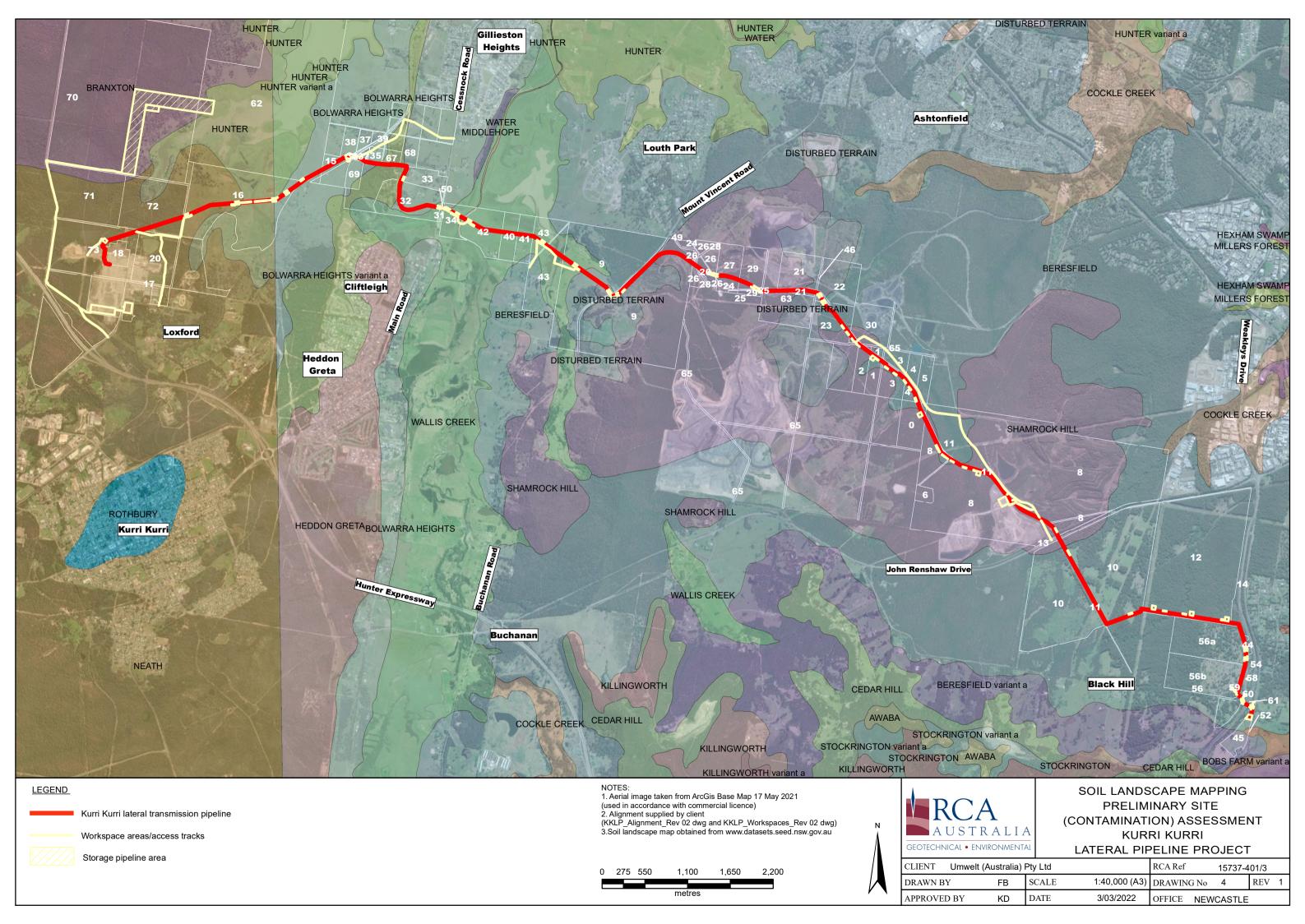












Appendix B

Section 10.7 Certificates and Historical Photographs



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4336

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: John Renshaw Drive BLACK HILL NSW 2322

TITLE: LOT: 1392 DP: 1126633

PARCEL NO.: 507348

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

TELEPHONE: (02) 4993 4100. FAX (02) 4993 2500
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ABN 60 919 148 928

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

<u>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</u>
<u>2007</u>

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

(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:

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.37 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.38 Complying development on flood control lots contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.

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ISSUED UNDER SECTION 10.7(2) and (5)
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979
and associated
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

	T
Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the

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	land under the Fire Safety Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
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5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Νo

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence



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No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

Nο

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

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and associated

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10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.

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(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4336

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: John Renshaw Drive BLACK HILL NSW 2322

TITLE: LOT: 1392 DP: 1126633

PARCEL NO.: 507348

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

TELEPHONE: (02) 4993 4100. FAX (02) 4993 2500
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EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
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Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4337

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buchanan Road BUCHANAN NSW 2323

TITLE: LOT: 1 DP: 1045723

PARCEL NO.: 508124

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

C2 Environmental Conservation under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

C2 Environmental Conservation

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2) Permitted without consent

Home occupations

3) Permitted with consent

Dwelling houses; Environmental facilities; Environmental protection works; Extensive agriculture; Home-based child care; Oyster aquaculture Recreation areas; Roads; Secondary dwellings; Tourist and visitor accommodation

(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:

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.38 Complying development on flood control lots contained within the State Environmental Planning Policy (Exempt

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ISSUED UNDER SECTION 10.7(2) and (5)
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Low Bigo Housing Divorcity Code	and Complying Development Codes) 2008. Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.37 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Complying Development MAY NOT be carried out under the Rural Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental

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ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

	-
	Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the land under the Fire Safety Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Yes

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

(a) adopted by the council, or

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(1)

(2)

Landslip

Bushfire

No

PLANNING CERTIFICATE

ISSUED UNDER SECTION 10.7(2) and (5)

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(b) 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:

	No
(3)	Tidal inundation
	No
(4)	Subsidence
	No
(5)	Acid Sulphate Soils

7A. Flood related development controls information

Any other risk (other than flooding)

(1) Whether or not 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) is subject to flood related development controls.

Yes

No

No

(6)

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

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No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979.

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

- (1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.
 - There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

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- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4337

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buchanan Road BUCHANAN NSW 2323

TITLE: LOT: 1 DP: 1045723

PARCEL NO.: 508124

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

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EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
ABN 60 919 148 928

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ISSUED UNDER SECTION 10.7(2) and (5)

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and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4334

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: 1134 John Renshaw Drive BLACK HILL NSW

2322

TITLE: LOT: 1 DP: 1260203

PARCEL NO.: 514270

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

- (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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):
- (3) The name of each development control plan that applies to the carrying out of development on the land.

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

IN2 Light Industrial under the Cessnock Local Environmental Plan 2011.

C2 Environmental Conservation under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

IN2 Light Industrial

2) Permitted without consent

Nil

3) Permitted with consent

Depots; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Landscaping material supplies; Light industries; Neighbourhood shops; Oyster aquaculture; Places of public worship; Plant nurseries; Roads; Tank-based aquaculture; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Airstrips; Animal boarding or training establishments; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Centre-based child care facilities; Charter and tourism boating facilities; Commercial premises; Community facilities; Correctional centres; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Function centres; Hazardous storage establishments; Health services facilities; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industries; Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Offensive storage establishments; Pond-based aquaculture Public administration buildings; Recreation facilities (major); Recreation facilities (outdoor); Residential accommodation; Respite day care centres; Resource recovery facilities; Sewerage systems; Tourist and visitor accommodation; Waste disposal facilities; Water recreation structures; Wharf or boating facilities; Wholesale supplies

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ISSUED UNDER SECTION 10.7(2) and (5)

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C2 Environmental Conservation

2) Permitted without consent

Home occupations

3) Permitted with consent

Dwelling houses; Environmental facilities; Environmental protection works; Extensive agriculture; Home-based child care; Oyster aquaculture Recreation areas; Roads; Secondary dwellings; Tourist and visitor accommodation

Schedule 1 Additional permitted use

- 11 Use of certain land at Black Hill Road, Black Hill
- (1) This clause applies to land being part of Lot 1131, DP 1057179 and part of Lot 119, DP 1154904 at Black Hill Road, Black Hill that is in Zone IN2 Light Industrial and identified on the Additional Permitted Uses Map.
- (2) Development for the purpose of general industries is permitted with development consent.
- (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:

Nο

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses

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1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out
Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development MAY NOT be carried out under the Rural Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may be carried out under the Commercial & Industrial (New Buildings and Additions) Code where it meets the requirements of Clause 5A.29 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Container Recycling Facilities Code	Complying Development may be carried out on the

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	land under the Container Recycling Facilities Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the land under the Fire Safety Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Yes

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

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ISSUED UNDER SECTION 10.7(2) and (5)

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

- (a) adopted by the council, or
- (b) 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:

That restricts the development of the land because of the likelihood of:		
(1)	Landslip	
	No	

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence

No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

No

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the

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land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

All of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979.

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979.

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

(1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.

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ISSUED UNDER SECTION 10.7(2) and (5)

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- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4334

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: 1134 John Renshaw Drive BLACK HILL NSW

2322

TITLE: LOT: 1 DP: 1260203

PARCEL NO.: 514270

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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Planning Certificate

Section 10.7, Environmental Planning and Assessment Act 1979

To: RCA Australia Pty Ltd

92 Hill Street

Carrington NSW 2294

Certificate No: PL2021/07159

Fees: \$133.00 Receipt No(s): D002143845

Your Reference:

Date of Issue: 22/12/2021

The Land: Lot 30 DP 870411

198 Lenaghans Drive Black Hill NSW 2322

Advice provided on this Certificate:

Advice under section 10.7(2): see items 1 - 21Additional advice under section 10.7(5): see Items 22 - 28

IMPORTANT: Please read this certificate carefully

This certificate contains important information about the land.

Please check for any item which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, phone our **Customer Contact Centre** on (02) 4974 2000, or come in and see us.

The information provided in this certificate relates only to the land described above. If you need information about adjoining or nearby land, or about the City of Newcastle (CN) development policies for the general area, contact our **Customer Contact Centre**.

All information provided is correct as at 22/12/2021. However, it's possible for changes to occur within a short time. We recommend that you only rely upon a very recent certificate.

City of Newcastle

PO Box 489 NEWCASTLE 2300

Phone: (02) 4974 2000 Facsimile: (02) 4974 2222

Customer Contact Centre

Ground floor, 12 Stewart Avenue Newcastle West NSW 2300

Office hours:

Mondays to Fridays 8.30 am to 5.00 pm

Part 1:

Advice provided under section 10.7(2)

ATTENTION: The explanatory notes appearing in italic print within Part 1 are provided to assist understanding, but do not form part of the advice provided under section 10.7(2). These notes shall be taken as being advice provided under section 10.7(5).

1. Names of relevant planning instruments and DCPs

The following environmental planning instruments, proposed environmental planning instruments and development control plans apply to the land, either in full or in part.

State Environmental Planning Policy No. 1 - Development Standards

State Environmental Planning Policy No. 21 - Caravan Parks

State Environmental Planning Policy No. 33 - Hazardous and Offensive Development

State Environmental Planning Policy No. 36 - Manufactured Home Estates

State Environmental Planning Policy (Koala Habitat Protection) Amendment (Maps) 2020

State Environmental Planning Policy No. 50 - Canal Estate Development

State Environmental Planning Policy No. 55 - Remediation of Land

State Environmental Planning Policy No. 64 - Advertising and Signage

State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development

State Environmental Planning Policy (Building Sustainability Index:BASIX) 2004

State Environmental Planning Policy (State Significant Precincts) 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 (Urban Renewal) 2010

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Concurrences) 2018

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (Housing) 2021

Draft State Environmental Planning Policy (Design and Place) 2021

Newcastle Local Environmental Plan 2012

Newcastle Development Control Plan 2012

2. Zoning and land use under relevant LEPs

Newcastle Local Environmental Plan 2012

Zoning: The Newcastle Local Environmental Plan 2012 identifies the land as being within the following zone(s):

Zone IN2 Light Industrial

Zone C2 Environmental Conservation

Note: Refer to www. newcastle.nsw.gov.au or www. legislation.nsw.gov.au website for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone C2 Environmental Conservation

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 provide for the management of the majority of the Hunter River floodplain by restricting the type and intensity of development to that compatible with the anticipated risk to life and property.
- To provide for the conservation, enhancement and protection of the Hexham Wetlands.

Permitted without consent

Environmental protection works; Home occupations

• Permitted with consent

Agriculture; Dwelling houses; Environmental facilities; Farm buildings; Flood mitigation works; Oyster aquaculture; Recreation areas; Roads

Prohibited

Animal boarding or training establishments; Business premises; Hotel or motel accommodation; Industries; Intensive livestock agriculture; Intensive plant agriculture; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in, permitted without consent or permitted with consent

Note: Refer to www. newcastle.nsw.gov.au or www. legislation.nsw.gov.au website for LEP instrument and zoning maps.

The following is an extract from the zoning provisions contained in Newcastle Local Environmental Plan 2012:

Zone IN2 Light Industrial

Objectives of zone

- To provide a wide range of light industrial, warehouse and related land uses.
- To encourage employment opportunities and to support the viability of centres.
- · To minimise any adverse effect of industry on other land uses.
- To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
- To support and protect industrial land for industrial uses.

• Permitted without consent

Environmental protection works

Permitted with consent

Boat building and repair facilities; Boat launching ramps; Car parks; Centre-based child care facilities; Community facilities; Crematoria; Depots; Flood mitigation works; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Helipads; Heliports; Industrial retail outlets; Industrial training facilities; Jetties; Kiosks; Landscaping material supplies; Light industries; Mortuaries; Neighbourhood shops; Oyster aquaculture; Passenger transport facilities; Places of public worship; Plant nurseries; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Respite day care centres; Restricted premises; Roads; Service stations; Sex services premises; Signage; Storage premises; Take away food and drink premises; Tank-based aquaculture; Timber yards; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Vehicle sales or hire premises; Warehouse or distribution centres; Wholesale supplies

Prohibited

Pond-based aquaculture; Any development not specified in, permitted without consent or permitted with consent

Part 8 Newcastle LEP 2012: The purposes for which development may be carried out on the land with development consent is also subject to Part 8 - Additional local provisions - urban release areas of the Newcastle Local Environmental Plan 2012.

Minimum land dimensions for erection of a dwelling-house: The Newcastle Local Environmental Plan 2012 contains development standards relating to minimum land dimensions for the erection of a dwelling house. Refer to clause 4.1 Minimum subdivision lot size and Part 4 Principle development standards of the Newcastle LEP 2012 for provisions relating to minimum lot sizes for residential development.

Critical habitat: The Newcastle Local Environmental Plan 2012 does not identify the land as including or comprising critical habitat.

Heritage conservation area: The land is not within a heritage conservation area under the Newcastle Local Environmental Plan 2012.

Heritage items: There are no heritage items listed in the Newcastle Local Environmental Plan 2012 situated on the land.

3. Complying development

Note Other requirements: The advice below for all Complying Development Codes, is limited to identifying whether or not the **land**, the subject of the certificate, is land on which complying development may be carried out because of Clauses 1.17A(1)(c) to (e), (2), (3) & (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 (the Codes SEPP).

To ascertain the extent to which the complying development may or may not be carried out on the land, maps are available on City of Newcastle (CN) web pages.

Housing Code

Complying development under the Housing Code MAY be carried out on this land.

Rural Housing Code

Complying development under the Rural Housing Code MAY be carried out on this land.

Low Rise Housing Diversity Code

Complying development under the Low Rise Housing Diversity Code MAY be carried out on this land.

Greenfield Housing Code

Complying development under the Greenfield Housing Code MAY be carried out on this land.

Inland Code

Complying development under the Inland Code MAY be carried out on this land.

Housing Alterations Code

Complying development under the Housing Alterations Code MAY be carried out on this land.

General Development Code

Complying development under the General Development Code MAY be carried out on this land.

Commercial and Industrial Alterations Code

Complying development under the Commercial and Industrial Code MAY be carried out on this land.

Commercial and Industrial (New Buildings and Additions) Code

Complying development under the Commercial and Industrial (New Buildings and Additions) Code MAY be carried out on this land.

Container Recycling Facilities Code

Complying development under the Container Recycling Facilities Code MAY be carried out on this land.

Subdivision Code

Complying development under the Subdivision Code MAY be carried out on this land.

Demolition Code

Complying development under the Demolition Code MAY be carried out on this land.

Fire Safety Code

Complying development under the Fire Safety Code MAY be carried out on this land.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The land IS NOT subject to an agreement for annual charges under section 496B of the Local Government Act 1993 for coastal protection services (within the meaning of section 553B of that Act).

5. Coal Mine Subsidence Compensation Act 2017

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: The above advice is provided to the extent that City of Newcastle (CN) has been notified by Subsidence Advisory NSW.

6. Road widening or realignment

NOTE: The Roads and Maritime Services (RMS) may have proposals that are not referred to in this item. For advice about affectation by RMS proposals, contact the Roads and Maritime Services, Locked Mail Bag 30 Newcastle 2300. Ph: 131 782.

The land IS NOT AFFECTED by any road widening or road realignment under Division 2 of Part 3 of the Roads Act 1993.

The land IS NOT AFFECTED by any road widening or road realignment under an environmental planning instrument.

The land IS NOT AFFECTED by road widening or road realignment under a resolution of the Council.

7. Policies on hazard risk restrictions

Except as stated below, the land is not affected by a policy referred to in Item 7 of Schedule 4 of the Environmental Planning and Assessment Regulation 2000 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).

Potential acid sulfate soils: Works carried out on the land must be undertaken in accordance with Clause 6.1 Acid sulfate soils of the Newcastle Local Environmental Plan 2012.

Land Contamination: We have land contamination information/records in relation to this property. Council has adopted a policy of restricting development or imposing conditions on properties affected by land contamination. Refer to Section 5.02 Land Contamination of Newcastle Development Control Plan 2012, which is available to view and download from City of Newcastle's website.

Bush fire: Under clause 5.11 Bush fire hazard reduction of the Newcastle LEP 2012, bush fire hazard reduction work authorised by the Rural Fires Act 1997 may be carried out on any land without development consent. *NOTE: The Rural Fires Act 1997 also makes provision relating to the carrying out of development on bush fire prone land.*

NOTE: The absence of a policy to restrict development of the land because of the likelihood of a particular risk does not imply that the land is free from that risk. City of Newcastle (CN) considers the likelihood of natural and man-made risks when determining development applications under section 4.15 of the Environmental Planning and Assessment Act 1979. Detailed investigation carried out in conjunction with the preparation or assessment of a development application may result in CN either refusing development consent or imposing conditions of consent on the basis of risks that are not identified above.

7A. Flood related development controls information

7A(1) Mapping information is not available and it is unknown if the land or part of the land is within the flood planning area.

7A(2) Mapping information is not available and it is unknown if the land or part of the land is between the flood planning area and the probable maximum flood.

Our information currently indicates that the property is, or contains, flood prone land as defined in the Floodplain Development Manual: the management of flood liable land, April 2005 published by the NSW Government.

Section 4.01 Flood Management of Newcastle Development Control Plan (DCP) 2012 provides guidelines with respect to all development of flood prone land. This includes development for the purpose of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings. The DCP may be viewed on our website, inspected or purchased at our Customer Contact Centre.

NOTE: More detailed flood information specific to the property is available on separate flooding certificate application through our Customer Contact Centre on (02) 4974 2000

8. Land reserved for acquisition

The land is not identified for acquisition by a public authority (as referred to in section 3.15 of the Act) by any environmental planning instrument or proposed environmental planning instrument applying to the land.

9. Contributions plans

The following contribution plan/s apply to the land.

Section 7.11 Development Contributions Plan: Effective 1 January 2022.

The Plan specifies section 7.11 contributions that may be imposed as a condition of development consent.

Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019.

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

Section 7.12 Development Contributions Plan: Effective 1 January 2022.

The Plan specifies section 7.12 contributions that may be imposed as a condition of development consent.

NOTE: Contributions plans are available on our website or may be inspected or purchased at our Customer Contact Centre.

9A. Biodiversity certified land

The land IS NOT biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity stewardship sites

The land IS NOT land (of which CN is aware) under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

10A. Native vegetation clearing set asides

The land IS NOT land (of which CN is aware) that contains a set aside area under section 60ZC of the Local Land Services Act 2013.

11. Bush fire prone land

The land, either in whole or in part IS bush fire prone land for the purposes of the Environmental Planning and Assessment Act 1979.

12. Property vegetation plans

Not applicable. The Native Vegetation Act 2003 does not apply to the Newcastle local government area.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

CN HAS NOT 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

The land IS NOT AFFECTED by a direction by the Minister in force under section 75P (2) (c1) of the Act.

15. Site compatibility certificates and conditions for seniors housing

- (a) The land IS NOT AFFECTED by a current site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004.
- (b) The land IS NOT AFFECTED by any terms of kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, that have been imposed as a condition of consent to a development application granted after 11 October, 2007 in respect of the land.

Site compatibility certificates for infrastructure, schools or TAFE establishments

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Infrastructure) 2007.

17. Site compatibility certificates and conditions for affordable rental housing

The land IS NOT AFFECTED by a valid site compatibility certificate (of which CN is aware) issued under the State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

The land IS NOT AFFECTED by any development plan that applies to the land or that is proposed to be subject to a consent ballot.

19. Site verification certificates

The land IS NOT AFFECTED by a current site verification certificate (of which CN is aware) issued under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

20. Loose-fill asbestos insulation

CN HAS NOT been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register of loose-fill asbestos insulation, that is required to be maintained under that Division.

21. Affected building notices and building product rectification orders

The land IS NOT AFFECTED by any affected building notice of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by any building product rectification order that has not been fully complied with, of which CN is aware that is in force in respect of the land.

The land IS NOT AFFECTED by an outstanding notice of intention to make a building product rectification order of which CN is aware.

An affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017. Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note: The following matters are prescribed by section 59(2) of the Contaminated Land Management Act 1997.

The land to which the certificate relates is the subject of the following site audit statement(s) within the meaning of the Contaminated Land Management Act 1997.

1. Site Audit Statement DPNS/17 (12 December 2014) Produced by Mike Nash of Douglas Partners Pty Ltd.

You can contact Council's Compliance Services Unit on (02) 49742525 to obtain further information. NOTE: Contamination information that relates to the land that is not required to be disclosed under section 59(2) Contaminated Land Management Act 1997, may be provided under a section 10.7(5) certificate.

Part 2:

Advice provided under section 10.7(5)

ATTENTION: Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5).

22. Outstanding Notices and Orders issued by City of Newcastle (CN).

This Certificate does not include any advice regarding outstanding notices or orders issued under the Environmental Planning and Assessment Act 1979, the Local Government Act 1993 or any other relevant legislation. To obtain advice regarding these matters, it is recommended you lodge an application for a Certificate as to Outstanding Notices and Orders (accompanied by the appropriate fee). For further information, please contact the Customer Contact Centre on (02) 4974 2000.

23. Draft development control plans.

A draft development control plan DOES NOT APPLY to the land. The draft plans are exhibited pursuant to Part 3 of the Environmental Planning and Assessment Regulation 2000.

24. Heritage Act 1977.

The land IS NOT AFFECTED by a listing on the State Heritage Register or an Interim Heritage Order that is in force under the Heritage Act 1977.

NOTE: The above advice is provided to the extent that CN has been notified by the Heritage Council of NSW. For up-to-date details, contact the Office of Environment and Heritage, PO Box A290, South Sydney NSW 1232 Ph: (02) 9995 5000.

25. Listing by National Trust of Australia.

The land IS NOT AFFECTED by a listing of the National Trust of Australia (NSW).

NOTE: The above advice is provided to the extent that CN has been notified by the National Trust of Australia (NSW). For up-to-date details, contact the National Trust Ph 02 9258 0123.

26. Australian Heritage Database.

The land IS NOT AFFECTED by a listing on the Australian Heritage Database.

NOTE: The above advice is provided to the extent that CN has been notified by the Department of the Environment. For up-to-date details, contact the Department of the Environment, Heritage, King Edward Terrace, Parkes ACT 2600. Ph (02) 6274 1111.

27. Environment Protection & Biodiversity Conservation Act 1999 (Cth)

Under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999, actions which have, may have or are likely to have, a significant impact on a matter of national environmental significance may be taken only with the approval of the Commonwealth Minister for the Environment.

Approval is also required for actions that have a significant effect on the environment of Commonwealth land. These actions may be on Commonwealth land or other land.

This approval is in addition to any approvals under the (NSW) Environmental Planning and Assessment Act 1979 or other NSW legislation.

Matters of national environmental significance are:

- · declared World Heritage areas
- declared Ramsar wetlands
- · listed threatened species and ecological communities
- · listed migratory species
- · nuclear actions
- · the environment of Commonwealth marine areas.

Locations within the City of Newcastle that are a declared Ramsar wetland include Kooragang Nature Reserve and Shortland Wetlands. Listed threatened species and listed migratory species are known to occur within the City of Newcastle.

28. Other matters

The land is affected by the following:

Newcastle earthquake

Earthquakes occurred in the vicinity of Newcastle on 28th December 1989 and 6 August 1994. Buildings on the land may have suffered damage as a consequence of the earthquakes. Prospective purchasers are advised to make their own enquiries as to whether the property is affected by any damage.

Property with a System of Sewage management

Our records indicate that a system of sewage management is installed on the property. Prospective purchasers are advised to investigate the current status of the system and its compliance with all relevant approvals. For information on our approvals and inspections of the system, contact the Environmental Health Services Unit on Phone 02 49742522.

NOTE: A person who purchases (or otherwise acquires) land on which any sewage management facilities are installed may operate a system of sewage management without the approval required under the Local Government Act for the period of three (3) months after the date on which the land is transferred or otherwise conveyed to the person, whether or not an approval is in force, as at that date, in relation to the operation of a system of sewage management on that land.

Further, if the person duly applies, within the period of two (2) months after the date on which the land is transferred or otherwise conveyed to the person, for approval to operate the system of sewage management concerned, the person may continue to operate that system of sewage management without approval until the application is finally determined."

Further consent requirements under the Newcastle Local Environmental Plan 2012.

The following provisions of the Newcastle Local Environmental Plan 2012 affect the carrying out of development on the land. These provisions are in addition to those required to be disclosed at Item 2 of this Certificate.

Refer to clause 3.1 Exempt Development of the Newcastle Local Environmental Plan 2012

Refer to clause 3.2 Complying Development of the Newcastle Local Environmental Plan 2012

Local Strategic Planning Statement

The Local Strategic Planning Statement (LSPS) was adopted by council on 26 May 2020 and replaces the Local Planning Strategy. The LSPS is taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Hunter Regional Plan 2036

The Hunter Regional Plan has been prepared by the Department of Planning and Environment. The contents of the strategy will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to the Department of Planning and Environment's website to view the document. www.planning.nsw.gov.au

Newcastle City-Wide Floodplain Risk Management Study and Plan (2012)

The Newcastle City-wide Floodplain Risk Management Study and Plan addresses flood management for the City of Newcastle. The Study and Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Note: Refer to our website to view the document. www.newcastle.nsw.gov.au

Greater Newcastle Metropolitan Plan 2036

The Greater Newcastle Metropolitan Plan 2036 has been prepared by the Department of Planning and Environment. The Plan will be taken into account when CN assesses development applications and amendments to the Newcastle Local Environmental Plan 2012.

Black Hill and Tank Paddock Redevelopment

This land is affected by a Notice by the Minister for Planning of receipt of a proposal for amendment of Schedule 3 of State Environmental Planning Policy (Major Projects) 2005 to include the site known as "Black Hill and Tank Paddock Redevelopment".

Contaminated land information

Council is in possession of the following contaminated land document(s) which relate to the land. Persons relying on the certificate are advised to examine and consider the contents of each document:

- 1. Report: Environmental Resources Management Australia (25 August 2010) Proposed Sampling Analysis & Quality Plan for Supplemental Environmental Site Assessment. Boral Asphalt Plant, Lenaghans Drive, Black Hill, NSW. Ref: 0116656RP01.
- 2. Report: Environmental Resources Management Australia (April 2011) Supplementary Environmental Site Assessment. Boral Asphalt Plant, Lenaghans Drive, Black Hill, NSW. Ref. 0127446RP01.
- 3. Report: Environmental Resources Management Australia (July 2011) Remedial Action Plan. Boral Asphalt Plant, Lenaghans Drive, Black Hill, NSW. Ref: 0127446RP02 DRAFT.
- 4. Letter: Boral Property Group (11 August 2011) Notification of Category 2 Remediation Works prepared by Environmental Resource Management Australia Pty Ltd, Boral Asphalt Depot, Lenaghans Drive, Black Hill. ERM Ref: 0127446L03.
- 5. Report: Cardno Pty Ltd (May 2018) Remediation Action Plan Proposed Commercial Development Black Hill Estate

Persons relying on the certificate are advised to make their own investigations as to whether the land is affected by elevated concentrations of soil or groundwater contaminants in relation to proposed purchase or use of land.

Issued without alterations or additions, 22/12/21 Authorised by

JEREMY BATH
CHIEF EXECUTIVE OFFICER



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4332

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Dickson Road SAWYERS GULLY NSW 2326

TITLE: LOT: 1 DP: 543057

PARCEL NO.: 20304

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

TELEPHONE: (02) 4993 4100. FAX (02) 4993 2500
POSTAL ADDRESS: PO BOX 152, CESSNOCK, 2325 or DX 21502 CESSNOCK
EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
ABN 60 919 148 928

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

<u>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</u>
<u>2007</u>

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal: 18/2015/2 Hydro Kurri Kurri

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

C2 Environmental Conservation under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

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ISSUED UNDER SECTION 10.7(2) and (5)

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C2 Environmental Conservation

2) Permitted without consent

Home occupations

3) Permitted with consent

Dwelling houses; Environmental facilities; Environmental protection works; Extensive agriculture; Home-based child care; Oyster aquaculture Recreation areas; Roads; Secondary dwellings; Tourist and visitor accommodation

(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:

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development under the Rural Housing Code MAY NOT be carried out on the land as the land is identified as being Class 1 or Class 2 Acid Sulfate Soils.

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ISSUED UNDER SECTION 10.7(2) and (5)
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	Complying Development under the Rural Housing
	Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development under the Housing Alterations Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
General Development Code	Complying Development under the General Development Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Commercial and Industrial Alterations Code	Complying Development under the Commercial and Industrial Alteratations Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development under the Subdivision Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Demolition Code	Complying Development under the Demolition Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fire Safety Code	Complying Development under the Fire Safety Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
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5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

No

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence

No



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(5) Acid Sulphate Soils

Nο

(6) Any other risk (other than flooding)

No

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10. Biodiversity stewardship sites

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979.

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

- (1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.
 - There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 18(2) of that policy that 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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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

16. Site compatibility certificates for infrastructure

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4332

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Dickson Road SAWYERS GULLY NSW 2326

TITLE: LOT: 1 DP: 543057

PARCEL NO.: 20304

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4382

DATE OF CERTIFICATE: 22/12/2021

PROPERTY DETAILS

ADDRESS: 1 Dickson Road LOXFORD NSW 2326

TITLE: LOT: 1 DP: 1276814

PARCEL NO.: 516026

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal: 18/2015/2 Hydro Kurri Kurri

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

(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:

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.37 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Complying Development may be carried out under the Rural Housing Code where it meets the
	requirements of Clause 3A.38 Complying development on flood control lots contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.

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ISSUED UNDER SECTION 10.7(2) and (5)
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979
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Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the

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ISSUED UNDER SECTION 10.7(2) and (5)

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land under the Fire Safety Code, subject to development complying with the relevant stands contained within the State Environmental Plan Policy (Exempt and Complying Development Code) 2008.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Νo

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

Nο

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4382

DATE OF CERTIFICATE: 22/12/2021

PROPERTY DETAILS

ADDRESS: 1 Dickson Road LOXFORD NSW 2326

TITLE: LOT: 1 DP: 1276814

PARCEL NO.: 516026

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

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ISSUED UNDER SECTION 10.7(2) and (5)
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979
and associated
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4331

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buttai Road BLACK HILL NSW 2322

TITLE: LOT: 1 DP: 456999

PARCEL NO.: 27643

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

<u>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</u>
2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

(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:

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.37 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Complying Development may be carried out under the Rural Housing Code where it meets the
	requirements of Clause 3A.38 Complying development on flood control lots contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.

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ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the

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	land under the Fire Safety Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Νo

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence



ISSUED UNDER SECTION 10.7(2) and (5)
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979
and associated
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

Nο

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.

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ISSUED UNDER SECTION 10.7(2) and (5)

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(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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ISSUED UNDER SECTION 10.7(2) and (5)

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- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4331

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buttai Road BLACK HILL NSW 2322

TITLE: LOT: 1 DP: 456999

PARCEL NO.: 27643

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

TELEPHONE: (02) 4993 4100. FAX (02) 4993 2500
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EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
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ISSUED UNDER SECTION 10.7(2) and (5)

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Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4335

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: 528 Main Road CLIFTLEIGH NSW 2321

TITLE: LOT: 22 DP: 1181574

PARCEL NO.: 509504

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

<u>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</u>
2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

C2 Environmental Conservation under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

C2 Environmental Conservation

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ISSUED UNDER SECTION 10.7(2) and (5)

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ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

2) Permitted without consent

Home occupations

3) Permitted with consent

Dwelling houses; Environmental facilities; Environmental protection works; Extensive agriculture; Home-based child care; Oyster aquaculture Recreation areas; Roads; Secondary dwellings; Tourist and visitor accommodation

(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:

No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development under the Rural Housing Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument. Complying Development under the Rural Housing Code MAY NOT be carried out on the land as the

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ISSUED UNDER SECTION 10.7(2) and (5)
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	land is reserved for a public purpose by an environmental planning instrument. Complying Development under the Rural Housing Code MAY NOT be carried out on the land as the land is identified as being Class 1 or Class 2 Acid Sulfate Soils.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development under the Housing Alterations Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
General Development Code	Complying Development under the General Development Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Commercial and Industrial Alterations Code	Complying Development under the Commercial and Industrial Alteratations Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development under the Subdivision Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.
Demolition Code	Complying Development under the Demolition Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

	planning instrument.
Fire Safety Code	Complying Development under the Fire Safety Code MAY NOT be carried out on the land as the land is identified as heritage listed by an environmental planning instrument.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Yes

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

Nο

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning & Assessment Act 1979*.

Yes

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

Some of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.

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ISSUED UNDER SECTION 10.7(2) and (5)

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(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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ISSUED UNDER SECTION 10.7(2) and (5)

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- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4335

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: 528 Main Road CLIFTLEIGH NSW 2321

TITLE: LOT: 22 DP: 1181574

PARCEL NO.: 509504

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

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EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
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and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

Please be advised that this property is situated across the boundary of both Cessnock City Council and Maitland Council. This certificate contains information relating only to the portion of the land located within Cessnock City local government area. Please contact Maitland Council to request a certificate for the land located within the Maitland local government area.

For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

Director Planning and Environment

mobiler

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Certificate No.: PC/2021/4318 Certificate Date: 16/12/2021

Fee Paid: \$133.00 Receipt No.: 1172181 Your Reference:

SECTION 10.7 PLANNING CERTIFICATE Environmental Planning and Assessment Act, 1979 as amended

APPLICANT: RCA Australia

fionab@rca.com.au

PROPERTY DESCRIPTION: 248-268 Valley View Lane LOUTH PARK NSW 2320

PARCEL NUMBER: 33945

LEGAL DESCRIPTION: Lot 1 DP 797210

IMPORTANT: Please read this Certificate carefully.

This Certificate contains important information about the land described above.

Please check for any item, which could be inconsistent with the proposed use or development of the land. If there is anything you do not understand, please contact Council by phoning (02) 4934 9700, or personally at Council's Administration Building at 285-287 High Street, Maitland.

The information provided in this Certificate relates only to the land described above. If you require information about adjoining or nearby land, or about the Council's development policies or codes for the general area, contact Council's Planning & Environment Department.

All information provided is correct as at the date of issue of this Certificate, however it is possible for changes to occur at any time after the issue of this Certificate. We recommend that you only rely upon a very recent Certificate.

The following responses are based on the Council's records and/or information from sources outside the Council. The responses are provided with all due care and in good faith, however the Council cannot accept responsibility for any omission or inaccuracy arising from information outside the control of the Council.

Furthermore, while this Certificate indicates the general effect of the zoning of the abovementioned land, it is suggested that the applicable planning instruments be further investigated to determine any additional requirements.

Copies of Maitland City Council's Local Environmental Planning Instrument, Development Control Plans and Policies are available from Council's website.

PART 1: MATTERS PROVIDED PURSUANT TO SECTION 10.7 (2)

1. Local Environmental Plan (LEP)

Maitland LEP 2011, published 16 December 2011, applies to the land.

Exhibited draft Local Environmental Plans

No draft local Environmental Plans that have been on public exhibition under the Act are applicable to the land.

Development Control Plan prepared by Council

Maitland Development Control Plan 2011 applies to the land.

Development Control Plan prepared by the Director General

The Council has not been notified of any Development Control Plan applying to the land that has been prepared by the Director-General under section 51A of the Act.

State Environmental Planning Policies

The Minister for Planning has notified that the following State Environmental Planning Policies (SEPPs) shall be specified on Certificates under Section 10.7 of the Environmental Planning and Assessment Act, 1979.

The land is affected by the following State Environmental Planning Policies:

- SEPP21 Caravan Parks
- SEPP (Mining, Petroleum Production and Extractive Industries) 2007
- SEPP (State and Regional Development) 2011
- SEPP33 Hazardous and Offensive Development
- SEPP36 Manufactured Home Estates
- SEPP (Koala Habitat Protection) 2019
- SEPP50 Canal Estate Development
- SEPP (Housing for Seniors or People with a Disability) 2004
- SEPP55 Remediation of Land
- SEPP Affordable Rental Housing 2009
- SEPP Building Sustainability Index: BASIX 2004
- SEPP (Exempt and Complying Development Codes) 2008
- SEPP (Infrastructure) 2007
- SEPP64 Advertising and Signage
- SEPP Primary Production and Rural Development 2019
- SEPP65 Design Quality of Residential Apartment Development
- SEPP70 Affordable Housing (Revised Schemes)
- SEPP (Concurrences and Consents) 2018
- SEPP (Educational Establishments and Child Care Facilities) 2017
- SEPP (Coastal Management) 2018

Draft State Environmental Planning Policies

The following draft State Environmental Planning Policy(s) applying to the land is, or has been, the subject of community consultation or on public exhibition under the Act:

Housekeeping Amendment to the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

The proposed amendments to this SEPP are housekeeping amendment to the Codes SEPP to simplify and improve the policy, clarify definitions and standards, and address other minor technical matters raised. The proposed housekeeping amendment to the Codes SEPP will simplify and improve the policy, clarify definitions and standards, and address other minor technical matters.

2. Zoning and land use under relevant LEPs

Maitland LEP 2011, published 16 December 2011, identifies the zone applying to the land as:

E2 Environmental Conservation, RU2 Rural Landscape

The following development information gives the objectives of the zone, the description of the zone and identifies development allowed or prohibited in each zone. Development consent where required, must be obtained from the Council.

RU2 Rural Landscape

a) Purpose/Objective

- 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 provide for a range of non-agricultural uses where infrastructure is adequate to support the uses and conflict between different land uses is minimised

b) Permitted with Consent

Agriculture; Airstrips; Animal boarding or training establishments; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cellar door premises; Cemeteries; Community facilities; Crematoria; Dual occupancies; Dwelling houses; Eco-tourist facilities; Educational establishments; Environmental facilities; Environmental protection works; Farm buildings; Farm stay accommodation; Flood mitigation works; Forestry; Helipads; Home-based child care; Home businesses; Home industries; Information and education facilities; Jetties; Landscaping material supplies; Markets; Open cut mining; Places of public worship; Plant nurseries; Recreation areas; Recreation facilities (outdoor); Roads; Roadside stalls; Rural industries; Rural supplies; Signage; Turf farming; Veterinary hospitals; Water supply systems

c) Permitted without Consent

Extensive agriculture; Home occupations; Intensive plant agriculture

d) Prohibited

Intensive livestock agriculture; Livestock processing industries; Any other development not specified in item 2 or 3.

E2 Environmental Conservation

a) Purpose/Objective

- 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 ensure that development and management of the land has minimal impact on water quality and environmental flows of receiving waters
- To permit limited extensive agricultural uses where such uses do not compromise the ecological values of the wetland

b) Permitted with Consent

Environmental facilities; Environmental protection works; Extensive agriculture; Oyster Aquaculture; Water reticulation systems

c) Permitted without Consent

Nil

d) Prohibited

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

e) Land dimensions to permit the erection of a dwelling house on the land

For the land zoned RU2 Rural Landscape Clause 4.2A in the Maitland Local Environmental Plan 2011 applies to the land. This clause fixes a minimum lot size for the erection of a dwelling-house that is identified on the Maitland Local Environmental Plan 2011 Lot Size Map as 40 hectares. For the land zoned E2 Environmental Conservation the Maitland LEP 2011 does not contain a development standard specifying the land dimensions required to permit the erection of a dwelling house on the land.

f) Critical Habitat

No Local Environmental Plan or draft Local Environmental Plan identifies the land as including or comprising critical habitat.

g) Conservation Area

The land IS NOT in a Heritage Conservation Area.

h) Item of Environmental Heritage

The land does NOT contain an item of Environmental Heritage.

3. Complying Development

Complying development under the **Housing Code** may not be carried out on the land as it is not within an applicable zone and the land is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Low Rise Medium Density Housing Code and Greenfield Housing Code** may not be carried out on the land as it is not within an applicable zone and the land is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

Complying development under the **Rural Housing Code** may not be carried out on the land as it is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

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

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

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

Complying development under the **Commercial and Industrial (New Buildings and Additions) Code** may not be carried out on the land as it is not within an applicable zone and the land is:

Land identified under an environmental planning instrument as an ecologically sensitive area.

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

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

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

Complying development under the **Container Recycling Facilities Code** may not be carried out on the land.

Note: Despite the above provisions, if only part of a lot is subject to an exclusion or exemption under Clause 1.17A or Clause 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) Amendment (Commercial and Industrial Development and Other Matters) 2013, complying development may be carried out on that part of

the lot that is not affected by the exclusion or exemption.

4B. Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

The owner (or any previous owner) of the land has NOT consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

5. Coal Mine Subsidence Compensation Act 2017

The land has NOT been proclaimed to be within a Mine Subsidence District under the meaning of section 20 of the Coal Mine Subsidence Compensation Act 2017.

6. Road widening and road realignment

- a) The land is NOT affected by road widening under Division 2 of Part 3 of the Roads Act 1993.
- b) The land is NOT affected by any environmental planning instrument
- c) The land is NOT affected by any road-widening or realignment under any resolution of the Council

The information above relates to Council's road proposals only. Other authorities, including Roads and Maritime Services, may have proposals, which have not been set out.

7. Council and other public authority policies on hazard risk restrictions

All land within the Maitland Local Government Area has the potential to contain acid sulfate soils. Clause 7.1 of the Maitland Local Environmental Plan 2011 generally applies. Development consent is required where works described in the Table to this clause are proposed on land shown on the Maitland LEP 2011 Acid Sulfate Soils Map as being of the class specified for those works.

The Council has adopted by resolution a policy on contaminated land which may restrict the development of the land to which this certificate relates. This policy is implemented when zoning or land use changes are proposed on lands which:

- are considered to be contaminated; or
- which have previously been used for certain purposes; or
- which have previously been used for certain purposes but Council's records do not have sufficient information about previous use of the land to determine whether the land is contaminated; or
- have been remediated for a specific use.

Consideration of Council's adopted policy and the application of provisions under relevant State legislation is warranted.

7A. Flood Related Development Controls

The land or part of the land IS within the flood planning area and subject to flood related development controls.

The land or part of the land IS between the flood planning area and the probable maximum flood and subject to flood related development controls.

The Maitland LEP 2011 identifies the flood planning level (FPL) as the level of a 1:100 ARI flood event plus 0.5m freeboard. The probable maximum flood has the same meaning as the Floodplain Development Manual.

8. Land Reserved for Acquisition

No environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution Plans

The following contribution plan(s) apply to the land:

- Maitland S94A Levy Contributions Plan 2006
- Maitland City Wide Section 94 Contributions Plan 2016
- Maitland S94 Contributions Plan (City Wide) 2006

Contributions Plans may be viewed on Council's website or inspected and purchased at Council's Customer Service Centre.

9A. Biodiversity Certified Land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

10. Biodiversity Stewardship Sites

The Council is not aware if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under part 5 of the *Biodiversity Conservation Act 2016.*

10A. Native Vegetation clearing set asides

The Council is not aware if the land contains a set aside area under 60ZC of the *Local Land Services Act 2013.*

11. Bushfire Prone Land

The land is mapped as bushfire prone land and as such restrictions may apply to new development on this land.

12. Property vegetation plans

The Council has not received any notification from Hunter Local Land Services that this land is affected by a property vegetation plan under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

13. Order under Trees (Disputes between Neighbours) Act 2006

Council has NOT received notification from the Land and Environment Court of NSW that the land is affected by an Order under Trees – (Disputes Between Neighbours) Act 2006.

14. Directions under Part 3A

There is NO direction by the Minister 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 (other than a project of a class prescribed by the regulations) of the Act does not have effect.

15. Site Compatibility Certificate and Conditions for Seniors Housing

a) Site Compatibility Certificate

Council is unaware of whether a current Site Compatibility Certificate issued under Clause 25 of the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004 has been issued for the land.

b) Conditions of Development Consent since 11 October 2007

No development consent has been granted for the development permitted under State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004 after 11 October 2007.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

Council is unaware of whether a valid Site Compatibility Certificate has been issued under clause 19 of State Environmental Planning Policy (Infrastructure) 2007 for the land.

17. Site compatibility certificates and conditions for affordable rental housing

Council is unaware if a Site Compatibility Certificate (Affordable Rental Housing) has been issued in accordance with State Environmental Planning Policy (Affordable Rental Housing) 2009.

18. Paper subdivision information

There is no development plan that applies to the:

- 1) Land or that is proposed to be subject to a consent ballot
- 2) There is no subdivision order that applies to the land.

19. Site verification certificates

Council is not aware of any current site verification certificate in respect of the land.

20. Loose-fill asbestos insulation

There are no premises on the subject land listed on the register.

21. Affected building notices and building product rectification orders

The Council is NOT aware of any affected building notice which is in force in respect of the land.

The Council is NOT aware of any building product rectification order which is in force in respect of the land and that has not been fully complied with.

The Council is NOT aware of any notice of intention to make a building product rectification order being given in respect of the land and that is outstanding.

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.

Contaminated Land

- a) The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.
- b) The land to which this certificate relates is NOT subject to a management order within the meaning of the Contaminated Land Management Act 1997.

- c) The land to which this certificate relates is NOT the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.
- d) The land to which this certificate relates is NOT the subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.
- e) Council has NOT been provided with a site audit statement, within the meaning of the Contaminated Land Management Act 1997, for the land to which this Certificate relates.

PART 2: ADDITIONAL MATTERS PROVIDED PURSUANT TO SECTION 10.7 (5)

The following information is provided in accordance with section 10.7(5) of the Environmental Planning and Assessment Act 1979. Section 10.7(6) of the Act states that a Council shall not incur any liability in respect of advice provided in good faith pursuant to sub-section 10.7(5). If this information is to be relied upon, it should be independently checked.

1. Development Consent

Councils records indicate that the land has not had any development consent granted within the five (5) years preceding the date of this certificate.

2. Draft Development Control Plan

No draft Development Control Plans apply to the land.

3. Suspension of Covenants

Clause 1.9A in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. This clause suspends any agreement, covenant or other instrument that restricts the development of land that is permissible under the provisions of the Maitland Local Environmental Plan 2011 to the extent necessary to serve that purpose.

4. Filling of Land

Earthworks (excavation and filling of land) require development consent. Clause 7.2 in the Maitland LEP 2011 applies to all land within the Maitland Local Government Area. Earthworks (defined as both excavation and filling of land) require development consent of Council unless the works are exempt development, ancillary to other development for which development consent is required or granted, or considered by Council to be of a minor nature.

5. Development in the Vicinity of Heritage Items

Clause 5.10 in the Maitland LEP 2011 generally applies to all land in the Maitland Local Government Area, where the land is located in the vicinity of a heritage item or heritage conservation area. This Clause requires a consent authority to consider the effect of the proposed development on the heritage significance of the item or area concerned, before granting development consent.

6. Other Matters

There are no other specific matters.

David Evans General Manager



ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 **Applicants Reference**

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4330

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buttai Road BLACK HILL NSW 2322

TITLE: LOT: 13 DP: 241097

PARCEL NO.: 21989

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act*, 1979.

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1. Name of relevant planning instruments and DCPs

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

Cessnock Local Environmental Plan 2011

Hunter Regional Plan 2036

State Environmental Planning Policy No 1—Development Standards

State Environmental Planning Policy No 19—Bushland in Urban Areas

State Environmental Planning Policy No 33—Hazardous and Offensive Development

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 64—Advertising and Signage

<u>State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development</u>

State Environmental Planning Policy (Aboriginal Land) 2019

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Coastal Management) 2018

State Environmental Planning Policy (Concurrences) 2018

<u>State Environmental Planning Policy (Educational Establishments and Child Care Facilities)</u>
2017

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Infrastructure) 2007

<u>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</u> 2007

State Environmental Planning Policy (Miscellaneous Consent Provisions) 2007

State Environmental Planning Policy (Primary Production and Rural Development) 2019

State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State Significant Precincts) 2005

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

State Environmental Planning Policy (Urban Renewal) 2010

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

State Environmental Planning Policy (Housing SEPP)

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ISSUED UNDER SECTION 10.7(2) and (5)

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(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 (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

DRAFT Planning Proposal - 18/2020/2 - Administrative Amendment 2020

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

Cessnock Development Control Plan 2010

2. Zoning and land use under relevant LEPs

(a) The land is identified as being in:

RU2 Rural Landscape under the Cessnock Local Environmental Plan 2011.

- (b) The purpose for which development may be carried out without consent within the zone;
- (c) The purposes for which development may not be carried out within the zone except with development consent; and
- (d) The purpose for which development is prohibited within the zone.

RU2 Rural Landscape

2) Permitted without consent

Extensive agriculture; Home occupations; Horticulture

3) Permitted with consent

Aquaculture; Cellar door premises; Dual occupancies; Dwelling houses; Environmental protection works; Farm buildings; Health consulting rooms; Home industries; Hospitals; Neighbourhood shops; Pubs; Restaurants or cafes; Roads; Roadside stalls; Rural supplies; Self-storage units; Any other development not specified in item 2 or 4.

4) Prohibited

Boat building and repair facilities; Car parks; Charter and tourism boating facilities; Commercial premises; Depots; Entertainment facilities; Exhibition homes; Exhibition villages; Freight transport facilities; Health services facilities; Heavy industrial storage establishments; Heliports; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Moorings; Mortuaries; Passenger transport facilities; Recreation facilities (indoor); Residential accommodation; Restricted premises; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle bodrepair workshops; Vehicle repair stations; Warehouse or distribution centres; Wharf or boating facilities; Wholesale supplies

(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:

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No

(f) Whether the land includes or comprises critical habitat:

The land is not land that includes or comprises critical habitat declared to be critical habitat under Part 3 of the Threatened Species Conservation Act 1995.

(g) Whether the land is a conservation area (however described):

The land is not a conservation area under the Cessnock Local Environmental Plan 2011.

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

An item of environmental heritage identified in Cessnock Local Environmental Plan 2011 is not situated on the land.

3. Complying Development

- (1) Complying development may be carried out on the land under each of the following codes for complying development, to the extent stated, because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
- (2) Complying development may not be carried out on the land under each of the following codes for complying development, to the extent and for the reasons stated under clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Code	Complying Development may not be carried out under the Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Rural housing code	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.37 Complying development on bush fire prone land contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
	Complying Development may be carried out under the Rural Housing Code where it meets the requirements of Clause 3A.38 Complying development on flood control lots contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Low Rise Housing Diversity Code	Complying Development may not be carried out under the Low Rise Housing Diversity Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.

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and associated
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Greenfield Housing Code	Complying Development may not be carried out under the Greenfield Housing Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Housing Alterations Code	Complying Development may be carried out on the land under the Housing Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
General Development Code	Complying Development may be carried out on the land under the General Development Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial Alterations Code	Complying Development may be carried out on the land under the Commercial and Industrial Alterations Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Commercial and Industrial (New Buildings and Additions) Code	Complying Development may not be carried out under the Commercial & Industrial (New Buildings and Additions) Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Container Recycling Facilities Code	Complying Development may not be carried out under the Container Recycling Facilities Code as the subject land falls within a Local Environmental Plan zone that does not meet the requirements of the code.
Subdivisions Code	Complying Development may be carried out on the land under the Subdivision Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Demolition Code	Complying Development may be carried out on the land under the Demolition Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.
Fire Safety Code	Complying Development may be carried out on the

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	land under the Fire Safety Code, subject to the development complying with the relevant standards contained within the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

5. Mine subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

Νo

6. Road widening and road alignment

Whether or not the land is affected by any road widening or road realignment under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

The land is not affected by a road widening or road realignment proposal under:

- (a) Division 2 of Part 3 of the Roads Act 1993, or
- (b) any environmental planning instrument, or
- (c) any resolution of the council.

7. Council and other public authority hazard risk restrictions

Whether or not the land is affected by a policy:

- (a) adopted by the council, or
- (b) 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:

(1) Landslip

No

(2) Bushfire

No

(3) Tidal inundation

No

(4) Subsidence



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and associated
ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

No

(5) Acid Sulphate Soils

No

(6) Any other risk (other than flooding)

Nο

7A. Flood related development controls information

(1) Whether or not 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) is subject to flood related development controls.

Yes

(2) Whether or not development on the land or part of the land for any other purpose subject to flood related development controls.

Yes

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the Schedule to the *Standard Instrument (Local Environmental Plans) Order 2006*.

8. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 (above) makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the *Environmental Planning* & Assessment Act 1979.

No

9. Contributions plans

The name of each contributions plan/s applying to the land.

Cessnock Section 7.12 Levy Contributions Plan 2017.

Cessnock City Wide Local Infrastructure Contributions Plan 2020.

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*.

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10. Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016, but only insofar as the Council has been notified of the existence of the agreement by the Chief Executive of the Office of Environment and Heritage.

Note. Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*.

10A. Native vegetation clearing set asides

The land is not a set aside area under section 60ZC of the Local Land Services Act 2013, but only insofar as the Council has been notified of the existence of the set aside area by Local Land Services or it is registered in the public register under that section.

11. Bush fire prone land

All of the land is bushfire prone land as defined in the Environmental Planning & Assessment Act 1979.

12. Property vegetation plans

The land is not land to which a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applies, only insofar as the Council has been notified of the existence of the plan by the person or body that approved the plan under the Act.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Whether 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 (but only if the council has been notified of the order).

No

14. Directions under Part 3A

There is not a direction by the Minister in force under Section 75P(2)(c1) of the Environmental Planning & Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project of the land under Part 4 of that Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(1) The land is not land to which the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies.

There is no current site compatibility certificate (senior's housing) of which Council is aware, in respect of proposed development on the land.

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(2) There are no terms of a kind referred to in clause 18(2) of that policy that 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

There is not 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

- (1) There is not a current site compatibility certificate (affordable rental housing), of which the Council is aware, in respect of proposed development on the land.
- (2) There are no terms of a kind referred to in clause 17(1) or 38(1) of the State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

- (1) There is no development plan adopted by a relevant authority that applies to the land of that is proposed to be subject to a consent ballot.
- (2) There is no subdivision order that applies to the land

Note: words and expressions in this clause have the same meaning as they have in Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is not a current site verification certificate, of which Council is aware, in respect of the land.

21. Affected building notices and building product rectification orders

- (1) There is not an affected building notice, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(a) There is not an outstanding building product rectification order, as defined by the Building Products (Safety) Act 2017, in force in respect to the land.
- (2)(b) A notice of intent to make a building product rectification order, as defined by the Building Products (Safety) Act 2017, has not been served in respect to the land.

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) The land or part of the land is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.

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- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (d) The land is not the subject of an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date this certificate is issued.
- (e) The land is not the subject of a site audit statement within the meaning of the Contaminated Land Management Act 1997 (if a copy of such a statement has been provided at any time) to the local authority issuing the certificate.

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ISSUED UNDER SECTION 10.7(2) and (5)

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and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Fiona Brooker 92 Hill Street Carrington NSW 2294 Applicants Reference

CERTIFICATE DETAILS

CERTIFICATE NUMBER: 4330

DATE OF CERTIFICATE: 17/12/2021

PROPERTY DETAILS

ADDRESS: Buttai Road BLACK HILL NSW 2322

TITLE: LOT: 13 DP: 241097

PARCEL NO.: 21989

BACKGROUND INFORMATION

This certificate provides information on how the relevant parcel of land may be developed, including the planning restrictions that apply to development of the land, as at the date the certificate is issued. The certificate contains information Council is aware of through its records and environmental plans, along with data supplied by the State Government. The details contained in this certificate are limited to that required by Section 10.7 of the *Environmental Planning and Assessment Act, 1979*.

TELEPHONE: (02) 4993 4100. FAX (02) 4993 2500
POSTAL ADDRESS: PO BOX 152, CESSNOCK, 2325 or DX 21502 CESSNOCK
EMAIL ADDRESS: council@cessnock.nsw.gov.au Visit us at: http://www.cessnock.nsw.gov.au
ABN 60 919 148 928

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ISSUED UNDER SECTION 10.7(2) and (5)

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

and associated

ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION 2000

Additional information pursuant to Section 10.7(5) of the *Environmental Planning & Assessment Act 1979*

(5) A council may, in a planning certificate, include advice on such other relevant matters affecting the land of which it may be aware.

Council's records do not indicate that the land the subject of this Certificate is subject to Noise Exposure.

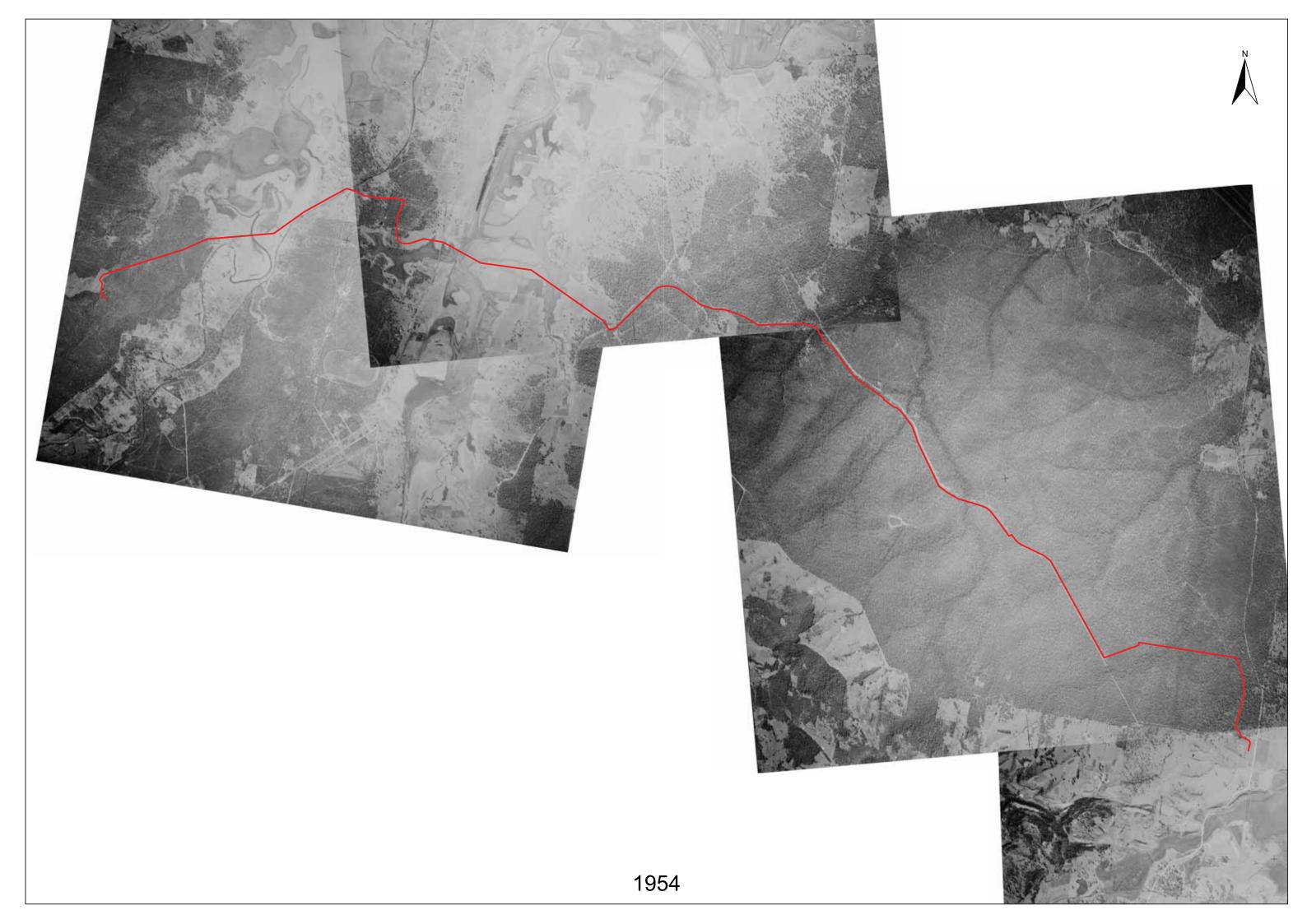
For further information, please contact Council's Strategic Land Use Planning unit, of the Planning and Environment directorate on 02 4993 4100.

Peter Mickleson

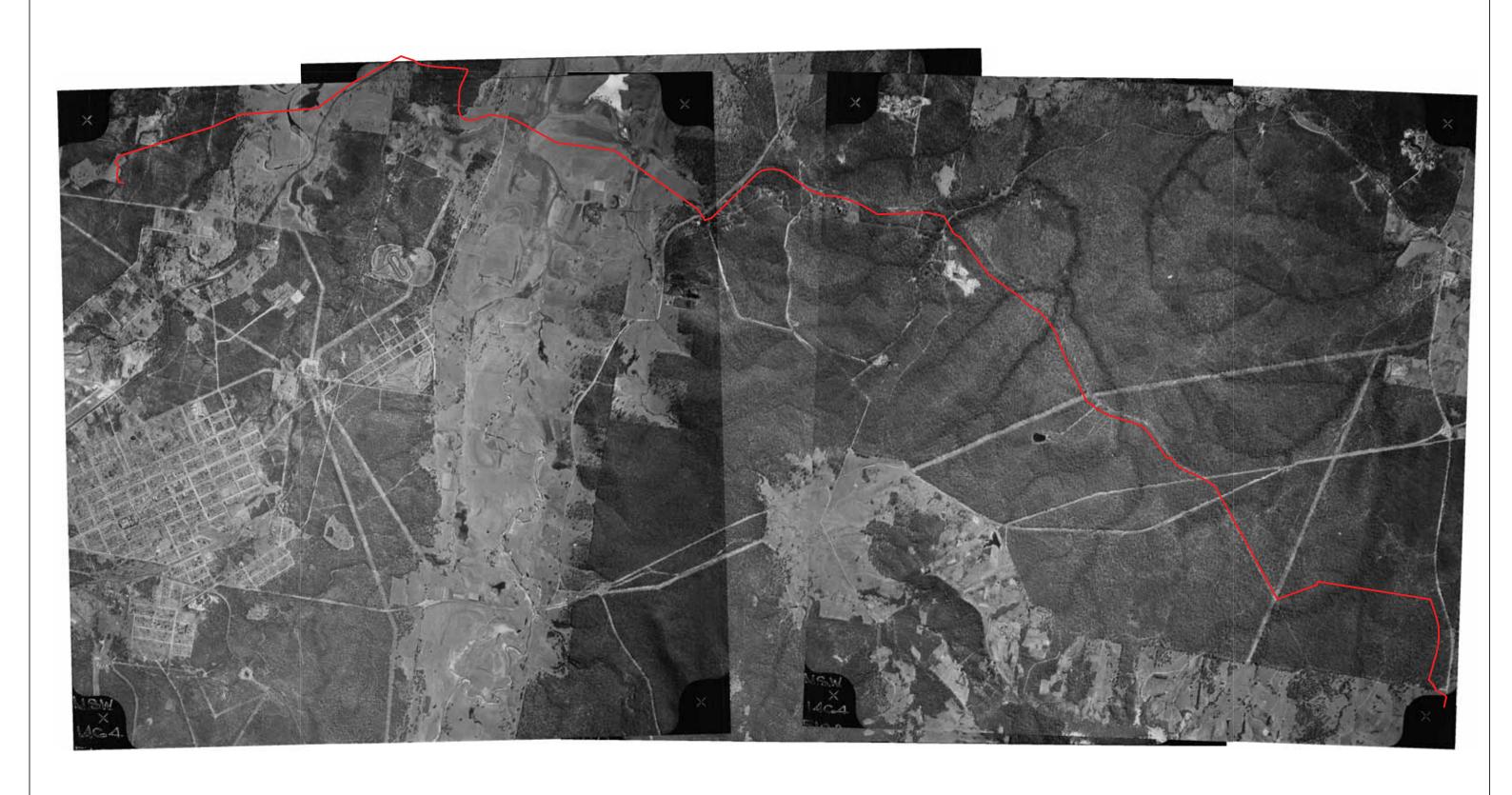
Director Planning and Environment

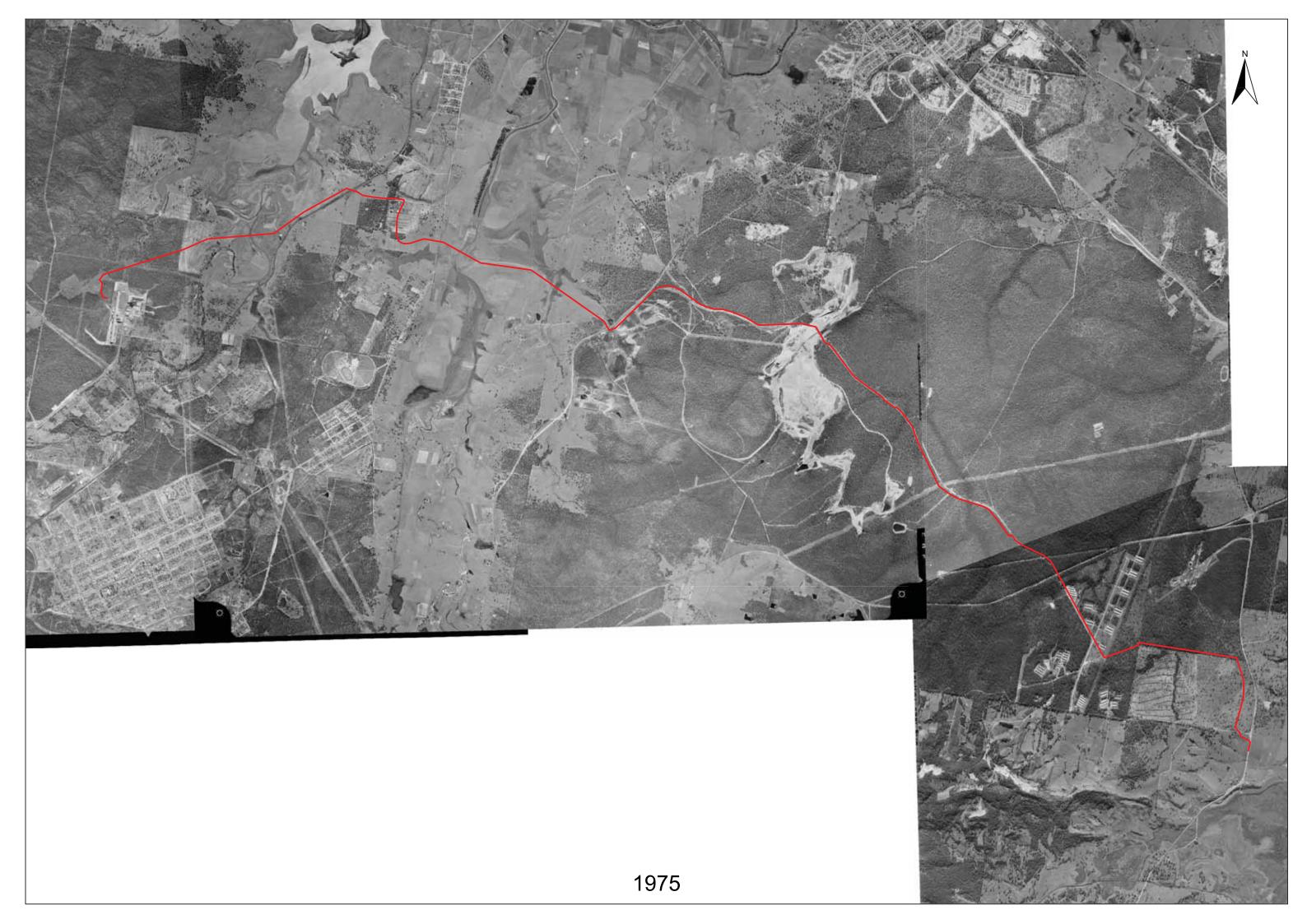
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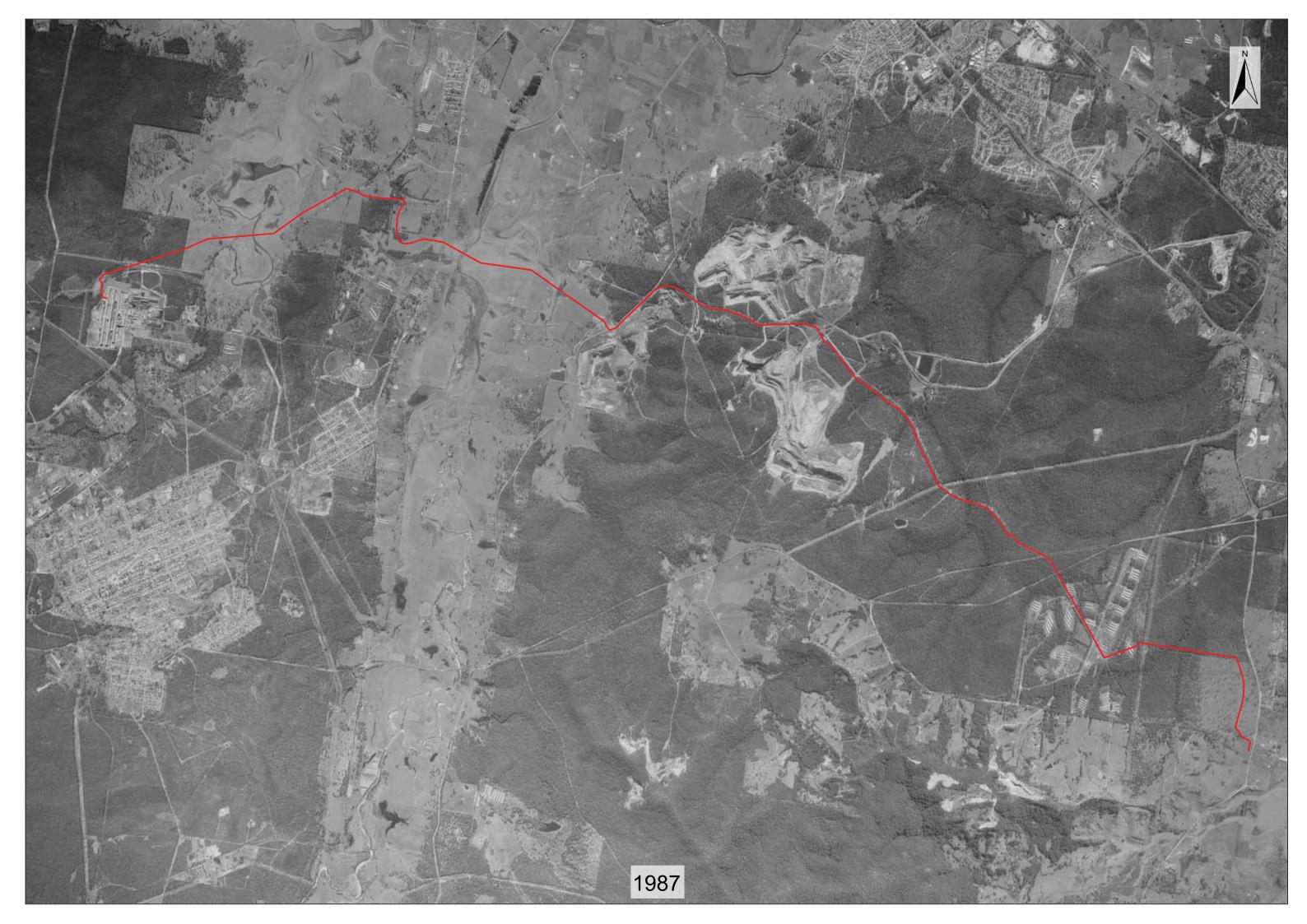
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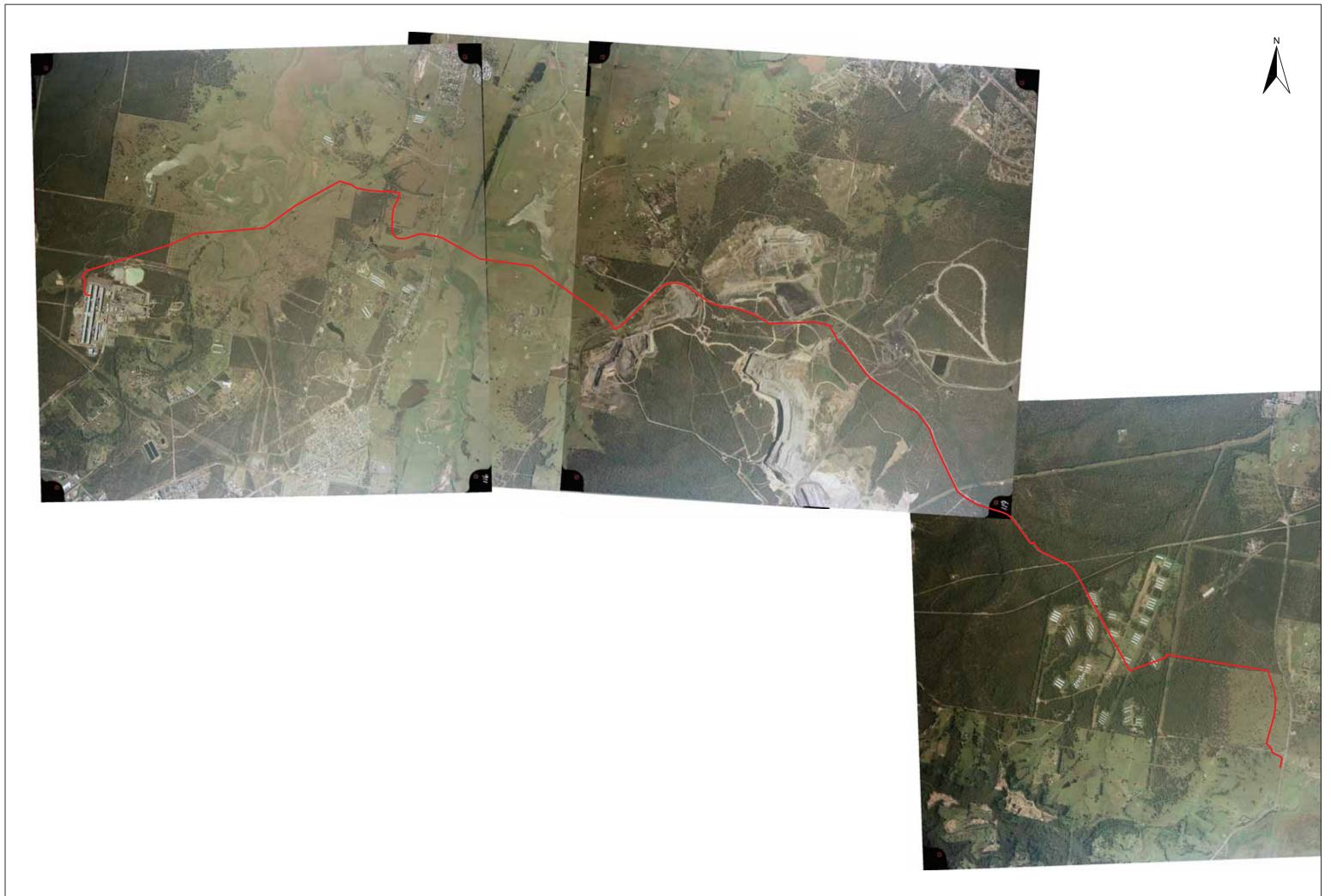


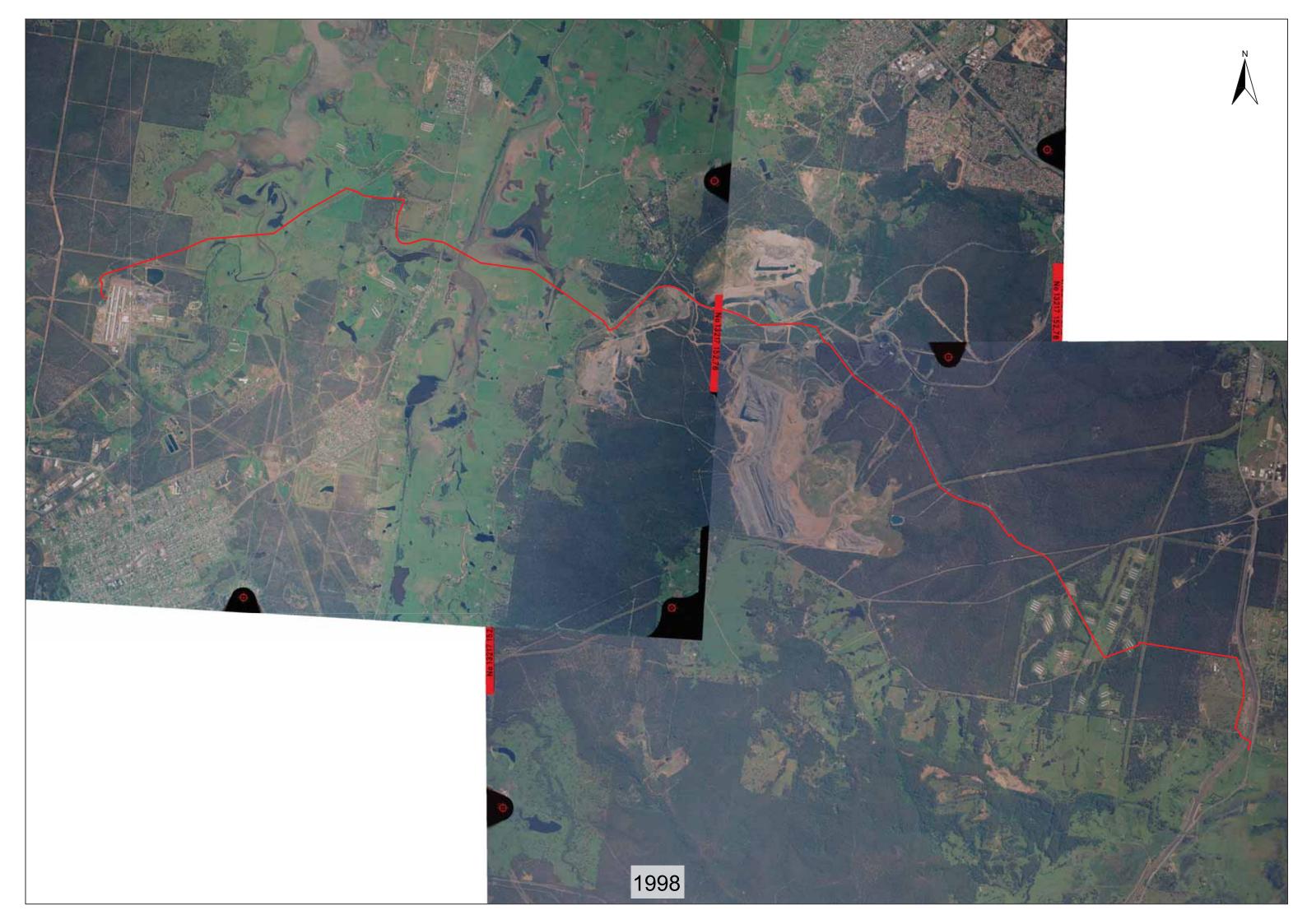


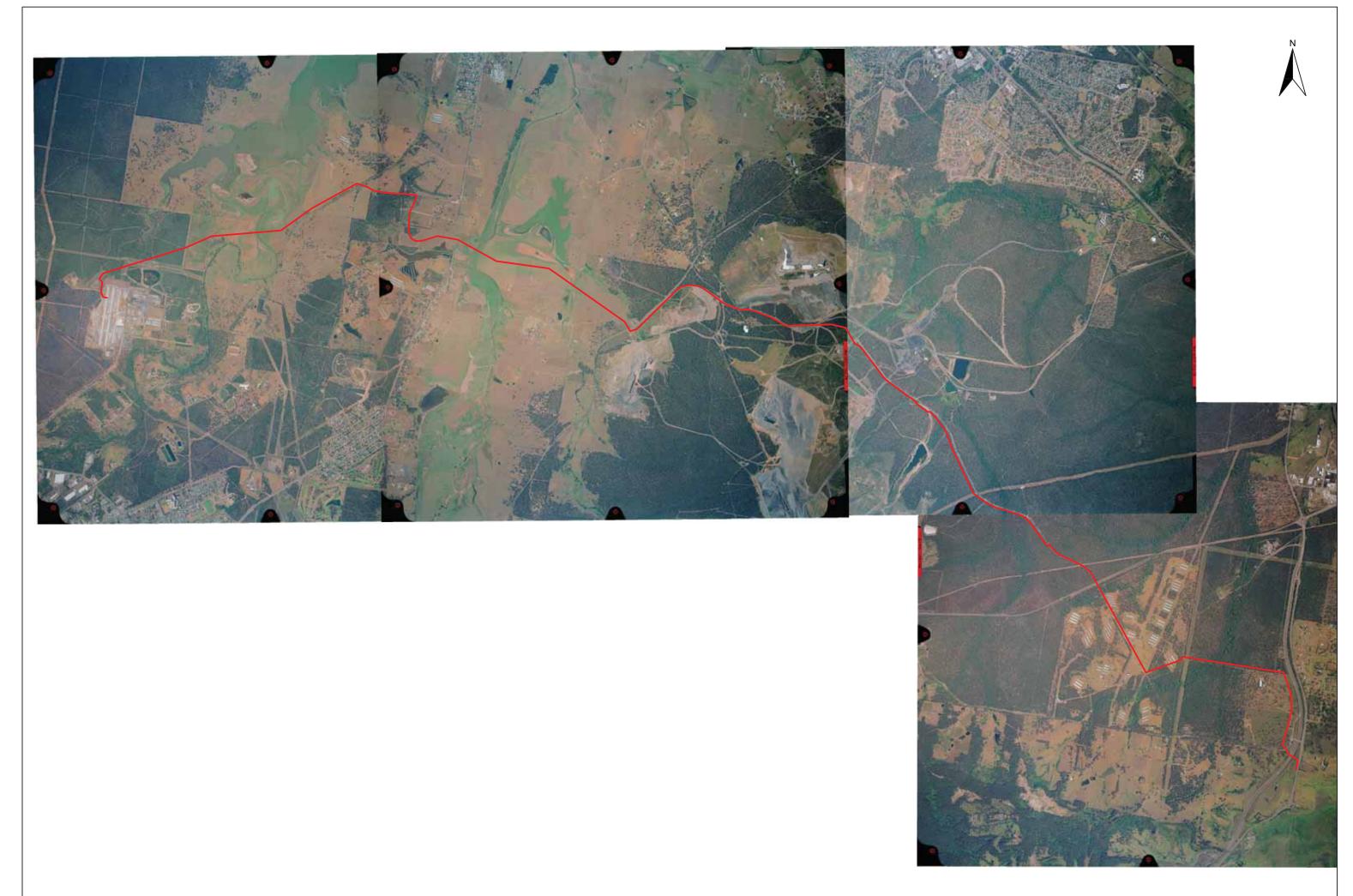


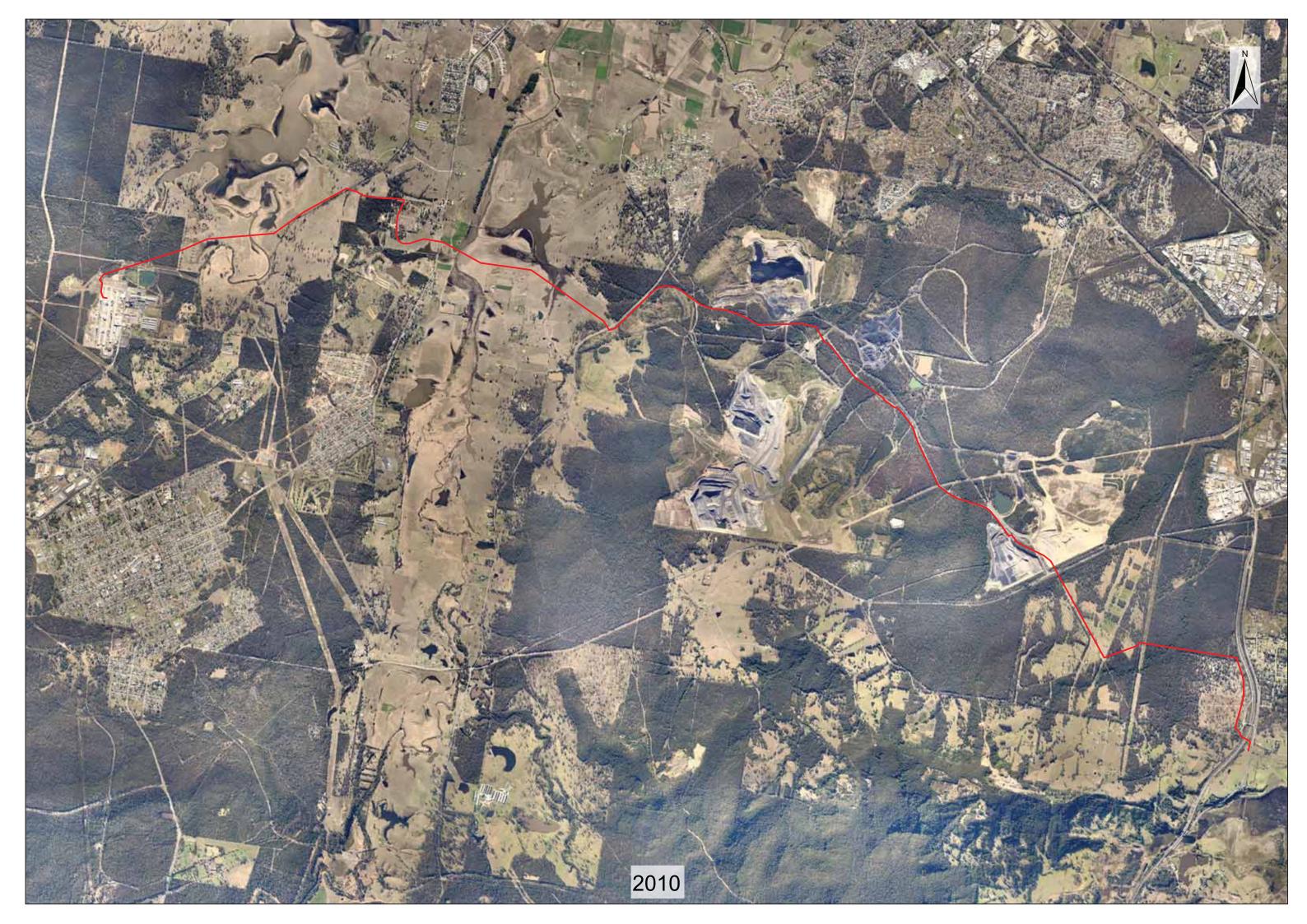
















Appendix C

Test pits in Parcel 12 (Ref [11])

TEST PIT LOG

CLIENT: Coal and Allied Operations Pty Limited SURFACE LEVEL: 28.10 AHD* **PIT No: 27**

PROJECT: Preliminary Contamination & Geotechnical Assess **EASTING**: 371025.8 PROJECT No: 39664A LOCATION: Black Hill **NORTHING:** 6366800.2 **DATE: 29 Oct 07** DIP/AZIMUTH: 90°/--SHEET 1 OF 1

		Description	i	Sampling & In Situ Testing					Dynamic Penetrometer Test			
군 De	epth m)	of Strata	Graphic Log	Туре	Depth	Sample	Results & Comments	Water	(blo	Penetrome ws per mn	ter Test 1) 20	
-		TOPSOIL/COLLUVIUM (FILLING?): Grey-brown slightly sandy clay, with some fine to medium sized gravel, M <wp< td=""><td></td><td>D, pp</td><td>0.2</td><td>0,</td><td>>400 kPa</td><td></td><td>-</td><td></td><td></td></wp<>		D, pp	0.2	0,	>400 kPa		-			
	0.3	CLAY: Stiff, light grey-brown mottled orange clay, M>Wp		D, pp	0.4		150 kPa		-			
-		From 0.7m, very stiff, light grey mottled yellow-orange							-1			
-				D, pp	1.2		350 kPa					
-	1.6-	CLAY: Hard, light grey mottled orange and orange-red clay, M <wp, cementing,="" claystone="" gravel<="" iron="" some="" td=""><td></td><td>D, pp</td><td>1.8</td><td></td><td>>400 kPa</td><td></td><td></td><td></td><td></td></wp,>		D, pp	1.8		>400 kPa					
-2									-2			
-				D, pp	2.5		>400 kPa					
-3	3.0	Pit discontinued at 3.0m	<u> </u>						3			
-									-			
-												
-4									-4			
-												

RIG: Case 590 Super M backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed REMARKS: *Surveyed by Monteath & Powys Pty Ltd.

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PID STING LEGEND
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 V Shear Vane (kPa)
 Water seep
 Water level

CHECKED Initials:

LOGGED: Heads



TEST PIT LOG

CLIENT: Coal and Allied Operations Pty Limited SURFACE LEVEL: 19.40 AHD* **PIT No**: 28

PROJECT: Preliminary Contamination & Geotechnical Assess **EASTING**: 371145.5 PROJECT No: 39664A LOCATION: Black Hill **NORTHING:** 6366779 **DATE: 29 Oct 07** DIP/AZIMUTH: 90°/--SHEET 1 OF 1

		Description	. <u>Ö</u>	Sampling & In Situ Testing							
Depth (m)		of	aphi	Graphic Log Type	o t O Paculte &			Water	Dynamic Penetrometer Test (blows per mm)		
('	Strata	<u>ق</u> _	Туре	Depth	Sample	Results & Comments	>	5 10	15 20	
-		FILLING: Grey-brown silty sand filling, with organics, damp		D, PID	0.2		<1 ppm		-		
-	0.4	CLAYEY SAND (FILLING?): Grey-brown clayey sand, some gravel (colluvium/filling?), moist		D, PID	0.6		<1 ppm				
- -1 -	0.9	SANDY CLAY/CLAYEY SAND: Dark grey mottled dark brown sandy clay/clayey sand, wet							-1		
-				D	1.4						
- -2 -	2.1	CLAYEY SAND AND GRAVEL: Dark grey mottled orange and orange-red fine to coarse grained clayey sand and fine to medium sized gravel, wet, some seepage		D	1.9			>	-2		
- - -	2.5	sandy clay and fine to medium sized gravel, wet, some seepage SANDY CLAY AND GRAVEL: Stiff dark grey mottled orange and orange-red fine to coarse grained sandy clay and fine to medium sized gravel, wet		D, pp	2.6		200 kPa				
- - - 3	3.0								-3		
-		CLAYSTONE/LAMINITE: Very low strength, highly weathered dark grey claystone		D	3.1				<u> </u>		
	3.2-	Pit discontinued at 3.2m									
-											
									-		

RIG: Case 590 Super M backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: Seepage between 2.1m and 2.5m depth

REMARKS: *Surveyed by Monteath & Powys Pty Ltd.

Lantana filled drainage gully adjacent

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling
- PID STING LEGEND
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 V Shear Vane (kPa)
 Water seep
 Water level



LOGGED: Heads



TEST PIT LOG

CLIENT: Coal and Allied Operations Pty Limited SURFACE LEVEL: 27.85 AHD* **PIT No**: 29

PROJECT: Preliminary Contamination & Geotechnical Assess **EASTING**: 371404.6 PROJECT No: 39664A LOCATION: Black Hill **NORTHING:** 6366730.4 **DATE: 29 Oct 07** DIP/AZIMUTH: 90°/--SHEET 1 OF 1

	Description	j		San		& In Situ Testing		_			
Depth (m)	of	Graphic Log	be d	Depth	© Results &		Water	Dynam (ic Penet blows pe	romete er mm)	r Test
` ′	Strata	Ō	Туре		Sample	Results & Comments		5	10	15	20
-	TOPSOIL: Grey-brown silty sandy clay topsoil, dry		D	0.05				-			
0.2	CLAY: Very stiff, light grey-brown mottled orange clay,		1						i		
-	M>Wp		D, pp	0.4		350-400 kPa		-			
-								-			
			1						į	:	
-			1					-			
-	From 0.9m, light grey mottled orange and orange-red, some iron staining, M <wp< td=""><td></td><td>1_</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></wp<>		1_					-			
-1	some iron staining, M <wp< td=""><td></td><td>D, pp</td><td>1.0</td><td></td><td>>400 kPa</td><td></td><td>F1 :</td><td>Ė</td><td>:</td><td>:</td></wp<>		D, pp	1.0		>400 kPa		F1 :	Ė	:	:
-			1					-	i	:	
-								<u> </u>			
			рр	1.5		320-400 kPa			Ė	:	:
-			1					-			
<u> </u>			1					<u> </u>			
			1						:	:	:
-2			рр	2.0		320 kPa		-2	i	:	
-			1					-			
[
-	From 2.4m, possible rock structure							-	į	:	:
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1								
-	From 2.7m avading to also atoms		1					. :	:	:	
-	From 2.7m, grading to claystone		D	2.8				-			
-3 3.0								3			
- 0.0	Pit discontinued at 3.0m							-			
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LOGGED: Heads RIG: Case 590 Super M backhoe, 450mm bucket with teeth

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *Surveyed by Monteath & Powys Pty Ltd.

Excavated in area of eroded surface soils (0.1m to 0.2m deep ruts)

☐ Sand Penetrometer AS1289.6.3.3

☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

- Auger sample
 Disturbed sample
 Bulk sample
 Tube sample (x mm dia.)
 Water sample
 Core drilling

- PID STING LEGEND
 pp Pocket penetrometer (kPa)
 PID Photo ionisation detector
 Standard penetration test
 V Shear Vane (kPa)
 Water seep
 Water level

CHECKED Initials:



Appendix D

Screening Levels and Guidelines

NATIONAL ENVIRONMENT PROTECTION (ASSESSMENT OF SITE CONTAMINATION) MEASURE 1999 AS AMENDED 2013

Soil

The investigation and screening levels (ISL) utilised for the assessment of the soil on site were sourced from the National Environment Protection Measure for the Assessment of Site Contamination (ASC NEPM, Ref [5]). These ISL are not derived as acceptance criteria for contamination at a site, but as levels above which specific consideration of risk, based on the site use and potential exposure, is required. If a risk is determined as present, then remediation and/or management must be undertaken.

Assessment ISL are based on:

Human Health.

Intentionally conservative health investigation levels (HIL) have been derived for four (4) generic land use settings.

- HIL 'A' Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry). This category includes children's day care centres, preschools and primary schools.
- HIL 'B' Residential with minimal opportunities for soil access includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats.
- HIL 'C' Public open space such as parks, playgrounds, playing fields (e.g., ovals) secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves).
- HIL 'D' Commercial/industrial such as shops, offices, factories and industrial sites.

Health screening levels (HSL) have been determined for risks associated from vapour intrusion from petroleum¹⁷ compound contamination for the same land use settings. These HSL are additionally based on the fraction of compound, the soil texture and the depth of the encountered soil.

RCA have considered the most relevant scenario to relate to commercial / industrial land use; the exposure scenario(s) for the derivation of the relevant land use setting is set out in the tables below. RCA have also considered direct contact for workers undertaking excavation during construction; these criteria are not provided in the ASC NEPM (Ref [5]), however these are provided in CRC Care Technical Report 10 (Ref [15]) which is the source document for the HSL.

Ecological Health

These levels are considered to apply to soil within two (2) metres of the surface, the root zone and habitation zone of many species.

¹⁷ Laboratory analysis of hydrocarbons is being reported as total recoverable hydrocarbons (TRH). This testing method includes all forms of hydrocarbons, not just petroleum hydrocarbons and therefore can be considered a conservative measure against the chosen TPH criteria. Further laboratory analysis using a silica gel clean up (TRH_{sg}) is considered to enable a better identification of the extent of petroleum-based contamination.



Ecological investigation levels (EIL) have been determined for arsenic, copper, chromium III, DDT, naphthalene, nickel, lead and zinc in soil based on species sensitivity model and for three (3) generic land use settings:

- Areas of ecological significance for areas where the primary intention is for the conservation and protection of the natural environment. Protection level of 99%.
- Urban residential areas and public open space broadly equivalent to the HIL A, HIL B and HIL C land use settings. Protection level of 80%.
- Commercial and industrial land uses considered to be broadly equivalent to HIL D land use setting. Protection level of 60%.

Ecological screening levels (ESL) have been determined for petroleum compound contamination. Due to limitations in the data only moderate reliability ESL have been determined for fractions <C₁₆, applied generically in fine- and coarse-grained soils. ESL for petroleum fractions > C₁₆, BTEX and naphthalene are considered low reliability.

Methodology for the derivation of EIL for other contaminants is available in the ASC NEPM (Ref [5]) and requires additional soil character data; this has not been undertaken for this project.

RCA have selected the commercial and industrial land use criteria.

Aesthetics

Aesthetic considerations operate separately to the HIL/HSL and EIL/ESL assessment. Issues to be considered include:

- Highly malodorous soils or extracted groundwater (e.g., strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organosulfur compounds).
- Hydrocarbon sheen on surface water.
- Discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature.
- Large monolithic deposits of otherwise low-risk material, e.g., gypsum as powder or plasterboard, cement kiln dust.
- Presence of putrescible refuse including material that may generate hazardous levels of methane such as a deep-fill profile of green waste or large quantities of timber waste.
- Soils containing residue from animal burial (e.g., former abattoir sites).

Site assessment requires consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. For example, higher expectations for soil quality would apply to residential properties with gardens compared with industrial settings.



Tier 1 assessment comprises the comparison of the soil data with the HIL/HSL and EIL/ESL. In the event that some concentrations are in excess of the relevant criteria, the summary statistics of the data set may be utilised for assessment purpose. Consideration of a range of statistics is recommended; at a minimum the 95%UCL_{ave} should be compared to the relevant criteria as long as:

- No single value exceeds 250% of the relevant criterion.
- The standard deviation of the results for each analyte is less than 50% of the relevant criterion.

In addition to appropriate consideration and application of the HSL and ESL, there are a number of policy considerations which reflect the nature and properties of petroleum hydrocarbons:

- Formation of observable light non-aqueous phase liquids (LNAPL).
- Fire and explosive hazards.
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services by hydrocarbons.

The ASC NEPM (Ref [5]) has therefore provided management limits, the application of which will require consideration of site-specific factors such as the depth of building basements and services and depth to groundwater, to determine the maximum depth to which the limits should apply. The management limits may have less relevance at operating industrial sites (including mine sites) which have no or limited sensitive receptors in the area of potential impact. When the management limits are exceeded, further site-specific assessment and management may enable any identified risk to be addressed.

The presence of site hydrocarbon contamination at the levels of the management limits does not imply that there is no need for administrative notification or controls in accordance with jurisdiction requirements.

The following figure has been taken from the ASC NEPM (Ref [5]) to illustrate the assessment methodology in regards to petroleum contamination.



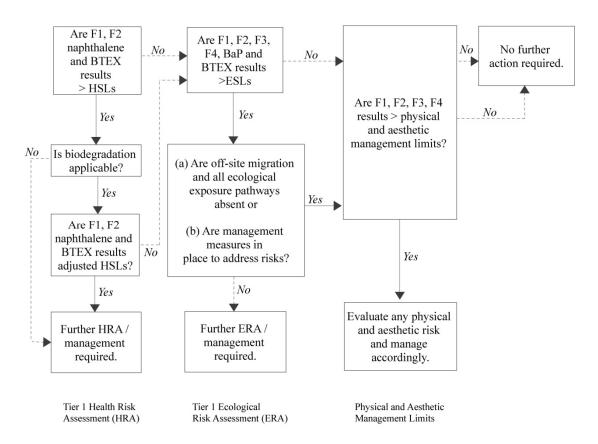


Figure 2 Flowchart for the Tier 1 human and ecological risk assessment of petroleum hydrocarbon contamination – application of HSL and ESL and consideration of management limits

Commercial/Industrial Premises

Summary of			Parameters
Exposure Pathways	Abbreviations	Units	Adult
Body weight	BW _A or BW _C	kg	70
Exposure duration	ED _A or ED _C	years	30
Exposure frequency	EF	days	240
Soil/dust ingestion rate ¹	IRsa or IRsc	mg/day	25 ⁵
Soil/dust to skin adherence factor	AF	mg/cm²/day	0.5
Skin surface area	SA _A or SA _C	cm ²	20 000
Fraction of skin exposed	Fs	%	19
Dermal absorption factor	DAF	%	Chemical specific values applied
Time spent indoors on site each day	ETi	hours	8
Time spent outdoors on site each day	ET _o	hours	1
Home-grown fraction of vegetables consumed	Fнg	%	0
Vegetable & fruit consumption rate	C _y (veg and fruit)	g/day	-
Averaging time for carcinogens ('lifetime')	AT _{NT}	years	70
Dust lung retention factor	RF	%	37.5

Soil ingestion rates for the HIL D scenario are based on the default soil/dust ingestion rates, corrected for an 8 hr/day daily exposure duration (50% of total waking hours)



ACID SULFATE SOIL MANUAL ACTION CRITERIA

Estuarine sediments of coastal NSW from the Holocene geological age contain iron pyrite, the main constituent of acid sulfate soils. The Holocene sediment is found below and up to 5m above the Australian Height Datum (AHD) typically in coastal and floodplain areas. The sediment can be divided into classes based on its oxidised state. If the pyritic material above the water table is being oxidised and has a pH <4.0 it is called actual acid sulfate soil (AASS). If the pyrite material is below the water table and has not been oxidised, it is termed potential acid sulphide soil (PASS) and generally has a pH of >4.0 however the pH has the potential to become much lower when the soil is exposed to oxygen: the potential for acid generation is considered to be elevated when the soil pH post oxidation by hydrogen peroxide (pH_{FOX}) is less than pH 4.0 and/or the difference between the pre and post oxidised soil pH (pH_F – pH_{FOX}) is greater than 1.0 pH unit. Sediment which has a pH <2.5, after the addition of hydrogen peroxide, strongly indicates the presence of ASS (Ref [6]).

The 'Acid Sulfate Soil Manual' outlines:

- The assessment process for different types of projects (such as linear, bulk disturbance) including:
 - Number of samples.
 - Depth of samples.
 - Sampling methodology.
 - · Sampling handling and storage.
- Analytical methods.
- Assessment criteria based on three (3) broad texture categories summarised in Table 12.
- Water Assessment.
- Requirements for management plans.
- Monitoring.
- Treatment.

 Table 12
 Acid Sulfate Soil Action Criteria for Different Texture

Type of Material			1 to 1,000 tonnes are disturbed	Action Criteria if more than 1,000 tonnes of material are disturbed		
		Existing + Po	tential Acidity	Existing + Potential Acidity		
Texture range	Approx. clay content (%)	Equivalent sulfur (%S) (oven-dry basis)	Equivalent acidity (mol H ⁺ /tonne) (oven-dry basis)	Equivalent sulfur (%S) (oven-dry basis)	Equivalent acidity (mol H ⁺ /tonne) (oven-dry basis)	
Coarse texture (Sands to loamy sands)	' 57 1		18	0.03	18	
Medium texture (Sandy loams to light clays)	5 - 40	0.06	36	0.03	18	
Fine texture (Medium to heavy clays and silty clays)			62	0.03	18	

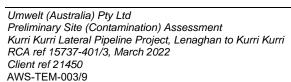
Existing + Potential acidity = Total Actual Acidity + S% = Net acidity (Ref [6]).



Appendix E

Registered Groundwater Well Information







WaterNSW Work Summary

GW078128

Licence: Licence Status:

Authorised Purpose(s):

Intended MONITORING BORE

Purpose(s):

Work Type: Bore
Work Status:
Construct.Method:
Owner Type:

Commenced Date: Final Depth: 30.00 m
Completion Date: 14/11/1997 Drilled Depth: 30.00 m

Contractor Name: MCDERMOTT DRILLING

PTY LTD

Assistant Driller:

Driller:

Property: Standing Water
Level (m):

GWMA: Salinity Description:

GW Zone: Yield (L/s):

Site Details

Site Chosen

By:

County Parish Cadastre Form A: NORTHUMBERLAND HEXHA LOT 117 DP 568625

Licensed:

Region: 20 - Hunter CMA Map:

River Basin: - Unknown Grid Zone: Scale:

Area/District:

 Elevation:
 0.00 m (A.H.D.)
 Northing:
 6366923.000
 Latitude:
 32°49'41.3"S

 Elevation
 Unknown
 Easting:
 370912.000
 Longitude:
 151°37'15.1"E

Source:

GS Map: - MGA Zone: 56 Coordinate Unknown

Source:



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	Туре	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	30.00	96			Open Hole - Water
1		Annulus	Waterworn/Rounded	1.70	8.00				Ungraded
1	1	Opening	Screen	18.00	30.00			0	
1	1	Opening	Slots - Horizontal	18.00	30.00	55		0	PVC, SL: 12.0mm, A: 5.00mm

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)
7.80	30.00	22.20	Unknown	7.80			30.00		

Drillers Log

From	То	Thickness	Drillers Description	Geological Material	Comments					
(m)	(m)	(m)								
0.00	8.00	8.00	siltstone	Siltstone						
8.00	9.00	1.00	shale	Shale						
9.00	12.00	3.00	siltstone	Siltstone						
12.00	12.80	0.80	shale	Shale						
12.80	13.40	0.60	coal	Invalid Code						
13.40	30.00	16.60	siltstone/mudstone	Siltstone						

*** End of GW078128 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW 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.



WaterNSW Work Summary

GW078123

Licence: Licence Status:

Authorised Purpose(s): Intended Purpose(s):

Work Type: Bore
Work Status:
Construct.Method:
Owner Type:

Commenced Date: Final Depth: 33.00 m
Completion Date: 14/11/1997 Drilled Depth: 33.00 m

Contractor Name: MCDERMOTT DRILLING PTY

LTD

Driller:

Assistant Driller:

Property: Standing Water Level (m):
GWMA: Salinity Description:
GW Zone: Yield (L/s):

Site Details

Site Chosen

By:

CountyParishCadastreForm A: NORTHUMBERLANDSTOCKLOT 92 DP
755260

Licensed:

Region: 20 - Hunter CMA Map:

River Basin: - Unknown Grid Zone: Scale:

Area/District:

 Elevation:
 0.00 m (A.H.D.)
 Northing:
 6368165.000
 Latitude:
 32°49'00.3"S

 Elevation
 Unknown
 Easting:
 369309.000
 Longitude:
 151°36'14.1"E

Source:

GS Map: - MGA Zone: 56 Coordinate Unknown

Source:



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	Туре	From (m)	To (m)	Outside Diameter (mm)	 Interval	Details
1		Hole	Hole	0.00	33.00	96		Other
1		Annulus	Waterworn/Rounded	12.50	32.20			Ungraded
1	1	Opening	Screen	20.20	32.20		0	
1	1	Opening	Slots - Horizontal	20.20	32.20	55	0	PVC, SL: 12.0mm, A: 5.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)		Duration (hr)	Salinity (mg/L)	
24.40	33.00	8.60	Unknown	24.40		33.00			

Drillers Log

From	То	Thickness	Drillers Description	Geological Material	Comments
(m)	(m)	(m)	-		
0.00	13.20	13.20	SANDSTONE/SILTSTONE	Sandstone	
13.20	15.30	2.10	COAL	Invalid Code	
15.30	17.00	1.70	SILTSTONE	Siltstone	
17.00	17.90	0.90	COAL/SANDSTONE	Invalid Code	
17.90	19.00	1.10	SILTSTONE	Siltstone	
19.00	19.70	0.70	COAL/SANDSTONE	Invalid Code	
19.70	20.80	1.10	SANDSTONE	Sandstone	
20.80	23.20	2.40	COAL	Invalid Code	
23.20	25.50	2.30	SANDSTONE/CLAYSTONE	Sandstone	
25.50	29.70	4.20	COAL	Invalid Code	
29.70	33.00	3.30	SANDSTONE/SILTSTONE	Sandstone	

*** End of GW078123 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by offillers, licensees and other sources. WaterNSW 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.



WaterNSW Work Summary

GW079101

Licence: **Licence Status:**

> **Authorised** Purpose(s): Intended Purpose(s):

Work Type: Bore Work Status: Construct.Method: Owner Type:

Commenced Date: Final Depth: Completion Date: Drilled Depth:

Contractor Name: (None)

Driller:

Assistant Driller:

Property: **Standing Water Level** GWMA: Salinity Description: GW Zone: Yield (L/s):

Site Details Site Chosen

By:

County Parish Cadastre Form A: UNKNOWN

Licensed:

Region: 20 - Hunter CMA Map:

River Basin: - Unknown Grid Zone: Scale:

Area/District:

Elevation: 0.00 m (A.H.D.) Northing: 6371680.000 Latitude: 32°47'01.3"S **Elevation** Unknown Easting: 358387.000 Longitude: 151°29'16.1"E

Source:

GS Map: -MGA Zone: 56 Coordinate Unknown

Source:

Remarks

12/10/1999: Form A Remarks: CAPRAL ALUMINIUM BOREHOLE: F2 27/11/2009: Reviewed data - nothing to update.

*** End of GW079101 ***

Warning To Clients: This raw data has been supplied to the WaterNSW by clillers, licensees and other sources. WaterNSW 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.



WaterNSW Work Summary

G	W	n	51	6	17
	••	u			-,

Licence: Licence Status:

Authorised Purpose(s): Intended Purpose(s): STOCK

Work Type: Bore Work Status:

Construct.Method: Rotary
Owner Type: Private

Commenced Date:Final Depth: 12.00 mCompletion Date: 01/09/1980Drilled Depth: 12.00 m

Contractor Name: (None)

Driller: Alan Francis Ryan

Assistant Driller:

Property: Standing Water
Level (m):
GWMA: Salinity Description:
GW Zone: Yield (L/s):

Site Details

Site Chosen By:

County Parish Cadastre

Form A: NORTHUMBERLAND MAITLAND L9 (1)

Licensed:

Region: 20 - Hunter CMA Map: 9232-3N

River Basin: 210 - HUNTER RIVER Grid Zone: Scale:

Area/District:

 Elevation:
 0.00 m (A.H.D.)
 Northing:
 6373006.000
 Latitude:
 32°46'20.3"S

 Elevation (Unknown)
 Easting:
 362896.000
 Longitude:
 151°32'10.1"E

Source:

GS Map: - MGA Zone: 56 Coordinate GD.,ACC.MAP

Source:

Drillers Log

From	То	Thickness	Drillers Description	Geological Material	Comments
(m)	(m)	(m)	-	_	
0.00	0.15	0.15	Topsoil	Topsoil	
0.15	3.00	2.85	Clay	Clay	
3.00	3.81	0.81	Sand Yellow	Sand	
3.81	4.57	0.76	Sand White	Sand	
4.57	6.10	1.53	Clay Sand	Clay	
6.10	12.00	5.90	Sandstone Hard	Sandstone	

*** End of GW051647 ***

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

Quality Assurance Review and Laboratory Report Sheets

No external quality assurance samples were submitted due to the limited scope of contamination assessment.

The analytical laboratory, ALS, are a NATA accredited laboratory and are experienced in the analytical requirements for potentially contaminated soil. Results of the internal quality assurance testing are contained within the laboratory report sheets, included further within this **Appendix**. **Table 13** presents a summary of their review.

 Table 13
 Internal Quality Assurance Review

	Number Samples (including QA)	Laboratory Duplicates	Spikes	Laboratory Control Samples	Laboratory Blanks
Requirer	nent	10%	5%	One every batch	One every batch
Soil					
Lead only	11	1 (1)	0 (1)	1	1
Metals (As, Cd, Cr, Cu, Ni, Hg, Pb, Zn)	11	0 (6)	0 (2)	2	2
TRH C ₆ -C ₁₀	2	1 (3)	0 (2)	2	2
TRH >C ₁₀ -C ₄₀	2	0 (2)	0 (2)	2	2
BTEX	2	1 (3)	0 (2)	2	2
PAH	2	0 (3)	0 (2)	2	2
OCP/OPP	8	0 (4)	0 (3)	3	3
Herbicides	4	0 (4)	0 (3)	3	3

Numbers in brackets refer the tests undertaken on samples not from this project but within the same laboratory batch.

Examination of the above table reveals that ALS have undertaken laboratory quality assurance testing in accordance with the ASC NEPM (Ref [4]).

- Recoveries of Surrogates were within acceptance criteria of 70-130% with the exception of:
 - Phenoxyacid herbicide surrogate for BH1A BH3A for which the recovery was 51.8-52.5%. These are considered to indicate a potential underestimation of the concentrations however given that none were detected and the ratio of guidelines to detection limit it is not considered that the uncertainty is significant.
- Holding Times were outside of laboratory specified time frames by between two (2) and seven (7) days for pesticides, PAH and herbicides in samples BH1-BH3. The samples were retained with RCA's refrigerator while awaiting the ASS screening results and as such it is considered unlikely that there would have been significant potential for degradation of the contamination concentrations. No concentrations were detected and given the ratio of guidelines to detection limit it is not considered that the uncertainty is significant.
- Recoveries of laboratory control samples were within the acceptance criteria of 70-130% with the exception of:



- ES2137656 Azinphos Methyl with a recovery of 57.1%. This is considered to indicate some uncertainty with the results. The results were all well within the relevant criteria and as such the uncertainty is not considered significant.
- ES2137656
 2.4-DB and 2.4.5-TP (Silvex) with recoveries of 69.8% each.
 This is considered a minor non-compliance and therefore the uncertainty is not considered significant.
- ES2145911 Ten (10) herbicide compounds with recoveries of 54.6% (Clopyralid) and 62.1-69.8%. These results are considered to indicate some uncertainty however given that none were detected and the ratio of guidelines to detection limit it is not considered that the uncertainty is significant.
- ES2201925 Three (3) herbicide compounds with recoveries of 55.3% (Clopyralid) and 61.8-69.9%. These results are considered to indicate some uncertainty however given that none were detected and the ratio of guidelines to detection limit it is not considered that the uncertainty is significant.
- Recoveries of Spikes were within acceptance criteria of 70-130% with the exception of:
 - ES2137656 MCPA and Picloram with recoveries of 69.1% and 68.5% respectively in an anonymous sample analysed in conjunction with samples. These are considered minor non-compliances and therefore the uncertainty is not considered significant. It is further noted that the sample was not collected by RCA and therefore no comment can be provided regarding the reason for the poor recovery. Poor matrix spikes do not necessarily reflect uncertainty on the remainder of the samples within the batch.
 - ES2145911 Six (6) herbicide compounds with recoveries of 56.1-69.2% in an anonymous sample analysed in conjunction with samples BH1-BH3. RCA cannot comment on the reason for the difference as the sample wase not collected by RCA however it is noted that poor spike results do not necessarily indicate uncertainty with other samples in the analytical batch.
 - ES2201925 Six (6) herbicide compounds with recoveries of 1452.9% in an anonymous sample analysed in conjunction with samples BH1-BH3. RCA cannot comment on the reason for the difference as the sample wase not collected by RCA however it is noted that poor spike results do not necessarily indicate uncertainty with other samples in the analytical batch.
- Relative Percentage Differences for duplicates were within acceptance criterion (30%) in accordance with the guidelines (Ref [4]) with the exception of:
 - Zinc and aldrin in anonymous samples analysed in conjunction with samples BH1-BH3. RCA cannot comment on the reason for the difference as the samples were not collected by RCA however do note that poor duplicate results do not necessarily indicate uncertainty with other samples in the analytical batch.
 - Nickel, lead and zinc in anonymous samples analysed in conjunction with samples BH4-BH8. RCA cannot comment on the reason for the difference as the samples were not collected by RCA however do note that poor duplicate results do not necessarily indicate uncertainty with other samples in the analytical batch.
- No Laboratory Blank result was detected above the practical quantification limit (PQL).



RCA have assessed the data in accordance with the DQI as specified in **Section 4** as follows:

Accuracy

- The accuracy of the data has been assessed by internal means (surrogates, laboratory control samples, matrix spikes and method blanks) as being acceptable.
 All results were within the acceptance criteria as detailed earlier in this Appendix with the exception of pesticides and herbicides however in the absence of detectable results it is not considered that the uncertainty is significant.
- The external assessment of the accuracy of the data has not been assessed.

Precision

- The precision of the data has been assessed by internal means (duplicates) as being acceptable.
- The prevision of the data has not been assessed by external means.

Completeness

 All data that was sought during the investigation was able to be retrieved. Chain of custody were completed for all samples. As such, completeness is considered 100%.

Representativeness

This assessment has considered soil contaminant concentrations onsite. The
method of sampling was appropriate for the primary contaminants of concern and
samples were preserved appropriately prior to analysis. As such the soil data is
considered representative of the concentrations at the site.

Comparability

- Works were undertaken by personnel experienced in the sampling of potentially contaminated soil.
- All laboratory analyses have been conducted by NATA accredited methodologies that comply with the international standard methods.

As such it is considered that the comparability of the data is appropriate.

It is therefore considered that the data obtained from this testing is accurate and reliable in as far as it can be ascertained.





CERTIFICATE OF ANALYSIS

Work Order : ES2137656

Client ROBERT CARR & ASSOCIATES P/L

Contact : MS FIONA BROOKER

Address : 92 HILL STREET

CARRINGTON NSW 2294

Telephone : +61 02 4902 9200

Project : 15737

Order number

C-O-C number

Sampler · FIONA BROOKER

Site

Quote number : SYBQ/400/20

No. of samples received : 11 No. of samples analysed : 11 Page : 1 of 10

Date Samples Received

Laboratory : Environmental Division Sydney

Contact : Juliana Gonzalez

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

: 19-Oct-2021 14:45

Telephone : +61-2-8784 8555

Date Analysis Commenced : 21-Oct-2021

Issue Date : 27-Oct-2021 16:52



ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories Position Accreditation Category

Edwandy Fadjar Organic Coordinator Sydney Inorganics, Smithfield, NSW Edwandy Fadjar Organic Coordinator Sydney Organics, Smithfield, NSW Franco Lentini LCMS Coordinator Sydney Organics, Smithfield, NSW Ivan Taylor Sydney Inorganics, Smithfield, NSW Analyst

Page : 2 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



General Comments

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

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

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

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

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

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

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

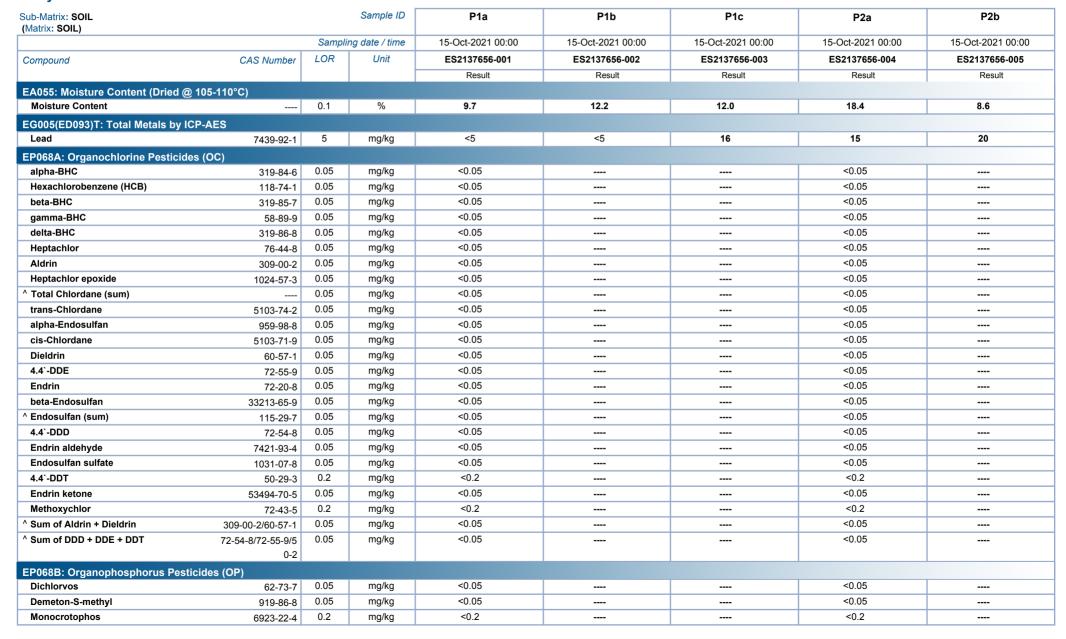
LOR = Limit of reporting

- ^ = This result is computed from individual analyte detections at or above the level of reporting
- ø = ALS is not NATA accredited for these tests.
- ~ = Indicates an estimated value.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.

Page : 3 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

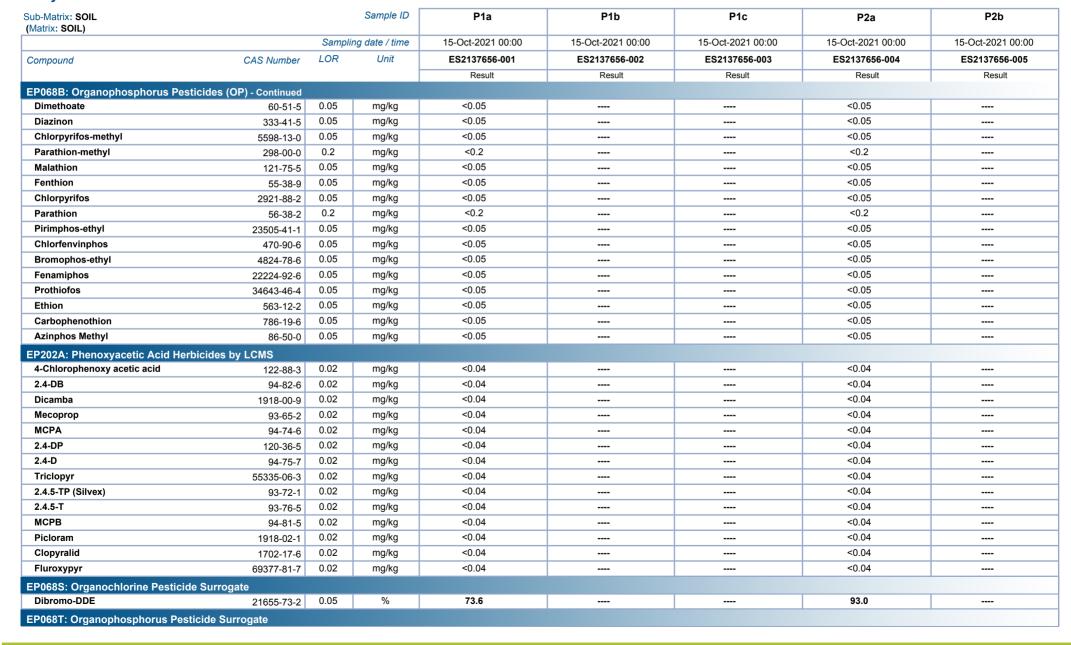




Page : 4 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

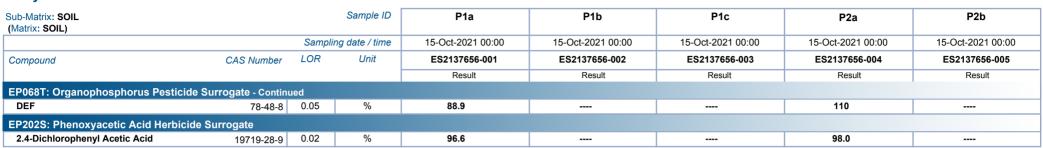
Project : 15737



Page : 5 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

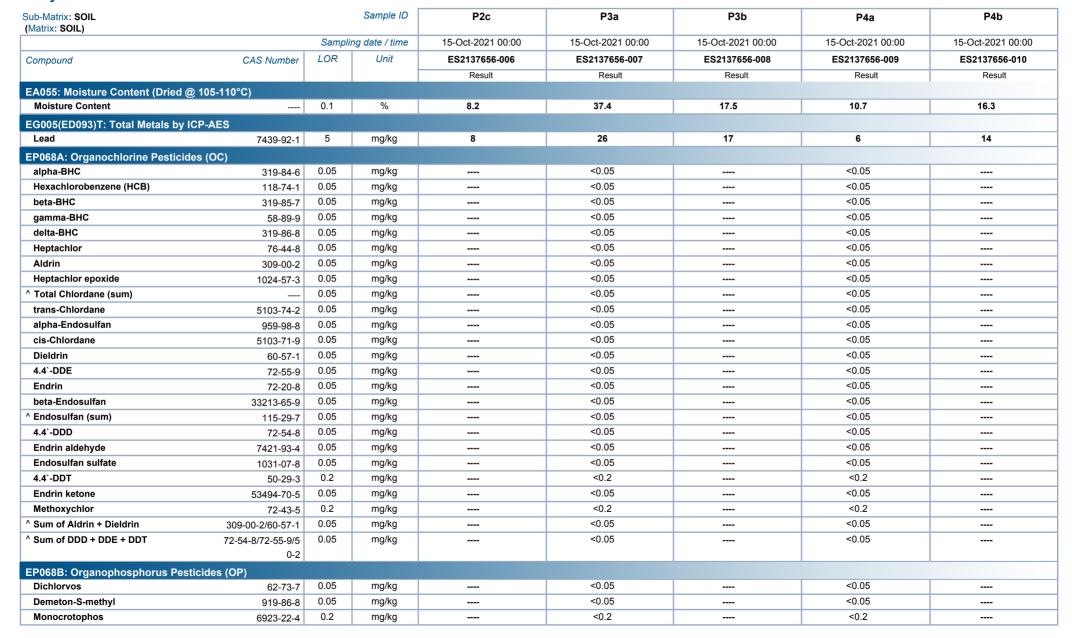




Page : 6 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

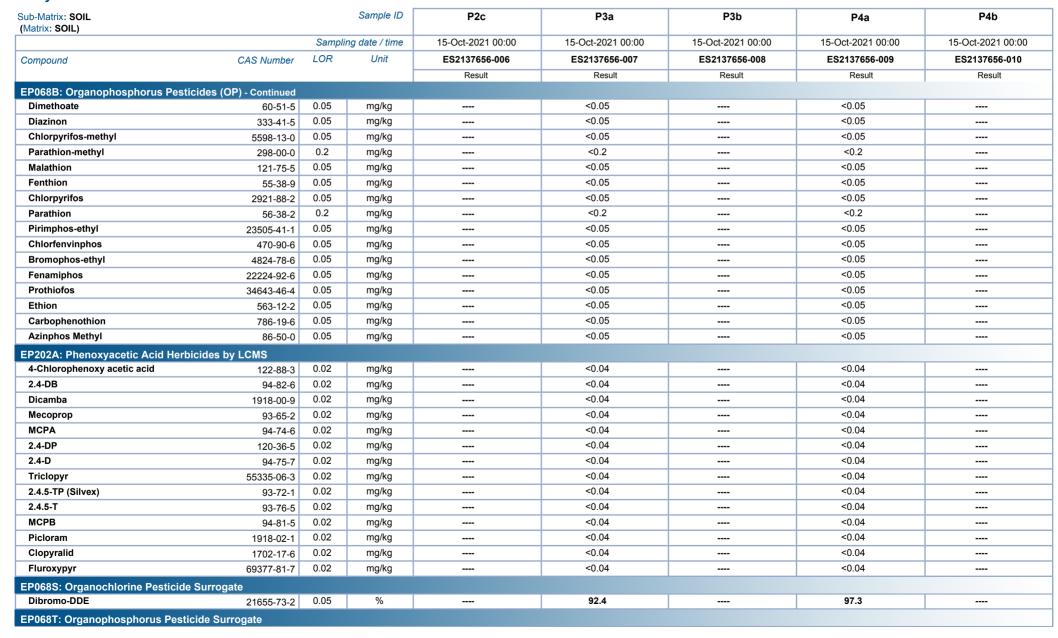




Page : 7 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

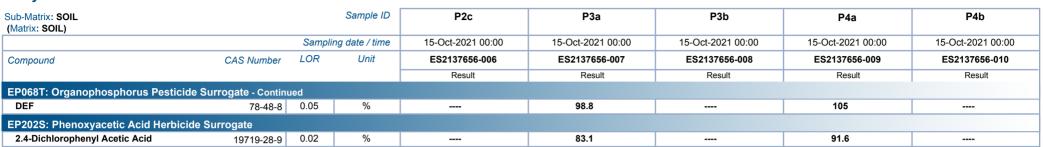




Page : 8 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

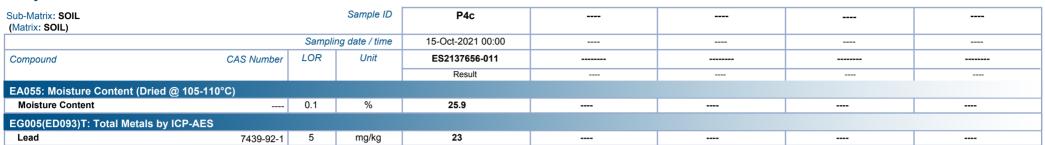




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737





Page : 10 of 10 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Surrogate Control Limits

Sub-Matrix: SOIL	Recovery Limits (%)						
Compound	CAS Number	Low	High				
EP068S: Organochlorine Pesticide Surrogate							
Dibromo-DDE	21655-73-2	49	147				
EP068T: Organophosphorus Pesticide Surrogate	е						
DEF	78-48-8	35	143				
EP202S: Phenoxyacetic Acid Herbicide Surrogate							
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139				





QUALITY CONTROL REPORT

Work Order : **ES2137656** Page : 1 of 6

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address : 92 HILL STREET Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

CARRINGTON NSW 2294

 Telephone
 : +61 02 4902 9200
 Telephone

 Project
 : 15737
 Date Samples Rec

 Order number
 : --- Date Analysis Com

C-O-C number · ----

Sampler : FIONA BROOKER

Site · ____

Quote number : SYBQ/400/20

No. of samples received : 11

No. of samples analysed : 11

Telephone : +61-2-8784 8555

Date Samples Received : 19-Oct-2021

Date Analysis Commenced : 21-Oct-2021

Issue Date : 27-Oct-2021



ISO/IEC 17023 - Testing

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)		
EG005(ED093)T: Tot	al Metals by ICP-AES (QC	Lot: 3968993)									
ES2137656-007	P3a	EG005T: Lead	7439-92-1	5	mg/kg	26	24	5.3	No Limit		
ES2136308-001	Anonymous	EG005T: Lead	7439-92-1	5	mg/kg	20	17	17.1	No Limit		
EA055: Moisture Co	ntent (Dried @ 105-110°C)										
ES2137656-001	P1a	EA055: Moisture Content		0.1	%	9.7	10.4	6.7	0% - 20%		
ES2137763-037	Anonymous	EA055: Moisture Content		0.1	%	18.3	18.1	1.0	0% - 20%		
EP068A: Organochlo	orine Pesticides (OC) (QC I	_ot: 3970297)									
ES2137883-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		

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Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)		
EP068A: Organochlo	orine Pesticides (OC) (QC Lot: 3970297) - continued									
ES2137883-002	Anonymous	EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP068B: Organopho	sphorus Pesticides	(OP) (QC Lot: 3970297)									
ES2137883-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP202A: Phenoxyac	etic Acid Herbicides	by LCMS (QC Lot: 3968854)									
EM2120567-011	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		

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Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL				Method Blank (MB)		S) Report		
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLo	t: 3968993)							
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	87.6	82.0	119
EP068A: Organochlorine Pesticides (OC) (QCLor	t: 3970297)							
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.2	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.9	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.6	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	90.2	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	88.1	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	84.6	54.0	130
EP068B: Organophosphorus Pesticides (OP) (Q0	CLot: 3970297)							
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	97.9	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	82.6	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.4	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	99.3	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	84.6	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	76.0	118

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Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report					
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)		
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High		
EP068B: Organophosphorus Pesticides (OP)	(QCLot: 3970297) - continued	d								
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.4	64.0	122		
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	70.0	116		
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	69.0	121		
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	66.0	118		
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	68.0	124		
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.6	62.0	112		
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	68.0	120		
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	65.0	127		
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	57.1	41.0	123		
EP202A: Phenoxyacetic Acid Herbicides by LC	CMS (QCLot: 3968854)									
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	74.9	54.4	128		
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	69.8	45.5	130		
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	82.9	51.7	135		
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	73.8	60.0	130		
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	73.8	56.8	131		
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	73.0	50.0	141		
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	89.2	68.5	131		
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	83.9	50.8	141		
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	69.8	40.8	126		
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	93.6	57.4	139		
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	82.0	38.9	137		
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	70.6	48.7	129		
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	79.2	49.4	106		
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	73.2	53.2	128		

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL			Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Acceptable L	Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EG005(ED093)T: To	EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3968993)							
ES2136308-001	Anonymous	EG005T: Lead	7439-92-1	250 mg/kg	88.6	70.0	130	
EP068A: Organoch	lorine Pesticides (OC) (QCLot: 3970297)							
ES2137883-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	107	70.0	130	
		EP068: Heptachlor	76-44-8	0.5 mg/kg	96.2	70.0	130	
		EP068: Aldrin	309-00-2	0.5 mg/kg	104	70.0	130	

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Sub-Matrix: SOIL		Ī	Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Acceptable	Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP068A: Organocl	nlorine Pesticides (OC) (QCLot: 3970297) - continued							
ES2137883-002	Anonymous	EP068: Dieldrin	60-57-1	0.5 mg/kg	106	70.0	130	
		EP068: Endrin	72-20-8	2 mg/kg	106	70.0	130	
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	86.9	70.0	130	
EP068B: Organopl	nosphorus Pesticides (OP) (QCLot: 3970297)							
ES2137883-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	115	70.0	130	
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	101	70.0	130	
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	98.2	70.0	130	
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	96.4	70.0	130	
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.2	70.0	130	
EP202A: Phenoxya	acetic Acid Herbicides by LCMS (QCLot: 3968854)							
EM2120567-011	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	71.7	60.0	140	
		EP202: MCPA	94-74-6	0.1 mg/kg	69.1	57.0	143	
		EP202: 2.4-D	94-75-7	0.1 mg/kg	73.3	68.0	139	
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	93.4	51.0	145	
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	87.2	57.0	142	
		EP202: Picloram	1918-02-1	0.1 mg/kg	68.5	49.0	138	
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	71.5	49.0	149	



QA/QC Compliance Assessment to assist with Quality Review

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Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

 Contact
 : MS FIONA BROOKER
 Telephone
 : +61-2-8784 8555

 Project
 : 15737
 Date Samples Received
 : 19-Oct-2021

 Site
 : --- Issue Date
 : 27-Oct-2021

Sampler : FIONA BROOKER No. of samples received : 11
Order number : ---- No. of samples analysed : 11

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• NO Quality Control Sample Frequency Outliers exist.

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Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: **x** = Holding time breach : ✓ = Within holding time.

Method		Sample Date	Ex	ktraction / Preparation		Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-1	10°C)								
Snap Lock Bag (EA055)	·								
P4c		15-Oct-2021				21-Oct-2021	29-Oct-2021	✓	
Soil Glass Jar - Unpreserved (EA055)									
P1a,	P1b,	15-Oct-2021				21-Oct-2021	29-Oct-2021	✓	
P1c,	P2a,								
P2b,	P2c,								
P3a,	P3b,								
P4a,	P4b								
EG005(ED093)T: Total Metals by ICP-AE	s								
Snap Lock Bag (EG005T)									
P4c		15-Oct-2021	21-Oct-2021	13-Apr-2022	✓	21-Oct-2021	13-Apr-2022	✓	
Soil Glass Jar - Unpreserved (EG005T)									
P1a,	P1b,	15-Oct-2021	21-Oct-2021	13-Apr-2022	✓	21-Oct-2021	13-Apr-2022	✓	
P1c,	P2a,								
P2b,	P2c,								
P3a,	P3b,								
P4a,	P4b								
EP068A: Organochlorine Pesticides (OC	3)								
Soil Glass Jar - Unpreserved (EP068)									
P1a,	P2a,	15-Oct-2021	22-Oct-2021	29-Oct-2021	✓	22-Oct-2021	01-Dec-2021	✓	
P3a,	P4a								
EP068B: Organophosphorus Pesticides	(OP)								
Soil Glass Jar - Unpreserved (EP068)									
P1a,	P2a,	15-Oct-2021	22-Oct-2021	29-Oct-2021	✓	22-Oct-2021	01-Dec-2021	✓	
P3a,	P4a								
EP202A: Phenoxyacetic Acid Herbicides	by LCMS								
Soil Glass Jar - Unpreserved (EP202)									
P1a,	P2a,	15-Oct-2021	22-Oct-2021	29-Oct-2021	✓	22-Oct-2021	01-Dec-2021	✓	
P3a,	P4a								

Page : 3 of 4
Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

he expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: SOIL				Evaluation	n: 🗴 = Quality Co	introl frequency i	not within specification; ✓ = Quality Control frequency within specification
Quality Control Sample Type		Сс	unt		Rate (%)		Quality Control Specification
Analytical Methods	Method	OC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Pesticides by GCMS	EP068	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	6	16.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 4 of 4 Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

ALS

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



CLIENT:

CHAIN OF CUSTODY

RCA Australia (ROBCAR)

ALS Laboratory: nlease tick →

Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Sulphate Soils, B = Unpreserved Bag.

DADEI AIDE 21 Burma Road Pooraka SA 5095 Ph; 68 8359 6890 E. adelaide@alagiobal.com FIRRISHANE 32 Shand Street Stafford (i) Ft 4053 Ph: 07 3243 7222 E: samples.brisbane@elsdlobal.com DGLADSTONE 46 Callemondah Orive Clipton OLO 4680

TURNAROUND REQUIREMENTS

Ph: 07 7471 5600 E: giadstone@alsglobal.com

DMACKAY 76 Harbour Road Mackay QLD 4740 Ph: 07 4944 0177 F: mackay@aisulchai.com

FIMELROUSE 2.4 Westell Road Springvale VIC 8171 Ph: 03 8649 9500 E: samples melbourne@slaglobal.com EIMUDG66 27 SyrineyRoad Mudges NSW 2850 Ph: 02 6372 6735 E: mudges mail@alsglobal.com

☐ Standard TAT (List due date): 26/10/21

DNEWCASTI F 5/585 Mailtand Rd Mayfield West NSW 2204 Ph: 02 4014 2500 E: semples newcestle@alsolobel.com

CINOWRA 4/13 Geary Place North Newra NSW 2541 Ph: 024423 2063 E: newra@alsglobal.com

UPERTH 10 Hod Way Malaga, WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com USYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph. 02 8784 8555 F: samples sydney@algdlobal.com

DTOWNSVILLE 14-15 Desma Court Bobie QLD 4616 Ph; 07 4795 0800 E; townsville.environmentat@alsglobal.com

CWOLLONGONG 98 Kenny Street Wollangong NSW 2500 Ph: 02 4226 3125 E; portkembla@aleglobsl.com

FOR LABORATORY USE ONLY (Circle)

OFFICE:	92 Hill Street, Carrington		(Standard TAT may Trace Organics)	be longer for some tests e.g., Ultra						Custody Seal Intec		Yes	No NA
RCA Ref No:	15737		ALS QUOTE NO).: SYBQ_4	100_18				CE NUMBER (Circle)	Free by / frozen ic		106	No N/A
		CONTACT	211. 0400 007 500				coc:			Random Sample T	emperature or	Receipt 8.7	, °C
PROJECT MANAGE SAMPLER: Flona B			PH: 0408 687 529 MOBILE: 0408 687	529 REII	INQUISHED BY:		OF:	EIVED BY:	· [Other comment:		RECEIVED BY:	
	OC emailed to ALS? (NO) EDD FORMAT (or default):						"-					Moru	.i
	dministrator@rca.com.au + enviro@r			DATI	E/TIME: O f	9	_ DATÎ	E/TIME:		DATE/TIME:		DATE/TIME:	
Email Invoice to: as	s above			P	1.10.21	2.45	1	9/10/21	ر اله: لاح	19/10/21	(75	a 19/10/2	1 730
COMMENTS/SPECIA	AL HANDLING/STORAGE OR DISE	POSAL:					•					- 1	pm
ALS USE		E DETAILS UD (S) WATER (W)		CONTAINER INFORMA	KTION				JITES (NB. Suite Codes m tal (unfiltered bottle require required).			Additional In	formation
LAB ID	Sample ID	Date / Time	Matrix	Type & Preservative (refer to codes below)	Total Containers	Lead	Suite 12 (OCP, OPP)	Herbicides				Comments on likely conta dilutions, or samples requ analysis etc.	
1.	P1a	15/10/2021	Soil	UPG Jar	1	х	x	х '					
2	P1b	15/10/2021	Soil	UPG jar	1	x							
3	P1c	15/10/2021	Soil	UPG Jar	1	x		į į					
í4	Ф2a	15/10/2021	Soil	UPG jar	1	×	×.	×					
-	P2b	15/10/2021	Soil	UPG jar	1	×							7
6	P2c	15/10/2021	Soil	UPG jar	1	x						al Division	:
7	P3a	15/10/2021	Soil	UPG jar	1	х ·	x	х		Sydn Wo	k Order	Reference	
8	P3b	15/10/2021	Soil	UPG Jar	1	x				E	S21	37656	
9	P4a	15/10/2021	Soil	UPG jar	1	х	×	×		·			
10	P4b	15/10/2021	Soil	UPG jar	1	x							
V	P4c	15/10/2021	Soil	plastic bag	1	x							
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				ROTAL 11	11	4	4		· ·	e: +61-2-8	784 855+ 1	
Water Container Code V = VOA Vial HCl Prese	erved; VB = VOA Vial Sodium Bisulphate	Preserved; $VS = VOA Vial S$	ulfuric Preserved; AV	H = Sodium Hydroxide/Cd Preserved; S = S = Airfreight Unpreserved Vial SG = Sulfurio	Sodium Hydroxide Preserved Preserved Amber Glass; H	Plastic; AG = f = HCl preser	Amber Glass ved Plastic;	Unpreserved; A HS = HCl preserv	P - Airfreight Unpreserved red Speciation bottle; SP	l Plastic = Sulfunic Præservend Plas	ic, F≐Font	ildehyde Preserved Glass;	

Confirmed phenoxyacid herbicides with Fiona, 21/10/21 CAS



CARRINGTON NSW 2294

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2137656

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address : 92 HILL STREET Address : 277-289 Woodpark Road Smithfield

NSW Australia 2164

Telephone : +61 02 4902 9200 Telephone : +61-2-8784 8555
Facsimile : +61 02 4902 9299 Facsimile : +61-2-8784 8500

Project : 15737 Page : 1 of 3

 Order number
 : -- Quote number
 : ES2017ROBCAR0004 (SYBQ/400/20)

 C-O-C number
 : -- QC Level
 : NEPM 2013 B3 & ALS QC Standard

Sampler : FIONA BROOKER

Dates

Date

Delivery Details

 Mode of Delivery
 : Client Drop Off
 Security Seal
 : Not Available

 No. of coolers/boxes
 : 1
 Temperature
 : 8.7°C - Ice present

Receipt Detail : No. of samples received / analysed : 11 / 11

General Comments

• This report contains the following information:

- Sample Container(s)/Preservation Non-Compliances

- Summary of Sample(s) and Requested Analysis
- Proactive Holding Time Report
- Requested Deliverables
- Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Issue Date : 21-Oct-2021

Page

2 of 3 ES2137656 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

• No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package. If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the Metals by ICP-AES laboratory and displayed in brackets without a time EG005T (solids) EP202(solids) component OIL - EA055-103 C/OP Pesticides **Aoisture Content** Matrix: SOIL S-12 Laboratory sample Sampling date / Sample ID otall ID time ES2137656-001 15-Oct-2021 00:00 P1a ✓ ES2137656-002 15-Oct-2021 00:00 P1b ✓ ES2137656-003 15-Oct-2021 00:00 P1c ✓ ✓ ✓ ES2137656-004 15-Oct-2021 00:00 P2a ✓ ES2137656-005 15-Oct-2021 00:00 P2b 1 ES2137656-006 15-Oct-2021 00:00 P2c ES2137656-007 15-Oct-2021 00:00 P3a ES2137656-008 15-Oct-2021 00:00 P3b ES2137656-009 15-Oct-2021 00:00 ES2137656-010 15-Oct-2021 00:00 P4b ES2137656-011 15-Oct-2021 00:00 P4c

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

: 21-Oct-2021 Issue Date

Page

3 of 3 ES2137656 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L

- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)

- Chain of Custody (CoC) (COC)

- EDI Format - ENMRG (ENMRG)

- A4 - AU Sample Receipt Notification - Environmental HT (SRN)



Requested Deliverables

	MINI	СТО	A T	\sim
AUI	VI I I V I	STR	A 1	ᇄ

ADMINISTRATOR		
- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
ENVIRO		
- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enviro@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enviro@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enviro@rca.com.au
- A4 - AU Tax Invoice (INV)	Email	enviro@rca.com.au
- Chain of Custody (CoC) (COC)	Email	enviro@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	enviro@rca.com.au
FIONA BROOKER		
- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au

Email

Email

Email

Email

fionab@rca.com.au

fionab@rca.com.au

fionab@rca.com.au

fionab@rca.com.au



CERTIFICATE OF ANALYSIS

Work Order : ES2145911

Client ROBERT CARR & ASSOCIATES P/L

Contact : MS FIONA BROOKER

Address : 92 HILL STREET

CARRINGTON NSW 2294

Telephone : +61 02 4902 9200

Project : 15737 Order number

C-O-C number

: CONNOR DAVIES Sampler

Site

Quote number : SYBQ/400/21

No. of samples received : 17 No. of samples analysed : 17 Page : 1 of 19

> Laboratory : Environmental Division Sydney

Contact : Juliana Gonzalez

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555 Date Samples Received : 15-Dec-2021 15:15

Date Analysis Commenced : 20-Dec-2021

Issue Date · 31-Dec-2021 16:05



ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories Position Accreditation Category

Ben Felgendrejeris Senior Acid Sulfate Soil Chemist Brisbane Acid Sulphate Soils, Stafford, QLD Edwandy Fadjar Organic Coordinator Sydney Inorganics, Smithfield, NSW Edwandy Fadjar Organic Coordinator Sydney Organics, Smithfield, NSW Franco Lentini LCMS Coordinator Sydney Organics, Smithfield, NSW Wisam Marassa Sydney Inorganics, Smithfield, NSW Inorganics Coordinator

Page : 2 of 19 Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

General Comments

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

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

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

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

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

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

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

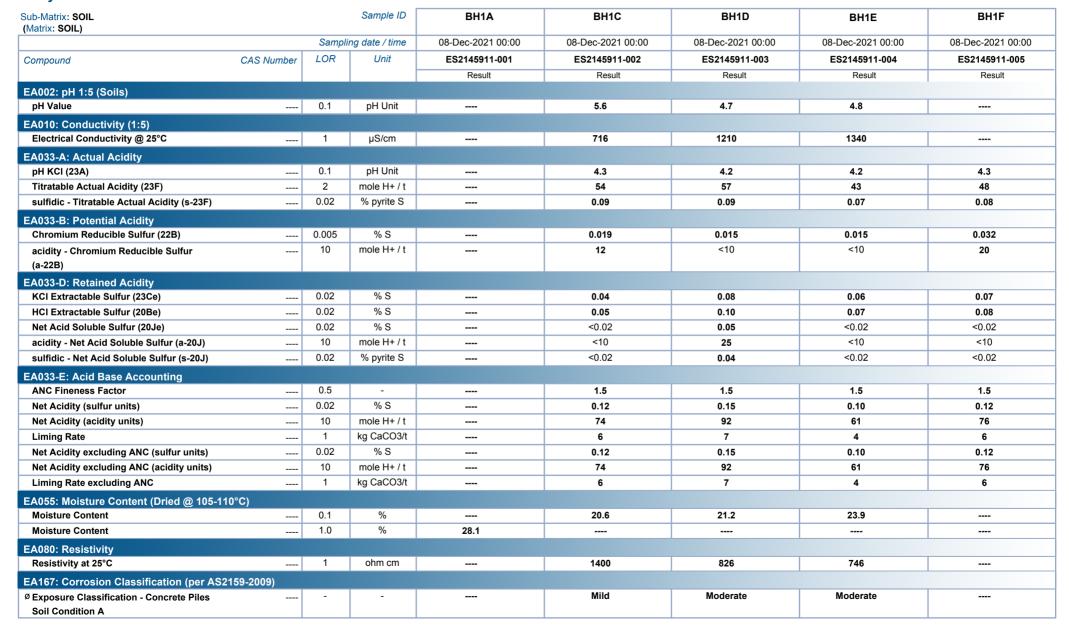
- ^ = This result is computed from individual analyte detections at or above the level of reporting
- ø = ALS is not NATA accredited for these tests.
- ~ = Indicates an estimated value.
- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B Low permeability soils (e.g. silts and clays) or all soils above groundwater
- EG005T: Poor precision was obtained for Zinc on sample EP2115445 # 001. Confirmed by redigestion and reanalysis.
- ED045G:LOR raised due to sample matrix.
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.



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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

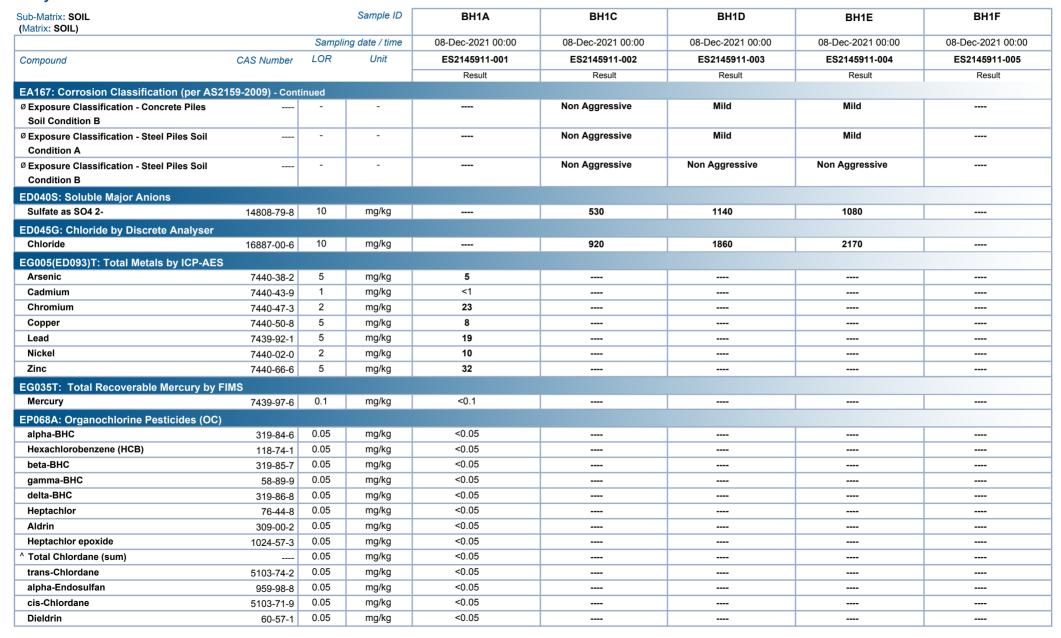




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

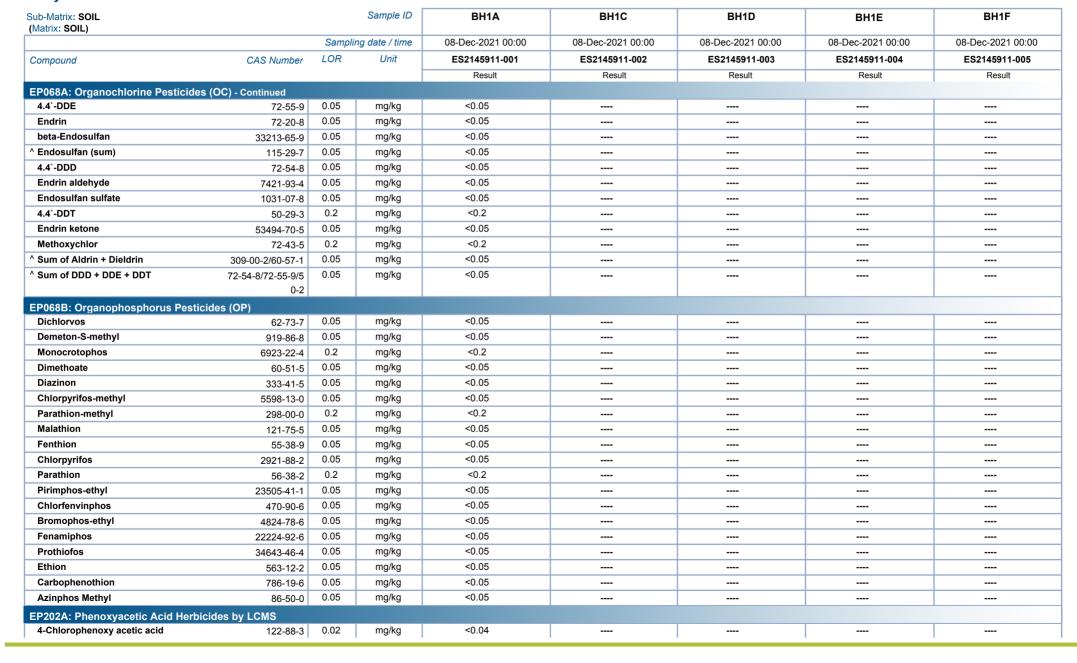




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

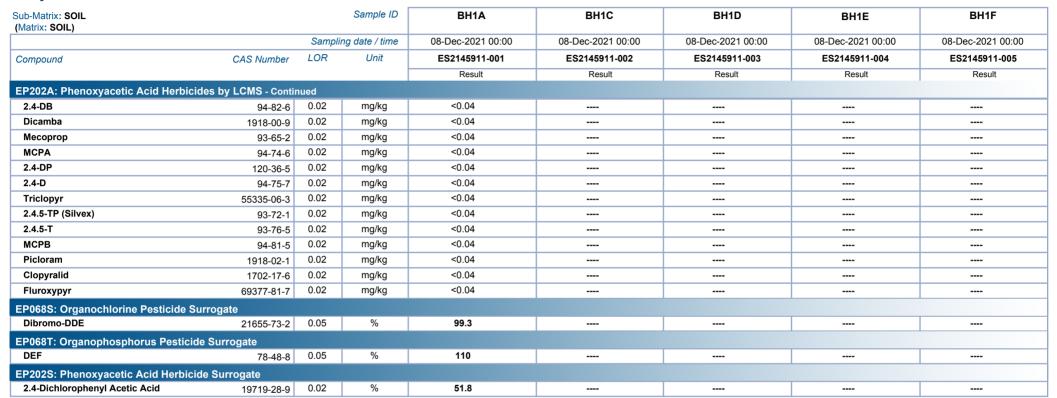




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

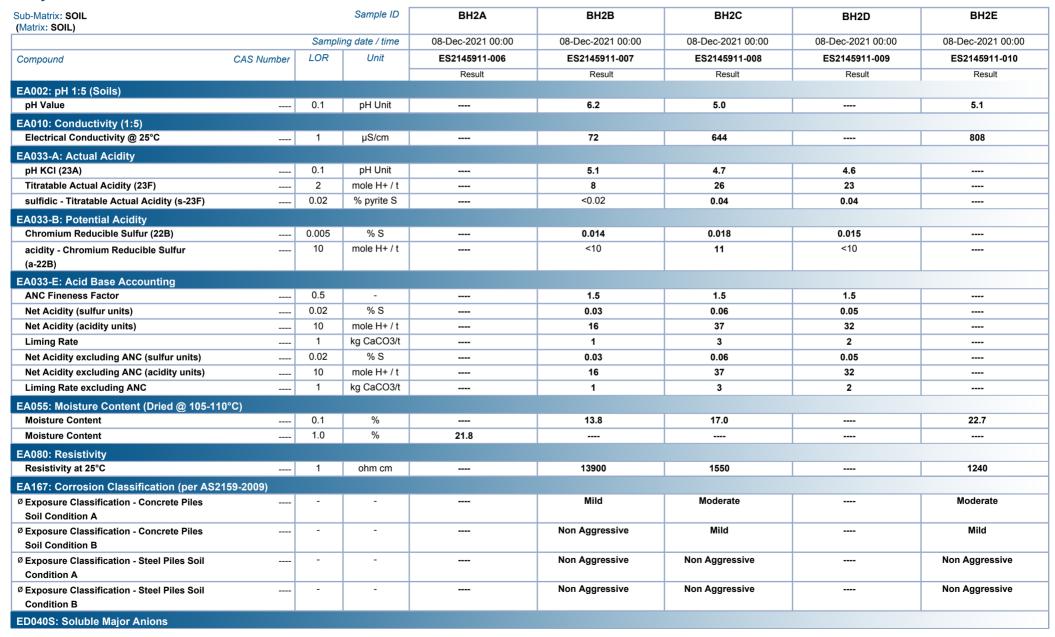




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Client : ROBERT CARR & ASSOCIATES P/L

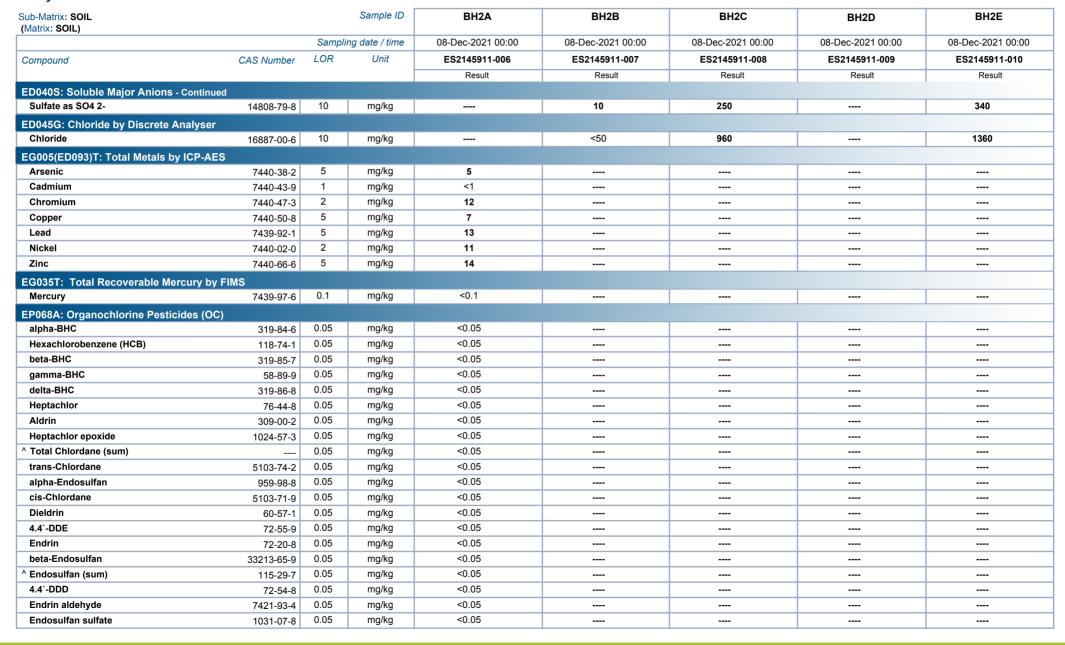
Project : 15737



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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

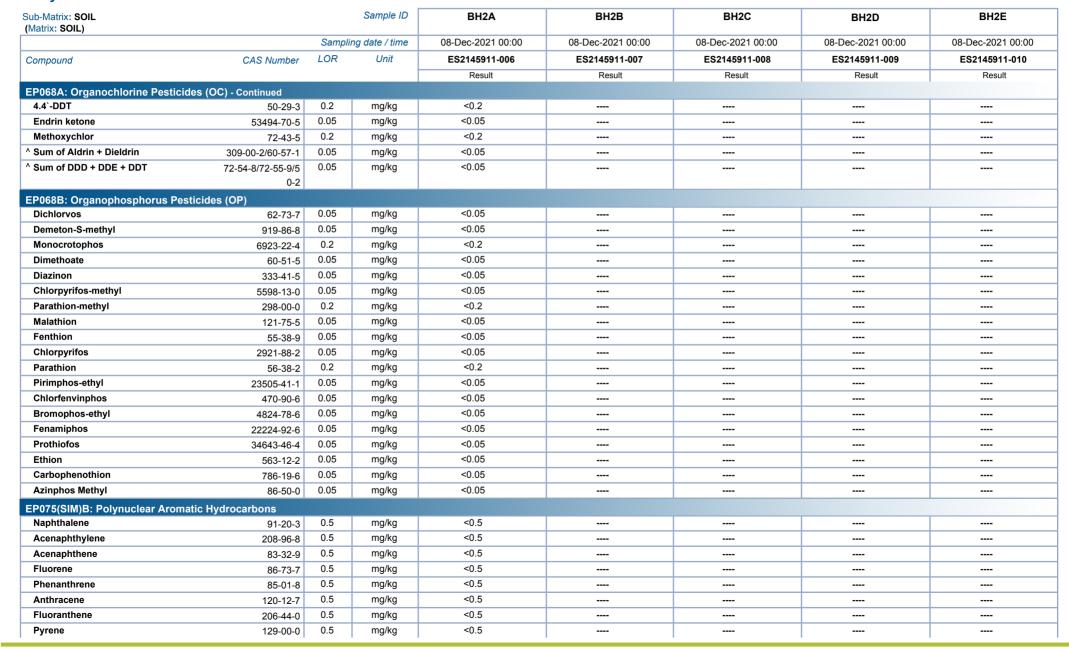




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

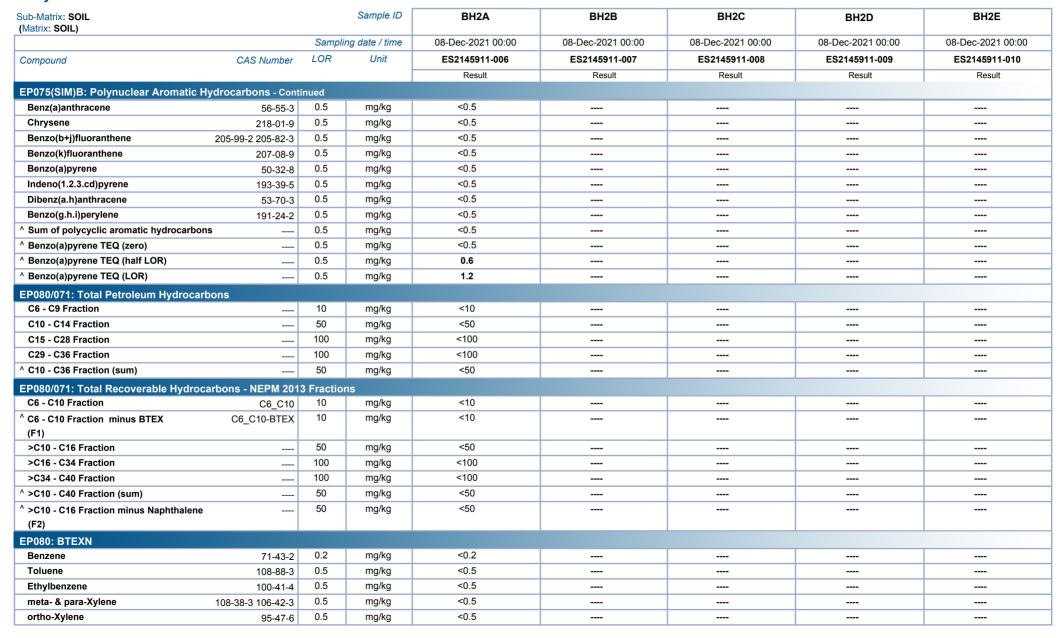




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

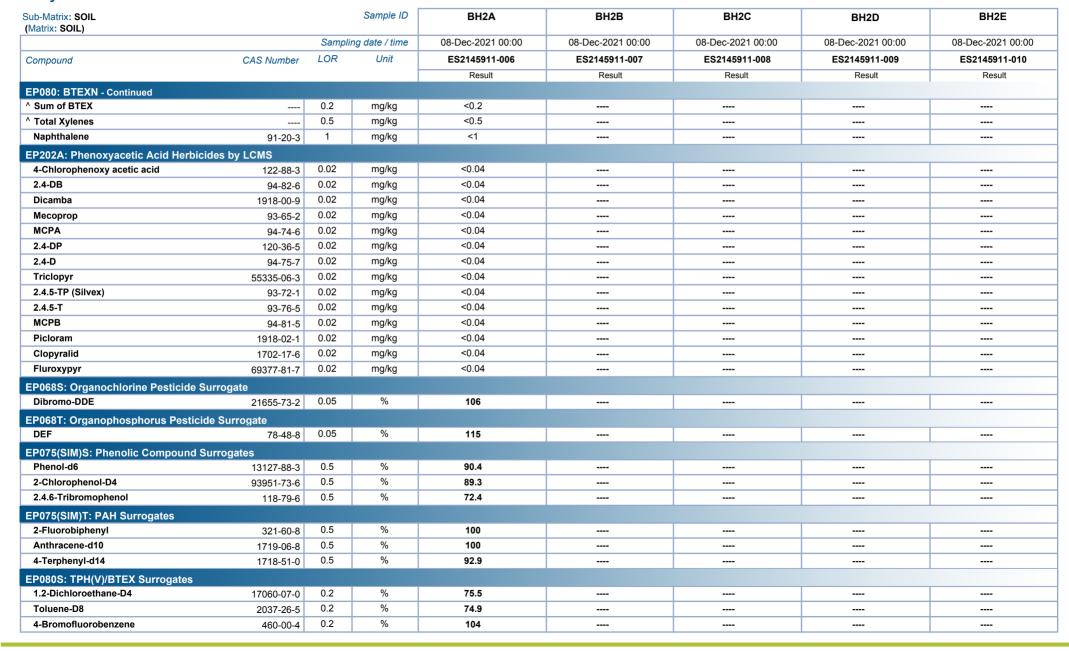




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

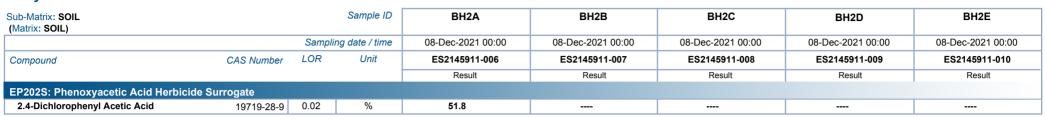




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

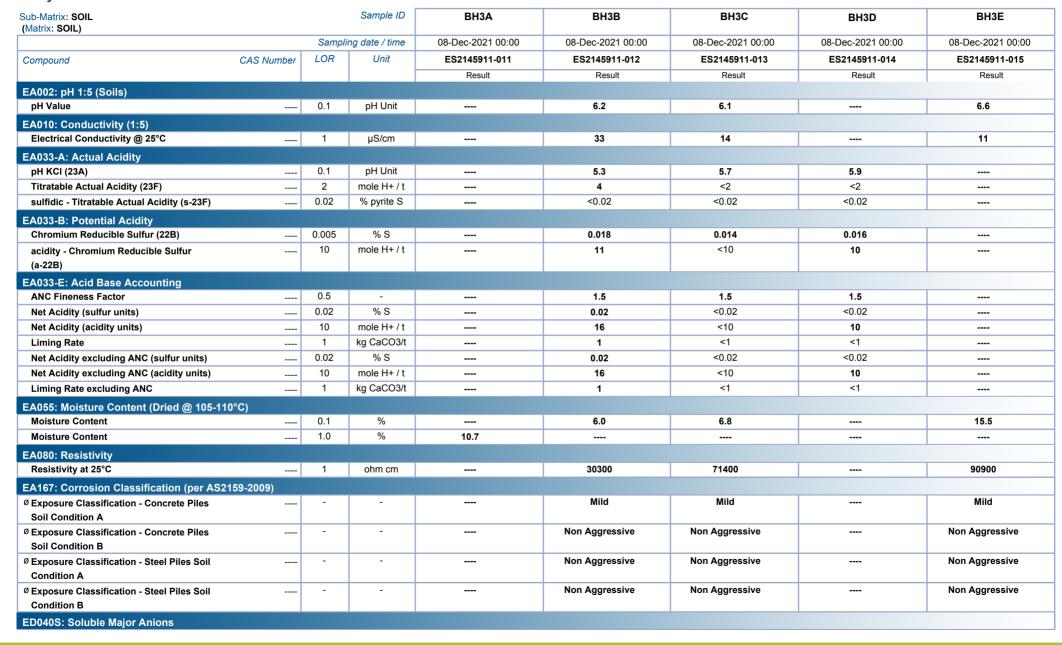




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

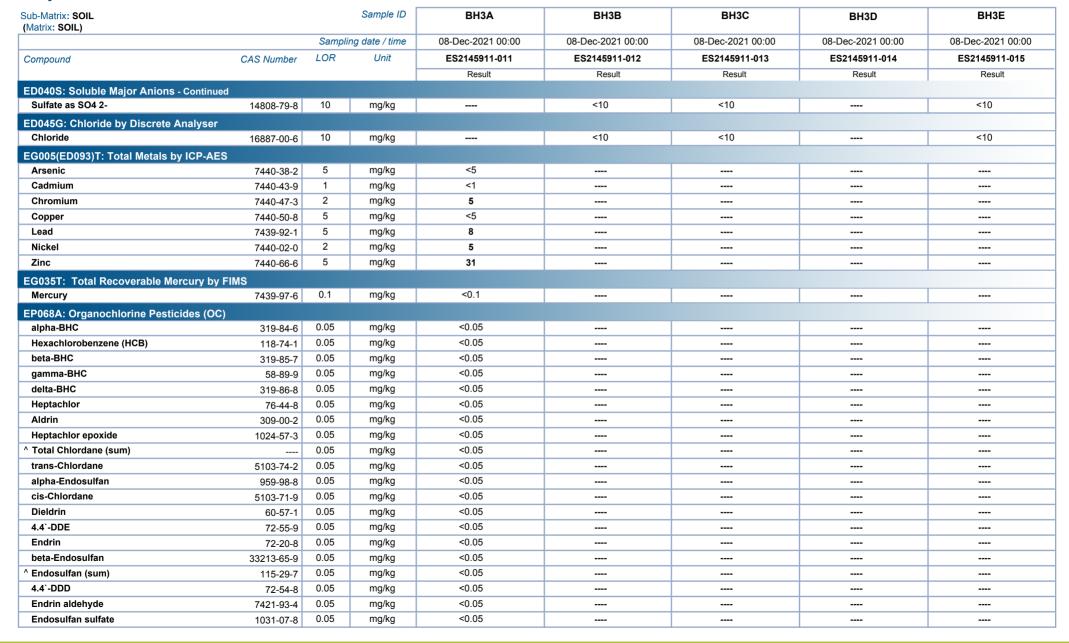




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

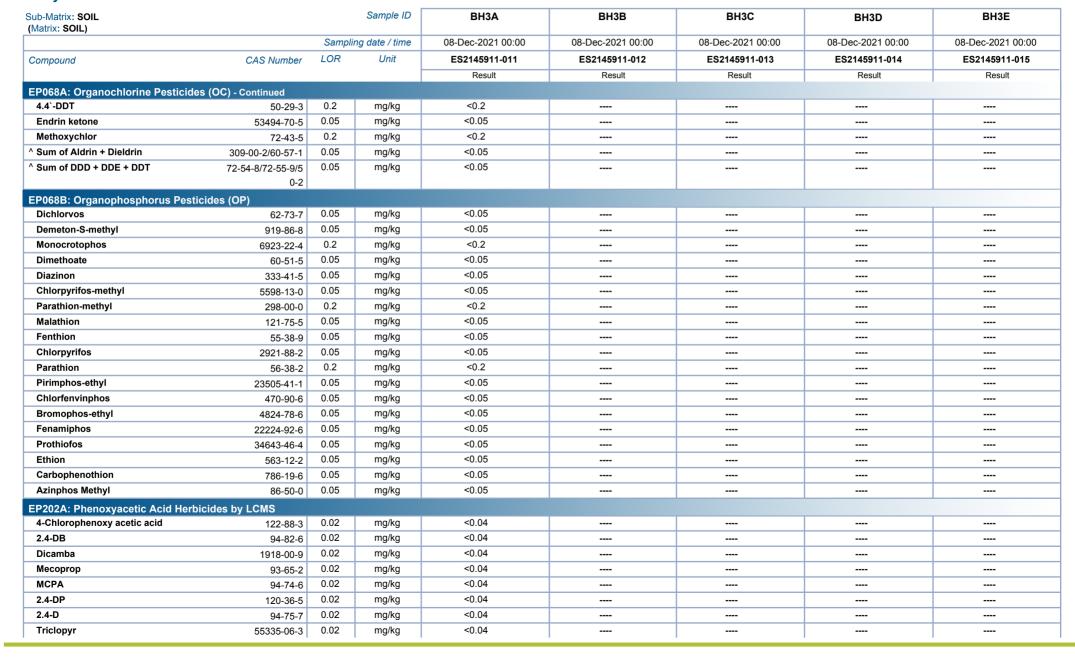




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Project : 15737





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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ВН3F	 	
		Sampli	ng date / time	08-Dec-2021 00:00	 	
Compound	CAS Number	LOR	Unit	ES2145911-016	 	
				Result	 	
EA002: pH 1:5 (Soils)						
pH Value		0.1	pH Unit	6.8	 	
EA010: Conductivity (1:5)						
Electrical Conductivity @ 25°C		1	μS/cm	12	 	
EA055: Moisture Content (Dried @ 105-1	10°C)					
Moisture Content		0.1	%	16.0	 	
EA080: Resistivity						
Resistivity at 25°C		1	ohm cm	83300	 	
EA167: Corrosion Classification (per AS2	2159-2009)					
Ø Exposure Classification - Concrete Piles		-	-	Mild	 	
Soil Condition A						
Ø Exposure Classification - Concrete Piles		-	-	Non Aggressive	 	
Soil Condition B				N A		
Ø Exposure Classification - Steel Piles Soil Condition A		-	-	Non Aggressive	 	
Ø Exposure Classification - Steel Piles Soil Condition B		-	-	Non Aggressive	 	
ED040S: Soluble Major Anions						
Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	 	
ED045G: Chloride by Discrete Analyser						
Chloride	16887-00-6	10	mg/kg	<10	 	

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ED045G: Chloride by Discrete Analyser

16887-00-6

mg/L

17

Chloride

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Project : 15737



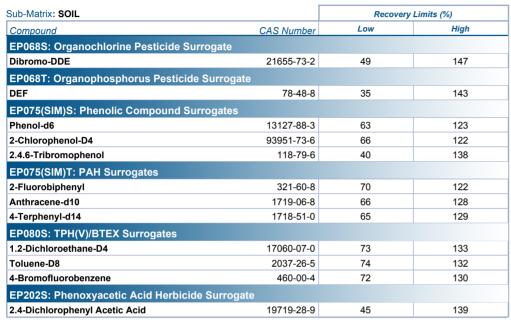


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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Surrogate Control Limits



Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA033-B: Potential Acidity

(SOIL) EA033-C: Acid Neutralising Capacity

(SOIL) EA033-D: Retained Acidity (SOIL) EA033-A: Actual Acidity

(SOIL) EA033-E: Acid Base Accounting





QUALITY CONTROL REPORT

· ES2145911 Work Order Page : 1 of 14

Client : Environmental Division Sydney : ROBERT CARR & ASSOCIATES P/L Laboratory

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address Address : 92 HILL STREET : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61 02 4902 9200 Telephone : +61-2-8784 8555

Project : 15737 Date Samples Received : 15-Dec-2021 Order number **Date Analysis Commenced** : 20-Dec-2021 : ----· 31-Dec-2021 C-O-C number Issue Date

Sampler : CONNOR DAVIES

Site

No. of samples received

Quote number : SYBQ/400/21

: 17 Accredited for compliance with No. of samples analysed : 17

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

Accreditation No. 825

ISO/IEC 17025 - Testing

This Quality Control Report contains the following information:

Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits

CARRINGTON NSW 2294

- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

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

Signatories	Position	Accreditation Category
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW

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Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

ALS

Laboratorii Dunlinata (DUD) Donort

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL						Laboratory I	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: To	tal Metals by ICP-AES (C	QC Lot: 4097704)							
ES2146346-056	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	8	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	26	25	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	31	28	11.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	98	100	2.6	0% - 20%
EP2115445-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	22	17	29.4	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	8	6	28.6	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	9	11	21.8	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	6	14.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	188	# 276	37.9	0% - 20%
EA002: pH 1:5 (Soil	s) (QC Lot: 4097711)								
ES2145911-016	BH3F	EA002: pH Value		0.1	pH Unit	6.8	6.9	0.0	0% - 20%
ES2145911-002	BH1C	EA002: pH Value		0.1	pH Unit	5.6	5.2	7.1	0% - 20%
EA010: Conductivit	y (1:5) (QC Lot: 4097714)								
ES2145911-002	BH1C	EA010: Electrical Conductivity @ 25°C		1	μS/cm	716	702	2.0	0% - 20%
EA033-A: Actual Ac	idity (QC Lot: 4093657)								
EM2125727-003	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCI (23A)		0.1	pH Unit	7.1	6.6	6.9	0% - 20%

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory I	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA033-A: Actual Ac	idity (QC Lot: 40936	657) - continued							
ES2145911-014	BH3D	EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCI (23A)		0.1	pH Unit	5.9	5.9	0.0	0% - 20%
EA033-B: Potential	Acidity (QC Lot: 409	93657)							
EM2125727-003	Anonymous	EA033: Chromium Reducible Sulfur (22B)		0.005	% S	0.022	0.019	16.2	No Limit
		EA033: acidity - Chromium Reducible Sulfur		10	mole H+ / t	14	12	16.2	No Limit
		(a-22B)							
ES2145911-014	BH3D	EA033: Chromium Reducible Sulfur (22B)		0.005	% S	0.016	0.019	14.2	No Limit
		EA033: acidity - Chromium Reducible Sulfur		10	mole H+ / t	10	12	14.2	No Limit
		(a-22B)							
EA055: Moisture Co	ontent (Dried @ 105-	110°C) (QC Lot: 4094422)							
ES2145911-003	BH1D	EA055: Moisture Content		0.1	%	21.2	21.4	0.9	0% - 20%
ES2146505-001	Anonymous	EA055: Moisture Content		0.1	%	21.4	24.5	13.4	0% - 20%
ED040S: Soluble Ma	aior Anions (QC Lot	: 4097712)							
ES2145911-002	BH1C	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	530	590	10.4	0% - 20%
ED045G: Chloride b	y Discrete Analyser								
ES2145911-016	BH3F		16887-00-6	10	ma/ka	<10	<10	0.0	No Limit
ES2145911-010	BH1C	ED045G: Chloride	16887-00-6	10	mg/kg mg/kg	920	910	0.0	0% - 20%
		ED045G: Chloride	10007-00-0	10	Ilig/kg	920	910	0.0	0 /0 - 20 /0
		FIMS (QC Lot: 4097705)	7,100,07,0		,,	0.4	0.4		N. 1. 1
ES2146346-056	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP2115445-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochi	orine Pesticides (OC	C) (QC Lot: 4090209)							
ES2146342-031	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory I	Duplicate (DUP) Report	:	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochi	orine Pesticides (OC	(QC Lot: 4090209) - continued							
ES2146342-031	Anonymous	EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2146342-023	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	0.12	0.08	35.1	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	0.15	0.11	29.9	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organopho	osphorus Pesticides	(OP) (QC Lot: 4090209)							
ES2146342-031	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
	, , , , , ,	EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		LI JOO. LUIIOII	303 12 2	0.00	פיייפייי	.0.00	.0.00	0.0	THO EITHE

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory	Duplicate (DUP) Repor	t	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organopho	sphorus Pesticides	(OP) (QC Lot: 4090209) - continued							
ES2146342-031	Anonymous	EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
ES2146342-023	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
	EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polyn	uclear Aromatic Hyd	drocarbons (QC Lot: 4090211)							
ES2146342-031	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
	, monymous	EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fyrerie EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		El 0/0(olivi). Delizo(b) jilidolalitilelle	205-82-3	0.0		0.0	3.0	3.0	Lilling
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		Li 0/3(311/1). Illuctio(1.2.3.00)pyrette	100 00 0	0.0	פיישייי	-0.0	-0.0	0.0	110 Lillin

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polyr	nuclear Aromatic Hyd	rocarbons (QC Lot: 4090211) - continued							
ES2146342-031	Anonymous	EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic		0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		hydrocarbons							
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2146342-023	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	0.6	<0.5	24.7	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.8	0.6	26.6	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.7	0.6	18.8	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic		0.5	mg/kg	2.1	1.2	54.5	No Limit
		hydrocarbons							
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Pe	etroleum Hydrocarbo	ns (QC Lot: 4090210)							
ES2146342-023	Anonymous	EP071: C15 - C28 Fraction		100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction		100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction		50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Pe	etroleum Hydrocarbo	ns (QC Lot: 4094716)							
ES2145498-013	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit
ES2146590-001	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit
	-	pons - NEPM 2013 Fractions (QC Lot: 4090210)							
ES2146342-023	Anonymous	EP071: >C16 - C34 Fraction		100	mg/kg	<100	<100	0.0	No Limit
LUZ 17007Z-UZU	, alonymous	EP071: >C16 - C34 Fraction EP071: >C34 - C40 Fraction		100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction		50	mg/kg	<50	<50	0.0	No Limit
ED000/074: Tatal Da	vaaraala Hudussad				ilig/ilig		-00	0.0	140 Ellilli
		oons - NEPM 2013 Fractions (QC Lot: 4094716)	00.040	40		-40	-40	0.0	Nie I toots
ES2145498-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2146590-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory I	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC	Lot: 4094716)								
ES2145498-013	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		·	106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	3	2	0.0	No Limit
ES2146590-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP202A: Phenoxyao	cetic Acid Herbicides b	oy LCMS (QC Lot: 4092042)							
EB2136905-001	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
EP2115445-003	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL						Laboratory I	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP202A: Phenoxya	cetic Acid Herbicides by LC	MS (QC Lot: 4092042) - continued							
EP2115445-003	Anonymous	EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit
Sub-Matrix: WATER						Laboratory I	Duplicate (DUP) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA005P: pH by PC	Fitrator (QC Lot: 4087984)								
ES2146165-001	Anonymous	EA005-P: pH Value		0.01	pH Unit	7.71	7.77	8.0	0% - 20%
ES2146095-002	Anonymous	EA005-P: pH Value		0.01	pH Unit	7.61	7.41	2.7	0% - 20%
EA010P: Conductiv	ity by PC Titrator (QC Lot: 4	4087985)							
ES2146165-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	2300	2290	0.3	0% - 20%
ES2146512-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	633	631	0.2	0% - 20%
ES2146095-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	9200	9270	8.0	0% - 20%
ES2146429-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	7430	7510	1.1	0% - 20%
EW2105437-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	398	397	0.0	0% - 20%
ED041G: Sulfate (Tu	urbidimetric) as SO4 2- by D	A (QC Lot: 4091187)							
ES2145911-017	BH3 GROUNDWATER	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	28	28	0.0	0% - 20%
ES2146346-079	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	10	10	0.0	0% - 50%
ED045G: Chloride b	y Discrete Analyser (QC Lo	ot: 4091188)							
ES2145911-017	BH3 GROUNDWATER	ED045G: Chloride	16887-00-6	1	mg/L	17	17	0.0	0% - 50%
ES2146346-079	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	94	94	0.0	0% - 20%

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 40977	04)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	94.6	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	81.5	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	102	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.6	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	93.8	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	85.6	66.0	133	
EA010: Conductivity (1:5) (QCLot: 4097714)									
EA010: Electrical Conductivity @ 25°C		1	μS/cm	<1	1412 μS/cm	106	92.0	108	
EA033-A: Actual Acidity (QCLot: 4093657)									
EA033: pH KCI (23A)			pH Unit		4.4 pH Unit	102	91.0	107	
EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	<2	19 mole H+ / t	80.3	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	<0.02					
EA033-B: Potential Acidity (QCLot: 4093657)									
EA033: Chromium Reducible Sulfur (22B)		0.005	% S	<0.005	0.246 % S	93.7	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)		10	mole H+ / t	<10					
EA033-D: Retained Acidity (QCLot: 4093657)									
EA033: Net Acid Soluble Sulfur (20Je)		0.02	% S	<0.02					
EA033: acidity - Net Acid Soluble Sulfur (a-20J)		10	mole H+ / t	<10					
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)		0.02	% pyrite S	<0.02					
EA033: KCI Extractable Sulfur (23Ce)		0.02	% S	<0.02	0.03595 % S	92.1	70.0	128	
EA033: HCl Extractable Sulfur (20Be)		0.02	% S	<0.02	0.696 % S	95.8	70.0	120	
ED040S: Soluble Major Anions (QCLot: 4097712)									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	95.5	80.0	120	
ED045G: Chloride by Discrete Analyser (QCLot: 4097713	3)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	93.6	75.0	125	
				<10	5000 mg/kg	103	79.0	117	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 40	097705)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	80.2	70.0	125	
EP068A: Organochlorine Pesticides (OC) (QCLot: 40902	09)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	67.0	119	

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL				Method Blank (MB)		Laboratory Control Spike (LC	oratory Control Spike (LCS) Report		
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
lethod: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
P068A: Organochlorine Pesticides (OC) (Q	CLot: 4090209) - continued								
P068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.0	68.0	116	
P068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	89.1	65.0	117	
P068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	67.0	115	
P068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	69.0	115	
P068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	92.3	62.0	118	
P068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	91.4	63.0	117	
P068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.9	66.0	116	
P068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.6	64.0	116	
P068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	66.0	116	
P068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	67.0	115	
P068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	67.0	123	
P068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	93.7	69.0	115	
P068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	69.0	121	
P068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.1	56.0	120	
P068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.1	62.0	124	
P068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	86.7	66.0	120	
P068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	94.7	64.0	122	
P068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	87.3	54.0	130	
P068B: Organophosphorus Pesticides (OP)	(QCLot: 4090209)								
P068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	80.4	59.0	119	
P068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	128	
P068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	79.6	54.0	126	
P068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	67.0	119	
P068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	70.0	120	
P068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	72.0	120	
P068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.8	68.0	120	
P068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.3	68.0	122	
P068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.8	69.0	117	
P068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	76.0	118	
P068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	81.6	64.0	122	
P068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	70.0	116	
P068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	69.0	121	
P068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	78.8	66.0	118	
P068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	68.0	124	
P068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	62.0	112	
P068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	84.5	68.0	120	
P068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	65.0	127	
P068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	74.0	41.0	123	

Page : 11 of 14 Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	(QCLot: 4090211) - coi	ntinued							
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	104	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	88.4	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	97.0	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	105	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	98.4	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	106	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	106	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	91.7	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	99.7	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	86.8	68.0	116	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.6	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	81.3	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	87.4	61.0	121	
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	87.7	62.0	118	
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	83.7	63.0	121	
EP080/071: Total Petroleum Hydrocarbons (QCLot	: 4090210)								
EP071: C10 - C14 Fraction		50	mg/kg	<50	300 mg/kg	104	75.0	129	
EP071: C15 - C28 Fraction		100	mg/kg	<100	450 mg/kg	104	77.0	131	
EP071: C29 - C36 Fraction		100	mg/kg	<100	300 mg/kg	105	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot	: 4094716)								
EP080: C6 - C9 Fraction		10	mg/kg	<10	26 mg/kg	76.5	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEP	M 2013 Fractions (OCL)	ot: 4090210)							
EP071: >C10 - C16 Fraction		50	mg/kg	<50	375 mg/kg	108	77.0	125	
EP071: >C16 - C34 Fraction		100	mg/kg	<100	525 mg/kg	103	74.0	138	
EP071: >C34 - C40 Fraction		100	mg/kg	<100	225 mg/kg	104	63.0	131	
EP080/071: Total Recoverable Hydrocarbons - NEP	M 2013 Fractions (OCL	ot: 4094716)	3 3		3 3				
EP080: C6 - C10 Fraction	C6 C10	10	mg/kg	<10	31 mg/kg	77.9	68.4	128	
	00_010	10	mg/kg	110	o i nig/kg	11.0	00.4	120	
EP080: BTEXN (QCLot: 4094716)	71-43-2	0.2	m a // ca	<0.2	1 ma//ca	79.1	62.0	116	
EP080: Benzene	108-88-3	0.2	mg/kg	<0.2	1 mg/kg 1 mg/kg	81.5	67.0	121	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5		80.0	65.0	121	
EP080: Ethylbenzene		0.5	mg/kg	<0.5	1 mg/kg 2 mg/kg	83.7	66.0	117	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	\0. 0	Z IIIg/kg	03.1	00.0	110	
ED000: ortho Vylono	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	84.2	68.0	120	
EP080: ortho-Xylene	91-20-3	1	mg/kg	<1	1 mg/kg	99.3	63.0	119	
EP080: Naphthalene	91-20-3	· ·	mg/kg	- 1	i ilig/kg	99.0	00.0	118	

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Sub-Matrix: SOIL				Method Blank (MB)		Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Acceptable Limits (%		
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EP202A: Phenoxyacetic Acid Herbicides by LCM	S (QCLot: 4092042) - cont	tinued							
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	71.7	54.4	128	
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	66.5	45.5	130	
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	62.1	51.7	135	
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	69.8	60.0	130	
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	66.5	56.8	131	
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	62.4	50.0	141	
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	74.0	68.5	131	
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	67.5	50.8	141	
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	67.3	40.8	126	
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	70.9	57.4	139	
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	61.4	38.9	137	
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	61.1	48.7	129	
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	54.6	49.4	106	
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	70.4	53.2	128	
Sub-Matrix: WATER			Method Blank (MB)		Laboratory Control Spike (LCS) Report				
Nation Water				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EA005P: pH by PC Titrator (QCLot: 4087984)									
EA005-P: pH Value			pH Unit		4 pH Unit	99.2	98.8	101	
P			·		7 pH Unit	99.6	99.2	101	
EA010P: Conductivity by PC Titrator (QCLot: 40	87985)								
EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	<1	220 µS/cm	93.7	91.1	107	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				<1	2100 μS/cm	94.5	93.2	108	
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	(QCLot: 4091187)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	103	82.0	122	
				<1	500 mg/L	105	82.0	122	
ED045G: Chloride by Discrete Analyser (QCLot:	4091188)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	95.1	80.9	127	
				<1	1000 mg/L	94.8	80.9	127	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Matrix Spike (MS) Report				
				SpikeRecovery(%)	Acceptable i	Limits (%)		
Laboratory sample ID Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High		
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4097704)								

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Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L



ub-Matrix: SOIL					Matrix Spike (MS) Report					
				Spike	SpikeRecovery(%)	Acceptable	Limits (%)			
aboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High			
G005(ED093)T: T	otal Metals by ICP-AES (QCLot: 4097704) - continu	ed								
EP2115445-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130			
		EG005T: Cadmium	7440-43-9	50 mg/kg	90.2	70.0	130			
		EG005T: Chromium	7440-47-3	50 mg/kg	84.4	68.0	132			
		EG005T: Copper	7440-50-8	250 mg/kg	104	70.0	130			
		EG005T: Lead	7439-92-1	250 mg/kg	91.5	70.0	130			
		EG005T: Nickel	7440-02-0	50 mg/kg	87.4	70.0	130			
		EG005T: Zinc	7440-66-6	250 mg/kg	98.4	66.0	133			
D045G: Chloride	by Discrete Analyser (QCLot: 4097713)									
ES2145911-002	BH1C	ED045G: Chloride	16887-00-6	250 mg/kg	119	70.0	130			
G035T: Total Red	coverable Mercury by FIMS (QCLot: 4097705)									
EP2115445-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	91.2	70.0	130			
P068A: Organoch	lorine Pesticides (OC) (QCLot: 4090209)									
ES2146342-023	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	85.7	70.0	130			
	, anonymous	EP068: Heptachlor	76-44-8	0.5 mg/kg	77.7	70.0	130			
		EP068: Aldrin	309-00-2	0.5 mg/kg	78.8	70.0	130			
		EP068: Dieldrin	60-57-1	0.5 mg/kg	82.8	70.0	130			
		EP068: Endrin	72-20-8	2 mg/kg	80.1	70.0	130			
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	82.9	70.0	130			
P068B: Organoph	nosphorus Pesticides (OP) (QCLot: 4090209)									
S2146342-023	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	96.2	70.0	130			
02110012 020	a tronymous	EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	77.6	70.0	130			
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	74.4	70.0	130			
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	80.6	70.0	130			
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	79.5	70.0	130			
P075(SIM)B: Poly	nuclear Aromatic Hydrocarbons (QCLot: 4090211)	El 666. I localisto		3 3						
ES2146342-023	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	99.2	70.0	130			
	, anonymous	EP075(SIM): Pyrene	129-00-0	10 mg/kg	109	70.0	130			
P080/071: Total P	etroleum Hydrocarbons (QCLot: 4090210)	Zi dro(dim). 1 fione		- 3 3						
S2146342-023	Anonymous	EP071: C10 - C14 Fraction		480 mg/kg	84.8	73.0	137			
102140042 020	Attoriymous	EP071: C15 - C28 Fraction		3100 mg/kg	95.3	53.0	131			
		EP071: C13 - C26 Fraction		2060 mg/kg	104	52.0	132			
P080/071: Total P	etroleum Hydrocarbons (QCLot: 4094716)	Li 071. 029 - 030 i i actioni		2000 mg/kg	104	02.0	102			
S2145498-013	Anonymous	EP080: C6 - C9 Fraction		32.5 mg/kg	78.8	70.0	130			
				52.5 mg/ng	70.0	7 0.0	100			
ES2146342-023	ecoverable Hydrocarbons - NEPM 2013 Fractions (960 ma/le	96.2	72.0	107			
ESZ 14034Z-UZ3	Anonymous	EP071: >C10 - C16 Fraction		860 mg/kg	86.2	73.0	137			
		EP071: >C16 - C34 Fraction		4320 mg/kg	97.8	53.0	131			

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL				Ma	atrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Acceptable	Limits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP080/071: Total	Recoverable Hydrocarbons - NEPM 2013 Fractions(QC	Lot: 4090210) - continued					
ES2146342-023	Anonymous	EP071: >C34 - C40 Fraction		890 mg/kg	107	52.0	132
EP080/071: Total	Recoverable Hydrocarbons - NEPM 2013 Fractions (QC	Lot: 4094716)					
ES2145498-013	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	74.6	70.0	130
EP080: BTEXN (C	QCLot: 4094716)						
ES2145498-013 Ar	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	80.4	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	81.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	83.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	81.7	70.0	130
			106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	84.4	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	93.8	70.0	130
EP202A: Phenoxy	racetic Acid Herbicides by LCMS (QCLot: 4092042)						
EB2136905-001	Anonymous	EP202: Mecoprop	93-65-2	0.1 mg/kg	69.2	60.0	140
		EP202: MCPA	94-74-6	0.1 mg/kg	67.5	57.0	143
		EP202: 2.4-D	94-75-7	0.1 mg/kg	71.0	68.0	139
		EP202: Triclopyr	55335-06-3	0.1 mg/kg	63.9	51.0	145
		EP202: 2.4.5-T	93-76-5	0.1 mg/kg	66.4	57.0	142
		EP202: Picloram	1918-02-1	0.1 mg/kg	58.3	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	56.1	49.0	149
Sub-Matrix: WATER				Ма	atrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Acceptable	Limits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 4091187)						
		ED0440: Culfata as CO4 Turbidirectric	14808-79-8	10 mg/L	87.2	70.0	130
ES2145911-017	BH3 GROUNDWATER	ED041G: Sulfate as SO4 - Turbidimetric	11000 10 0	10g/ =	- · · · · · · · · · · · · · · · · · · ·		
	BH3 GROUNDWATER by Discrete Analyser (QCLot: 4091188)	ED041G: Sulfate as S04 - Furbidimetric	11000 70 0	10 1119/2	V	. 0.0	.00



QA/QC Compliance Assessment to assist with Quality Review

Work Order : **ES2145911** Page : 1 of 11

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

 Contact
 : MS FIONA BROOKER
 Telephone
 : +61-2-8784 8555

 Project
 : 15737
 Date Samples Received
 : 15-Dec-2021

 Site
 : --- Issue Date
 : 31-Dec-2021

Sampler : CONNOR DAVIES No. of samples received : 17
Order number :---- No. of samples analysed : 17

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- Duplicate outliers exist please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

• Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers: Frequency of Quality Control Samples

NO Quality Control Sample Frequency Outliers exist.

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	EP2115445001	Anonymous	Zinc	7440-66-6	37.9 %	0% - 20%	RPD exceeds LOR based limits

Outliers : Analysis Holding Time Compliance

Matrix: SOIL

Method		Ex	traction / Preparation		Analysis			
Container / Client Sample ID(s)		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue	
EA002: pH 1:5 (Soils)								
Snap Lock Bag								
BH2A		29-Dec-2021	15-Dec-2021	14				
Soil Glass Jar - Unpreserved								
BH1C,	BH1D,	29-Dec-2021	15-Dec-2021	14				
BH1E,	BH2B,							
BH2C,	внзв,							
BH3C,	BH3E,							
BH3F								
EA010: Conductivity (1:5)								
Snap Lock Bag								
BH2A		29-Dec-2021	15-Dec-2021	14				
Soil Glass Jar - Unpreserved								
BH1C,	BH1D,	29-Dec-2021	15-Dec-2021	14				
BH1E,	BH2B,							
BH2C,	внзв,							
BH3C,	BH3E,							
BH3F								
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved								
BH1A,	BH2A,	24-Dec-2021	22-Dec-2021	2				
BH3A								
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved								
BH1A,	BH2A,	24-Dec-2021	22-Dec-2021	2				
BH3A								
EP075(SIM)B: Polynuclear Aromatic Hydro	ocarbons							
Soil Glass Jar - Unpreserved								
BH2A		24-Dec-2021	22-Dec-2021	2				
EP080/071: Total Petroleum Hydrocarbons	s							
Soil Glass Jar - Unpreserved								
BH2A		24-Dec-2021	22-Dec-2021	2				
EP080/071: Total Recoverable Hydrocarbo	ons - NEPM 2013 Fractions							
21 000/01 1. Total Recoverable Hydrocarbe	SHO HEL WI EUTO I TUCCIONS							

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Matrix: SOIL								
Method			Extraction / Preparation	1	Analysis			
Container / Client Sample ID(s)		Date extrac	Date extracted			Due for analysis	Days	
				overdue			overdue	
EP080/071: Total Recoverable Hydroca	arbons - NEPM 2013 Fractions - Analysis Holding Time							
Soil Glass Jar - Unpreserved								
BH2A		24-Dec-20	21 22-Dec-2021	2				
EP202A: Phenoxyacetic Acid Herbicide	es by LCMS							
Soil Glass Jar - Unpreserved								
BH1A,	BH2A,	29-Dec-20	21 22-Dec-2021	7				
BH3A								

Matrix:	WATER

Method	Extraction / Preparation Ana			Analysis		
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days	Date analysed	Due for analysis	Days
			overdue			overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
BH3 GROUNDWATER				20-Dec-2021	08-Dec-2021	12

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive <u>or</u> Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: **x** = Holding time breach ; ✓ = Within holding time

Matrix: SOIL						Evaluation	i. 🗸 – Holding time	e breach, 🗸 = with	in notaling tim
Method		Sample Date	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)				Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)									
Snap Lock Bag (EA002)									
BH2A			08-Dec-2021	29-Dec-2021	15-Dec-2021	*	29-Dec-2021	29-Dec-2021	✓
Soil Glass Jar - Unpreserved (EA002)									
BH1C,	BH1D,		08-Dec-2021	29-Dec-2021	15-Dec-2021	æ	29-Dec-2021	29-Dec-2021	✓
BH1E,	BH2B,								
BH2C,	BH3B,								
BH3C,	BH3E,								
BH3F									

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Matrix: SOIL					Evaluation	n: 🗴 = Holding time	breach ; ✓ = Withi	n holding time
Method		Sample Date	Ex	traction / Preparation		Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA010: Conductivity (1:5)								
Snap Lock Bag (EA010)								
BH2A		08-Dec-2021	29-Dec-2021	15-Dec-2021	<u>\$£</u>	29-Dec-2021	26-Jan-2022	✓
Soil Glass Jar - Unpreserved (EA010				45.5			00 1 0000	
BH1C,	BH1D,	08-Dec-2021	29-Dec-2021	15-Dec-2021	<u>\$c</u>	29-Dec-2021	26-Jan-2022	✓
BH1E,	BH2B,							
BH2C,	BH3B,							
BH3C,	BH3E,							
BH3F								
EA033-A: Actual Acidity								
Snap Lock Bag - frozen (EA033)								
BH1C,	BH1D,	08-Dec-2021	23-Dec-2021	08-Dec-2022	✓	23-Dec-2021	23-Mar-2022	✓
BH1E,	BH1F,							
BH2B,	BH2C,							
BH2D,	BH3B,							
BH3C,	BH3D							
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033)								
BH1C,	BH1D,	08-Dec-2021	23-Dec-2021	08-Dec-2022	✓	23-Dec-2021	23-Mar-2022	✓
BH1E,	BH1F,							
BH2B,	BH2C,							
BH2D,	внзв,							
BH3C,	BH3D							
EA033-C: Acid Neutralising Capacit	y							
Snap Lock Bag - frozen (EA033)								
BH1C,	BH1D,	08-Dec-2021	23-Dec-2021	08-Dec-2022	✓	23-Dec-2021	23-Mar-2022	✓
BH1E,	BH1F,							
BH2B,	BH2C,							
BH2D,	BH3B,							
BH3C,	BH3D							
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033)								
BH1C,	BH1D,	08-Dec-2021	23-Dec-2021	08-Dec-2022	✓	23-Dec-2021	23-Mar-2022	✓
BH1E,	BH1F,							
BH2B,	BH2C,							
BH2D,	BH3B,							
BH3C,	BH3D							

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Matrix: SOIL					Evaluation	n: × = Holding time	breach ; ✓ = With	n holding time	
Method		Sample D	ite I	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA033-E: Acid Base Accounting									
Snap Lock Bag - frozen (EA033)									
BH1C,	BH1D,	08-Dec-2	21 23-Dec-2021	08-Dec-2022	1	23-Dec-2021	23-Mar-2022	✓	
BH1E,	BH1F,								
BH2B,	BH2C,								
BH2D,	BH3B,								
BH3C,	BH3D								
EA055: Moisture Content (Dried @ 105-110°C)									
Snap Lock Bag (EA055)									
BH2A		08-Dec-2	21			22-Dec-2021	22-Dec-2021	✓	
Soil Glass Jar - Unpreserved (EA055)									
BH1A,	BH1C,	08-Dec-2	21			22-Dec-2021	22-Dec-2021	✓	
BH1D,	BH1E,								
BH2A,	BH2B,								
BH2C,	BH3A,								
внзв,	BH3C,								
BH3E,	BH3F								
ED040S: Soluble Major Anions									
Snap Lock Bag (ED040S)									
BH2A		08-Dec-2	21 29-Dec-2021	05-Jan-2022	✓	29-Dec-2021	26-Jan-2022	✓	
Soil Glass Jar - Unpreserved (ED040S)				0.5 1 0000			00 1 0000		
BH1C,	BH1D,	08-Dec-2	21 29-Dec-2021	05-Jan-2022	✓	29-Dec-2021	26-Jan-2022	✓	
BH1E,	BH2B,								
BH2C,	BH3B,								
BH3C,	BH3E,								
BH3F									
ED045G: Chloride by Discrete Analyser									
Snap Lock Bag (ED045G)		20 P 0	00 0 0004	05 1 0000		00 0 0004	00 1 0000		
BH2A		08-Dec-2	21 29-Dec-2021	05-Jan-2022	✓	29-Dec-2021	26-Jan-2022	✓	
Soil Glass Jar - Unpreserved (ED045G)	DUAD	08-Dec-2	21 29-Dec-2021	05-Jan-2022		29-Dec-2021	26-Jan-2022		
BH1C,	BH1D,	00-Dec-20	21 29-Dec-2021	05-Jan-2022	✓	29-Dec-2021	20-Jan-2022	✓	
BH1E,	BH2B,								
BH2C,	BH3B,								
BH3C,	BH3E,								
BH3F									
EG005(ED093)T: Total Metals by ICP-AES							I	I	
Soil Glass Jar - Unpreserved (EG005T)	DUOA	08-Dec-2	21 24-Dec-2021	06-Jun-2022		29-Dec-2021	06-Jun-2022		
BH1A,	BH2A,	08-Dec-20	24-Dec-2021	00-3011-2022	✓	29-Dec-2021	00-Juli-2022	✓	
ВНЗА									
EG035T: Total Recoverable Mercury by FIMS								I	
Soil Glass Jar - Unpreserved (EG035T)	BH3A	08-Dec-2	21 24-Dec-2021	05-Jan-2022	1	29-Dec-2021	05-Jan-2022		
BH1A,	BH2A,	08-Dec-20	24-060-2021	00-0011-2022	_	29-066-2021	05-5611-2022	✓	
BH3A									

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Matrix: SOIL					Evaluation	: × = Holding time	breach ; ✓ = With	in holding time.
Method		Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) BH1A, BH3A	BH2A,	08-Dec-2021	24-Dec-2021	22-Dec-2021	<u>se</u>	29-Dec-2021	02-Feb-2022	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) BH1A, BH3A	BH2A,	08-Dec-2021	24-Dec-2021	22-Dec-2021	se.	29-Dec-2021	02-Feb-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbo	ons							
Soil Glass Jar - Unpreserved (EP075(SIM)) BH2A		08-Dec-2021	24-Dec-2021	22-Dec-2021	¥	29-Dec-2021	02-Feb-2022	✓
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) BH2A		08-Dec-2021	22-Dec-2021	22-Dec-2021	1	22-Dec-2021	22-Dec-2021	✓
Soil Glass Jar - Unpreserved (EP071) BH2A		08-Dec-2021	24-Dec-2021	22-Dec-2021	<u>se</u>	29-Dec-2021	02-Feb-2022	✓
EP080/071: Total Recoverable Hydrocarbons - N	NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) BH2A		08-Dec-2021	22-Dec-2021	22-Dec-2021	✓	22-Dec-2021	22-Dec-2021	1
Soil Glass Jar - Unpreserved (EP071) BH2A		08-Dec-2021	24-Dec-2021	22-Dec-2021	生	29-Dec-2021	02-Feb-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) BH2A		08-Dec-2021	22-Dec-2021	22-Dec-2021	✓	22-Dec-2021	22-Dec-2021	✓
EP202A: Phenoxyacetic Acid Herbicides by LCI	MS							
Soil Glass Jar - Unpreserved (EP202) BH1A, BH3A	BH2A,	08-Dec-2021	29-Dec-2021	22-Dec-2021	<u>\$£</u>	29-Dec-2021	07-Feb-2022	✓
Matrix: WATER				'	Evaluation	· × = Holding time	breach ; ✓ = With	in holding time
Method		Sample Date	Ex	traction / Preparation	Evaluation	Tiolding time	Analysis	in nording time
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator								1
Clear Plastic Bottle - Natural (EA005-P) BH3 GROUNDWATER		08-Dec-2021				20-Dec-2021	08-Dec-2021	×
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P) BH3 GROUNDWATER		08-Dec-2021				20-Dec-2021	05-Jan-2022	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by D	Α							
Clear Plastic Bottle - Natural (ED041G) BH3 GROUNDWATER		08-Dec-2021				21-Dec-2021	05-Jan-2022	✓
							1	

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Matrix: WATER				Evaluation	: × = Holding time	breach ; ✓ = Withi	n holding time.
Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) BH3 GROUNDWATER	08-Dec-2021				21-Dec-2021	05-Jan-2022	√

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**Evaluation: ★ = Quality Control frequency not within specification; ✓ = Quality Control frequency within specification.

	Co	ount		D-4- (0/)		
		unt		Rate (%)		Quality Control Specification
Method	OC	Reaular	Actual	Expected	Evaluation	
ED045G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EA033	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EA010	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
ED040S	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EA055	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EP075(SIM)	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EP068	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EA002	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EP202	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EG035T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EG005T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EP071	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EP080	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
ED045G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
EA033	1	20	5.00	5.00	√	NEPM 2013 B3 & ALS QC Standard
EA010	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
ED040S	1	10	10.00	5.00	√	NEPM 2013 B3 & ALS QC Standard
EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EP068	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EP202	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
ED045G	1	10	10.00	5.00	1	NEPM 2013 B3 & ALS QC Standard
EA033	1	20	5.00	5.00	<u> </u>	NEPM 2013 B3 & ALS QC Standard
EA010	1	10	10.00	5.00		NEPM 2013 B3 & ALS QC Standard
ED040S	1	10	10.00	5.00		NEPM 2013 B3 & ALS QC Standard
EP075(SIM)	1	17	5.88	5.00	1	NEPM 2013 B3 & ALS QC Standard
EP068	1	12	8.33	5.00	<u> </u>	NEPM 2013 B3 & ALS QC Standard
EP202	1	20	5.00	5.00	<u>√</u>	NEPM 2013 B3 & ALS QC Standard
EG035T	1	18	5.56	5.00		NEPM 2013 B3 & ALS QC Standard
EG005T	1	18	5.56	5.00	√	NEPM 2013 B3 & ALS QC Standard
EP071	1	7	14.29	5.00	<u> </u>	NEPM 2013 B3 & ALS QC Standard
	EA033 EA010 ED040S EA055 EP075(SIM) EP068 EA002 EP202 EG035T EG005T EP071 EP080 ED045G EA010 ED040S EP075(SIM) EP068 EP022 EG35T EG005T EP071 EP080	EA033 2 EA010 1 ED040S 1 EA055 2 EP075(SIM) 2 EP068 2 EA002 2 EP202 2 EG035T 2 EP071 1 EP080 2 EA010 1 ED040S 1 EP075(SIM) 1 EP068 1 EP075(SIM) 1 EP068 1 EP071 1 EP080 1 EP075(SIM) 1 EP068 1 EP071 1 EP068 1 EP071 1 EP080 1 EP075(SIM) 1 EP068 1 EP071 1 EP071 1 EP080 1 EP071 1 EP080 1 EP071 1 EP080 1	EA033	EA033 2 20 10.00 EA010 1 10 10.00 ED040S 1 10 10.00 ED040S 1 10 10.00 EA055 2 15 13.33 EP075(SIM) 2 17 11.76 EP068 2 12 16.67 EA002 2 14 14.29 EP202 2 20 10.00 EG035T 2 18 11.11 EG005T 2 18 11.11 EP071 1 7 14.29 EP080 2 11 18.18 ED045G 2 10 20.00 EA033 1 20 5.00 EA010 1 10 10.00 EP075(SIM) 1 17 5.88 EP068 1 12 8.33 EP202 1 20 5.00 EG035T 1 18 5.56 EG005T 1 18 5.56 EP071 1 7 14.29 EP080 1 11 9.09 ED040S 1 10 10.00 EP075(SIM) 1 17 5.88 EP068 1 12 8.33 EP202 1 20 5.00 EA033 1 20 5.00 EA035T 1 18 5.56 EP071 1 7 14.29 EP080 1 11 9.09	EA033	EA033 2 20 10.00 10.00 \$\forall \text{EA010}\$ 1 10 10 10.00 \$\forall \text{EA010}\$ 1 10 10 10.00 \$\forall \text{ED040S}\$ 1 10 10.00 \$\forall \text{ED040S}\$ 1 10 10.00 \$\forall \text{ED040S}\$ 2 15 13.33 10.00 \$\forall \text{EP075(SIM)}\$ 2 17 11.76 10.00 \$\forall \text{EP068}\$ 2 12 16.67 10.00 \$\forall \text{EP068}\$ 2 12 16.67 10.00 \$\forall \text{EP068}\$ 2 12 14 14.29 10.00 \$\forall \text{EP020}\$ 2 20 10.00 10.00 \$\forall \text{EP035T}\$ 2 18 11.11 10.00 \$\forall \text{EG035T}\$ 2 18 11.11 10.00 \$\forall \text{EP071}\$ 1 7 14.29 10.00 \$\forall \text{EP071}\$ 1 7 14.29 10.00 \$\forall \text{EP080}\$ 2 11 18.18 10.00 \$\forall \text{EP080}\$ 2 11 18.18 10.00 \$\forall \text{EP080}\$ 2 11 18.18 5.50 \$\forall \text{EP040S}\$ 1 10 10.00 5.00 \$\forall \text{EP068}\$ 1 12 8.33 5.00 \$\forall \text{EP068}\$ 1 12 8.33 5.00 \$\forall \text{EP068}\$ 1 18 5.56 5.00 \$\forall \text{EP069ST}\$ 1 18 5.56 5.00 \$\forall \text{EP080}\$ 1 10 10.00 5.00 \$\forall \text{EP080}\$ 1 18 5.56 5.00 \$\forall \text{EP080}\$ 1 10 10.00 5.00 \$\forall \text{EP080}\$ 1 11 9.09 5.00 \$\forall \text{EP080}\$ 1 10 10.00 5.00 \$\forall \text{EP080}\$ 1 11 50.00 5.00 \$\forall \text{EP080}\$ 1 11 50.00 5.00 \$\forall \text{EP080}\$ 1 11 50.00 5.00 \$\forall \text{EP080}\$ 1 10 10.00 5.00 \$\forall \text{EP080}\$ 1 11 50.00 5.00 \$\forall \text{EP080}\$ 1 11 50.00 5.00 \$\forall \text{EP080}\$ 1 10 10.00 5.00 \$\forall \text{EP080}\$ 1

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Matrix: SOIL				Evaluatio	n: × = Quality Co	ontrol frequency	not within specification ; ✓ = Quality Control frequency within specification
Quality Control Sample Type		C	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued							
TRH Volatiles/BTEX	EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix: WATER				Evaluatio	n: × = Quality Co	ontrol frequency	not within specification; ✓ = Quality Control frequency within specificatio
Quality Control Sample Type		C	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	5	47	10.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
				1			

Analytical Methods	Metriod	QC	Redular	Actual	Expected	Lvaluation	
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	5	47	10.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	4	47	8.51	8.33	✓	NEPM 2013 B3 & ALS QC Standard
pH by PC Titrator	EA005-P	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	1	47	2.13	1.67	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	1	NEPM 2013 B3 & ALS QC Standard

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Project : 15737



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-CI- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)

Page : 11 of 11
Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L



Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Resistivity	EA080	WATER	In house: Calculation from Electrical conductance
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 CI - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA seal method 2 017-1-L
Preparation Methods	Method	Matrix	Method Descriptions
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.



CHAIN OF CUSTODY

ALS Laboratory: please tick >

☐ Sydney: 277 Woodpark Rd. Smithfield NSW 2176 Ph. 02 8784 8555 E.samplas.sydney@alsenviro.com ☐ Newcastle: 5 Rosegum Rd. Warsbrook NSW 2304

☐ Brisbane: 32 Shand St. Stafford QLD 4053 Ph:07 3243 7222 E:samples.brisbane@atsenviro.com

☐ Townsville: 14-15 Desma Ct. Bable Of D 4818

□ Mclbourne 2 A Spill of Spillogs TC 807

Ph:03 3549 9800 E : samples malbourne@alseniro.com
□ Adotaide: 2-1 Explored Abstraction
□ Leuncaston: 27 Wellington St. Let no

☐ Launcaston: 27 Wellington St, La ricciston TAS 7250



dehyde Preserved Glass:

CLIENT:	RCA Australia		TUDNADO	UND REQUIREMENTS :				acsa disedistration	eli agji eli osooga	* *- *		Z 106 E. Taunceston g at	MALL COM
OFFICE:	92 Hill Street, Carrington		(Standard TA	TURNAROUND REQUIREMENTS: Standard TAT (List due date): 4/1/2022 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)				FOR LABORATORY USE ONLY (Gircle).					
RCA Ref No:	15737	-		ALS QUOTE NO.: SYBQ_400_17				COC SEQUENCE NUMBER (Circle) Free confrozen de broks present upon					
							o	:OC: 1			Ran	dom Sample Temperati	re on Receipt
PROJECT MANAGER:			T PH: 0408 687					OF: 1			*65.0°	er comment:	
SAMPLER: Connor Day			MAT (or defaul		RELINQUISHED BY:	 .	R	ECEIVED BY:				IISHED BY:	RECEIVED BY:
	nistrator@rca.com.au, fionab@rca.c		MAI (or deladi	ıy:	DATE/TIME:	رهصر	D	ATE/TIME: Y	5/12	121	QC- S) 16.12.	TI PAT NPOO"
Email Invoice to: admi				-	15/12	3-12	_ -		31.1	5,-		5/	16/12/21 71
COMMENTS/SPECIAL	HANDLING/STORAGE OR DISPO	SAL:								•			
ALS USE ONLY		LE DETAILS Solid(S) Water(W)		CONTAINER INF	ORMATION							listed to attract suite price of filtered bottle required).	Additional Information
LAB ID	SAMPLE ID	DATE	MATRIX	TYPE & PRESERVAT (refer to codes belo		Corr. Sched 2 (pH, Cl, SO4, EC, Exposure Classification)	Chromlum Reducible Sulfur Suite- Complete (EA033)	Suite 12 (OCP, OPP) + phenoxy acid herbicides	Metals 8 (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	Surte26 (TRH, BTEX, PAH, 8 metals)			Please note that where "Plastic bag / Jar" is indicated in the TYPE & PRESERVATIVE column, the plastic bag sample is relevant to the CRS testing and the jar sample is relevant to the Aggressivity testing. See below for the depth range that is written on each bagged sample corresponding to the relevant SAMPLE ID (eg. bagged sample for BH1c for CRS testing has "BH1 0.85 o. 0.55" labelled on the bag, I (eg. bagged sample for BH2e for aggressivity testing has "BH2 2.0 - 2.1" labelled on the bag.
1	BH1a	8/12/2021	Soil	Jar	1			×	x				
2	BH1c	8/12/2021	Soil	Plastic Bag / Jar	2	х	х						Bag Label: BH1 0.85 - 0.95
3	BH1d	8/12/2021	Soil	Plastic Bag / Jar	2	х	х						Bag Label: BH1 1.4 - 1.5
4	BH1e	8/12/2021	Soil	Plastic Bag / Jar	2	х	х						Bag Label: BH1 1.9 - 2.0
5	BH1f	8/12/2021	Soil	Plastic Bag	1		х						Bag Label: BH1 2.4 - 2.5
6	BH2a	8/12/2021	Soil	Jar	1			x		х			
7	BH2b	8/12/2021	Soil	Plastic Bag / Jar	2	х	х						Bag Label: BH2 0.15 - 0.25
8	BH2c	8/12/2021	Soil	Plastic Bag / Jar	2	х	х						Bag Label: BH2 1.0 - 1.1
9	BH2đ	8/12/2021	Sail	Plastic Bag	1		х						Bag Label; BH2 1.45 - 1.55
10	BH2e	8/12/2021	Soil	Plastic Bag	1	x							Bag Label: BH2 2.0 - 2.1
((ВНЗа	8/12/2021	Soil	Jar	1			х	х				
12	ВНЗЬ	8/12/2021	Soil	Plastic Bag / Jar	2	х	х				<u> </u>		Bag Label: BH3 0.15 - 0.25
(3	BH3c	8/12/2021	Soil	Plastic Bag / Jar	2	x	х			Sydn	onme: ev	ntal Division	Bag Label: BH3 0.5 - 0.6
[4	BH3d	8/12/2021	Soll	Plastic Bag	1		х			Wo	rk Orde	r Reference	Bag Label: BH3 1.0 - 1.1
\5	BH3e	8/12/2021	Soil	Plastic Bag	1	х				E	521	45911	Bag Label: BH3 1.5 - 1.6
16	BH3f	8/12/2021	Soil	Plastic Bag	1	х					i 2 11 = 8		Bag Label: BH3 1.9 - 2.0
	BH3 Groundwater	8/12/2021	Water	Plastic Bottle	1	х							
					TOTAL 24	11	10	3	2				
Water Container Codes:	P = Unpreserved Plastic; N = Nitric Prese	rved Plastic; ORC = Nitric Prese	rved ORC; SH = \$	odium Hydroxide/Cd Preserved:	S = Sodium Hydroxide Pres	erved Plastic; At	G = Ami	ber Glass Unpres	served; /				

Water Container Codes: P = Unpreserved Plastic: N = Nitric Preserved Plastic: ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Val SG = Sulfuric Preserved Amber Glass: H = HCl preserved Plastic; HS = HCl

Ta'ephode : -- 61-2-87% **A**54



CARRINGTON NSW 2294

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2145911

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address : 92 HILL STREET Address : 277-289 Woodpark Road Smithfield

NSW Australia 2164

Telephone : +61 02 4902 9200 Telephone : +61-2-8784 8555
Facsimile : +61 02 4902 9299 Facsimile : +61-2-8784 8500

Project : 15737 Page : 1 of 3

 Order number
 : --- Quote number
 : ES2017ROBCAR0004 (SYBQ/400/21)

 C-O-C number
 : --- QC Level
 : NEPM 2013 B3 & ALS QC Standard

Site : ----

Sampler : CONNOR DAVIES

Dates

Date

Delivery Details

 Mode of Delivery
 : Undefined
 Security Seal
 : Not Available

 No. of coolers/boxes
 : 1
 Temperature
 : -1.7'C - Ice present

Receipt Detail : No. of samples received / analysed : 17 / 17

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.
- Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).
- Chromium Reductable Sulfur analysis will be conducted by ALS Brisbane.
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical
 analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this
 temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS
 recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Issue Date : 20-Dec-2021

Page

2 of 3 ES2145911 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

• No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such (AS2159-2009) as the determination of moisture content and preparation tasks, that are included in the package. If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date soil on Steel & Concrete Piles is provided, the sampling date will be assumed by the metals/TRH/BTEXN/PAH Acid OIL - S-02 Metals (incl. Digestion) OIL - Corr. Schedule 2 laboratory and displayed in brackets without a time EP202(solids) henoxyacetic acids component ģ EA055-103 OC/OP Pesticides **Toisture Content** Chromium Suite Matrix: SOIL EA033 Laboratory sample Sampling date / Sample ID OIL. ID time ES2145911-001 08-Dec-2021 00:00 BH1A ES2145911-002 08-Dec-2021 00:00 BH1C ✓ ES2145911-003 08-Dec-2021 00:00 BH1D 08-Dec-2021 00:00 ES2145911-004 BH1E ✓ ES2145911-005 08-Dec-2021 00:00 BH1F 1 ES2145911-006 08-Dec-2021 00:00 1 ✓ 1 BH2A ES2145911-007 08-Dec-2021 00:00 BH2B ✓ ES2145911-008 08-Dec-2021 00:00 BH2C ✓ ES2145911-009 08-Dec-2021 00:00 BH2D ✓ / ES2145911-010 08-Dec-2021 00:00 BH2A ES2145911-011 08-Dec-2021 00:00 внза ✓ ES2145911-012 08-Dec-2021 00:00 внзв ES2145911-013 08-Dec-2021 00:00 внзс ES2145911-014 08-Dec-2021 00:00 BH3D ES2145911-015 08-Dec-2021 00:00 внзе ES2145911-016 08-Dec-2021 00:00 BH3F

Matrix: WATER <i>Laboratory sample ID</i>	Sampling date / time		WATER - EA005P pH (PCT)	WATER - EA010P Electrical Conductivity (PCT)	WATER - EA080 Resistivity	WATER - ED041G Sulfate (Turbidimetric) as SO4 2 by Discrete	WATER - ED045G Chloride by Discrete Analyser
ES2145911-017	08-Dec-2021 00:00	BH3 GROUNDWATER	✓	✓	✓	✓	✓

Proactive Holding Time Report

The following table summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory

: 20-Dec-2021 Issue Date

Page

3 of 3 ES2145911 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Matrix: SOIL	Evaluation: x = Holding time breach ; ✓	= Within holding time.
--------------	------------------------------------------------	------------------------

Method	Due for		Due for	Samples R	eceived	Instructions Received	
Client Sample ID(s)	Container	extraction	analysis	Date	Evaluation	Date	Evaluation
EA002: pH (1:5)	•	•		•			•
BH1C	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	 	17-Dec-2021	*
BH1D	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	×
BH1E	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	*
BH2A	Snap Lock Bag	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	×
BH2B	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	*
BH2C	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	×
ВН3В	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	*
ВН3С	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	×
ВН3Е	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	*
BH3F	Soil Glass Jar - Unpreserved	15-Dec-2021	15-Dec-2021	15-Dec-2021	/	17-Dec-2021	×
EA010: Electrical	Conductivity (1:5)						•
BH1C	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	*
BH1D	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	✓	17-Dec-2021	×
BH1E	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	*
BH2A	Snap Lock Bag	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	×
BH2B	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	×
BH2C	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	*
BH3B	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	×
BH3C	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	*
BH3E	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	/	17-Dec-2021	*
BH3F	Soil Glass Jar - Unpreserved	15-Dec-2021	12-Jan-2022	15-Dec-2021	1	17-Dec-2021	3c

Requested Deliverables

ADMINISTRATOR

 *AU Certificate of Analysis - NATA (COA) 	Email	administrator@rca.com.au
 *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) 	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
FIONA BROOKER		
 *AU Certificate of Analysis - NATA (COA) 	Email	fionab@rca.com.au
 *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) 	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	fionab@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	fionab@rca.com.au



CERTIFICATE OF ANALYSIS

Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L

Contact : MS FIONA BROOKER

Address : 92 HILL STREET

CARRINGTON NSW 2294

Telephone : +61 02 4902 9200

Project : 15737 Order number : ----

C-O-C number : ----

Sampler : CONNOR DAVIES

Site : ---

Quote number : SYBQ/400/21

No. of samples received : 17

No. of samples analysed : 17

Page : 1 of 16

Laboratory : Environmental Division Sydney

Contact : Juliana Gonzalez

Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555

Date Samples Received : 20-Jan-2022 15:46

Date Analysis Commenced : 21-Jan-2022

Issue Date : 28-Jan-2022 09:47



ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories Position Accreditation Category	tegory
---------------------------------------------	--------

Ankit Joshi Inorganic Chemist Sydney Inorganics, Smithfield, NSW Edwandy Fadjar Organic Coordinator Sydney Inorganics, Smithfield, NSW Edwandy Fadjar Organic Coordinator Sydney Organics, Smithfield, NSW Franco Lentini LCMS Coordinator Sydney Organics, Smithfield, NSW Ivan Taylor Analyst Sydney Inorganics, Smithfield, NSW

Page : 2 of 16 Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

General Comments

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

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

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

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

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

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

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

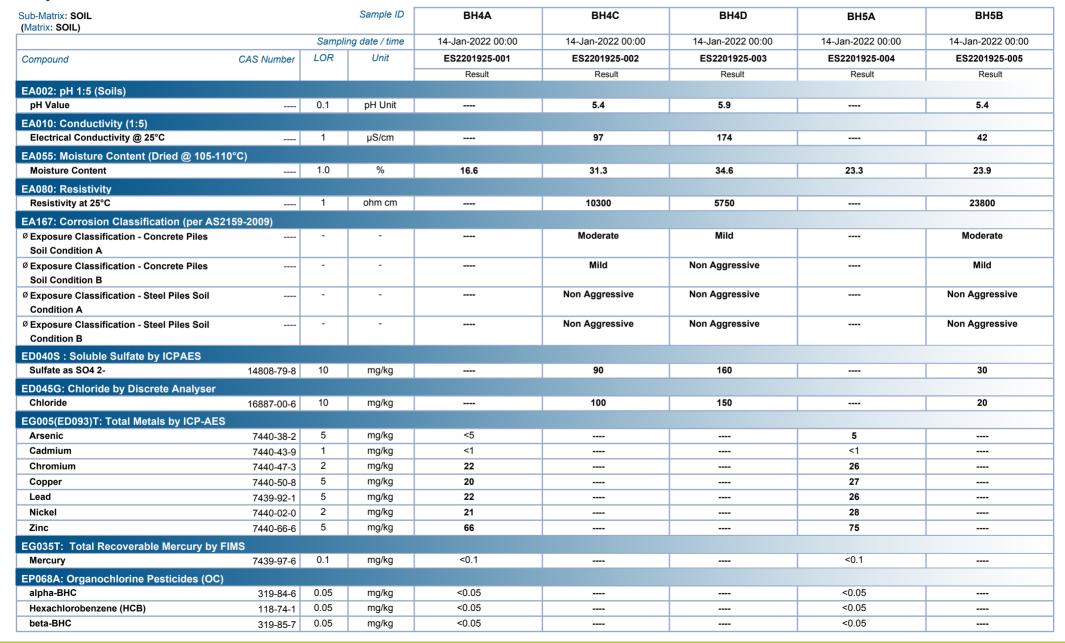
- ^ = This result is computed from individual analyte detections at or above the level of reporting
- ø = ALS is not NATA accredited for these tests.
- ~ = Indicates an estimated value.
- EP202: Poor matrix spike recovery for particular compounds due to matrix interferences. Confirmed by re preparation and re analysis.
- EP202 :Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- Corrosion assessment for Concrete and Steel piles in soil per Australian Standard AS2159-2009 uses a combination of soil and groundwater data (Tables 6.4.2 C & 6.5.2 C). In the absence of groundwater data, assessment has been made against soil criteria only. Refer to AS2159-2009 section 6.4 for further interpretation of corrosion assessment. ALS is not NATA accredited for Corrosion Assessment comments
- EA167: Soil Condition A High permeability soils (e.g. sands and gravels) which are in groundwater
- EA167: Soil Condition B Low permeability soils (e.g. silts and clays) or all soils above groundwater
- EG005T: Poor precision was obtained for Lead and Zinc on sample ES2201918 # 008. Confirmed by redigestion and reanalysis.



Page : 3 of 16 Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

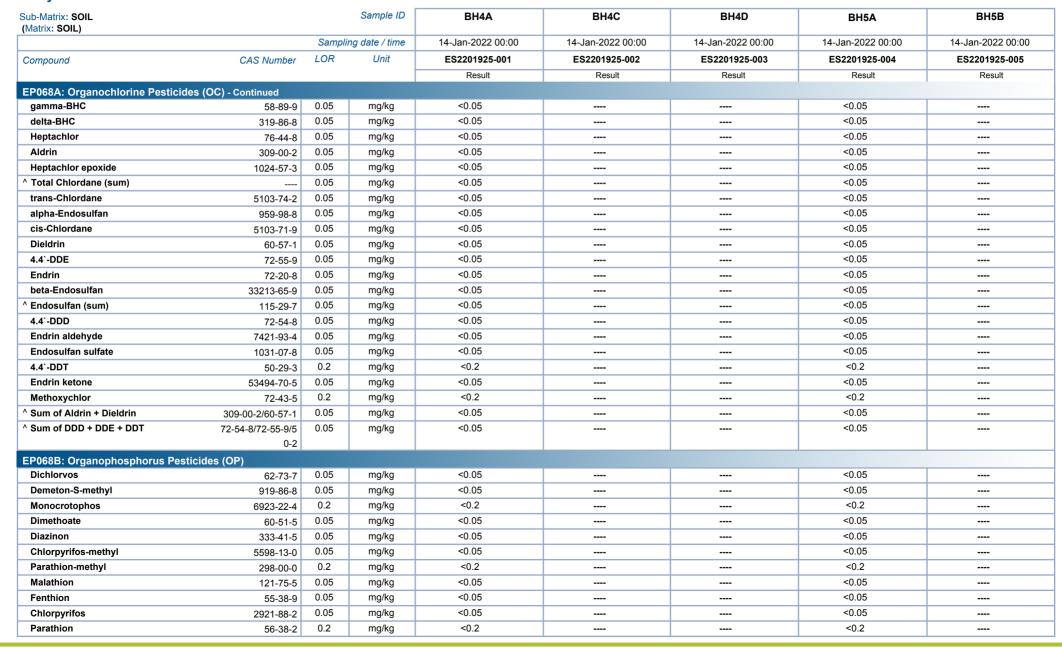




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

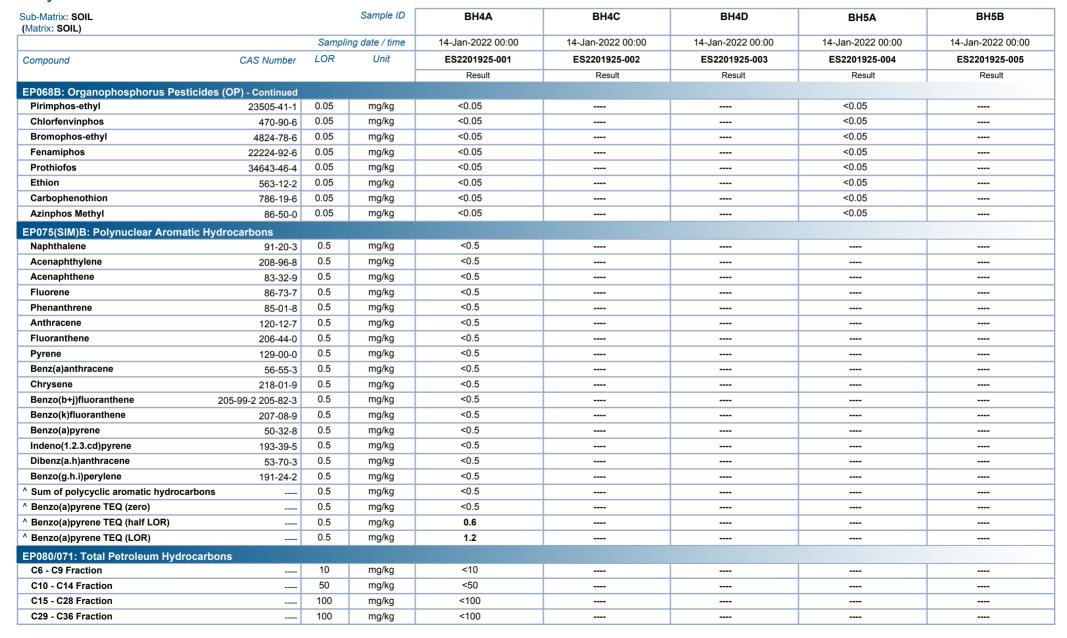




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

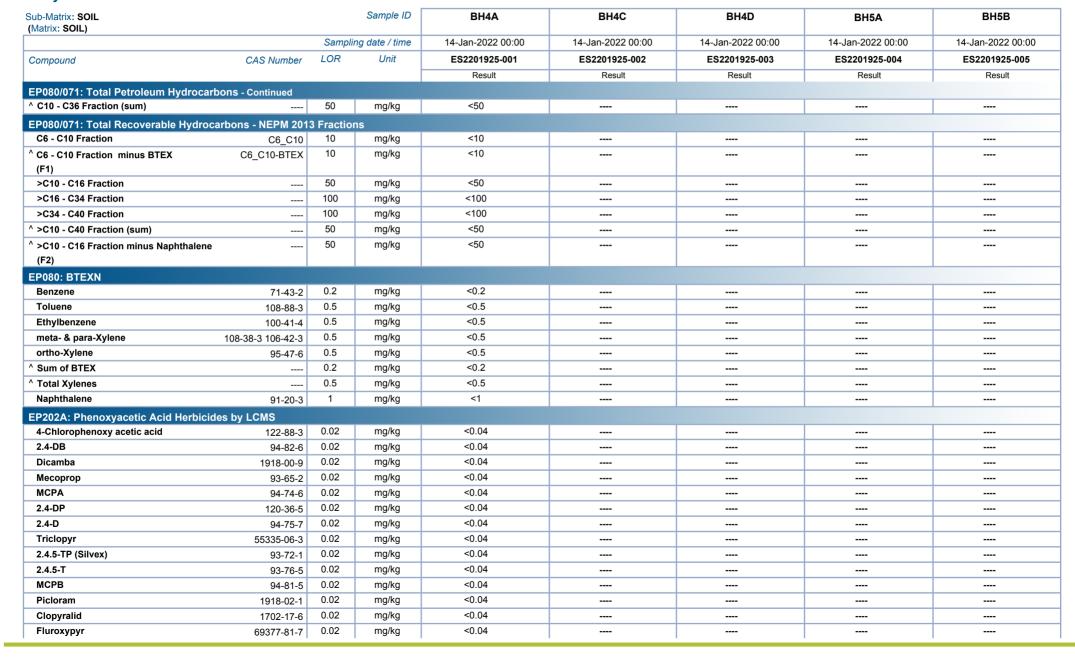




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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

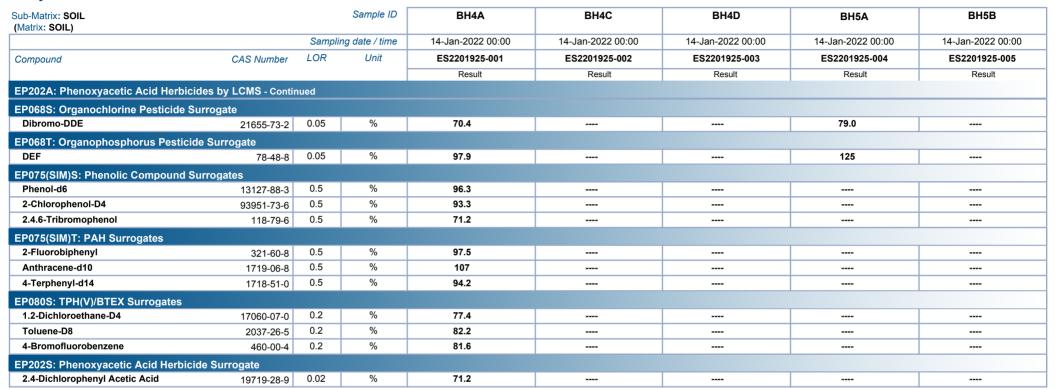




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Project : 15737

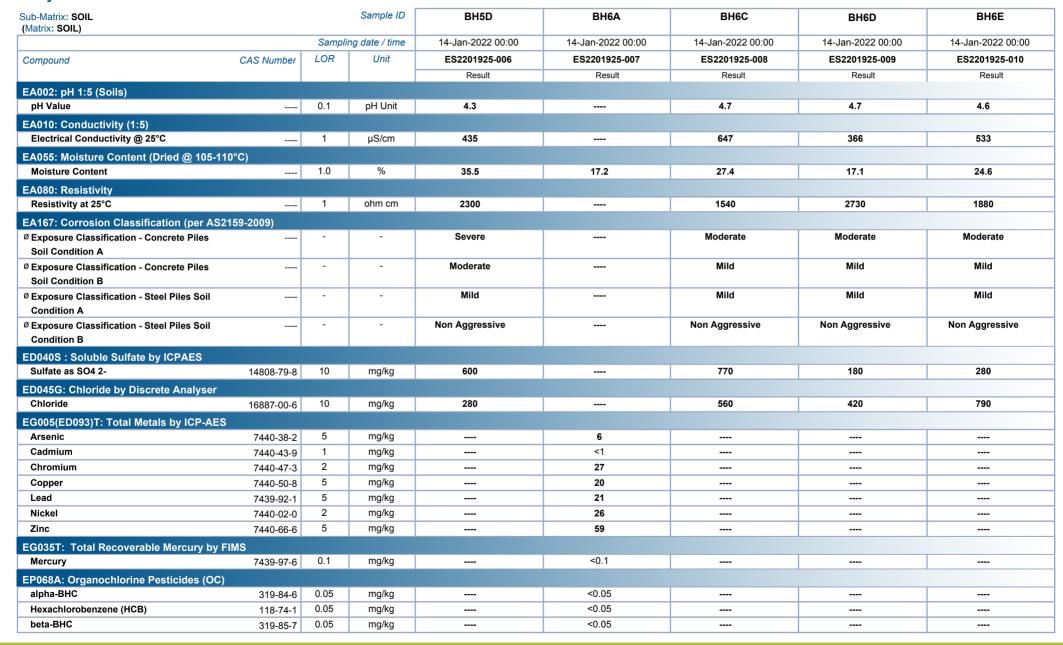




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Project : 15737

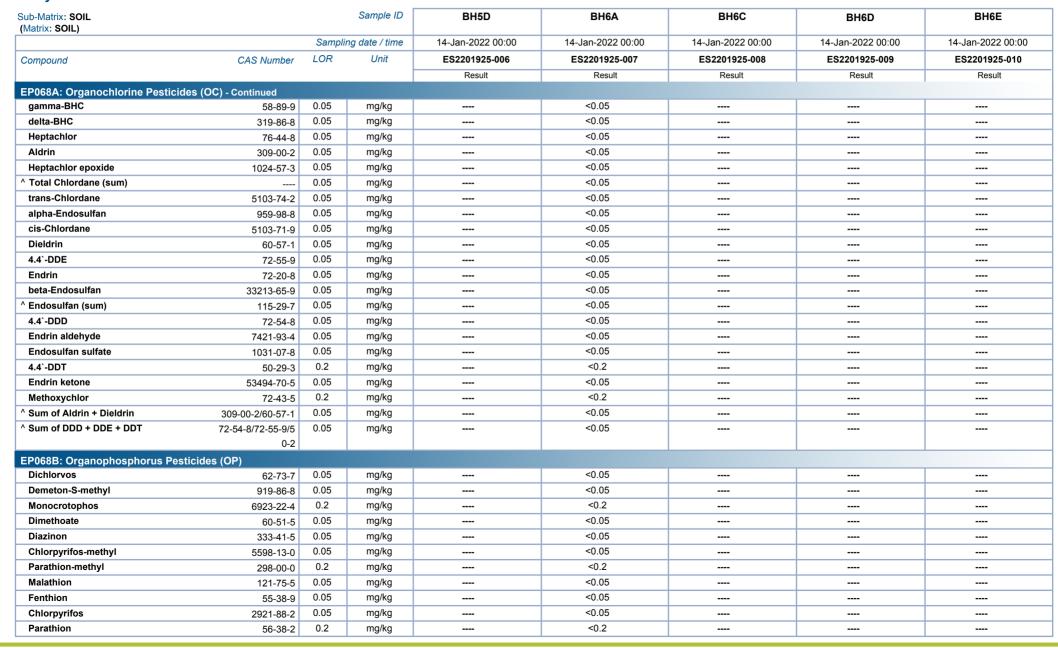




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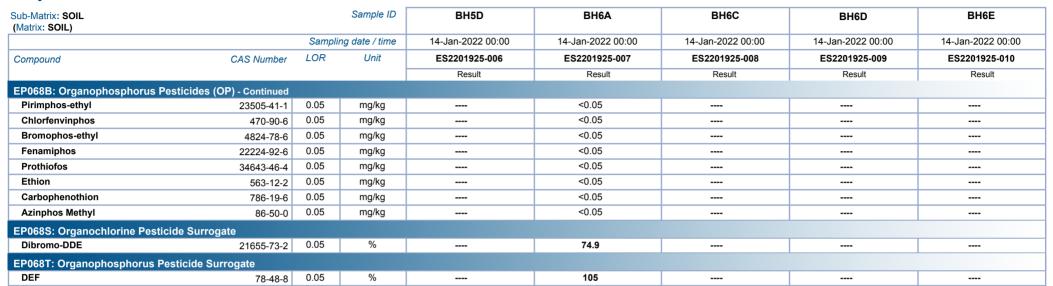




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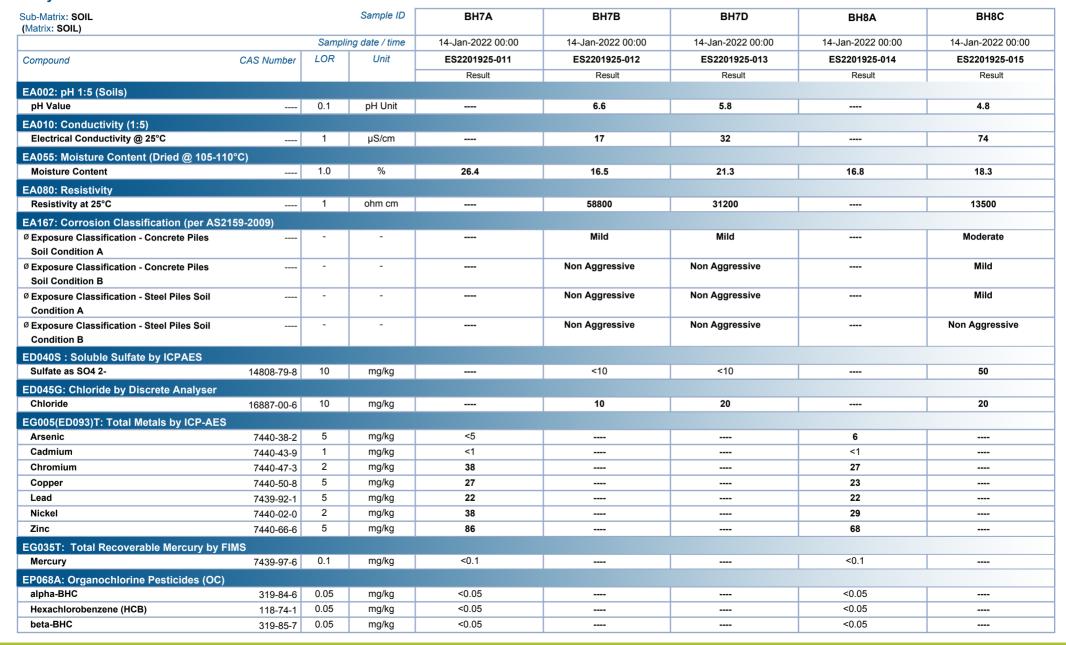




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Project : 15737

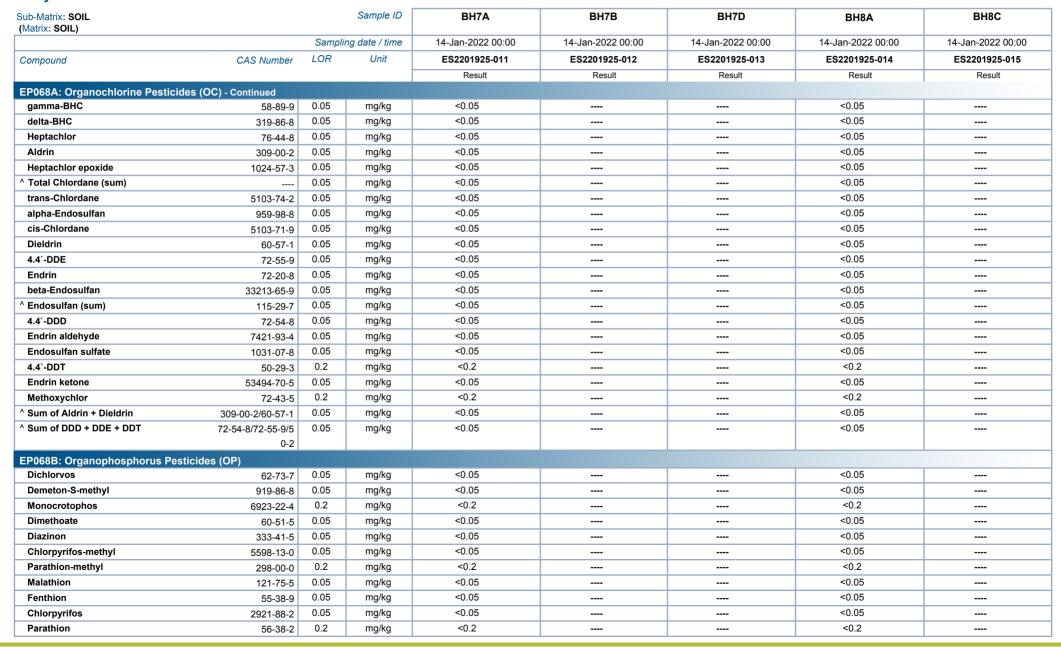




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EP068T: Organophosphorus Pesticide Surrogate

0.05

78-48-8

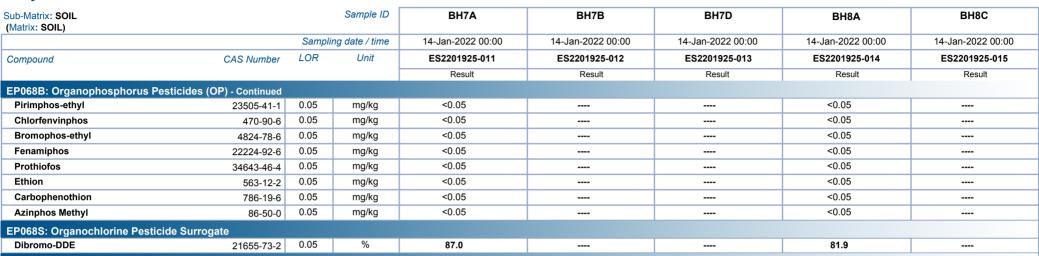
%

92.3

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Analytical Results

DEF





94.8

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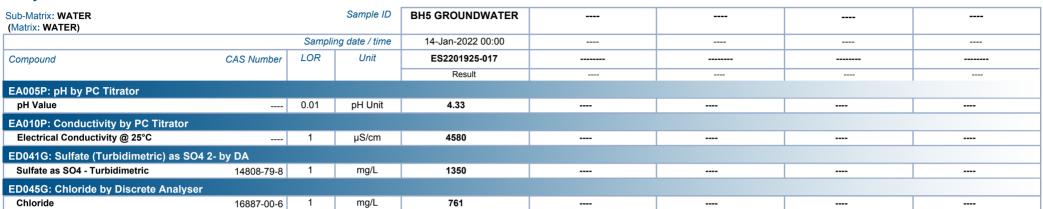


Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ВН8Е	 		
(Sampli	ng date / time	14-Jan-2022 00:00	 		
Compound	CAS Number	LOR	Unit	ES2201925-016	 		
·				Result	 		
EA002: pH 1:5 (Soils)							
pH Value		0.1	pH Unit	5.4	 		
EA010: Conductivity (1:5)							
Electrical Conductivity @ 25°C		1	μS/cm	33	 		
EA055: Moisture Content (Dried @ 105-1	10°C)						
Moisture Content		1.0	%	17.7	 		
EA080: Resistivity							
Resistivity at 25°C		1	ohm cm	30300	 		
EA167: Corrosion Classification (per AS	2159-2009)						
Ø Exposure Classification - Concrete Piles		-	-	Moderate	 		
Soil Condition A							
Ø Exposure Classification - Concrete Piles		-	-	Mild	 		
Soil Condition B							
Ø Exposure Classification - Steel Piles Soil		-	-	Non Aggressive	 		
Condition A			-	Non Aggressive			
Ø Exposure Classification - Steel Piles Soil Condition B		-	-	Non Aggressive	 		
ED040S : Soluble Sulfate by ICPAES Sulfate as SO4 2-	14808-79-8	10	mg/kg	20	 		
	1-000-19-0	10	ייישיייש			I.	I
ED045G: Chloride by Discrete Analyser Chloride	16887-00-6	10	mg/kg	10	 		
Cilionae	10887-00-6	10	mg/kg	10	 		

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Surrogate Control Limits

Sub-Matrix: SOIL		Recovery	Limits (%)
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide S	Surrogate		
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pestic	ide Surrogate		
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound	Surrogates		
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP202S: Phenoxyacetic Acid Herbio	cide Surrogate		
2.4-Dichlorophenyl Acetic Acid	19719-28-9	45	139





QUALITY CONTROL REPORT

ES2201925 Work Order Page : 1 of 12

Client : Environmental Division Sydney : ROBERT CARR & ASSOCIATES P/L Laboratory

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address Address : 92 HILL STREET : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61 02 4902 9200 Telephone : +61-2-8784 8555

Project : 15737 Date Samples Received : 20-Jan-2022 Order number **Date Analysis Commenced** : 21-Jan-2022 · 28-Jan-2022 C-O-C number Issue Date

Sampler : CONNOR DAVIES

Site

No. of samples analysed : 17

not be reproduced, except in full. This Quality Control Report contains the following information:

: 17

Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits

CARRINGTON NSW 2294

Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits

Matrix Spike (MS) Report; Recovery and Acceptance Limits

: SYBQ/400/21

Signatories

Quote number

No. of samples received

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

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Laboratorii Dunlinata (DUD) Donort

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)		
EG005(ED093)T: To	tal Metals by ICP-AES(Q	C Lot: 4133808)									
ES2201359-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit		
		EG005T: Chromium	7440-47-3	2	mg/kg	10	8	20.9	No Limit		
		EG005T: Nickel	7440-02-0	2	mg/kg	4	3	39.4	No Limit		
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	46	40	14.2	No Limit		
		EG005T: Lead	7439-92-1	5	mg/kg	10	9	11.7	No Limit		
		EG005T: Zinc	7440-66-6	5	mg/kg	26	21	22.7	No Limit		
ES2201918-008	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit		
		EG005T: Chromium	7440-47-3	2	mg/kg	33	35	6.9	0% - 50%		
		EG005T: Nickel	7440-02-0	2	mg/kg	52	50	3.3	0% - 20%		
		EG005T: Arsenic	7440-38-2	5	mg/kg	10	12	15.1	No Limit		
		EG005T: Copper	7440-50-8	5	mg/kg	51	50	0.0	0% - 50%		
		EG005T: Lead	7439-92-1	5	mg/kg	466	# 850	58.3	0% - 20%		
		EG005T: Zinc	7440-66-6	5	mg/kg	195	# 322	49.1	0% - 20%		
EA002: pH 1:5 (Soils	s) (QC Lot: 4131511)										
ES2201925-016	BH8E	EA002: pH Value		0.1	pH Unit	5.4	5.4	0.0	0% - 20%		
ES2201925-002	BH4C	EA002: pH Value		0.1	pH Unit	5.4	5.4	0.0	0% - 20%		
EA010: Conductivity	(1:5) (QC Lot: 4131510)										
ES2201925-016	BH8E	EA010: Electrical Conductivity @ 25°C		1	μS/cm	33	33	0.0	0% - 20%		
ES2201925-002	BH4C	EA010: Electrical Conductivity @ 25°C		1	μS/cm	97	96	1.3	0% - 20%		
EA055: Moisture Co	ntent (Dried @ 105-110°C	(QC Lot: 4133810)									
ES2201359-003	Anonymous	EA055: Moisture Content		0.1	%	8.3	7.9	4.9	No Limit		
ES2201918-010	Anonymous	EA055: Moisture Content		0.1	%	20.1	18.3	9.4	0% - 20%		

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL		Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA055: Moisture Co	ontent (Dried @ 105-1	10°C) (QC Lot: 4135266)							
ES2201531-004	Anonymous	EA055: Moisture Content		0.1	%	11.4	9.4	18.8	0% - 20%
ES2201851-009	Anonymous	EA055: Moisture Content		0.1	%	12.0	14.0	14.9	0% - 20%
EA055: Moisture Co	ontent (Dried @ 105-1	10°C) (QC Lot: 4135267)							
ES2201925-010	BH6E	EA055: Moisture Content		0.1	%	24.6	25.5	3.3	0% - 20%
ED040S: Soluble Ma	ajor Anions (QC Lot:								
ES2201925-002	BH4C	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	90	90	0.0	No Limit
ED045G: Chloride b	y Discrete Analyser	(QC Lot: 4131512)							
ES2201925-016	BH8E	ED045G: Chloride	16887-00-6	10	mg/kg	10	10	0.0	No Limit
ES2201925-002	BH4C	ED045G: Chloride	16887-00-6	10	mg/kg	100	110	14.9	No Limit
EG035T: Total Reco	overable Mercury by	FIMS (QC Lot: 4133805)							
EW2200275-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2200656-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochi	orine Pesticides (OC	•							
EW2200275-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organopho	osphorus Pesticides	(OP) (QC Lot: 4131717)							
EW2200275-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

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Client : ROBERT CARR & ASSOCIATES P/L



ub-Matrix: SOIL									
aboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%
P068B: Organoph	osphorus Pesticides (OP) (QC Lot: 4131717) - continued							
EW2200275-002	Anonymous	EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
P075(SIM)B: Polyi	nuclear Aromatic Hydi	rocarbons (QC Lot: 4131719)							
W2200275-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		, , , , , , , , , , , , , , , , , , , ,	205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic		0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		hydrocarbons							
		EP075(SIM): Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	<0.5	0.0	No Limit
P080/071 <u>: Total P</u>	etroleum Hydrocarbon								
S2201556-001	Anonymous	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit
S2201925-001	BH4A	EP080: C6 - C9 Fraction		10	mg/kg	<10	<10	0.0	No Limit
	etroleum Hydrocarbon				3 0	1	1		

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Client : ROBERT CARR & ASSOCIATES P/L



Sub-Matrix: SOIL				Laboratory I	Duplicate (DUP) Report	olicate (DUP) Report			
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Pe	troleum Hydrocarboi	ns (QC Lot: 4131718) - continued							
EW2200275-002	Anonymous	EP071: C15 - C28 Fraction		100	mg/kg	<100	<100	0.0	No Limit
	-	EP071: C29 - C36 Fraction		100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction		50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Re	coverable Hydrocarb	oons - NEPM 2013 Fractions (QC Lot: 4131353)							
ES2201556-001	Anonymous	EP080: C6 - C10 Fraction	C6 C10	10	mg/kg	<10	<10	0.0	No Limit
ES2201925-001	BH4A	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Re	coverable Hydrocarb	pons - NEPM 2013 Fractions (QC Lot: 4131718)			3 3				
EW2200275-002	Anonymous			100	mg/kg	<100	<100	0.0	No Limit
LVV220027 3-002	Anonymous	EP071: >C16 - C34 Fraction		100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction		50	mg/kg	<50	<50	0.0	No Limit
EDAGA DIEVAL (OO	1 -4 4404050)	EP071: >C10 - C16 Fraction		30	Hig/kg	\	\ 30	0.0	NO LITTIL
EP080: BTEXN (QC			74.40.0	0.0	mage II or	40.0	40.0	0.0	Nie I Souti
ES2201556-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.5	0.5		N. 1. 1
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2201925-001	BH4A	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.5			N. 1. 1
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
<u> </u>	cetic Acid Herbicides	by LCMS (QC Lot: 4133758)							
EB2201250-001	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.04	<0.04	0.0	No Limit
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.04	<0.04	0.0	No Limit

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Sub-Matrix: SOIL					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)		
EP202A: Phenoxyac	cetic Acid Herbicides by LC	CMS (QC Lot: 4133758) - continued									
EW2200300-003	Anonymous	EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
		EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	<0.02	0.0	No Limit		
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report							
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)		
EA005P: pH by PC 1	Fitrator (QC Lot: 4132508)										
ES2201922-002	Anonymous	EA005-P: pH Value		0.01	pH Unit	6.42	6.58	2.5	0% - 20%		
ES2201872-001	Anonymous	EA005-P: pH Value		0.01	pH Unit	8.32	8.36	0.5	0% - 20%		
EA010P: Conductivi	ity by PC Titrator (QC Lot:	4132504)									
ES2201925-017	BH5 GROUNDWATER	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	4580	4590	0.2	0% - 20%		
ES2201671-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	8220	8330	1.3	0% - 20%		
ES2201804-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	1760	1760	0.2	0% - 20%		
ES2201627-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	188	193	2.8	0% - 20%		
ES2201872-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	3820	3800	0.3	0% - 20%		
ED041G: Sulfate (Τι	ırbidimetric) as SO4 2- by l	DA (QC Lot: 4132851)									
ES2201688-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	14	14	0.0	0% - 50%		
ES2201602-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	4	4	0.0	No Limit		
ED045G: Chloride b	y Discrete Analyser (QC L	ot: 4132852)							'		
ES2201743-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	43800	45600	3.9	0% - 20%		
ES2201602-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	2	2	0.0	No Limit		

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Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL				Method Blank (MB)	Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 413	33808)							
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	106	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	89.7	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	118	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	106	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	106	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	96.4	66.0	133
EA010: Conductivity (1:5) (QCLot: 4131510)								
EA010: Electrical Conductivity @ 25°C		1	μS/cm	<1	1412 μS/cm	102	92.0	108
ED040S: Soluble Major Anions (QCLot: 4131509)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	103	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 4131	512)							
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	93.3	75.0	125
EBO 100. SIMONAS			3 3	<10	5000 mg/kg	99.7	79.0	117
EG035T: Total Recoverable Mercury by FIMS (QCLot:	: 4133805)							
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.8	70.0	125
EP068A: Organochlorine Pesticides (OC) (QCLot: 413	1717)							
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	81.1	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.1	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	81.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.3	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.9	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	92.8	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	91.9	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	95.6	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	97.7	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.2	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	98.4	56.0	120

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Sub-Matrix: SOIL				Method Blank (MB)		Laboratory Control Spike (LCS) Report			
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 41317	17) - continued								
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	62.0	124	
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.0	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	85.9	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 41	31717)								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	77.2	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	99.0	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.0	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	86.6	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.6	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	83.2	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	93.8	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	79.9	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.8	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.3	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.7	41.0	123	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCL	ot: 4131719)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.6	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	90.7	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	96.6	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	98.8	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	103	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	97.7	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	103	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	93.4	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	98.2	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	92.0	68.0	116	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	103	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	86.1	70.0	126	

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Sub-Matrix: SOIL				Method Blank (MB)		Laboratory Control Spike (LC	S) Report	
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLc	ot: 4131719) - co	ontinued						
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	97.3	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	96.9	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	92.6	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 41313	53)							
EP080: C6 - C9 Fraction		10	mg/kg	<10	26 mg/kg	88.4	68.4	128
EP080/071: Total Petroleum Hydrocarbons (QCLot: 41317	18)							
EP071: C10 - C14 Fraction		50	mg/kg	<50	300 mg/kg	102	75.0	129
EP071: C15 - C28 Fraction		100	mg/kg	<100	450 mg/kg	103	77.0	131
EP071: C29 - C36 Fraction		100	mg/kg	<100	300 mg/kg	99.2	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013	Fractions (QC)	Lot: 4131353)						
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	91.2	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013	Fractions (QC	Lot: 4131718)						
EP071: >C10 - C16 Fraction		50	mg/kg	<50	375 mg/kg	104	77.0	125
EP071: >C16 - C34 Fraction		100	mg/kg	<100	525 mg/kg	100	74.0	138
EP071: >C34 - C40 Fraction		100	mg/kg	<100	225 mg/kg	96.2	63.0	131
EP080: BTEXN (QCLot: 4131353)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	104	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	103	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	102	65.0	117
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	100	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	99.6	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	102	63.0	119
EP202A: Phenoxyacetic Acid Herbicides by LCMS (QCLot	t: 4133758)							
EP202: 4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	<0.02	0.1 mg/kg	69.9	54.4	128
EP202: 2.4-DB	94-82-6	0.02	mg/kg	<0.02	0.1 mg/kg	85.6	45.5	130
EP202: Dicamba	1918-00-9	0.02	mg/kg	<0.02	0.1 mg/kg	66.6	51.7	135
EP202: Mecoprop	93-65-2	0.02	mg/kg	<0.02	0.1 mg/kg	81.7	60.0	130
EP202: MCPA	94-74-6	0.02	mg/kg	<0.02	0.1 mg/kg	74.2	56.8	131
EP202: 2.4-DP	120-36-5	0.02	mg/kg	<0.02	0.1 mg/kg	78.5	50.0	141
EP202: 2.4-D	94-75-7	0.02	mg/kg	<0.02	0.1 mg/kg	73.0	68.5	131
EP202: Triclopyr	55335-06-3	0.02	mg/kg	<0.02	0.1 mg/kg	79.9	50.8	141
EP202: 2.4.5-TP (Silvex)	93-72-1	0.02	mg/kg	<0.02	0.1 mg/kg	72.8	40.8	126
EP202: 2.4.5-T	93-76-5	0.02	mg/kg	<0.02	0.1 mg/kg	84.1	57.4	139
EP202: MCPB	94-81-5	0.02	mg/kg	<0.02	0.1 mg/kg	78.9	38.9	137
EP202: Picloram	1918-02-1	0.02	mg/kg	<0.02	0.1 mg/kg	71.4	48.7	129
EP202: Clopyralid	1702-17-6	0.02	mg/kg	<0.02	0.1 mg/kg	55.3	49.4	106
EP202: Fluroxypyr	69377-81-7	0.02	mg/kg	<0.02	0.1 mg/kg	61.8	53.2	128

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Sub-Matrix: WATER				Method Blank (MB)		Laboratory Control Spike (LC	S) Report	
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA005P: pH by PC Titrator (QCLot: 4132508)								
EA005-P: pH Value			pH Unit		4 pH Unit	100	98.8	101
					7 pH Unit	100	99.2	101
EA010P: Conductivity by PC Titrator (QCLot: 4132504)								
EA010-P: Electrical Conductivity @ 25°C		1	μS/cm	<1	220 μS/cm	92.8	91.1	107
				<1	2100 μS/cm	98.4	93.2	108
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot	: 4132851)							
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.8	82.0	122
				<1	500 mg/L	97.4	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 4132852)							
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	93.7	80.9	127
				<1	1000 mg/L	96.0	80.9	127

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL				Ma	atrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Acceptable l	imits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: T	otal Metals by ICP-AES (QCLot: 4133808)						
ES2201359-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	97.6	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	97.7	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	93.6	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	93.6	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	102	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	94.8	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	96.0	66.0	133
ED045G: Chloride	by Discrete Analyser (QCLot: 4131512)						
ES2201925-002	BH4C	ED045G: Chloride	16887-00-6	2500 mg/kg	109	70.0	130
EG035T: Total Re	coverable Mercury by FIMS (QCLot: 4133805)						
ES2200656-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	97.5	70.0	130
EP068A: Organocl	nlorine Pesticides (OC) (QCLot: 4131717)						
EW2200275-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	87.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	88.4	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	104	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	93.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	97.4	70.0	130

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Sub-Matrix: SOIL				М	atrix Spike (MS) Report		
				Spike	SpikeRecovery(%)	Acceptable	Limits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organo	chlorine Pesticides (OC) (QCLot: 4131717) - continued						
EW2200275-002	Anonymous	EP068: 4.4`-DDT	50-29-3	2 mg/kg	90.7	70.0	130
EP068B: Organoi	phosphorus Pesticides (OP) (QCLot: 4131717)						
EW2200275-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	90.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	90.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	100	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	102	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	92.9	70.0	130
EP075(SIM)B: Po	lynuclear Aromatic Hydrocarbons (QCLot: 4131719)						
EW2200275-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.6	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	105	70.0	130
EP080/071: Total	Petroleum Hydrocarbons (QCLot: 4131353)						
ES2201556-001	Anonymous	EP080: C6 - C9 Fraction		32.5 mg/kg	92.2	70.0	130
EP080/071: Total	Petroleum Hydrocarbons (QCLot: 4131718)						
EW2200275-002	Anonymous	EP071: C10 - C14 Fraction		480 mg/kg	105	73.0	137
		EP071: C15 - C28 Fraction		3100 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction		2060 mg/kg	114	52.0	132
EP080/071: Total	Recoverable Hydrocarbons - NEPM 2013 Fractions (Q						
ES2201556-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	98.6	70.0	130
EP080/071: Total	Recoverable Hydrocarbons - NEPM 2013 Fractions (Q	CLot: 4131718)					
EW2200275-002	Anonymous	EP071: >C10 - C16 Fraction		860 mg/kg	111	73.0	137
		EP071: >C16 - C34 Fraction		4320 mg/kg	115	53.0	131
		EP071: >C34 - C40 Fraction		890 mg/kg	104	52.0	132
EP080: BTEXN (QCLot: 4131353)						
ES2201556-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.7	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	103	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	85.2	70.0	130
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	81.4	70.0	130
		, ,	106-42-3				
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	86.0	70.0	130
						=0.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.4	70.0	100
EP202A: Phenox	yacetic Acid Herbicides by LCMS (QCLot: 4133758)	,	91-20-3	2.5 mg/kg	82.4	70.0	
	yacetic Acid Herbicides by LCMS (QCLot: 4133758) Anonymous	,	91-20-3 93-65-2	2.5 mg/kg 0.1 mg/kg	# 52.9	60.0	140
		EP080: Naphthalene					
		EP080: Naphthalene EP202: Mecoprop	93-65-2	0.1 mg/kg	# 52.9	60.0	140
EP202A: Phenox EB2201250-001		EP202: Mecoprop EP202: MCPA	93-65-2 94-74-6	0.1 mg/kg 0.1 mg/kg	# 52.9 # 33.7	60.0 57.0	140 143

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Sub-Matrix: SOIL				Ma	atrix Spike (MS) Repor	t	
				Spike	SpikeRecovery(%)	Acceptable L	imits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP202A: Phenoxya	acetic Acid Herbicides by LCMS (QCLot: 4133758) - cor	ntinued					
EB2201250-001	Anonymous	EP202: Picloram	1918-02-1	0.1 mg/kg	82.4	49.0	138
		EP202: Clopyralid	1702-17-6	0.1 mg/kg	# 14.0	49.0	149
Sub-Matrix: WATER				Ма	atrix Spike (MS) Repor	t	
				Spike	SpikeRecovery(%)	Acceptable L	imits (%)
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
ED041G: Sulfate (1	Furbidimetric) as SO4 2- by DA (QCLot: 4132851)						
ES2201153-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	110	70.0	130
ED045G: Chloride	by Discrete Analyser (QCLot: 4132852)						
ES2201153-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	121	70.0	130



QA/QC Compliance Assessment to assist with Quality Review

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Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

 Contact
 : MS FIONA BROOKER
 Telephone
 : +61-2-8784 8555

 Project
 : 15737
 Date Samples Received
 : 20-Jan-2022

 Site
 : --- Issue Date
 : 28-Jan-2022

Sampler : CONNOR DAVIES No. of samples received : 17
Order number : ---- No. of samples analysed : 17

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Laboratory Control outliers occur.
- Duplicate outliers exist please see following pages for full details.
- Matrix Spike outliers exist please see following pages for full details.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

• Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

Quality Control Sample Frequency Outliers exist - please see following pages for full details.

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Client : ROBERT CARR & ASSOCIATES P/L

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Outliers: Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: SOIL

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Duplicate (DUP) RPDs							
EG005(ED093)T: Total Metals by ICP-AES	ES2201918008	Anonymous	Lead	7439-92-1	58.3 %	0% - 20%	RPD exceeds LOR based limits
EG005(ED093)T: Total Metals by ICP-AES	ES2201918008	Anonymous	Zinc	7440-66-6	49.1 %	0% - 20%	RPD exceeds LOR based limits
Matrix Spike (MS) Recoveries							
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	Mecoprop	93-65-2	52.9 %	60.0-140%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	МСРА	94-74-6	33.7 %	57.0-143%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	2.4-D	94-75-7	37.3 %	68.0-139%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	Triclopyr	55335-06-3	42.9 %	51.0-145%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	2.4.5-T	93-76-5	40.0 %	57.0-142%	Recovery less than lower data quality objective
EP202A: Phenoxyacetic Acid Herbicides by LCMS	EB2201250001	Anonymous	Clopyralid	1702-17-6	14.0 %	49.0-149%	Recovery less than lower data quality objective

Outliers: Analysis Holding Time Compliance

Matrix: WATER

Matrix: WATER						
Method	E	traction / Preparation			Analysis	
Container / Client Sample ID(s)	Date extracted	Due for extraction	Days	Date analysed	Due for analysis	Days
			overdue			overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
BH5 GROUNDWATER				21-Jan-2022	14-Jan-2022	7

Outliers: Frequency of Quality Control Samples

Matrix: SOIL

Quality Control Sample Type	Co	ount	Rate	e (%)	Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Major Anions - Soluble	1	11	9.09	10.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive <u>or</u> Vinyl Chloride and Styrene are not key analytes of interest/concern.

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Matrix: SOIL					Evaluation	n: × = Holding time	breach ; ✓ = Withi	n holding tim
Method		Sample Date	E	xtraction / Preparation			Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA002: pH 1:5 (Soils)								
Soil Glass Jar - Unpreserved (EA002)								
BH4C,	BH4D,	14-Jan-2022	21-Jan-2022	21-Jan-2022	✓	21-Jan-2022	21-Jan-2022	✓
BH5B,	BH5D,							
BH6C,	BH6D,							
BH6E,	BH7B,							
BH7D,	BH8C,							
BH8E								
EA010: Conductivity (1:5)								
Soil Glass Jar - Unpreserved (EA010)								
BH4C,	BH4D,	14-Jan-2022	21-Jan-2022	21-Jan-2022	✓	21-Jan-2022	18-Feb-2022	✓
BH5B,	BH5D,							
BH6C,	BH6D,							
BH6E,	BH7B,							
BH7D,	BH8C,							
BH8E	,							
EA055: Moisture Content (Dried @ 105	5-110°C)							
Soil Glass Jar - Unpreserved (EA055)	,							
BH4A,	BH4C,	14-Jan-2022				24-Jan-2022	28-Jan-2022	✓
BH4D,	BH5A,							
BH5B,	BH5D,							
BH6A,	BH6C,							
BH6D,	BH6E,							
BH7A,	BH7B,							
BH7D,	BH8A,							
BH8C,	BH8E							
ED040S : Soluble Sulfate by ICPAES	Brioc							
Soil Glass Jar - Unpreserved (ED040S)								
BH4C,	BH4D,	14-Jan-2022	21-Jan-2022	11-Feb-2022	1	21-Jan-2022	18-Feb-2022	✓
BH5B,	BH5D,				_			•
BH6C,	BH6D,							
BH6E,	ВН7В,							
BH7D,	BH8C,							
BH8E	впос,							
ED045G: Chloride by Discrete Analyse Soil Glass Jar - Unpreserved (ED045G)						1		
BH4C,	BH4D,	14-Jan-2022	21-Jan-2022	11-Feb-2022	1	21-Jan-2022	18-Feb-2022	✓
BH5B,	BH5D,	1 04.1 2022			_			•
BH6C,	BH6D,							
BH6E,	BH7B,							
BH7D,	BH8C,							
BH8E								

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Container / Client Sample ID(s)



Matrix: SOIL					Evaluation	n: × = Holding time	breach ; ✓ = Withi	n holding ti
Method		Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluatio
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
BH4A,	BH5A,	14-Jan-2022	24-Jan-2022	13-Jul-2022	✓	25-Jan-2022	13-Jul-2022	✓
BH6A,	BH7A,							
BH8A								
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)				44 5 1 0000			44 5 4 0000	
BH4A,	BH5A,	14-Jan-2022	24-Jan-2022	11-Feb-2022	✓	25-Jan-2022	11-Feb-2022	✓
BH6A,	BH7A,							
BH8A								
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)		44.10000	04 1000	00 1 0000		05.10000	05.140000	
BH4A,	BH5A,	14-Jan-2022	24-Jan-2022	28-Jan-2022	✓	25-Jan-2022	05-Mar-2022	✓
BH6A,	BH7A,							
BH8A								
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068)				00 1 0000			05.14	
BH4A,	BH5A,	14-Jan-2022	24-Jan-2022	28-Jan-2022	✓	25-Jan-2022	05-Mar-2022	✓
BH6A,	BH7A,							
BH8A								
EP075(SIM)B: Polynuclear Aromatic Hydroca	rbons				I			
Soil Glass Jar - Unpreserved (EP075(SIM))		14-Jan-2022	24-Jan-2022	28-Jan-2022		25-Jan-2022	05-Mar-2022	
BH4A		14-Jan-2022	24-Jan-2022	26-Jan-2022	✓	25-Jan-2022	05-IVIAI-2022	✓
EP080/071: Total Petroleum Hydrocarbons				I	I		I	I
Soil Glass Jar - Unpreserved (EP080) BH4A		14-Jan-2022	21-Jan-2022	28-Jan-2022	1	24-Jan-2022	28-Jan-2022	
Soil Glass Jar - Unpreserved (EP071)		14-3411-2022	21-3411-2022	ZO GAIT ZOZZ	•	24-5411-2022	20 0011 2022	V
BH4A		14-Jan-2022	24-Jan-2022	28-Jan-2022	✓	25-Jan-2022	05-Mar-2022	1
EP080/071: Total Recoverable Hydrocarbons	- NEPM 2013 Fractions				ļ.	1	!	
Soil Glass Jar - Unpreserved (EP080)	11E1 III 2010 140tiono							
BH4A		14-Jan-2022	21-Jan-2022	28-Jan-2022	1	24-Jan-2022	28-Jan-2022	1
Soil Glass Jar - Unpreserved (EP071)								
BH4A		14-Jan-2022	24-Jan-2022	28-Jan-2022	✓	25-Jan-2022	05-Mar-2022	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080)								
BH4A		14-Jan-2022	21-Jan-2022	28-Jan-2022	✓	24-Jan-2022	28-Jan-2022	✓
EP202A: Phenoxyacetic Acid Herbicides by L	CMS							
Soil Glass Jar - Unpreserved (EP202)		,		00 1 0000			00 Mar 0000	
BH4A		14-Jan-2022	25-Jan-2022	28-Jan-2022	✓	25-Jan-2022	06-Mar-2022	✓
Matrix: WATER					Evaluation	n: × = Holding time	breach ; ✓ = Withi	n holding ti
Method		Sample Date	Fx	traction / Preparation			Analysis	

Evaluation

Date analysed

Due for analysis

Evaluation

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Matrix: WATER				Evaluation	: x = Holding time	breach ; ✓ = Withi	n holding time
Method	Sample Date	Ex	traction / Preparation			Analysis	
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural (EA005-P) BH5 GROUNDWATER	14-Jan-2022				21-Jan-2022	14-Jan-2022	*
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P) BH5 GROUNDWATER	14-Jan-2022				21-Jan-2022	11-Feb-2022	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) BH5 GROUNDWATER	14-Jan-2022				21-Jan-2022	11-Feb-2022	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) BH5 GROUNDWATER	14-Jan-2022				21-Jan-2022	11-Feb-2022	✓

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Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

he expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: SOIL	fatrix: SOIL Evaluation: × = Quality Control frequency not within specification; ✓ = Quality Control frequency within specific						
Quality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Chloride Soluble By Discrete Analyser	ED045G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	11	9.09	10.00	se.	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	5	49	10.20	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chloride Soluble By Discrete Analyser	ED045G	2	11	18.18	10.00	1	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	11	9.09	5.00	√	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chloride Soluble By Discrete Analyser	ED045G	1	11	9.09	5.00	1	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	11	9.09	5.00	√	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	12.50	5.00	√	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	10.00	5.00	√	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Chloride Soluble By Discrete Analyser	ED045G	1	11	9.09	5.00	1	NEPM 2013 B3 & ALS QC Standard
	. 7-		1		1		

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Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Matrix: SOIL				Lvaluatio		introi frequency	not within specification; ✓ = Quality Control frequency within spec
Quality Control Sample Type		Co	punt		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	1	9	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
esticides by GCMS	EP068	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
henoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
otal Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
otal Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
RH - Semivolatile Fraction	EP071	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
RH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
atrix: WATER				Evaluatio	n: × = Quality Co	ntrol frequency	not within specification ; ✓ = Quality Control frequency within speci
uality Control Sample Type		Co	ount		Rate (%)		Quality Control Specification
nalytical Methods	Method	OC	Reaular	Actual	Expected	Evaluation	
aboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by PC Titrator	EA010-P	5	43	11.63	10.00		NEPM 2013 B3 & ALS QC Standard

pH by PC Titrator 2 20 10.00 NEPM 2013 B3 & ALS QC Standard EA005-P 10.00 1 Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser 2 20 10.00 10.00 NEPM 2013 B3 & ALS QC Standard ED041G 1 Laboratory Control Samples (LCS) Chloride by Discrete Analyser 2 20 10.00 10.00 NEPM 2013 B3 & ALS QC Standard ED045G Conductivity by PC Titrator 4 43 9.30 NEPM 2013 B3 & ALS QC Standard EA010-P 8.33 1 pH by PC Titrator 2 20 10.00 10.00 NEPM 2013 B3 & ALS QC Standard EA005-P **√** Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser 2 20 10.00 10.00 NEPM 2013 B3 & ALS QC Standard ED041G 1 Method Blanks (MB) Chloride by Discrete Analyser 20 ED045G 1 5.00 5.00 1 NEPM 2013 B3 & ALS QC Standard 1 Conductivity by PC Titrator 43 2.33 NEPM 2013 B3 & ALS QC Standard EA010-P 1.67 1 Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser 1 20 5.00 5.00 NEPM 2013 B3 & ALS QC Standard ED041G 1 Matrix Spikes (MS) Chloride by Discrete Analyser 20 5.00 NEPM 2013 B3 & ALS QC Standard ED045G 1 5.00 1 1 20 5.00 NEPM 2013 B3 & ALS QC Standard Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser ED041G 5.00 1

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Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Corrosion Classification for Steel and Concrete Piles	* EA167	SOIL	In house: Exposure classification is determined according to Australian Standard AS2159-2009.
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-CI- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenois (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Page : 9 of 9 Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Tumbler Extraction of Solids



Analytical Methods	Method	Matrix	Method Descriptions
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
pH by PC Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by PC Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 CI - G.The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride in the presence of ferric ions the librated thiocynate forms highly-coloured ferric thiocynate which is measured at 480 nm APHA seal method 2 017-1-L
Preparation Methods	Method	Matrix	Method Descriptions
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

desired volume for analysis.

In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1

DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the

SOIL

ORG17



CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd. Smithfield NSW 2175 Ph: 02 8784 8555 Esamples sydney@alsenviro.com ☐ Newcastle; 5 Reseguin Rd, Warabrook NSW 230-I

☐ Brisbane: 32 Shand St. Stafford QLD 4053 Ph:07 3243 7222 Eise-riples.brisbane@alsenviro.com

☐ Townsville: 14-15 Desma Ct, Bohre QLD 4818 ☐ Adelaide: 2-1 Bu/ms Rd. Poorska SA 5095 Ph:02 4968 9433 f. samples newcastle@alserviro.com Ph:07 4796 0600 E: townsviile,environmental@alserviro.com Ph: 06 8369 0890 Eladelaids@a.senviro.com

☐ Molbourne: 2-4 Westad Rd. Springvale VIC 3171 Ph:03 8549 9800 E: samples.melbourne@alserwire.com

☐ Perth: 10 Hod Way, Maiaga WA 8090 Ph, 98 9209 7655 Et samples.perth@blsenviro.com ☐ Launceston: 27 Wollington St. Launceston TAS 7250 Ph: 03 6831 2158 E: leungeston@alsenviro.com

CLIENT:	RCA Australia			OUND REQUIREMENTS:	☐ Standa	ard TAT (List	due date): 2	8/1/2022				FOR LABO	DRATORY U	SE ONLY (Circle)			
OFF(CE:	92 Hill Street, Carrington		(Standard T/ e.g., Ultra Tr	AT may be longer for some tests ace Organics)					<u> </u>			Custody Seal Intact? Yes No.			- NA			
RCA Ref No:	15737		ALS QUO		BQ_400_17				COC SEQU	ENCE NUMB	ER (Circle)	redesp#?	zen ice bricks i		برلات	No.	N/A	
)	coc:				225-9-14-96-5-5-5	nple Temperal	ure on Recei	r =0.9	. °C:		
PROJECT MANAGER: F			PH: 0408 687		RELINQUIS	sum of	L		1 EIVED BY:		1	Other comm	C. Charles de la Contraction d	100	nrorn	• • • • • • • • • • • • • • • • • • •	SHALLSH SHALLSH	
SAMPLER: Connor Davi			MOBILE: 041 MAT (or defau		RELINGUIS		7		_			LINQUISHED		700	RECEIVED BY	/-		
	istrator@rca.com.au, enviro@rca.com		TO GOING		DATE/TIME		_	DAT	OB E/TIME:	3.4	426UP	TETIME.		100	DATE/TIME:	72		
Email Invoice to: admin	istrator@rca.com.au				20/	/1/22	2	20	1, [2:	2		20/1/	22		2011	122	/93	
COMMENTS/SPECIAL H	IANDLING/STORAGE OR DISPOSA	AL:							· · · · · · · · · · · · · · · · · · ·			- //			<u>.</u>	<u> </u>	_	
ALS USE ONLY		E DETAILS lid(S) Water(W)		CONTAINER INF	ORMATION							es must be listed to attract suite price) Additional in			formation			
LAB ID	SAMPLE ID	DATE	MATRIX	TYPE & PRESERVAT (refer to codes belo		TOTAL BOTTLES	Corr. Sched 2 (pH, Cl, SO4, EC, Exposure Classification)	Suite 12 (OCP, OPP) + phenoxy acid herbicides	Metals 8 (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	Suite26 (TRH, BTEX, PAH, 8 metals)								
ì	BH4a	14/01/2022	Soil	Jar		1		×	{	x					-			
2	BH4c	14/01/2022	Soil	Jar		1	х									·		
3	BH4d	14/01/2022	Soil	Jar		1	х											
14	BH5a	14/01/2022	Soil	Jar		1		х	х									
5	ВН5ь	14/01/2022	Soil	Jar		1	х						_					
6	BH5d	14/01/2022	Soil	Soil	Jar		1	х						Fnv	ironme	ental Divis	sion	
7	ВН6а	14/01/2022	Soil	Jar		1		x	х				Syd	ney		_		
ষ	BH6¢	14/01/2022	Soil	Jar		1.	х						. K	ork Ord	er Reference 2019	25		
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10	BH6e	14/01/2022	Soil	Jar		1	X											
	BH7a	14/01/2022	Soil	Jar 		1		х	х									
12	BH7b	14/01/2022	Soil	Jar ———		1	x						_					
13	BH7d	14/01/2022	Soil	Jar		1	х						·		(A 0704 9555 (A 0704 9555	1 11 !	i.	
14	BH8a	14/01/2022	Soil	Jar		1		х	х				relepi 	none: + b	1-2-8784 8555			
15	BH8c	14/01/2022	Soil	Jar	-	1	х							_				
16	BH8e	14/01/2022	Soil	Jar		1	X											
(T	BH5 Groundwater	14/01/2022	Water	Plastic Bottle		1	х											
					TOTAL	17	12	5	4	1								

Water Container Codes: P = Unpreserved Plastic: N = Nitric Preserved Plastic: ORC = Nitric Preserved ORC: SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved; Plastic: AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic: Y = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Suffuric Preserved; Amber Glass: H = HCl preserved Plastic: HS = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: A = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Plastic: HS = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Plastic: F = Formaldehyde Preserved Glass: H = HCl preserved Speciation bottle; SP = Suffuric Preserved Speciation bottle; SP = Suf



CARRINGTON NSW 2294

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2201925

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Sydney

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address : 92 HILL STREET Address : 277-289 Woodpark Road Smithfield

NSW Australia 2164

Telephone : +61 02 4902 9200 Telephone : +61-2-8784 8555
Facsimile : +61 02 4902 9299 Facsimile : +61-2-8784 8500

Project : 15737 Page : 1 of 4

 Order number
 : -- Quote number
 : ES2017ROBCAR0004 (SYBQ/400/21)

 C-O-C number
 : -- QC Level
 : NEPM 2013 B3 & ALS QC Standard

Sampler : CONNOR DAVIES

Sampler . CONNOR DAVIES

Dates

Date Samples Received : 20-Jan-2022 15:46 Issue Date : 25-Jan-2022 Client Requested Due : 28-Jan-2022 Scheduled Reporting Date : 27-Jan-2022

Date

Delivery Details

 Mode of Delivery
 : Undefined
 Security Seal
 : Not Available

 No. of coolers/boxes
 : 1
 Temperature
 : -0.9'C - Ice present

Receipt Detail : No. of samples received / analysed : 17 / 17

General Comments

This report contains the following information:

- Sample Container(s)/Preservation Non-Compliances
- Summary of Sample(s) and Requested Analysis
- Proactive Holding Time Report
- Requested Deliverables
- 25/01/2022: This is an updated SRN which indicates resistivity and corrosion classification add for soil samples for this work
- Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.
- Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical
 analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this
 temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS
 recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Issue Date 25-Jan-2022

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2 of 4 ES2201925 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

• No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

component			103		solids	<u> </u>	(CI, SC	ges	3TEX
Matrix: SOIL			EA055-103 e Content	EA080 vity (1:5)	EP202(solids syacetic acids	N4S EC (1:4	VT-2S nions (0	S-12 Pesticides	OIL - S-26 metals/TRH/BTEX
Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA055-103 Moisture Content	SOIL - EA080 Resistivity (1:5)	SOIL - EP202(solids Phenoxyacetic acids	SOIL - IN-4S pH plus EC (1:5)	SOIL - NT-2S Major Anions	SOIL - S	SOIL - 8 8 metals
ES2201925-001	14-Jan-2022 00:00	BH4A	✓		1			1	✓
ES2201925-002	14-Jan-2022 00:00	BH4C	✓	✓		1	1		
ES2201925-003	14-Jan-2022 00:00	BH4D	✓	✓		1	✓		
ES2201925-004	14-Jan-2022 00:00	BH5A	✓					1	
ES2201925-005	14-Jan-2022 00:00	BH5B	✓	✓		1	✓		
ES2201925-006	14-Jan-2022 00:00	BH5D	✓	✓		1	✓		
ES2201925-007	14-Jan-2022 00:00	BH6A	✓					1	
ES2201925-008	14-Jan-2022 00:00	BH6C	✓	✓		1	✓		
ES2201925-009	14-Jan-2022 00:00	BH6D	✓	✓		✓	✓		
ES2201925-010	14-Jan-2022 00:00	BH6E	✓	✓		1	✓		
ES2201925-011	14-Jan-2022 00:00	ВН7А	✓					1	
ES2201925-012	14-Jan-2022 00:00	ВН7В	✓	✓		1	✓		
ES2201925-013	14-Jan-2022 00:00	BH7D	✓	✓		✓	✓		
ES2201925-014	14-Jan-2022 00:00	BH8A	✓					1	
ES2201925-015	14-Jan-2022 00:00	BH8C	✓	✓		✓	✓		
ES2201925-016	14-Jan-2022 00:00	BH8E	✓	✓		1	1		

n Classification for Steel and Concrete

Matrix: SOIL

Laboratory sample	Sampling date / time	Sample ID	SOIL - E, Corrosior	SOIL - S- 8 Metals
ES2201925-002	14-Jan-2022 00:00	BH4C	✓	
ES2201925-003	14-Jan-2022 00:00	BH4D	✓	
ES2201925-004	14-Jan-2022 00:00	BH5A		✓
ES2201925-005	14-Jan-2022 00:00	BH5B	✓	
ES2201925-006	14-Jan-2022 00:00	BH5D	✓	
ES2201925-007	14-Jan-2022 00:00	BH6A		✓
ES2201925-008	14-Jan-2022 00:00	BH6C	✓	
ES2201925-009	14-Jan-2022 00:00	BH6D	✓	

Issue Date : 25-Jan-2022

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Client : ROBERT CARR & ASSOCIATES P/L



			SOIL - EA167 Corrosion Classification for Steel and Concrete	SOIL - S-02 8 Metals (incl. Digestion)
ES2201925-010	14-Jan-2022 00:00	BH6E	✓	
ES2201925-011	14-Jan-2022 00:00	ВН7А		✓
ES2201925-012	14-Jan-2022 00:00	ВН7В	✓	
ES2201925-013	14-Jan-2022 00:00	BH7D	1	
ES2201925-014	14-Jan-2022 00:00	BH8A		✓
ES2201925-015	14-Jan-2022 00:00	BH8C	✓	
ES2201925-016	14-Jan-2022 00:00	BH8E	✓	

Matrix: WATER Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA005P pH (PCT)	WATER - EA010P Electrical Conductivity (PCT)	WATER - ED041G Sulfate (Turbidimetric) as SO4 2 by Discrete	WATER - ED045G Chloride by Discrete Analyser	
ES2201925-017	14-Jan-2022 00:00	BH5 GROUNDWATER	✓	✓	✓	✓	

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

: 25-Jan-2022 Issue Date

Page

Work Order

: 4 of 4 : ES2201925 Amendment 0 : ROBERT CARR & ASSOCIATES P/L Client



Requested Deliverables

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Aυ	IVIII	VIO.	IRA		т

ADMINISTRATOR		
- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
CONNOR DAVIES		
- *AU Certificate of Analysis - NATA (COA)	Email	connord@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	connord@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	connord@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	connord@rca.com.au
- Chain of Custody (CoC) (COC)	Email	connord@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	connord@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	connord@rca.com.au
ENVIRO		
- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	enviro@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	enviro@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	enviro@rca.com.au
- Chain of Custody (CoC) (COC)	Email	enviro@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	enviro@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	enviro@rca.com.au
FIONA BROOKER		
- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au

- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	fionab@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	fionab@rca.com.au



CERTIFICATE OF ANALYSIS

Work Order : EB2201718

: ROBERT CARR & ASSOCIATES P/L

Contact : MS FIONA BROOKER

Address : 92 HILL STREET

CARRINGTON NSW 2294

Telephone : +61 02 4902 9200

Project : 15737
Order number · ----

C-O-C number · ----

Client

Sampler : CONNOR DAVIES

Site : ---

Quote number : SYBQ/400/21

No. of samples received : 15
No. of samples analysed : 15

Page : 1 of 5

Date Samples Received

Laboratory : Environmental Division Brisbane

Contact : Juliana Gonzalez

Address : 2 Byth Street Stafford QLD Australia 4053

: 25-Jan-2022 14:58

Telephone : +61-7-3243 7222

Date Analysis Commenced : 31-Jan-2022

Issue Date : 31-Jan-2022 13:27



ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories Position Accreditation Category

Ben Felgendrejeris Senior Acid Sulfate Soil Chemist Brisbane Acid Sulphate Soils, Stafford, QLD

Page : 2 of 5 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

ALS

General Comments

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

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

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

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

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

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

Key: CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

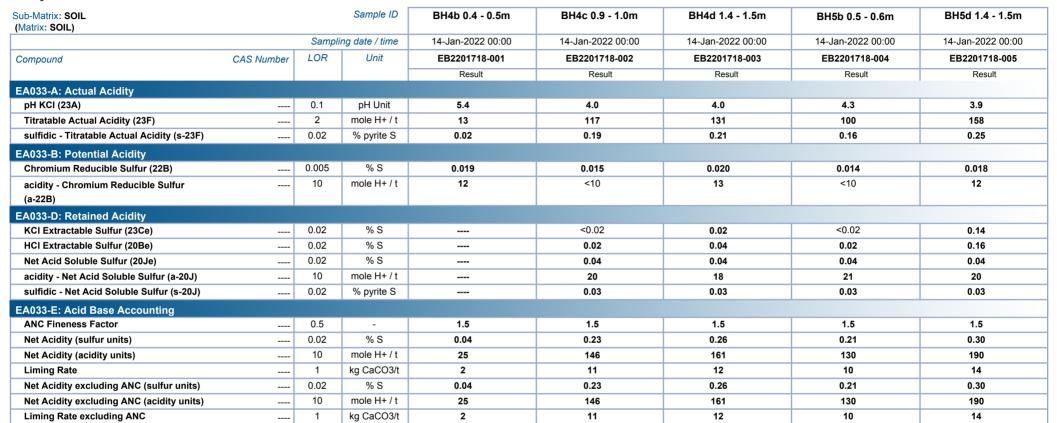
- ^ = This result is computed from individual analyte detections at or above the level of reporting
- ø = ALS is not NATA accredited for these tests.
- ~ = Indicates an estimated value.
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m3'.

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Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Analytical Results



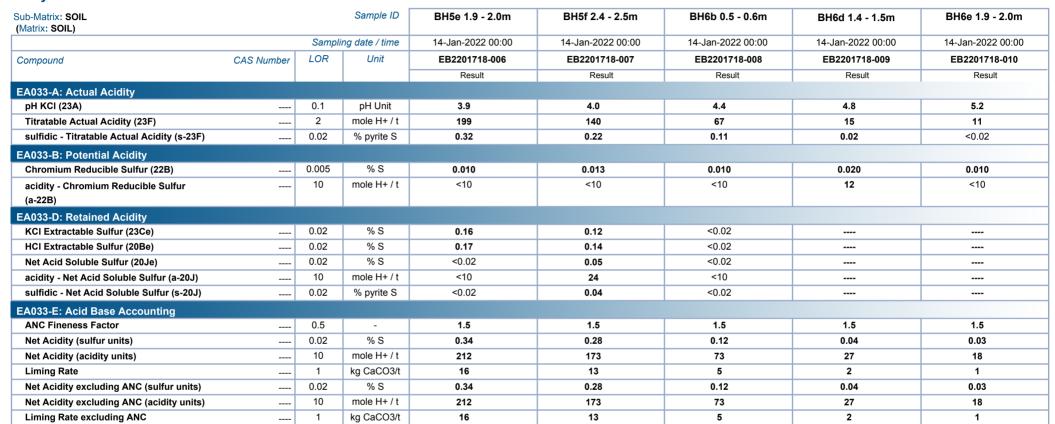


Page : 4 of 5 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Analytical Results





Page : 5 of 5 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

Analytical Results







QUALITY CONTROL REPORT

Work Order : **EB2201718**

: ROBERT CARR & ASSOCIATES P/L

Contact : MS FIONA BROOKER

Address : 92 HILL STREET

CARRINGTON NSW 2294

Telephone : +61 02 4902 9200

Project : 15737
Order number : ----

C-O-C number : ---

Sampler : CONNOR DAVIES

Site : ---

Quote number : SYBQ/400/21

No. of samples received : 15
No. of samples analysed : 15

not be reproduced, except in full.

Page : 1 of 3

Laboratory : Environmental Division Brisbane

Contact : Juliana Gonzalez

Address : 2 Byth Street Stafford QLD Australia 4053

Telephone : +61-7-3243 7222

Date Samples Received : 25-Jan-2022

Date Analysis Commenced : 31-Jan-2022

Issue Date : 31-Jan-2022



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

Client

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

Signatories Position Accreditation Category

Ben Felgendrejeris Senior Acid Sulfate Soil Chemist Brisbane Acid Sulphate Soils, Stafford, QLD

Page : 2 of 3
Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737

ALS

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key: Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: SOIL					Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
EA033-A: Actual Ac	idity (QC Lot: 4142995)									
EB2201718-001 BH4b 0.4 - 0.5m		EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	0.02	0.02	0.0	No Limit	
		EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	13	14	0.0	No Limit	
		EA033: pH KCI (23A)		0.1	pH Unit	5.4	5.4	0.0	0% - 20%	
EB2201718-011	BH7b 0.5 - 0.6m	EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	<0.02	<0.02	0.0	No Limit	
		EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	10	10	0.0	No Limit	
		EA033: pH KCI (23A)		0.1	pH Unit	5.2	5.2	0.0	0% - 20%	
EA033-B: Potential	Acidity (QC Lot: 414299	5)								
EB2201718-001	BH4b 0.4 - 0.5m	EA033: Chromium Reducible Sulfur (22B)		0.005	% S	0.019	0.017	9.3	No Limit	
		EA033: acidity - Chromium Reducible Sulfur (a-22B)		10	mole H+ / t	12	11	9.3	No Limit	
EB2201718-011	BH7b 0.5 - 0.6m	EA033: Chromium Reducible Sulfur (22B)		0.005	% S	0.018	0.018	0.0	No Limit	
		EA033: acidity - Chromium Reducible Sulfur (a-22B)		10	mole H+ / t	12	11	0.0	No Limit	

Page : 3 of 3 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: SOIL			Method Blank (MB)	Laboratory Control Spike (LCS) Report				
				Report	Spike	Spike Recovery (%)	Acceptable	Limits (%)
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EA033-A: Actual Acidity (QCLot: 4142995)								
EA033: pH KCI (23A)			pH Unit		4.4 pH Unit	99.1	91.0	107
EA033: Titratable Actual Acidity (23F)		2	mole H+ / t	<2	19 mole H+ / t	84.7	70.0	124
EA033: sulfidic - Titratable Actual Acidity (s-23F)		0.02	% pyrite S	<0.02				
EA033-B: Potential Acidity (QCLot: 4142995)								
EA033: Chromium Reducible Sulfur (22B)		0.005	% S	<0.005	0.246 % S	112	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)		10	mole H+ / t	<10				
EA033-D: Retained Acidity (QCLot: 4142995)								
EA033: Net Acid Soluble Sulfur (20Je)		0.02	% S	<0.02				
EA033: acidity - Net Acid Soluble Sulfur (a-20J)		10	mole H+ / t	<10				
EA033: sulfidic - Net Acid Soluble Sulfur (s-20J)		0.02	% pyrite S	<0.02				
EA033: KCI Extractable Sulfur (23Ce)		0.02	% S	<0.02	0.03595 % S	106	70.0	128
EA033: HCl Extractable Sulfur (20Be)		0.02	% S	<0.02	0.696 % S	82.0	70.0	120

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs), Ideal recovery ranges stated may be waived in the event of sample matrix interference.

• No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.



QA/QC Compliance Assessment to assist with Quality Review

Work Order : **EB2201718** Page : 1 of 5

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Brisbane

 Contact
 : MS FIONA BROOKER
 Telephone
 : +61-7-3243 7222

 Project
 : 15737
 Date Samples Received
 : 25-Jan-2022

 Site
 : --- Issue Date
 : 31-Jan-2022

Sampler : CONNOR DAVIES No. of samples received : 15
Order number :---- No. of samples analysed : 15

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers: Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- NO Method Blank value outliers occur.
- NO Duplicate outliers occur.
- NO Laboratory Control outliers occur.
- NO Matrix Spike outliers occur.
- For all regular sample matrices, NO surrogate recovery outliers occur.

Outliers: Analysis Holding Time Compliance

NO Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• NO Quality Control Sample Frequency Outliers exist.

Page : 2 of 5 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for <u>VOC in soils</u> vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: SOIL

Evaluation: * = Holding time breach : * = Within holding time.

Method	Sample Date	E	traction / Preparation		Analysis			
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-A: Actual Acidity								
Snap Lock Bag - frozen (EA033)								
BH4b 0.4 - 0.5m,	BH4c 0.9 - 1.0m,	14-Jan-2022	31-Jan-2022	14-Jan-2023	✓	31-Jan-2022	01-May-2022	✓
BH4d 1.4 - 1.5m,	BH5b 0.5 - 0.6m,							
BH5d 1.4 - 1.5m,	BH5e 1.9 - 2.0m,							
BH5f 2.4 - 2.5m,	BH6b 0.5 - 0.6m,							
BH6d 1.4 - 1.5m,	BH6e 1.9 - 2.0m,							
BH7b 0.5 - 0.6m,	BH7d 1.5 - 1.6m,							
BH8b 0.45 - 0.55m,	BH8d 1.4 - 1.5m,							
BH8f 2.4 - 2.5m								
EA033-B: Potential Acidity								
Snap Lock Bag - frozen (EA033)								
BH4b 0.4 - 0.5m,	BH4c 0.9 - 1.0m,	14-Jan-2022	31-Jan-2022	14-Jan-2023	✓	31-Jan-2022	01-May-2022	✓
BH4d 1.4 - 1.5m,	BH5b 0.5 - 0.6m,							
BH5d 1.4 - 1.5m,	BH5e 1.9 - 2.0m,							
BH5f 2.4 - 2.5m,	BH6b 0.5 - 0.6m,							
BH6d 1.4 - 1.5m,	BH6e 1.9 - 2.0m,							
BH7b 0.5 - 0.6m,	BH7d 1.5 - 1.6m,							
BH8b 0.45 - 0.55m,	BH8d 1.4 - 1.5m,							
BH8f 2.4 - 2.5m								
EA033-C: Acid Neutralising Capacity								
Snap Lock Bag - frozen (EA033)								
BH4b 0.4 - 0.5m,	BH4c 0.9 - 1.0m,	14-Jan-2022	31-Jan-2022	14-Jan-2023	✓	31-Jan-2022	01-May-2022	✓
BH4d 1.4 - 1.5m,	BH5b 0.5 - 0.6m,							
BH5d 1.4 - 1.5m,	BH5e 1.9 - 2.0m,							
BH5f 2.4 - 2.5m,	BH6b 0.5 - 0.6m,							
BH6d 1.4 - 1.5m,	BH6e 1.9 - 2.0m,							
BH7b 0.5 - 0.6m,	BH7d 1.5 - 1.6m,							
BH8b 0.45 - 0.55m,	BH8d 1.4 - 1.5m,							
BH8f 2.4 - 2.5m								

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Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Matrix: SOIL					Evaluation	ı: 🗴 = Holding time	breach; ✓ = Withi	in holding time
Method			Extraction / Preparation			Analysis		
Container / Client Sample ID(s)			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA033-D: Retained Acidity								
Snap Lock Bag - frozen (EA033)								
BH4b 0.4 - 0.5m,	BH4c 0.9 - 1.0m,	14-Jan-2022	31-Jan-2022	14-Jan-2023	✓	31-Jan-2022	01-May-2022	✓
BH4d 1.4 - 1.5m,	BH5b 0.5 - 0.6m,							
BH5d 1.4 - 1.5m,	BH5e 1.9 - 2.0m,							
BH5f 2.4 - 2.5m,	BH6b 0.5 - 0.6m,							
BH6d 1.4 - 1.5m,	BH6e 1.9 - 2.0m,							
BH7b 0.5 - 0.6m,	BH7d 1.5 - 1.6m,							
BH8b 0.45 - 0.55m,	BH8d 1.4 - 1.5m,							
BH8f 2.4 - 2.5m								
EA033-E: Acid Base Accounting								
Snap Lock Bag - frozen (EA033)								
BH4b 0.4 - 0.5m,	BH4c 0.9 - 1.0m,	14-Jan-2022	31-Jan-2022	14-Jan-2023	✓	31-Jan-2022	01-May-2022	✓
BH4d 1.4 - 1.5m,	BH5b 0.5 - 0.6m,							
BH5d 1.4 - 1.5m,	BH5e 1.9 - 2.0m,							
BH5f 2.4 - 2.5m,	BH6b 0.5 - 0.6m,							
BH6d 1.4 - 1.5m,	BH6e 1.9 - 2.0m,							
BH7b 0.5 - 0.6m,	BH7d 1.5 - 1.6m,							
BH8b 0.45 - 0.55m,	BH8d 1.4 - 1.5m,							
BH8f 2.4 - 2.5m								

Page : 4 of 5 Work Order EB2201718

Client ROBERT CARR & ASSOCIATES P/L

: 15737 Project



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: SOIL	ot within specification; ✓ = Quality Control frequency within specification.						
Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Reaular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Chromium Suite for Acid Sulphate Soils	EA033	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Chromium Suite for Acid Sulphate Soils	EA033	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Chromium Suite for Acid Sulphate Soils	EA033	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Page : 5 of 5 Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L

Project : 15737



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
Preparation Methods	Method	Matrix	Method Descriptions
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house



CHAIN OF CUSTODY

ALS Laboratory: please tick ->

LJ Sydney: 277 Woodpark Rd, Smithfield NSW 2176 Ph: 02 8784 8555 E:samples.sydney@alsenviro.com

☐ Newcastle: 5 Rosegum Rd, Warabrook NSW 2304 Ph:02 4968 9433 E:samples.newcastle@alsenviro.com ☐ Brisbane: 32 Shand St. Stafford QLD 4053 Ph:07 3243 7222 E:samples.brishane@alsenviro.com

☐ Townsville: 14-15 Desma Ct, Bohle QLD 4818
Ph:07 4796 0600 E: townsville:environmentai@alsenviro.com

☐ Melbourne: 2-4 Westall Rd, Springvale VIC 3171 Ph:03 8549 9600 E: samples.melbourne@alsenviro.com

☐ Adelaide: 2-1 Burma Rd, Pooraka SA 5095 Ph: 08 8359 0890 E:adelaide@alsenviro.com

Perth: 10 Hod Way, Malaga WA 6090 Ph: 08 9209 7655 F: samples perth@alserviro.com

TOLL: MITK 525 365

☐ Launceston: 27 Wellington St, Launceston TAS 7250 Ph: 03 6331 2158 E: launceston@alsenviro.com

CLIENT:	RCA Australia	· · · · · · · · · · · · · · · · · · ·	TURNAR	OUND REQUIREMENTS :			. 00 6339 0690 E.BDGRIGE®		Ph: 03 6331 2158 E: launceston(@alsenviro.com			
OFFICE:	92 Hill Street, Carrington		(Standard T.	AT may be longer for some tasts	Standard TAT (List	due date): 4/): 4/1/2022 FOR LABORATORY USE ONLY. (Circle) Custody Seal Intert? Yes No.						
CA Ref No:	15737		ALS QUO	race Organics). PTE NO.: SYI	BQ_400_17		COC SEQUENCE NUMBER (Circle) Fire (co / frozen (ca bricks present/upon;						
								NCE NUMBER (Circle)	redBipt?	(°°)	⊥No N/A		
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	ninistrator@rca.com.au, enviro@rca.co	om.au, connord@rca.com.au	,		DATE/TIME:	-	DATE/TIME;	15500	DATE/TIME;	DATE/TIME:	25/1/28		
	ninistrator@rca.com.au				24/1/22		24/1/22	1:58pm	.24.1.22	3pm	12		
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ALS USE ONLY		iolid(S) Water(W)		CONTAINER INFO	DRMATION				des must be listed to attract suite		Information		
			$\neg \neg \neg$		· 7		Metals are required, specify Total	I (unfitered bottle required) or	Dissolved (field filtered bottle require	1).			
		*				Suite							
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				(refer to codes below)) BOTTLES	Reducible (EA033)	İ						
		· '			!	um A	•						
·						romiun omplets				İ			
(BH4b 0.4 - 0.5m	14/01/2022	Soil	Plastic Bag	1	호 5 x							
2	BH4c 0.9 - 1.0m	14/01/2022	Soil	Plastic Bag	- · · · · · · · · · · · · · · · · · · ·		-						
3	BH4d 1.4 - 1.5m	14/01/2022	Soil	Plastic Bag									
4	BH5b 0.5 - 0.6m	14/01/2022	Soil		1	X							
	BH5d 1.4 - 1.5m			Plastic Bag	1	Х .							
	IIIC.1 - 4.1 DONG	14/01/2022	Soil	Plastic Bag	1	x							
<u>6</u>	BH5e 1.9 - 2.0m	14/01/2022	Soil	Plastic Bag	1	х			——————————————————————————————————————	· ·			
7	BH5f 2.4 - 2.5m	14/01/2022	Soil	Plastic Bag	1	х		-		ental Division			
8	BH6b 0.5 - 0.6m	14/01/2022	Soil	Plastic Bag	1	x			Brisbane Work Or	der Reference	-		
٩	BH6d 1.4 - 1.5m	14/01/2022	Soil	Plastic Bag	1	х			EB2	2201718			
10	BH6e 1.9 - 2.0m	14/01/2022	Soil	Plastic Bag	1.	х							
	BH7b 0.5 - 0.6m	14/01/2022	Soil	Plastic Bag	1	х							
12	BH7d 1.5 - 1.6m	14/01/2022	Soil	Plastic Bag	1	х							
18	BH8b 0.45 - 0.55m	14/01/2022	Soil	Plastic Bag	1	х				Z NY -SWYZ M IN			
14	BH8d 1.4 - 1.5m	14/01/2022	Soil	Plastic Bag	1	x			Telephone : ±1	51-7-3243 7222			
15	BH8f 2.4 - 2.5m	14/01/2022	Soil	Plastic Bag	1	х					-		
					TOTAL 15	15							
er Container Codes: P	= Unpreserved Plastic; N = Nitric Preserve	ed Plastic: ORC = Nitric Presen	ved ORC: SH = S	odium Hydrovido/Cd Pd 0									

V = VOA Vial HCI Preserved (VB = VOA Vial Sottier E = EDTA Preserved Bottles; ST = Sterile Bottle; AS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bottles; F = Formaldehyde Preserved Bottle; F = Formaldehyde Preserved Bottle; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottle; F = Formaldehyde Preserved Bottle; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formaldehyde Preserved Bottles; F = Formalde



CARRINGTON NSW 2294

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : EB2201718

Client : ROBERT CARR & ASSOCIATES P/L Laboratory : Environmental Division Brisbane

Contact : MS FIONA BROOKER Contact : Juliana Gonzalez

Address : 92 HILL STREET Address : 2 Byth Street Stafford QLD Australia

4053

 Telephone
 : +61 02 4902 9200
 Telephone
 : +61-7-3243 7222

 Facsimile
 : +61 02 4902 9299
 Facsimile
 : +61-7-3243 7218

Project : 15737 Page : 1 of 3

 Order number
 : -- Quote number
 : ES2017ROBCAR0004 (SYBQ/400/21)

 C-O-C number
 : -- QC Level
 : NEPM 2013 B3 & ALS QC Standard

Site : ----

Sampler : CONNOR DAVIES

Dates

Date Samples Received : 25-Jan-2022 14:58 Issue Date : 27-Jan-2022 Client Requested Due : 04-Feb-2022 Scheduled Reporting Date : **04-Feb-2022**

Date

Delivery Details

Mode of Delivery : Carrier Security Seal : Intact.

No. of coolers/boxes : 2 Temperature : -1.5°, 4.9°C - Ice present

Receipt Detail : MEDIUM ESKY No. of samples received / analysed : 15 / 15

General Comments

• This report contains the following information:

- Sample Container(s)/Preservation Non-Compliances
- Summary of Sample(s) and Requested Analysis
- Proactive Holding Time Report
- Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ("W", 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.
- Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.

: 27-Jan-2022 Issue Date

Page

: 2 of 3 : EB2201718 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

Suite for Acid Sulphate

• No sample container / preservation non-compliance exists.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: SOIL			EA033 ium Suite
Laboratory sample ID	Sampling date / time	Sample ID	SOIL - EA(Chromium
EB2201718-001	14-Jan-2022 00:00	BH4b 0.4 - 0.5m	✓
EB2201718-002	14-Jan-2022 00:00	BH4c 0.9 - 1.0m	✓
EB2201718-003	14-Jan-2022 00:00	BH4d 1.4 - 1.5m	✓
EB2201718-004	14-Jan-2022 00:00	BH5b 0.5 - 0.6m	✓
EB2201718-005	14-Jan-2022 00:00	BH5d 1.4 - 1.5m	✓
EB2201718-006	14-Jan-2022 00:00	BH5e 1.9 - 2.0m	✓
EB2201718-007	14-Jan-2022 00:00	BH5f 2.4 - 2.5m	✓
EB2201718-008	14-Jan-2022 00:00	BH6b 0.5 - 0.6m	✓
EB2201718-009	14-Jan-2022 00:00	BH6d 1.4 - 1.5m	✓
EB2201718-010	14-Jan-2022 00:00	BH6e 1.9 - 2.0m	✓
EB2201718-011	14-Jan-2022 00:00	BH7b 0.5 - 0.6m	✓
EB2201718-012	14-Jan-2022 00:00	BH7d 1.5 - 1.6m	✓
EB2201718-013	14-Jan-2022 00:00	BH8b 0.45 - 0.55m	✓
EB2201718-014	14-Jan-2022 00:00	BH8d 1.4 - 1.5m	✓
EB2201718-015	14-Jan-2022 00:00	BH8f 2.4 - 2.5m	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Issue Date : 27-Jan-2022

Page

3 of 3 EB2201718 Amendment 0 Work Order

Client : ROBERT CARR & ASSOCIATES P/L



Requested Deliverables

- EDI Format - ENMRG (ENMRG)

- EDI Format - ESDAT (ESDAT)

ADMINIOTATION		
- *AU Certificate of Analysis - NATA (COA)	Email	administrator@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	administrator@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	administrator@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	administrator@rca.com.au
- Chain of Custody (CoC) (COC)	Email	administrator@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	administrator@rca.com.au
ALL INVOICES		
- A4 - AU Tax Invoice (INV)	Email	administrator@rca.com.au
CONNOR DAVIES		
- *AU Certificate of Analysis - NATA (COA)	Email	connord@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	connord@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	connord@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	connord@rca.com.au
- Chain of Custody (CoC) (COC)	Email	connord@rca.com.au
- EDI Format - ENMRG (ENMRG)	Email	connord@rca.com.au
- EDI Format - ESDAT (ESDAT)	Email	connord@rca.com.au
ENVIRO		
- *AU Certificate of Analysis - NATA (COA)	Email	enviro@rca.com.au
FIONA BROOKER		
- *AU Certificate of Analysis - NATA (COA)	Email	fionab@rca.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	fionab@rca.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	fionab@rca.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	fionab@rca.com.au
- Chain of Custody (CoC) (COC)	Email	fionab@rca.com.au

Email

Email

fionab@rca.com.au

fionab@rca.com.au

Appendix G

Photographs

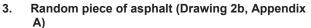


1. East along the alignment (Drawing 2b, Appendix A)



2. West along the alignment (Drawing 2b, Appendix A)







4. Water to north of alignment no visible of olfactory signs of contamination(Drawing 2b, Appendix A)



5. Possible burial pit (Drawing 2b, Appendix A) - there are 3 in area



6. West along alignment (Drawing 2b, Appendix A)





7. South east along alignment (Drawing 2b, Appendix A)



8. Fence posts - appear to look like hardwood however might be treated (Drawing 2b, Appendix A)



9. West along the alignment (Drawing 2b, Appendix A)



10. East along the alignment (Drawing 2b, Appendix A)



11. Wallis Creek South (upstream, Drawing 2c, Appendix A)



12. Wallis Creek North (downstream, Drawing 2c, Appendix A)



13. Weir with bricks and concrete (Drawing 2c, Appendix A)



14. Wier with concrete and bricks (Drawing 2c, Appendix A)





15. South east along alignment (Drawing 2c, Appendix A)



16. North west along alignment (Drawing 2c, Appendix A)



17. West along the alignment (Main Road, Drawing 2c, Appendix A)



18. East along alignment (Drawing 2c, Appendix A)



19. West along the alignment (Drawing 2c, Appendix A)



20. South west – possibly outside Project footprint (Drawing 2c, Appendix A)



21. Random refuse (polystyrene, Drawing 2c, Appendix A)



22. Random refuse (bottle, Drawing 2c, Appendix A)



23. East along the alignment (Drawing 2c, Appendix A)



24. North along the alignment (Drawing 2c, Appendix A)



25. Upgradient (east) of drainage crossing (Drawing 2c, Appendix A)



26. Downgradient (west) of drainage crossing (Drawing 2c, Appendix A)



27. Dam in drainage channel looking east (Drawing 2c, Appendix A)



28. Dam with pipe inflow from unknown source looking west (Drawing 2c, Appendix A)



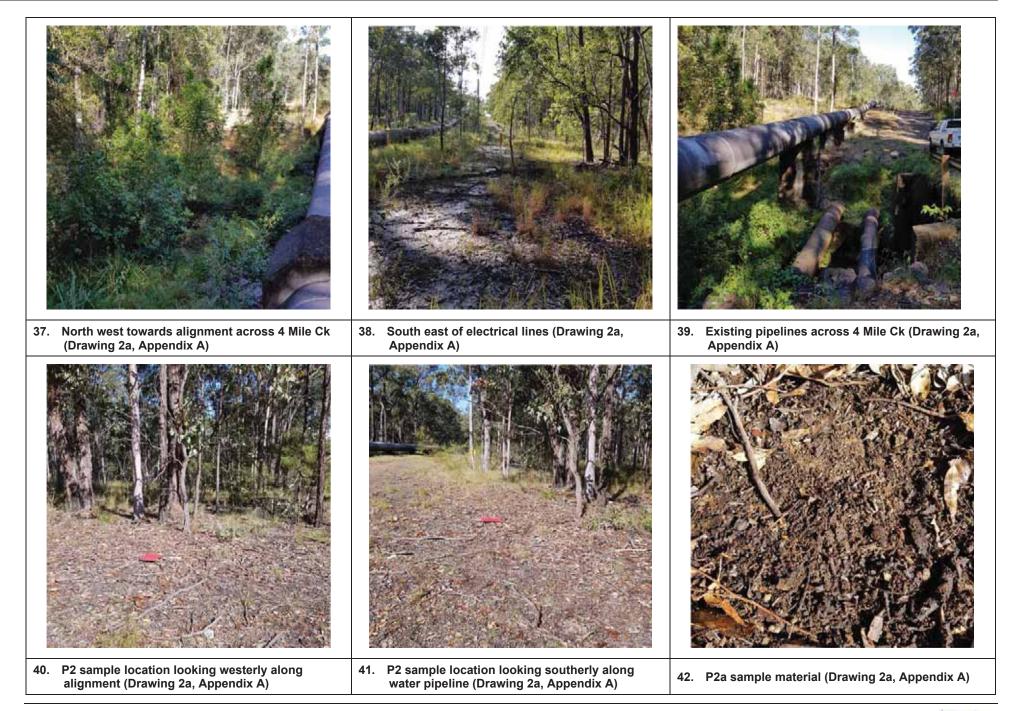


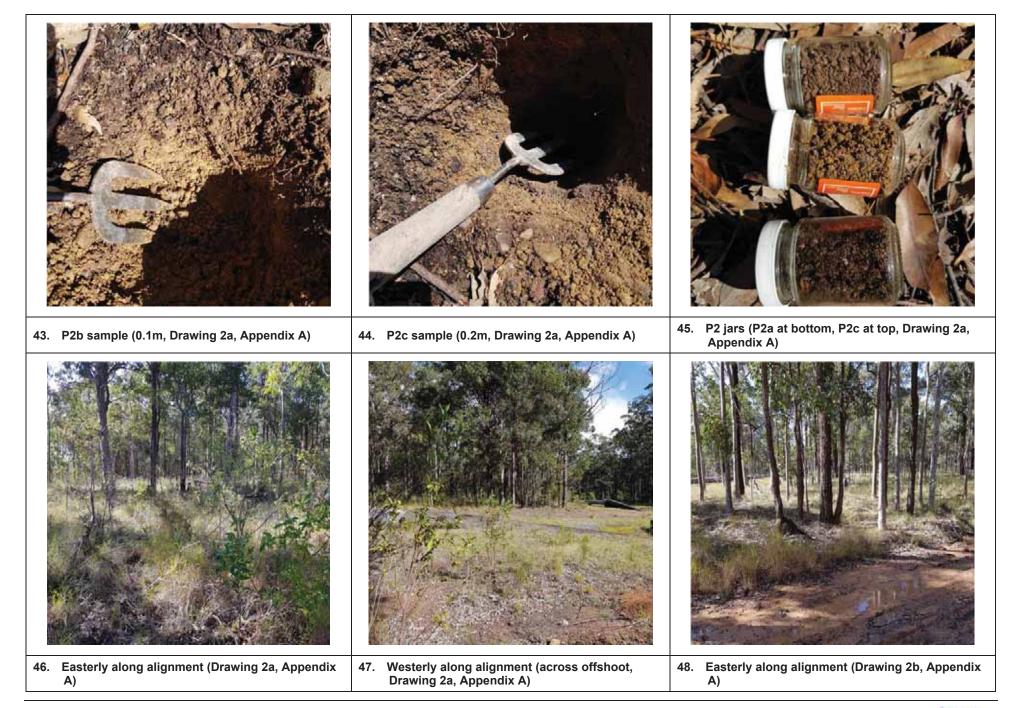
29. North along alignment (Drawing 2c, Appendix A)



30. South along alignment (Drawing 2c, Appendix A)













50. Westerly along alignment (Drawing 2a, Appendix A)



51. Easterly along alignment (water transfer line, Drawing 2a, Appendix A)



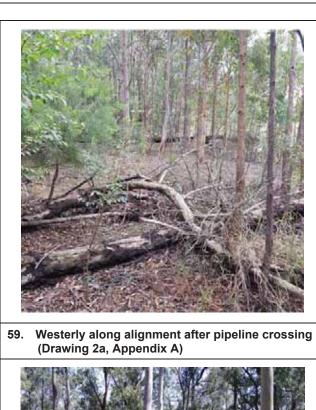




52. Stockpile with waste – including asbestos (Drawing 2a, Appendix A)











60. Westerly along alignment and drainage channel in rehab area (Drawing 2a, Appendix A)

61. Westerly along alignment (drain to north, Drawing 2a, Appendix A)







63. Southerly along alignment and towards Whytes Creek (Drawing 2b, Appendix A)



64. North east along alignment (Drawing 2b, Appendix A)











72. North west along Chichester, slope left to right (Drawing 2b, Appendix A)



73. P4 sampling location looking south along alignment (Drawing 2b, Appendix A)



74. P4 sample location looking north towards dam (Drawing 2b, Appendix A)



75. P4a sample material (Drawing 2b, Appendix A)



76. P4c sample material (Drawing 2b, Appendix A)





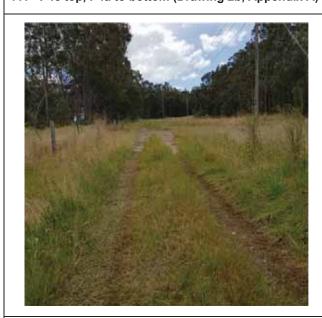




78. Rehab - fill area looking south west (Drawing 2b, Appendix A)



79. South west along alignment (Drawing 2b, Appendix A)



80. North east along alignment (Drawing 2b, Appendix A)



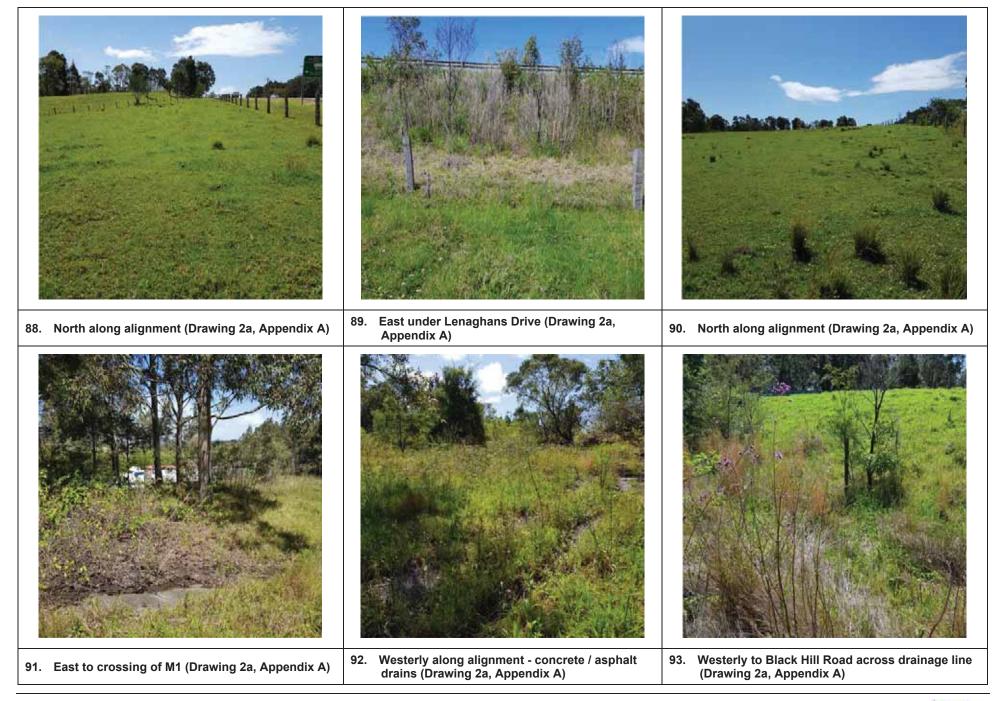
81. North west along alignment (Drawing 2b, Appendix A)

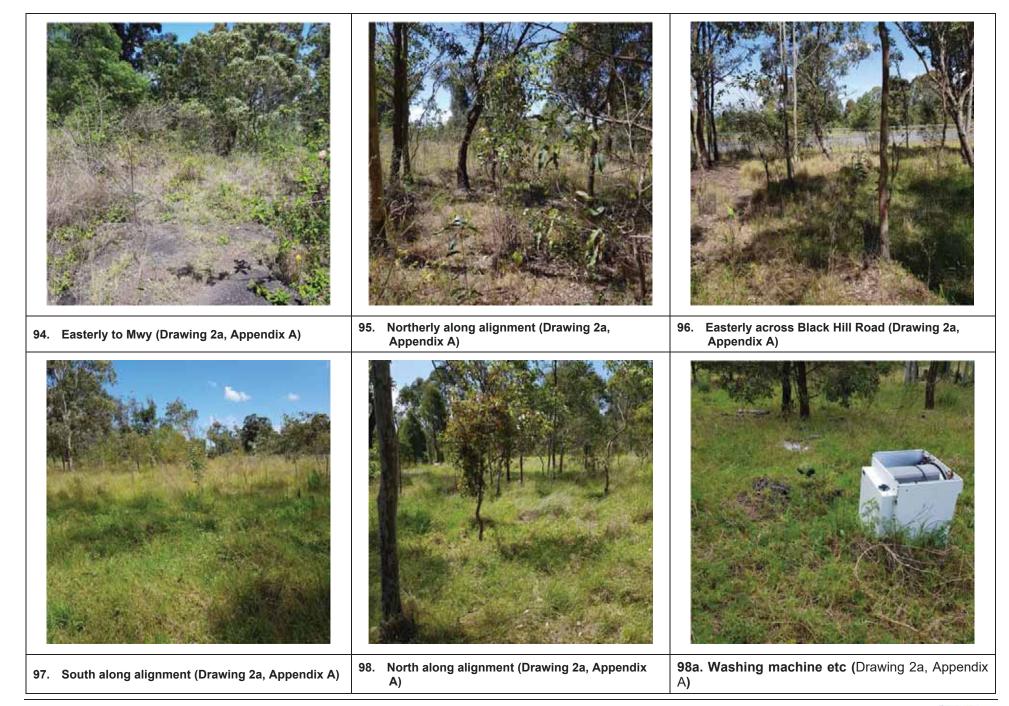


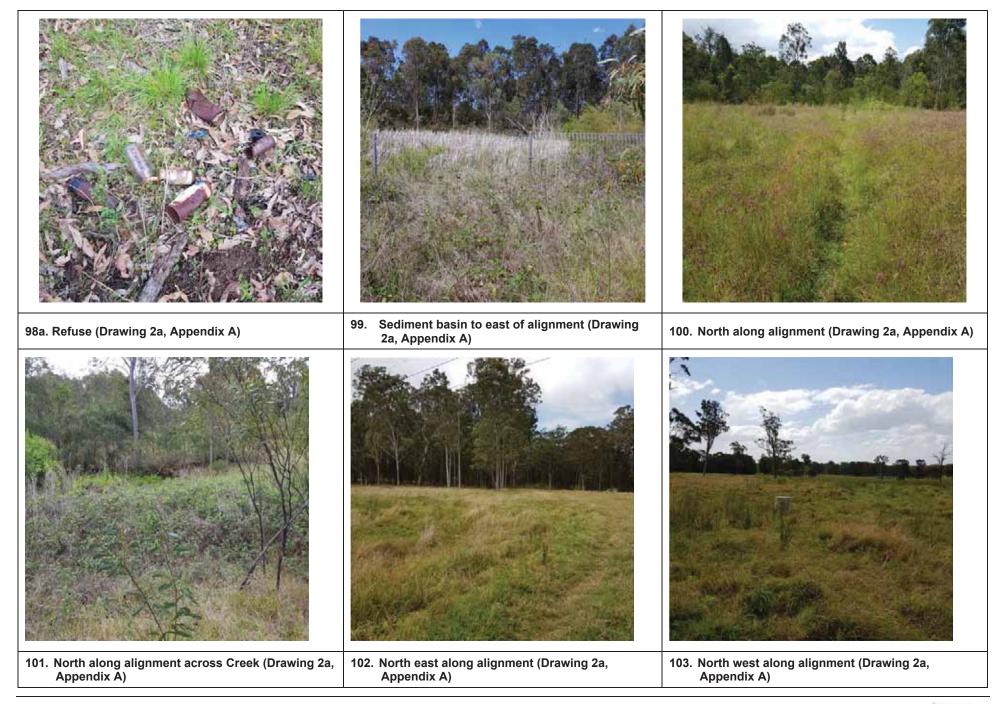
32. South east across Buchanan Road (Drawing 2b, Appendix A)





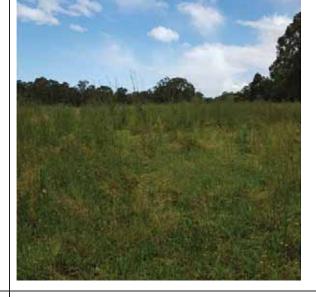










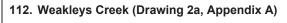




110. South east along alignment (Drawing 2a, Appendix A)

111. North west along alignment to Weakleys Creek (Drawing 2a, Appendix A)







113. Drainage channel looking east south east (Drawing 2a, Appendix A)



114. South east along alignment (Drawing 2a, Appendix A)





115. North west along alignment (Drawing 2a, Appendix A)



116. North along alignment (Drawing 2c, Appendix A)



117. South along alignment (Drawing 2c, Appendix A)



118. Drain to west of alignment (presume from former Hydro smelter, Drawing 2c, Appendix A)



118a Waste near alignment (Drawing 2c, Appendix A)





119. East along alignment across Creek (Drawing 2c, Appendix A)



120. West along alignment (Drawing 2c, Appendix A)



121. East along alignment (Drawing 2c, Appendix A)



122. West along alignment (Drawing 2c, Appendix A)



123. West along alignment (Drawing 2c, Appendix A)



124. Wetlands to north of alignment (Drawing 2c, Appendix A)



125. East along alignment (Drawing 2c, Appendix A)



126. East along alignment (Drawing 2c, Appendix A)



127. South west along alignment option 1 (Drawing 2c, Appendix A)



128. West along alignment option 2 (Drawing 2c, Appendix A)







129. Indicative irrigation area (Drawing 2c, Appendix A)



130. East along alignment option 2 (Drawing 2c, Appendix A)



131. West to bush for horizontal boring for option 2 (Drawing 2c, Appendix A)



132. East along alignment option 1 (Drawing 2c, Appendix A)



133. West to bush for option 1 (Drawing 2c, Appendix A)



134. East towards end of storage pipeline (Drawing 2c, Appendix A)



135. West into remainder of storage pipeline (Drawing 2c, Appendix A)



136. East along storage pipeline (Drawing 2c, Appendix A)

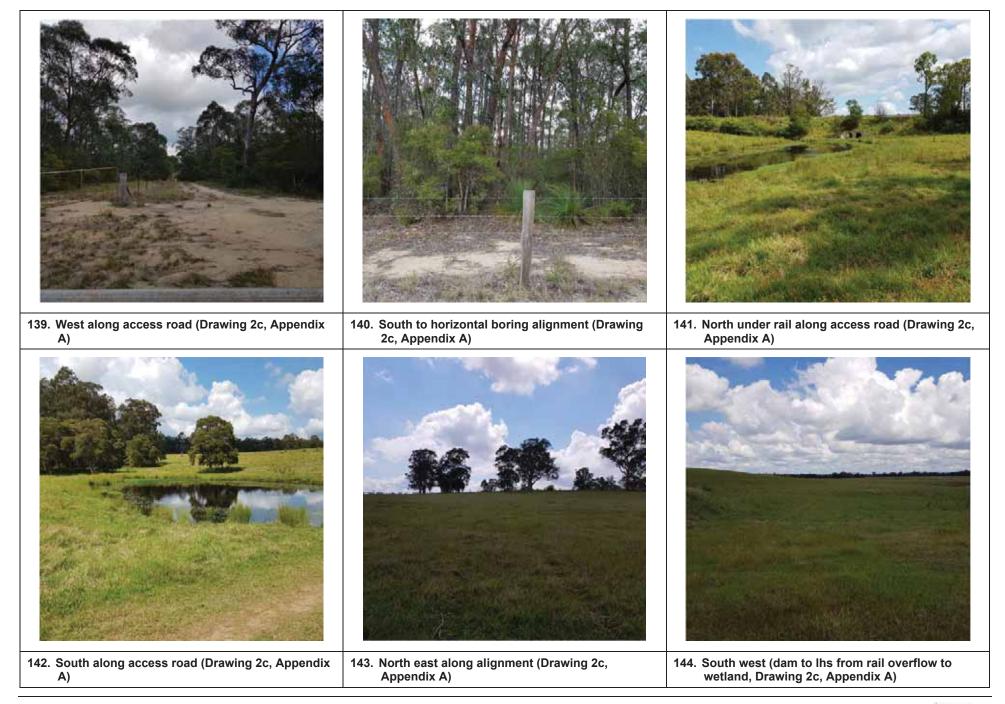


137. South along storage pipeline (Drawing 2c, Appendix A)



138. North along storage pipeline (Drawing 2c, Appendix A)



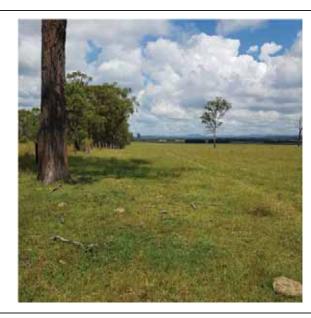




145. North east along alignment (Drawing 2c, Appendix A)



146. West along alignment (Drawing 2c, Appendix A)



147. South west along alignment (Drawing 2c, Appendix A)



148. South east across rail (Drawing 2c, Appendix A)









149. Waste within railway corridor in proximity to alignment (Drawing 2c, Appendix A)



150. Sinkhole looking east along alignment (Drawing 2c, Appendix A)



151. West along alignment (Drawing 2c, Appendix A)



Appendix H

Swamp and Wallis Creek Borehole Logs



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Swamp Creek NSW

DATE COMMENCED: 08/12/2021 DATE COMPLETED: 08/12/2021

SURFACE RL:

COORDS: 358823.00 m E 6373311.00 m N MGA94 56

F		ION: Swamp		NOVV			DRILL MODEL: Ha		Ci	
-	В	orehole Infor	mation			Z	Field Material Informat		<u> </u>	
METHOD	WATER	FIELD	SAMPLE	(ш) ндада	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)		CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
			D-BH1a			CI- CH	TOPSOIL, Silty CLAY, medium to high plasticity, grey-brown, with some fine to medium grained sand	w>PL		TOPSOIL
			0.10m	- 0.10 -		CI-	Silty CLAY, medium to high plasticity, brown mottled			ALLUVIUM
			0.40m D-BH1b 0.50m	- - - 0.5 -		СН	grey-brown becoming grey-brown at 0.4m			- - - -
				0.75 -	144	СН	Silty CLAY, high plasticity, brown-grey			_
			0.85m D-BH1c		<u> </u>		becoming grey mottled red-brown at ~0.85m			_
			0.95m	-			becoming grey motited red-brown at 0.00m			-
atge				- 1.0	1/1/					_
d by D	pe			-						-
evelope	ounter			_	$N_{/}$					_
AH g	Not Encountered				W					
rofessi	ž			- 1.30 -		CI- CH	Silty CLAY, medium to high plasticity, grey and red-orange mottled orange-brown, trace of fine grained sand, with some			-
gINT P			1.40m D-BH1d	=	V//		pockets of organics (dark brown)			-
ced by			1.50m	- 1.5	M_{\odot}					_
Produ				_	W					_
2 15:58					VV					
02/202				_	M//	1				-
× 10/				-	W	1	becoming grey mottled orange-brown and red-orange at			-
ingFile			1.90m	-	V/V		~1.8m			-
< <draw< td=""><td></td><td></td><td>D-BH1e 2.00m</td><td>-2.0</td><td></td><td></td><td></td><td></td><td></td><td>_</td></draw<>			D-BH1e 2.00m	-2.0						_
GPJ				2.0	YYY					
S-GEO					YXX.					-
7-LOG				-	YYX					-
3 1573				-	YXX.					-
DFO			2.40m	-	ľXX					-
COR			D-BH1f 2.50m	—2.50 ; —	<u> </u>					
NON AS				-2.00			BOREHOLE BH1 TERMINATED AT 2.50 m Limit of investigation			
.og R							Note: Coordinates taken from Google Earth app on mobile phone			-
GLB				-						-
DARD				 -						-
STAN										
_RCA										_
RCA_LIB_081_RCA_STANDARD.GLB_Log_RCA_NON_CORED_LOG_19737_LOGS-GEO.GPJ_ <drawnigfile>> 10/02/2022_15:86 Produced by gINT_Professional, Developed by Datget Professional</drawnigfile>	LOGO	GED: CD			I		CHECKED: MA	DA	ΓΕ: 17/	12/2021



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Swamp Creek NSW

DATE COMMENCED: 08/12/2021 DATE COMPLETED: 08/12/2021

SURFACE RL:

COORDS: 358861.00 m E 6372054.00 m N MGA94 56

F		ION: Swamp		1311	1		DRILL MODEL: Ha		CI	
\vdash	В	orehole Infor	mation			z	Field Material Informa		-	
METHOD	WATER	FIELD TEST	SAMPLE	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)		CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	
			D-BH2a 0.10m 0.15m D-BH2b 0.25m	- 0.10 -		ML SC- SM	TOPSOIL, Clayey Sandy SILT, low plasticity, brown, fine grained sand Silty Clayey SAND, fine grained, grey-brown	w>PL	-	TOPSOIL Root mat present ALLUVIUM
				0.25 - -		CH	Silty CLAY, high plasticity, pale orange-brown and grey-brown	w>PL		Trace of rootlets to ~0.4m
				0.50; - - - -		СН	Silty CLAY, high plasticity, grey mottled pale orange-brown and red-orange, with some pockets of organics (grey-brown), trace of fine grained sand			- - -
HA	Not Encountered		1.00m D-BH2c 1.10m	- 1.0 - - - 1.30 -		CI-	Silty CLAY, medium to high plasticity, grey mottled			- - -
			1.45m D-BH2d 1.55m	- 1.5 -		CH	red-orange, with a trace to some fine grained sand			- - -
			2.00m D-BH2e 2.10m	1.75 - - - - 2.0		CI	Silty Sandy CLAY, medium plasticity, grey mottled red-orange, fine grained sand, trace of organics (dark brown) becoming grey mottled red-brown and red-orange at ~2.1m			- -
L			2.40m D-BH2f 2.50m	- 2.25 - - - - -2.50;-		CI- CH	Silty CLAY, medium to high plasticity, grey and dark red-orange mottled red-brown, with a trace to some fine grained sand becoming grey mottled red-orange and orange-brown at ~2.4m BOREHOLE BH2 TERMINATED AT 2.50 m			
				-			Limit of investigation Note: Coordinates taken from Google Earth app on mobile phone			- - -
L	LOGGED: CD						CHECKED: MA	DA ⁻	 ΓΕ: 17/ <i>′</i>	12/2021



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Swamp Creek NSW

DATE COMMENCED: 08/12/2021 DATE COMPLETED: 08/12/2021

SURFACE RL:

COORDS: 359152.00 m E 6372076.00 m N MGA94 56

 -		orehole Infor					Field Material Informa			
		orenole imor	mauon			Z	Field Material IIIIOITIa		\z	
METHOD	WATER	FIELD	SAMPLE	DEРТН (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
			BH3a 0.05m /			SM	TOPSOIL, Silty SAND, fine to medium grained, brown	М		TOPSOIL Root mat present
			0.15m D-BH3b 0.25m	- 0.15 -		SP	SAND, fine to medium grained, brown, with silt			ALLUVIUM -
				- - 0.40 -		SP	SAND, fine to medium grained, pale brown			-
			0.50m D-BH3c 0.60m	0.5 			o. a. E., m. e te mediani grames, pare bronn			<u>-</u>
				- - 0.80 -		SP	SAND, fine to medium grained, pale yellow-brown, trace of	M - W		-
B HA			1.00m	- 1.0		Oi	fine sub-rounded gravel	IVI - VV		- -
eveloped by Date			D-BH3d 1.10m	- - 1.20 -			becoming with trace of fine to medium sub-rounded gravel at ~1.0m			-
rolessional, L				- -		SW	SAND, fine to coarse grained, pale brown, trace of fine sub-rounded to rounded river gravel	W		<u>.</u>
Produced by gin	08/12/21		1.50m D-BH3e 1.60m	- 1.5			becoming trace of fine to coarse sub-rounded to rounded gravel at ~1.4m			Groundwater sample obtained for the purpose of aggressivity testing –
0/02/2022 15:56				_			becoming orange-brown at ~1.6m			
Consideration of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract			1.90m D-BH3f 2.00m	- 2.00						
				-			BOREHOLE BH3 TERMINATED AT 2.00 m Borehole walls collapsing below GWT Note: Coordinates taken from Google Earth app on mobile phone			
TRALIB_00.1_TRAL_37.1ANDARD/01B_000_TRANS NON CONFIDENCE 19/3/4COSS-GEO/GF7				- -						
20 FOR FOR FOR				- 2.5 -						-
NDARD.GLB LO				- -						
00.1 RCA 31.8				-						
L	LOGGED: CD						CHECKED: MA	DAT	ΓΕ: 17/	12/2021



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Wallis Creek NSW

DATE COMMENCED: 14/01/2022 DATE COMPLETED: 14/01/2022

SURFACE RL:

COORDS: 361965.00 m E 6371941.70 m N MGA94 56

<u> </u>		ION: Wallis		3VV			DRILL MODEL: Ha			
-	В	orehole Infor	mation			Z	Field Material Informa		-	
METHOD	WATER	FIELD	SAMPLE	DEРТН (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)		CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	
			D-BH4a 0.10m		\mathcal{X}	ML	Clayey SILT, low plasticity, brown, with some fine grained sand	w <pl< td=""><td></td><td>ALLUVIUM With root fibres</td></pl<>		ALLUVIUM With root fibres
				0.15 - -		CI- CH	Silty Sandy CLAY, medium to high plasticity, dark grey with orange-brown mottles, trace of fine weathered charcoal fragments, trace of sub-angular to sub-rounded gravel	w~PL		Trace of root fibres to ~1.2m
			0.40m D-BH4b 0.50m	- 0.5						_
				-						-
			0.90m D-BH4c 1.00m	- <i>0.80</i> - - 1.0		CI- CH	Silty CLAY, medium to high plasticity, dark grey mottled dark brown, trace of fine grained sand			-
H Reveroped by Danier - 10.02/2022 10.30 Froduced by ginn i Professional, Developed by Danier				- 1.0 - - 1.20 -						_
AH Alolessional, L	<u></u>		1.40m	=		CH	Silty CLAY, high plasticity, dark grey			_
so Produced by gir	14/01/22I		D-BH4d 1.50m	1.5 						_
10/02/2022 13:3			1.80m	- 1.75 – -		SP	SAND, fine to medium grained, grey, with some silt/clay	W	-	-
o ssoriamingrilles			D-BH4e 1.95m	- 2.0						_
7-LOG9-GEO.GP				-			becoming with a trace to some fine to medium sub-rounded gravel, grey with some orange-brown mottling at ~2.1m			_
RCA_LIP_001_RCA_STANDARD/GLB L0g RCA NON CORED LOG 19/9/LUGSS-GEUJGP3 CC			2.40m D-BH4f	-						-
Log RCA NON			2.50m	2.50; -	\$25 S	•	BOREHOLE BH4 TERMINATED AT 2.50 m Limit of investigation Note: Coordinates taken from Google Earth app on mobile phone			_
I ANDARD.GLB				-						-
- D 00				_						-
	_OGG	SED: CD/RT					CHECKED: MA	DA	ΓE: 31/0	01/2022



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Wallis Creek NSW

DATE COMMENCED: 14/01/2022 DATE COMPLETED: 14/01/2022

SURFACE RL:

COORDS: 362143.21 m E 6371842.42 m N MGA94 56

LOCATION: Wallis Creek NSW		DRILL MODEL: Ha	nd Aug	er			
Borehole Information		Field Material Informat					
WATER WATER FIELD TEST SAMPLE	GRAPHIC LOG CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS		
D-BH5a 0.10m - - - 0.50m D-BH5b 0.60m	CI-CH	Silty CLAY, medium to high plasticity, dark grey mottled orange-brown becoming with a trace of fine to medium grained sand at ~0.9m	w <pl w="">PL</pl>	S.	ALLUVIUM With root fibres to ~0.1m		
D-BH5c 1.05m		becoming with a trace of fine weathered charcoal fragments (easily crumbled by hand) at ~1.2m			Groundwater sample obtained for the purpose of aggressivity testing		
D-BH5d 1.50m 1.5					- - -		
D-BH5e 2.00m 2.00 2.34T000000000000000000000000000000000000					- - - -		
2.50- 2.50- - - - - - - - - -		BOREHOLE BH5 TERMINATED AT 2.50 m Limit of investigation Note: Coordinates taken from Google Earth app on mobile phone			- - -		
LOGGED: CD/RT		CHECKED: MA	DATE: 31/01/2022				



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Wallis Creek NSW

DATE COMMENCED: 14/01/2022 DATE COMPLETED: 14/01/2022

SURFACE RL:

COORDS: 362379.06 m E 6371730.34 m N MGA94 56

F		ION: Wallis (3 V V		DRILL MODEL: Ha		Ci	
	B	orehole Infor	rnation		Z	Field Material Informa		>	
METHOD	WATER	FIELD	SAMPLE	DEРТН (m)	GRAPHIC LOG CLASSIFICATION		MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	STRUCTURE AND ADDITIONAL OBSERVATIONS
			D-BH6a 0.10m 0.50m D-BH6b	- - - 0.40 - - 0.5	CCI	of fine to medium grained sand Silty CLAY, medium to high plasticity, dark brown	w <pl< td=""><td></td><td>ALLUVIUM With root fibres to ~0.4m -</td></pl<>		ALLUVIUM With root fibres to ~0.4m -
પ્લપ્તુવા			1.00m D-BH6c	- - - 0.90 -	CI	Silty CLAY, high plasticity, dark grey mottled orange-brown, trace of fine grained sand	w~PL		- - - -
Edaming files - 1972/2021 1950 Floodcod by girls - 1908/2018 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 1908/2019 - 190			1.40m D-BH6d 1.50m	- 1.10 - - - - 1.5	SI	SAND, fine to medium grained, pale brown-grey mottled orange, with a trace to some silt	M - W	-	- - - -
10,001 10,001 10,001 10,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 110,000 11	14/01/22		1.90m D-BH6e	-		becoming with some clay at ~1.6m	W		- - -
			2.40m D-BH6f	- 2.0		becoming pale grey mottled orange at ~2.1m			- - - -
NOTE TO STATE THE STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STATE TO STA			2.50m	2.50 		BOREHOLE BH6 TERMINATED AT 2.50 m Limit of investigation Note: Coordinates taken from Google Earth app on mobile phone			- - -
	_OGG	SED: CD/RT				CHECKED: MA	DA	TE: 31/0	01/2022



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Wallis Creek NSW

DATE COMMENCED: 14/01/2022 DATE COMPLETED: 14/01/2022

SURFACE RL:

COORDS: 362678.41 m E 6371687.82 m N MGA94 56

\vdash		orehole Infor					Field Material Informa			
		orenole imor	Пацоп			Z			>	
METHOD	WATER	FIELD TEST	SAMPLE	DEРТН (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	>	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	
			D-BH7a 0.10m	-		CI- CH	Silty CLAY, medium to high plasticity, dark grey mottled orange-brown	w <pl< td=""><td></td><td>ALLUVIUM With root fibres to ~0.3m -</td></pl<>		ALLUVIUM With root fibres to ~0.3m -
			0.50m D-BH7b	- <i>0.4</i> 5 - 0.5		SP	becoming sandier with depth, fine to medium grained sand at ~0.35m SAND, fine to medium grained, pale brown-grey mottled orange-brown, with clay/silt	M	_	ALLUVIUM
Ped by Daiger			1.00m D-BH7c 1.10m	- - - - 1.0				M - W		- - - -
CACDIANII FILEST IN 22 22.2. 13.30 FIOUCOU UT GINT FIORESSIDIAL, DEVELOPUU UT DAIGHT	14/01/22		1.50m D-BH7d 1.60m	- - <i>1.40 -</i> 1.5		CL- CI/SC	Sandy CLAY/Clayey SAND, fine to medium grained, low to medium plasticity clay, grey with some green-grey and orange-brown mottles	W>PL / W		- - -
10/02/2022				- 1.70 -		SP	SAND, fine to medium grained, grey mottled orange-brown	W	_	-
				1.90 2.0 			BOREHOLE BH7 TERMINATED AT 1.90 m Due to collapse Note: Coordinates taken from Google Earth app on mobile phone			_
				- - 2.5 -						- - -
				- - -						- -
L	.OGG	SED: CD/RT					CHECKED: MA	DA	TE: 31/0	01/2022



SHEET 1 OF 1

PROJECT No: 15737

CLIENT: Umwelt (Australia) Pty Ltd

PROJECT: Kurri Kurri Lateral Pipeline ASS & Groundwater Assessment

LOCATION: Wallis Creek NSW

DATE COMMENCED: 14/01/2022 DATE COMPLETED: 14/01/2022

SURFACE RL:

COORDS: 362964.59 m E 6371648.50 m N MGA94 56

-	Br	orehole Infor	mation				Field Material Informa		,01	
	В	orenole imol	Пацоп		Z	<u> </u>			>	
METHOD	WATER	FIELD TEST	SAMPLE	DEРТН (m)	GRAPHIC LOG	SYMBOL	DESCRIPTION (SOIL NAME; plasticity/grain size, colour, particle shape, secondary components, minor constituents) (ROCK NAME; grain size, colour, minor constituents)	MOISTURE/ WEATHERING	CONSISTENCY/ RELATIVE DENSITY/ STRENGTH	
			D-BH8a 0.10m	-		ML	Clayey SILT, low plasticity, brown	w <pl< td=""><td></td><td>ALLUVIUM With root fibres</td></pl<>		ALLUVIUM With root fibres
			0.45m D-BH8b 0.55m	- 0.40 - - 0.5 - 0.60 -		SC- SM	Silty Clayey SAND, fine to medium grained, brown	M		- -
				- 0.70 - - -		CL- CI SM	Silty Sandy CLAY, low to medium plasticity, brown mottled orange-brown, fine grained sand Silty SAND, fine grained, pale brown-grey mottled orange-brown, with a trace to some clay	w~PL	-	
			1.05m D-BH8c 1.15m	1.00 - - - 1.20 -		SC CI-	Silty SAND, fine grained, brown-orange Sandy CLAY, medium to high plasticity, grey with	w>PL		- - -
НА			1.40m D-BH8d 1.50m	- - 1.5 -		CH	orange-brown mottles, fine grained sand, with silt becoming with trace of fine to medium sub-angular extremely weathered ironstone gravel (dark orange-red) from ~1.4m			Free water on auger at ~1.7m (possible perched GWT?)
	14/01/22		1.90m D-BH8e 2.00m	- 1.80 - - - 2.0 -	[] [[] [] [] [] [] [] [] [] [CL- CI SC	Sandy CLAY/Clayey SAND, fine grained sand, low to medium plasticity clay, grey with some orange-brown mottles	w>PL - W		GWT measured post drilling to be at ~2.1m
	-		2.40m D-BH8f 2.50m	- 2.30 - - 2.50;		SC- SM	Silty Clayey SAND, medium grained, dark orange-brown BOREHOLE BH8 TERMINATED AT 2.50 m	W		
L				- - -			BOREHOLE BH8 TERMINATED AT 2:50 m Limit of investigation Note: Coordinates taken from Google Earth app on mobile phone			
	LOGGED: CD/RT						CHECKED: MA	DA	TE: 31/0	01/2022

Appendix I

Results Compared to Guideline Criteria

_				•	1						•	•		HIL/EIL Compa
Sample Identification		Guio	deline ^A	P1a	P1b	P1c	P2a	P2b	P2c	P3a	P3b	P4a	P4b	P4c
Sample Depth (m) ^B	PQL	HIL 'D'	EIL C&I	0	0.1	0.2	0	0.1	0.2	0	0.1	0	0.1	0.2
Date		THE D	LIL OUI	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21
	;	Sample Pr	ofile	Gravelly sand, light brown	Gravelly sand, light brown	Gravelly clayey sand, light brown	Silt and gravelly sand, light brown	Silt and gravelly sand, light brown	Silt with some clay, light grey	Silt, brown	Clay, white	Gravelly sand	Gravelly sand	Sandy clay
	Sa	mple Purp	ose	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of	Assessment of
				Contamination	Contamination	Contamination	Contamination	Contamination	Contamination	Contamination	Contamination	Contamination	Contamination	Contamination
	Samp	le collecte	а ру	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB	RCA - FB
Metals														
Lead	5	1500	1800	<5	<5	16	15	20	8	26	17	6	14	23
Organochlorine Pesticides (
alpha-BHC	0.05			<0.05			<0.05			<0.05		<0.05		
НСВ	0.05	80		<0.05			<0.05			<0.05		<0.05		
b-BHC	0.05			<0.05			<0.05			<0.05		<0.05		
g-BHC (Lindane)	0.05			<0.05			<0.05			<0.05		<0.05		
d-BHC	0.05			<0.05			<0.05			<0.05		<0.05		
Heptachlor	0.05	50		<0.05			<0.05			<0.05		<0.05		
Aldrin	0.05			<0.05			<0.05			<0.05		<0.05		
Heptachlor epoxide	0.05			<0.05			<0.05			<0.05		<0.05		
trans-Chlordane	0.05			<0.05			<0.05			<0.05		<0.05		
alpha-Endosulfan	0.05			<0.05			<0.05			<0.05		<0.05		
cis-Chlordane	0.05			<0.05			<0.05			<0.05		<0.05		
Dieldrin	0.05			<0.05			<0.05			<0.05		<0.05		
DDE	0.05	400		<0.05			<0.05			<0.05		<0.05		
Endrin	0.05	100		<0.05			<0.05			<0.05		<0.05		
beta-Endosulfan DDD	0.05			<0.05 <0.05			<0.05 <0.05			<0.05 <0.05		<0.05 <0.05		
Endrin Aldehyde	0.05			<0.05			<0.05			<0.05		<0.05		
Endosulfan sulfate	0.05			<0.05			<0.05			<0.05		<0.05		
DDT	0.03		640	<0.03			<0.03			<0.03		<0.03		
Endrin Ketone	0.05		040	<0.05			<0.05			<0.05		<0.05		
Methoxychlor	0.03	2500		<0.2			<0.2			<0.2		<0.2		
Chlordane (cis + trans)	0.2	530		0.05			0.05			0.05		0.05		
DDT+DDD+DDE	0.3	3600		0.15			0.15			0.15		0.15		
Aldrin + Dieldrin	0.0	45		0.05			0.05			0.05		0.05		
Endosulfan (aplha+beta)	0.1	2000		0.05			0.05			0.05		0.05		
Organophosphorous Pestic						1	1 2122							
Chlorpyrifos	0.05	2000		<0.05			<0.05			<0.05		<0.05		
Dichlorvos	0.05			<0.05			<0.05			<0.05		<0.05		
Demeton-S-methyl	0.05			<0.05			<0.05			<0.05		<0.05		
Monocrotophos	0.2			<0.2			<0.2			<0.2		<0.2		
Dimethoate	0.05			<0.05			<0.05			<0.05		<0.05		
Diazinon	0.05			<0.05			<0.05			<0.05		<0.05		
Parathion-methyl	0.2			<0.2			<0.2			<0.2		<0.2		
Malathion	0.05			<0.05			<0.05			<0.05		<0.05		
Fenthion	0.05			<0.05			<0.05			<0.05		<0.05		
Chlorpyrifos	0.05			<0.05			<0.05			<0.05		<0.05		
Parathion	0.2			<0.2			<0.2			<0.2		<0.2		
Pirimphos-ethyl	0.05			<0.05			<0.05			<0.05		<0.05		
Chlorfenvinphos	0.05			<0.05			<0.05			<0.05		<0.05		
Bromophos-ethyl	0.05			<0.05			<0.05			<0.05		<0.05		
Fenamiphos	0.05			<0.05			<0.05			<0.05		<0.05		
Prothiofos	0.05			<0.05			<0.05			<0.05		<0.05		
Ethion	0.05			<0.05			<0.05			<0.05		<0.05		

Umwelt (Australia) Preliminary Site (Contamination) Assessment Kurri Kurri Lateral Pipeline Project RCA ref:15737-401/3, March 2022 Prepared by: FB Checked by: KD

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														THE COMP
Sample Identification		Guid	deline ^A	P1a	P1b	P1c	P2a	P2b	P2c	P3a	P3b	P4a	P4b	P4c
Sample Depth (m) ^B	PQL	HIL 'D'	EIL C&I	0	0.1	0.2	0	0.1	0.2	0	0.1	0	0.1	0.2
Date		HIL D	EIL COI	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21	15/10/21
Carbophenothion	0.05			<0.05			<0.05			<0.05		<0.05		
Azinphos Methyl	0.05			<0.05			<0.05			<0.05		<0.05		
Herbicides	•	•	•		•	•	•	•	•	•	•	•	•	•
4-Chlorophenoxy acetic acid	0.02			<0.04			<0.04			<0.04		<0.04		
2.4-DB	0.02			<0.04			<0.04			<0.04		<0.04		
Dicamba	0.02			<0.04			<0.04			<0.04		<0.04		
Mecoprop	0.02	5000		<0.04			<0.04			<0.04		<0.04		
MCPA	0.02	5000		<0.04			<0.04			<0.04		<0.04		
2.4-DP	0.02			<0.04			<0.04			<0.04		<0.04		
2.4-D	0.02	9000		<0.04			<0.04			<0.04		<0.04		
Triclopyr	0.02			<0.04			<0.04			<0.04		<0.04		
2.4.5-TP (Silvex)	0.02			<0.04			<0.04			<0.04		<0.04		
2.4.5-T	0.02	5000		<0.04			<0.04			<0.04		<0.04		
MCPB	0.02	5000		<0.04			<0.04			<0.04		<0.04		
Picloram	0.02	35000		<0.04			<0.04			<0.04		<0.04		
Clopyralid	0.02			<0.04			<0.04			<0.04		<0.04		
Fluroxypyr	0.02			<0.04			<0.04			<0.04		<0.04		

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

EIL for Lead are the added contaminant limit for aged (>2years) Lead.

EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in <u>underline</u> are in excess of EIL

Where summation required (OCP) calculation includes components reported as non detected as 1/2 PQL.

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^A ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).

^A ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).

^B Start of sample, generally over a 0.02m interval

Sample Identification					Gu	ideline ^A				BH2A	BH4A
Sample Depth (m) B	PQL		HSL 'D'		ESL	. C&I	Non-sen	sitive ML		0	0
Date	I QL	SAND 0-<1m	SILT 0-<1m	CLAY 0-<1m	Coarse	Fine	Coarse	Fine	DC D	8/12/21	14/1/22
							Ş	Sample Pro	ofile	Topsoil, clayey sandy silt, brown, fine grained sand	Clayey silt, brown, with some fine grained sand
							Domir	nant Stratui	m ^C	Sand	Sand
							Sa	mple Purpo	ose	Assessment of Contamination Swamp Creek	Assessment of Contamination Wallis Creek
							Sampl	le collected	l by	RCA - CD/RT	RCA - CD/RT
Benzene, Toluene, Eth	ylbenz	zene, Xyl	ene (BTE	EX)							
Benzene	0.2	3	4	4	75	95			430	<0.2	<0.2
Toluene	0.5	NL	NL	NL	135	135			99000	<0.5	<0.5
Ethylbenzene	0.5	NL	NL	NL	165	185			27000	<0.5	<0.5
meta- and para-Xylene	0.5									<0.5	<0.5
ortho-Xylene	0.5									<0.5	<0.5
Total Xylenes	1	230	NL	NL	180	95			81000	0.5	0.5
Polycyclic Aromatic Hy	ydroca	arbons (F	PAH)								
Naphthalene	1	NL	NL	NL	370	370			11000	<1	<1
Total Recoverable Hyd	lrocarl	ons (TR	(H)								
TRH C ₆ -C ₁₀	10						700	800	26000	<10	<10
TRH >C ₁₀ -C ₁₆	50				170	170	1000	1000	20000	<50	<50
TRH >C ₁₆ -C ₃₄	100				1700	2500	3500	5000	27000	<100	<100
TRH >C ₃₄ -C ₄₀	100				3300	6600	10000	10000	38000	<100	<100
F1	10	260	250	310	215	215				<10	<10
F2	50	NL	NL	NL						<50	<50

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

F1 = TRH C₆-C₁₀ minus BTEX. F1 PQL deemed equal TRH C₆-C₁₀.

F2 = TRH > C_{10} - C_{16} minus naphthalene. F2 PQL deemed = TRH > C_{10} - C_{16} .

NL designates 'Not Limiting' indicating that the pore water concentration required to constitute a vapour risk is higher than the solubility capacity for that compound based on a petroleum mixture. Vapour is therefore not a risk for this compound.

Results for TRH have been compared to TPH guidelines.

Presented ESL for naphthalene is an Ecological Investigation Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

ESL for TRH >C₁₆-C₃₄ and >C₃₄-C₄₀ are low reliability

Results shown in $\ensuremath{\mathbf{BOLD}}$ are in excess of the vapour based HSL

Results shown in shading are >250% of the vapour based HSL

Results shown in underline are in excess of the ESL

Results shown in *italics* are in excess of the management limit

Results shown in patterned cells are in excess of the direct contact HSL

Where summation required (Xylene, F1, F2) calculation includes components reported as non detected as 1/2 PQL.

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^A ASC NEPM 1999 (amended April 2013) Vapour Based Health Screening Levels (HSL) 'D' (Commercial/Industrial)

^A ASC NEPM 1999 (amended April 2013) Ecological Screening Levels (ESL) C&I (Commercial and Industrial)

^A ASC NEPM 1999 (amended April 2013) Management Limits (ML) Non-Sensitive Sites (Commercial and Industrial)

^A CRC Care Technical Report 10, September 2011 Direct Contact (DC) Health Screening Levels 'D' (Commercial/Industrial)

^B Start of sample, generally over a 0.1m interval

^C Note that this is a generalisation for the purpose of comparing to the HSL criteria. Where two strata equally represented, most conservative criterion used

	<u> </u>	1 -	^	T	1	5.	T		T		HIL/EIL Compa
Sample Identification		Guid	deline ^A	BH1A	BH2A	BH3A	BH4A	BH5A	BH6A	BH7A	BH8A
Sample Depth (m) ^B	PQL	HIL 'D'	EIL C&I	0	0	0	0	0	0	0	0
Date				8/12/21	8/12/21	8/12/21	14/1/22	14/1/22	14/1/22	14/1/22	14/1/22
	5	Sample Pr	ofile	Topsoil, silty clay, grey-brown, with some fine to medium grained sand	Topsoil, clayey sandy silt, brown, fine grained sand	Topsoil, silty sand, fine to medium grained, brown	Clayey silt, brown, with some fine grained sand	Silty clay, dark grey mottled orange-brown	Clayey silt, grey-brown mottled brown, trace of fine to medium grained sand	Silty clay, dark grey mottled orange brown	Clayey silt, brown
	Sa	mple Purp	ose	Assessment of Contamination Swamp Creek	Assessment of Contamination Swamp Creek	Assessment of Contamination Swamp Creek	Assessment of Contamination Wallis Creek	Assessment of Contamination Wallis Creek	Assessment of Contamination Wallis Creek	Assessment of Contamination Wallis Creek	Assessment of Contamination Wallis Creek
	Samp	le collecte	d by	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT	RCA - CD/RT
Polyovelie Arematic Hydrocarbone (PA	Π/										
Polycyclic Aromatic Hydrocarbons (PA Naphthalene	0.5		370	l	<0.5		<0.5				
Acenaphthylene	0.5		310		<0.5	 	<0.5				
Acenaphthene	0.5				<0.5		<0.5				
Fluorene	0.5				<0.5		<0.5				
Phenanthrene	0.5				<0.5		<0.5				
Anthracene	0.5				<0.5		<0.5				
Fluoranthene	0.5				<0.5		<0.5				
Pyrene	0.5				<0.5		<0.5				
Benz(a)anthracene	0.5				<0.5		<0.5				
Chrysene	0.5				<0.5	-	<0.5				
Benzo(b)&(j)fluoranthene	0.5				<0.5		<0.5				
Benzo(k)fluoranthene	0.5				<0.5		<0.5				
Benzo(a) pyrene	0.5		1.4		<0.5		<0.5				
Indeno(1,2,3-c,d)pyrene	0.5				<0.5	-	<0.5				
Dibenz(a,h)anthracene	0.5				<0.5		<0.5				
Benzo(g,h,i)perylene	0.5				<0.5		<0.5				
Carcinogenic PAH (B(a)P equivalent)	1.21	40			0.605		0.605				
Sum of reported PAH	8	4000			4		4				
Metals	1 _	1					T	T _	T	I	T
Arsenic	5	3000	160	5	5	<5	<5	5	6	<5	6
Cadmium	1	900	0.10	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	2	3600	310	23	12 7	5	22	26	27	38	27
Copper	5	240000	400	8 <0.1	<0.1	<5 <0.1	20 <0.1	27 <0.1	20 <0.1	27 <0.1	23
Mercury Lead	0.1 5	730 1500	1800	19	13	8	22	26	21	22	<0.1 22
Nickel	2	6000	55	10	11	5	21	28	26	38	29
Zinc	5	400000	360	32	14	31	66	75	59	86	68
Organochlorine Pesticides (OCP)		400000	300	32	17	J1	00	13	<u> </u>	00	00
alpha-BHC	0.05	1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HCB	0.05	80		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
b-BHC	0.05	- 00		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
g-BHC (Lindane)	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
d-BHC	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	0.05	50		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDE	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	0.05	100		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDD	0.05	ļ		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin Aldehyde	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	0.05		0.46	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DDT	0.2		640	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Ketone	0.05	0500		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	0.2	2500		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlordane (cis + trans)	0.1	530		0.05 0.15	0.05 0.15	0.05 0.15	0.05 0.15	0.05 0.15	0.05 0.15	0.05 0.15	0.05 0.15
DDT+DDD+DDE	0.3	3600		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15 0.05
Aldrin + Dieldrin Endosulfan (aplha+beta)	0.1	45 2000		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
LIIUUSUIIAII (APIIIATDELA)	U. I	2000		0.00	0.00	0.00	0.05	0.05	0.05	0.05	บ.บอ

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Sample Identification		Guideline ^A		BH1A	BH2A	BH3A	BH4A	BH5A	BH6A	BH7A	BH8A
Sample Depth (m) ^B	PQL	HIL 'D'		0	0	0	0	0	0	0	0
Date				8/12/21	8/12/21	8/12/21	14/1/22	14/1/22	14/1/22	14/1/22	14/1/22
				0712/21	0/12/21	07 12/2 1		1111/22			
Organophosphorous Pesticides (OPP)					_						
Chlorpyrifos	0.05	2000		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorvos	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	0.2			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	0.05			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Herbicides		1			•	L	<u>I</u>		<u>.</u>	•	L
4-Chlorophenoxy acetic acid	0.02			<0.04	<0.04	<0.04	<0.04				
2.4-DB	0.02			<0.04	<0.04	<0.04	<0.04				
Dicamba	0.02			<0.04	<0.04	<0.04	<0.04				
Mecoprop	0.02	5000		<0.04	<0.04	<0.04	<0.04				
MCPA	0.02	5000		<0.04	<0.04	<0.04	<0.04				
2.4-DP	0.02			<0.04	<0.04	<0.04	<0.04				
2.4-D	0.02	9000		<0.04	<0.04	<0.04	<0.04				
Triclopyr	0.02			<0.04	<0.04	<0.04	<0.04				
2.4.5-TP (Silvex)	0.02			<0.04	<0.04	<0.04	<0.04				
2.4.5-T	0.02	5000		<0.04	<0.04	<0.04	<0.04				
MCPB	0.02	5000		<0.04	<0.04	<0.04	<0.04				
Picloram	0.02	35000		<0.04	<0.04	<0.04	<0.04				
Clopyralid	0.02			<0.04	<0.04	<0.04	<0.04				
Fluroxypyr	0.02			<0.04	<0.04	<0.04	<0.04				

All results are in units of mg/kg.

Blank Cell indicates no criterion available

PQL = Practical Quantitation Limit. Where PQL is for a summation, PQL of all components is summed and may be different from that presented by laboratory

- ^A ASC NEPM 1999 (amended April 2013) Health Investigation Levels (HIL) 'D' (Commercial/Industrial).
- ^A ASC NEPM 1999 (amended April 2013) Ecological Investigation Levels (EIL) C&I (Commercial and Industrial).
- ^B Start of sample, generally over a 0.1m interval

The Carcinogenic PAH value is calculated by multiplying the concentration of each of the 8 carcinogenic PAH compounds by its B(a)P toxic equivalence factor and summing these products.

HIL for Chromium are for Chromium VI

Presented ecological value for benzo(a)pyrene is a low reliability Ecological Screening Level

ESL are applicable for material at less than 2m depths below finished surface/ground level

For the purpose of the Tier 1 ESL/EIL assessment, all background concentrations are assumed to be zero

- EIL for Naphthalene are for fresh (<2years) Naphthalene
- EIL for Arsenic are for aged (>2years) Arsenic
- EIL for Chromium are the added contaminant limit for aged (>2years) Chromium III in soils of 1% clay, the most conservative of the criteria.
- EIL for Copper are the added contaminant limit for aged (>2years) Copper in soils of pH 6.5.
- EIL for Lead are the added contaminant limit for aged (>2years) Lead.
- EIL for Nickel are the added contaminant limit for aged (>2years) Nickel in soils of 5% CEC the most conservative of the criteria.
- EIL for Zinc are the added contaminant limit for aged (>2years) Zinc in soils of 5% CEC and pH of 6.5, the most conservative of the criteria at pH 6.5.
- EIL for DDT are for fresh (<2years) DDT

Results shown in **BOLD** are in excess of the HIL

Results shown in shading are >250% of the HIL

Results shown in $\underline{\text{underline}}$ are in excess of EIL

Where summation required (PAH, OCP) calculation includes components reported as non detected as 1/2 PQL.

Umwelt (Australia)
Preliminary Site (Contamination) Assessment
Kurri Kurri Lateral Pipeline Project
RCA ref:15737-401/3, March 2022

Prepared by: FB Checked by: KD

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