REVOLUTION TOWN PLANNING
FOR NOW AND FOR THE FUTURE

5 February 2024

Att: Patsy Cox
Planning Officer
Gwydir Shire Council
Locked Bag 5
Bingara NSW 2404

Email: mail@gwydir.nsw.gov.au

Dear Madam,

Attn:	Patsy Cox, Planning Officer
Address:	33-35, 37 and 39 Maitland Street, Bingara NSW 2404
RPD:	Part of Lot 20 Section 38 on DP758111, Lot 1 on DP87721, Lots A, B and C on DP156383, Part of Lot A on DP152922 (BK1566 No 614 Right of Way) and Part of Lot 1 on DP209422 (BK1701 No 95 Right of Way
Subject:	Response to Request for Additional Information
Council Ref:	PAN-388341:23/21822:pmc

Background
This submission represents the Applicant's Response to a Request for Additional Information issued by Gwydir Shire Council (Council) dated 28 November 2023. (refer **Attachment 1**). It is considered the information addresses all of the issues raised by Council in the Request for Additional Information. Council is requested to continue assessment of the development application.

The following information is presented in the following format:

- The issue and information requested in the Request for Additional Information is paraphrased; and
- The Applicant's response to the request by Council follows.

All Nine (9) issues noted in the Request for Additional Information are addressed.

Issue 1 – Bingara Town Strategy
The Applicant was requested to give regard to:

'…*to the Bingara Town Strategy previously adopted by Council.'*

Response
The Bingara Town Strategy '*is a twenty year strategy to regenerate Bingara with new energy efficient/affordable housing, to create new work and opportunities for local businesses, and to improve the amenity of the town and its public spaces…The Strategy aims to create a walkable, compact town for an ageing population*'.

The Bingara Town Strategy is a high-level strategic planning document that was adopted by Council in July of 2011. The Strategy is of limited relevance to planning and development outcomes on individual allotments. This is particularly the case for the proposed development which includes the redevelopment of a site for Office and Community Facility purposes, whereby, the underlying lawful use of the land is not changing and the proposed uses are land uses which are consistent with the land use outcomes sought by Strategy. Importantly, the proposed development does not prejudice the land use and urban design outcomes that have been delivered or will be delivered in the future.

It is considered the proposed development is consistent with the Bingara Town Strategy.

Issue 2 – Service Vehicles
The Applicant was requested to provide:

Additional information pertaining to *'…service vehicles (type, frequency, etc). Loading/unloading has not been considered under AS2890.2. It is noted that swept areas are provided for a medium rigid vehicle (garbage collection only).'*

Response
A MRV (refuse collection vehicle) is the largest vehicle that will access the site. Service vehicles will be SRV or smaller. Given, the development application has demonstrated that a MRV can access, traverse, stand and exit the site in a forward, it follows that smaller vehicles may do the same and it is not considered the swept paths of the other vehicle types accessing the site are required to be provided or will be of utility to Council in their assessment.

The frequency of service vehicle movements related to the proposed development will be similar in number to the service vehicle movements associated with the existing development. It is considered service vehicle movements will generally be limited to delivery of office supplies, parcels and kitchen supplies (tea/coffee/milk) and refuse collection. Occasionally, catering for meetings or conferences may also be delivered. In this respect, it is considered service vehicle movements will comprise (a vehicle entering and leaving the site is two (2) considered Two (2) trips):

- MRV – Four (4) vehicle trips (General Waste and Recyclable waste collected weekly);
- SRV – Generally Four (4) to (6) vehicle trips where infrequently SRV vehicle trips may total Six (6) to Eight (8).

While it is acknowledged that SRV vehicle trips may exceed the volume expected in any single week, this is considered extremely unlikely and where such does occur, will represent an anomaly. Even so, at its most extreme the estimated volume of vehicle trips is insignificant and will not adversely affect the safety and efficiency of the road network or unduly impact amenity in the locality. Appropriate conditions of development approval may be imposed which restrict the size of the service vehicles able to access the site.

Issue 3 – Stormwater
The Applicant was requested to provided:

'A conceptual sketch of the existing (stormwater management) arrangements.'

Response
Please refer to drawing 231987 DA 005 [A] Stormwater Schematic prepared by StruXi Design. The drawing details the existing stormwater infrastructure surrounding the site and identifies the direction of stormwater flows (overland flow and underground pipes from impervious areas associated with the proposed development.

As shown in the drawing, stormwater management will be improved by the proposed development which will discharge stormwater either to the kerb and channel and underground infrastructure in Maitland Street or managed sheet flow in the eastern part of the site as per the existing site conditions.

Issue 4 – Crime Prevention Through Environmental Design
The Applicant was requested to give regard to:

'Crime Prevention through Environmental Design (CPTED) principles. A CPTED section should be included in the SEE or as separate report.'

Response
While the Applicant acknowledges the connection between design of the built environment and personal safety it is noted the proposed development is the redevelopment of an existing Office and Community Facility use and the proposed development will improve personal and community safety on the site.

The built environment will never eliminate risks to personal and community safety but may on discourage anti-social and/or criminal behavior. Several existing site characteristics make controlling access to parts of the site

where direct surveillance from the street is unavailable, difficult. Not least of all the fact the existing site has multiple points of access from multiple directions.

As shown in the Amended Plans, the proposed development improves the safety of the site through limiting access to the rear of the site after hours through lockable gates (may be locked at the same time as the public toilet facilities). CCTV and low-level security lighting will be installed on the building. It is recommend that 'No Public Access' signage is provided at the accesses to the carpark and Council Depot on Cunningham Street to discourage pedestrians cutting through the site as a more direct route to a northern destination on Maitland Street.

It is considered a the proposed development improves personal and community safety on the site and a separate report addressing CPTED design principles is not warranted.

Issue 5 – Acoustic Amenity

Noise may be generated by the development. The Applicant was requested to provide:

'A desktop study to assess:

a. *The current noise environment*
b. *Likely sources of noise*
c. *Potential noise at the nearest sensitive receiver*
d. *Likely attenuation available from the planned noise control structure.'*

Response

It is noted that the proposed development is for redevelopment of the existing land uses currently lawfully operating on the site. While it is acknowledged that there is a change in the type and number of vehicles utilizing the Right of Way from Cunningham Street, the increase in vehicle trips over the Right of Way is insignificant.

Further, the use generally does not include noise generating activities and will be operating during normal business hours only (typically 8:00AM – 6:00PM Monday to Friday, with public access usually limited to 8:30AM to 5:30PM). Few or no activities associated with the development will occur on weekends. The proposed development is located in the Town Centre where background noise in the locality will generally exceed the level of noise associated with the proposed development making it barely discernible. The proposed development also adjoins light industrial uses being undertaken at the Council Depot located to the east of the site.

While the frequency and level of noise associated with the proposed development are not that which are likely to cause noise nuisance, it is acknowledged that activities associated with the use may cause noise from time to time. Such activities may include vehicle movements through the right of way, car doors closing/engines starting in the carpark, refuse collection by a refuse collection vehicle and music from vehicles parked in the carpark and/or people talking in the carparking area. Typically, these noises are best managed through operational procedures and employee/contractor education and not through constructed mitigation measures. Typical sound pressure levels for the noise generating activities are included in **Table 1** below. The levels have been taken from measurements of the activities undertaken by others and collated for the purposes of assumed noise levels.

Table 1 – Sound Pressure Levels for Site Activities

Noise Source	Measured Level SPL @ 1m	Correction SPL dB(A)*	Corrected SPL Level dB(A)
Car Start Up	71 dB L_{Aeq}	0	71 dB L_{Aeq}
Car door closure	70 dB L_{Aeq}	+ 5 (impulsive)	75 dB L_{Aeq}
Car bypass @ 5 km/h	63 dB L_{Aeq}	0	63 dB L_{Aeq}
Talking and radio at normal Level in Carpark	60 dB L_{Aeq}	0	60 dB L_{Aeq}
Refuse Collection	70 dB L_{Aeq}	+ 5 (impulsive)	75 dB L_{Aeq}

Noise decreases with distance from the source by 6 dB per doubling of distance. This relationship is based on flat terrain with no obstructions between the source and the receiver and not mitigation measures (i.e. line of sight exists between the source and the receiver).

The predicted Noise Levels for the noise generating activities based on this assumption are shown in **Table 2** below.

Table 2 – Predicted Sound Pressure Levels for Site Activities (unmitigated)

Noise Source	Corrected SPL Level dB(A) @ 1m	SPL Level dB(A) @ Façade of Residence Lot A	SPL dB(A) Inside Building of Sensitive Land Use (-10 dB(A))*
Car door closure	75 dB L_{Aeq}	47 dB L_{Aeq}	37dB L_{Aeq}
Car bypass @ 5 km/h	63 dB L_{Aeq}	51 dB L_{Aeq}	41 dB L_{Aeq}
Talking and radio at normal Level in Carpark	60 dB L_{Aeq}	33 dB L_{Aeq}	23 dB L_{Aeq}
Refuse Collection	75 dB L_{Aeq}	45 dB L_{Aeq}	35 dB L_{Aeq}

*assumes windows and doors of residence closed.

As shown in the table above, all noise generating activities are predicted to be well within the acceptable daytime criteria at the nearest sensitive receptor where unmitigated. Despite this, and as part of the new development it is considered prudent to provide new fencing to the Right of Way and southern carpark boundary. The fence is proposed to be a minimum 1.8m high double lapped timber screen fence with no gaps, where the maximum height of the any retaining wall and fence is 2.4m atop the minor retaining walls proposed. The fence should achieve a density of 12kg/m^2. Depending on the frequency of the sound, such a fence is capable of reducing sound pressure levels by between 10dB(a) – 15dB(A).

It is considered the proposed development will not unduly impact the acoustic amenity of the locality.

Issue 6 – Carpark Design

The Applicant was requested to provide further details regarding design of the carparking area including:

'Fully dimensioned plans including the width of all accessways and the size of carparking spaces. The type of spaces under AS2890.1 needs to be specified and justified.'

Response

Please find attached amended plans with the dimensions of all accessways, carpark aisles and carparking spaces detailed. It is noted that sufficient site area exists for minor amendments to the concept to occur during detailed design.

It is considered the amended plans provide sufficient information to demonstrate that the design of the carparking area satisfies the relevant standards.

Issue 7 - Heritage

The Applicant was requested to give regard to:

Retaining *'the full width of the façade of the existing building.'*

Response

The full extent of the façade is unable to be retained as it will unduly inhibit pedestrian access to the site and decrease opportunities for casual surveillance of the street from within the building and inhibit the achievement of an active street frontage.

A specialist heritage architect was consulted and it was determined that the full width of the façade should be kept to represent the full extent of the building that previously occupied the site, however, not all elements of the façade need to be retained to fulfil this purpose. It was considered that the solid balcony balustrading and roof, wall and other building elements behind the facade may be removed and sufficient evidence of the former structure would remain to enable its identification and recognition.

Development Consent D/A 24/2023 for partial demolition of the existing buildings on the site exists as a separate development consent that may be carried out independent of any consent issued for the subject development application. This presents a few issues that best be addressed in that consent. Namely, the consent does not explicitly detail the extent of demolition works and when they should be completed nor does it make provision for engineering inspections and certification of the retained façade should further development not occur for some time on the property or at all.

To this end a Modification Application to modify Development Consent D/A 24/2023 will be submitted to Council for assessment. The modification application will seek to stage the demolition works such that the demolition works required to facilitate the proposed development are included as Stage 2 demolition works and Stage 2 demolition work is only undertaken if and when required by further development on the site. The modification application will also propose additional conditions be included that ensure that following completion of Stage 1 works, the retained faced is inspected by a registered structural engineer to certify it is structurally sound and does not present a risk to life or property. The conditions will also propose that where Stage 2 demolition works are not undertaken within 18 months of the completion of the Stage 1 demolition works a follow up inspection be undertaken by a registered structural engineer is undertaken to ensure that the retained façade remains structurally sound and as expected and does not present a risk to life or property.

Demolition of the public toilet structure is required to be included in the subject development application. The timing of the works is required to be tied to the contractor's construction program and should not be undertaken prior to the commissioning of the new facilities within the new building (or as near to this event as practicable).

The modification application will be made to Council in due course. The plans proposed to be incorporated in Development Consent D/A 24/2023 are provided in **Attachment 2** for information purposes only.

Issue 8 – Building Finishes
The Applicant was requested to give regard to:

'…the colour palette of the retained façade with a view to utilising colours which emphasises the articulation (as at present).'

Response
Amended Plans have been prepared detailing a revised colour palette for the façade and the interfacing of the old and the new building components. Rather than mimic or attempt to recreate the existing colour palette and where relevant the articulation of building features associated with such, the proposed colour palette complements the existing colour palette and acknowledges the features of the building façade that have not been retained. It does this through the use of subtle changes in colour shading. It is considered the colour palette provides an appropriate outcome that provides a design outcome that acknowledges the past but also encapsulates a feeling of a bright and prosperous future for the town of Bingara.

Issue 9 – Contaminated Land
The Applicant was requested to address:

'Land contamination/remediation' matters for the site..

Response
Development Consent D/A 24/2023 for partial demolition of the site buildings includes Condition 13 which relates to potential land contamination. Consistent with the SMK report for the consent, the condition requires additional land contamination investigations should areas of contamination be exposed as part of the demolition works. The Demolition Plan is to be updated on an as needs basis based of any further contamination investigations. However, the condition does not require any recommendations resulting from the contamination investigations to be implemented nor the Demolition Plan referenced in the condition to be implemented and/or reviewed and updated (Condition 3).

Despite this, it is considered that Development Consent D/A 24/2023 for partial demolition of the existing buildings is the most appropriate place to address land contamination and/or remediation. An updated

Contaminate Land Report has been prepared and will be submitted with the Modification Application to be made to modify Development Consent D/A 24/2023. Amendments to the Conditions of Development Consent are recommend in the modification application to ensure that land contamination matters are appropriately considered and addressed.

The extent of land contamination on the site is minor and the level of containments found during the investigation were such that their presence is not in itself harmful to human health or exceeding the recommended threshold level for the particular contaminants for a commercial land use.

Conclusion

It is considered that Council now has all of the information required to assess the Development Application. If you require any further information / clarification please contact the undersigned on 0428 289 446.

Regards,

Peter Swan, Director
Revolution Town Planning

ATTACHMENT 1 – Copy of Request for Additional Information

ABN | 37 350 897 968
PH | 0477 442 024
www.revolutiontp.com.au | admin@revolutiontp.com.au
PO Box 1978, Toowoomba Qld 4350

Our Reference: PAN-388341:23/21822:pmc
Contact: Patsy Cox – 02 6729 3022

GWYDIR
SHIRE COUNCIL

28 November 2023

Peter Swan
Revolution Town Planning
Suite 12, Level 1
203 Margaret Street
TOOWOOMBA QLD 4350

Dear Peter

Request for Additional Information PAN-388341
33-35 Maitland Street Bingara

A pre-lodgement assessment of the development application submitted on the NSW Planning Portal, reference PAN-388341, has been carried out by an independent planning consultant. The development is for the construction of an office premise and community facility at 33-35 Maitland Street Bingara, including Lot B, DP 156384, Lot 20, Section 38, DP 758111, Lot 1, DP 87721, Lot A, DP 152922 and Lot 1, DP 209422.

The following additional information is requested in accordance with *s.36 of the Environmental Planning and Assessment Regulation 2021* to enable a proper assessment of the application:

1. Attention needs to be given to the Bingara Town Strategy previously adopted by Council.
2. No mention has been made in the Statement of Environmental Effects (SEE) of service vehicles (type, frequency etc). Loading/unloading has not been considered under AS2890.2. It is noted that swept areas are provided for a medium rigid vehicle (garbage collection only).
3. Stormwater is not proposed to be upgraded. A conceptual sketch of the existing arrangements should be shown.
4. Consideration needs to be given to "Crime Prevention through Environmental Design" (CPTED) principles. A CPTED section should be included in the SEE or as a separate report.
5. No formal noise assessment has been carried out. A desktop study should be conducted to assess;
   a. The current noise environment
   b. Likely sources of noise

c. Potential noise at the nearest sensitive receiver
d. Likely attenuation available from the planned noise control structure.

6. Fully dimensioned plans are required including the width of all accessways and the size of carparking spaces. The type of spaces under AS2890.1 needs to be specified and justified.
7. The full façade of the existing building has not been retained, only the southern section. In this respect consideration needs to be given to the full width of the façade.
8. Further consideration should be given to the colour palette of the retained façade with a view to utilising colours which emphasise the articulation (as at present).
9. Land contamination/remediation has not been addressed.

You are advised that the information is to be provided prior to the lodgement of the application. Any response to this request is to be uploaded to the NSW Planning Portal by clicking on the "Additional Information Summary" tab under PAN-388341. Council asks that the additional information be provided within 21 days of the request. Please contact Council if you require an extension of time.

Please contact Council's Planning and Environment Team if you require assistance or need further information.

Yours Faithfully

Patsy Cox
Planning Officer

enc

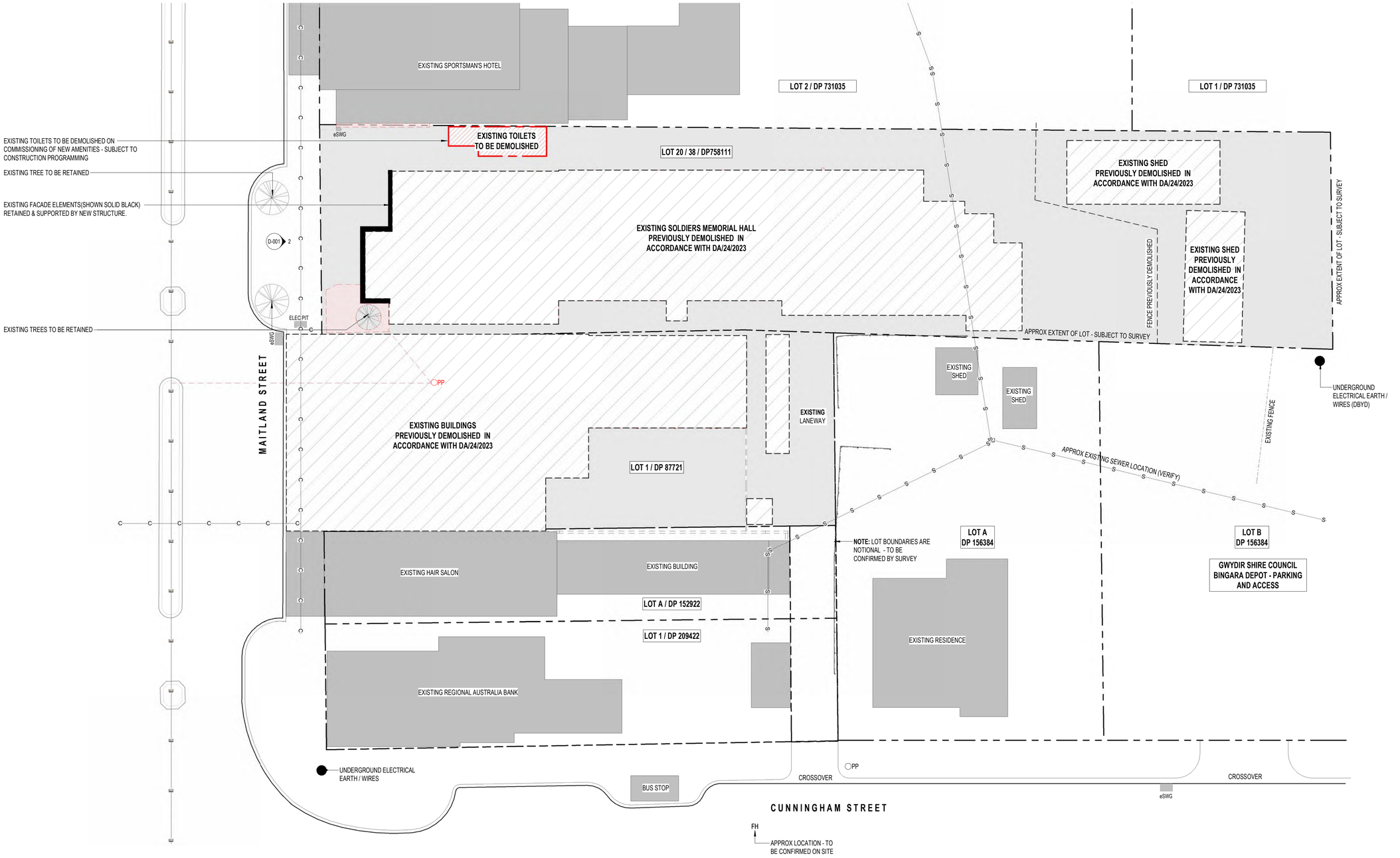
ATTACHMENT 2 – Amended Plans

ABN | 37 350 897 968
PH | 0477 442 024
www.revolutiontp.com.au | admin@revolutiontp.com.au
PO Box 1978, Toowoomba Qld 4350

KEY

EXISTING

SYMBOL	DESCRIPTION
	PREVIOUSLY DEMOLISHED ELEMENTS
	EXISTING ELEMENTS TO BE DEMOLISHED
	EXISTING ELEMENTS TO BE RETAINED
eHC	EXISTING HOSECOCK
GAS	EXISTING GAS METER
eC	EXISTING COMMUNICATIONS POINT
eRL 59.600	EXISTING REDUCED LEVEL



EXISTING & DEMO SITE PLAN

1 : 200

STRUXI DESIGN PTY LTD
p | 07 4638 4658 abn | 23 115 458 958
e | struxi@struxi.com.au qbcc | 1080847
w | www.struxi.com.au
a | Suite12, Level 1 /203 Margaret St Toowoomba Q 4350

PROUD MEMBER OF THE BUILDING DESIGNERS ASSOCIATION OF QUEENSLAND SINCE 2005
MEMBER NUMBER: 730

SHEET ISSUE HISTORY

ISSUE	DESCRIPTION	DATE
B	RFI	31.01.2024
A	FOR DEVELOPMENT APPLICATION	02.11.2023

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
EXISTING & DEMO SITE PLAN

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
PRINT DATE	31-Jan-24 1:54:56 PM

SCALE
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0 1m 2m 4m 6m 8m 10m
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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	001	B

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SCOPE OF SITE WORKS:
NO RETAINING WALLS OR CUT/FILL EARTHWORKS BEYOND TYPICAL FOOTING & SLAB GROUND WORKS

SOIL CONTAMINATION / REMEDIATION:
THE PRESENCE OF KNOWN CONTAMINANTS TO BE IDENTIFIED AND THE SITE MADE SAFE THROUGH CARRYING OUT DA/24/2023 PRIOR TO THE COMMENCEMENT OF WORKS FOR THE SUBJECT DEVELOPMENT

KEY — SITE EXISTING

SYMBOL	DESCRIPTION
	SURFACE GRADIENT LINE (APPROX)
—S—	EXISTING SEWER LINE
—SW—	EXISTING STORMWATER LINE
—W—	EXISTING WATER MAIN
—E—	EXISTING OVERHEAD POWERLINE
—G—	EXISTING GAS LINE
—C—	EXISTING TELSTRA LINES
PP	EXISTING POWERPOLE
GAS	EXISTING GAS METER
C	EXISTING COMMUNICATIONS POINT
	EXISTING HOSECOCK
FH	EXISTING FIRE HYDRANT
eSWG	EXISTING STORMWATER GRATE

COMMERCIAL SITE PLAN NOTES:

- BUILDER IS TO CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO THE COMMENCEMENT OF WORK
- EARTHWORKS & SEDIMENT CONTROL ARE TO COMPLY WITH THE CIVIL ENGINEER'S DESIGN DOCUMENTS
- FINISHED LEVELS & SURFACES ARE TO COMPLY WITH THE ENGINEER'S STORMWATER MANAGEMENT REPORT & DESIGN DOCUMENTS & WITH NCC FP1.1, FP1.2 & FP1.3
- REFER TO ENGINEER'S DRAWINGS FOR LOCATION & DESIGN OF RETAINING WALLS
- ALL STORMWATER DISCHARGE FROM ROOF IS TO COMPLY WITH THE HYDRAULIC ENGINEER'S DESIGN DOCUMENTS & AS 3500.3
- ONLY THE VEGETATION WITHIN THE AREA REQUIRED TO CONSTRUCT THE PAD PLATFORM IS TO BE REMOVED
- BUILDER IS TO REMOVE FOREIGN & LEFT-OVER MATERIAL ON OR ABOVE THE SITE SURFACE, INCLUDING RUBBISH, SCRAP, GRASS, VEGETABLE MATTER AND ORGANIC DEBRIS, SCRUB, TIMBER, STUMPS, BOULDERS AND RUBBLE.
- REMOVE THE TOPSOIL LAYER OF THE NATURAL GROUND WHICH CONTAINS SUBSTANTIAL ORGANIC MATTER OVER THE AREAS TO BE OCCUPIED BY CONSTRUCTION AND PAVING.
- STOCKPILE SITE TOPSOIL REQUIRED FOR RE-USE. PROTECT STOCKPILES FROM CONTAMINATION BY OTHER EXCAVATED MATERIAL, WEEDS AND BUILDING DEBRIS
- BUILDER IS TO PROVIDE APPROPRIATE TEMPORARY & PERMANENT FENCING TO THE SITE IN ACCORDANCE WITH ALL RELEVANT AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS
- BUILDER TO ENSURE SITE ACCESS, TRAFFIC MANAGEMENT, & WATER STORAGE AREA COMPLY WITH THE BCA, ALL RELEVANT AUSTRALIAN STANDARDS & LOCAL AUTHORITY REQUIREMENTS
- CROSSOVER TO COMPLY WITH COUNCIL REGULATIONS
- RAMPS, WALKWAYS & FOOTPATHS ARE TO COMPLY WITH DESIGN DOCUMENTS (INCLUSIVE OF ALL PROJECT CONSULTANTS) & AS 1428.1.10. DISCREPENCIES BETWEEN CONSULTANTS' DESIGNS, & BETWEEN DESIGN DOCUMENTS & THE STANDARD ARE TO BE REFFERED TO THE DESIGNER
- CAR PARKING LAYOUTS ARE TO COMPLY WITH DESIGN DOCUMENTS (INCLUSIVE OF ALL PROJECT CONSULTANTS) & AS 2890. DISCREPENCIES BETWEEN CONSULTANTS' DESIGNS, & BETWEEN DESIGN DOCUMENTS & THE STANDARD ARE TO BE REFFERED TO THE DESIGNER

SITE DETAILS:

STREET ADDRESS	**33 -35 MAITLAND ST BINGARA NSW 2404**
SITE DESCRIPTION	Lot 20 Section 38 DP758111 Lot 1 DP 87721
SITE AREA	3000 m² (VERIFY)
LOCAL AUTHORITY	GWYDIR SHIRE COUNCIL PARISH OF BINGARA COUNTY OF MURCHISON

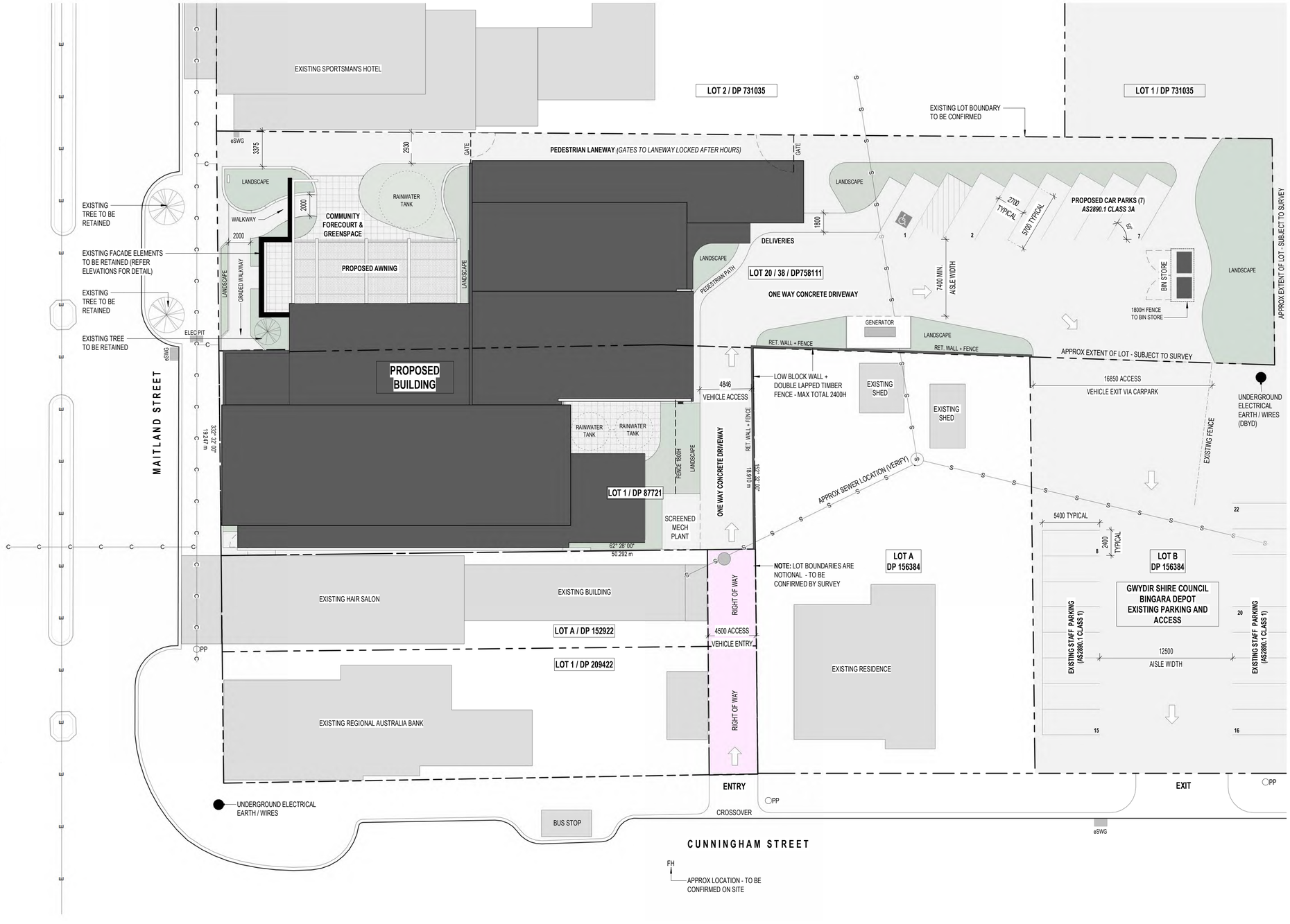
BUILDING USE DETAILS:

POPULATION:	MAX 48 STAFF
OPERATING HOURS:	9am - 4pm MON-FRI

BUILDING CODE DETAILS:

BUILDING CLASS:	5/9B
CONSTRUCTION TYPE:	C
TOTAL FLOOR AREA (EXISTING):	1461m²
TOTAL FLOOR AREA (PROPOSED):	1098m²
TOTAL LANDSCAPING (EXISTING):	25m² (<1%)
TOTAL LANDSCAPING (PROPOSED):	170m² (5.6%)
VOLUME:	<12000 m³
FIRE COMPARTMENTS:	1
STOREYS:	1
CLIMATE ZONE :	ZONE 4

AREA SCHEDULE	
NAME	AREA
MAIN BUILDING	1065 m²
STAFF COURTYARD	57 m²
COLONNADE	152 m²
PUBLIC AMENITIES	33 m²
GRAND TOTAL	1307 m²



PROPOSED SITE PLAN
1 : 200

STRUXI DESIGN PTY LTD
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231967	DA	002	B

STRUXI DESIGN PTY LTD

CARPARK CALCULATIONS

(REFER FLOOR PLAN FOR BUILDING USE ZONING)

COMMUNITY FACILITIES (338m²)
NO OFF STREET PARKING PROVIDED

OFFICE PREMISES (766m²)
OFF STREET PARKING PROVIDED
@ 1 CARPARK / 30m² 25

NEW PARKING PROVIDED:
AS2890.1 CLASS 3A
SHORT TERM PARKING
STANDARD SPACES 6
PWD PARKING 1

EXISTING PARKING PROVIDED:
AS2890.1 CLASS 1
STAFF DAY PARKING
(CUNNINGHAM ST ENTRY) 25

TOTAL PARKING PROVIDED **32**
(NET PARKING CHANGE) +7

REFER SITE PLAN FOR PARKING DIMENSIONS

LOCALITY & PARKING PLAN
1 : 500

StruXi design

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LOCALITY & PARKING PLAN

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231967	DA	003	B

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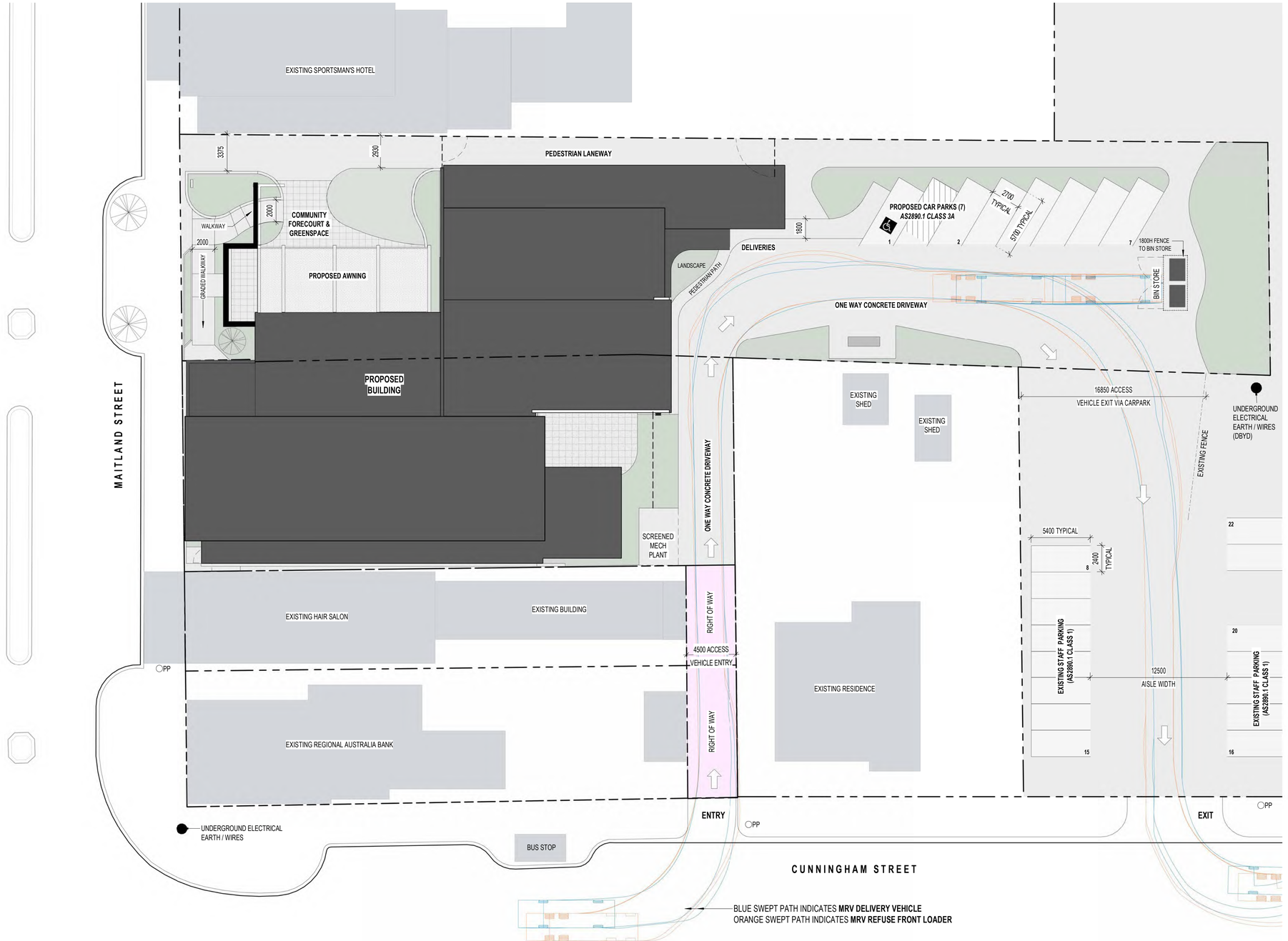

VEHICLE ACCESS PLAN
1 : 200

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SHEET ISSUE HISTORY

ISSUE	DESCRIPTION	DATE
B	RFI	31.01.2024
A	FOR DEVELOPMENT APPLICATION	02.11.2023

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
VEHICLE ACCESS PLAN

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
PRINT DATE	31-Jan-24 1:55:18 PM

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231967	DA	004	B

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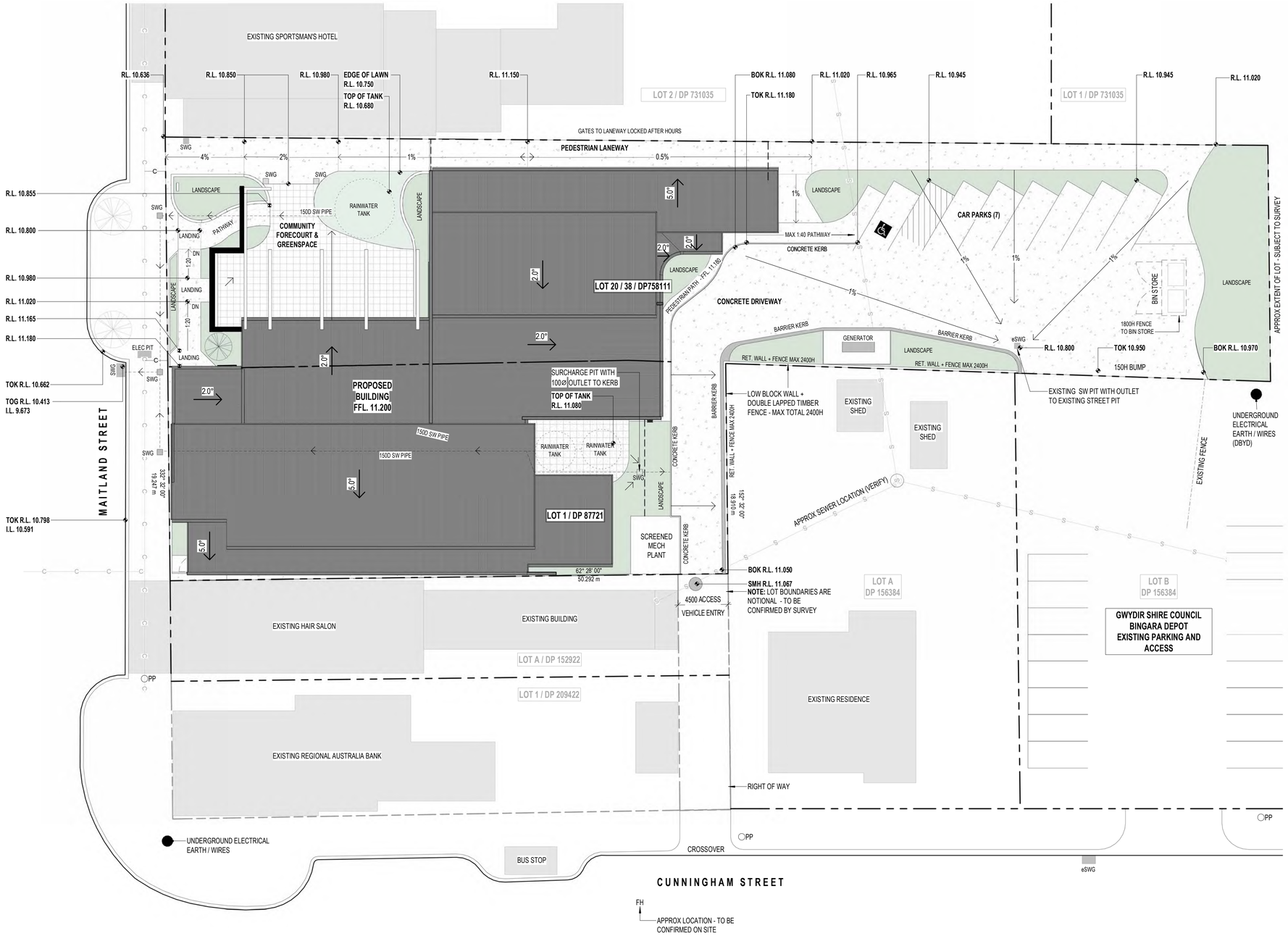
KEY — SITE EXISTING

SYMBOL	DESCRIPTION
	SURFACE GRADIENT LINE (APPROX)
—S—	EXISTING SEWER LINE
—SW—	EXISTING STORMWATER LINE
—W—	EXISTING WATER MAIN
—E—	EXISTING OVERHEAD POWERLINE
—G—	EXISTING GAS LINE
—C—	EXISTING TELSTRA LINES
○PP	EXISTING POWERPOLE
GAS	EXISTING GAS METER
C	EXISTING COMMUNICATIONS POINT
♀	EXISTING HOSECOCK
FH	EXISTING FIRE HYDRANT
eSWG	EXISTING STORMWATER GRATE

NOTE:

ALL ROOF WATER DIRECTED TO RAINWATER TANKS - OVERFLOW TO EXISTING STORMWATER DRAINS TO HYDRAULIC DESIGN.

ALL SITE RUNOFF TO BE DIRECTED TO EXISTING STORMWATER DRAINS TO CIVIL DESIGN.



STORMWATER SCHEMATIC

1 : 200

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BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
STORMWATER SCHEMATIC

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
PRINT DATE	31-Jan-24 1:55:27 PM

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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	005	A

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KEY | EXISTING

SYMBOL	DESCRIPTION
	EXISTING ELEMENTS TO BE DEMOLISHED
	EXISTING ELEMENTS TO BE RETAINED
eHC	EXISTING HOSECOCK
GAS	EXISTING GAS METER
eC	EXISTING COMMUNICATIONS POINT
eRL 59.600	EXISTING REDUCED LEVEL

EXISTING TOILETS TO BE DEMOLISHED ON COMMISSIONING OF NEW AMENITIES - SUBJECT TO CONSTRUCTION PROGRAMMING

DEMOLITION IN ACCORDANCE WITH - DA/24/2023

EXISTING FACADE ELEMENTS (SHOWN SOLID BLACK) RETAINED & SUPPORTED BY NEW STRUCTURE.

EXISTING TOILETS TO BE DEMOLISHED

EXISTING SOLDIERS MEMORIAL HALL
PREVIOUSLY DEMOLISHED IN ACCORDANCE
WITH DA/24/2023
(DEMOLITION STAGE 1)

D-001 2

EXISTING BUILDINGS
PREVIOUSLY DEMOLISHED IN
ACCORDANCE WITH DA/24/2023
(DEMOLITION STAGE 1)

MAITLAND STREET

EXISTING & DEMO FLOOR PLAN
1 : 100

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A	FOR DEVELOPMENT APPLICATION	02.11.2023

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PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
EXISTING & DEMO FLOOR PLAN

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	101	B

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KEY | PROPOSED

SYMBOL	DESCRIPTION
	EXISTING WALL TO BE DEMOLISHED
	EXISTING WALLS TO REMAIN
	NEW WALL
	COMMUNITY FACILITIES (APPROX 338m²)
	OFFICE FACILITIES (APPROX 766m²)

AREA SCHEDULE	
NAME	AREA
MAIN BUILDING	1065 m²
STAFF COURTYARD	57 m²
COLONNADE	152 m²
PUBLIC AMENITIES	33 m²
GRAND TOTAL	1307 m²

ABBREVIATION LEGEND	
ABBREV.	TEXT
MSB	MAIN SWITCHBOARD

PROPOSED FLOOR PLAN
1 : 100

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A	FOR DEVELOPMENT APPLICATION	02.11.2023

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
PROPOSED FLOOR PLAN

SHEET DETAILS

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	102	B

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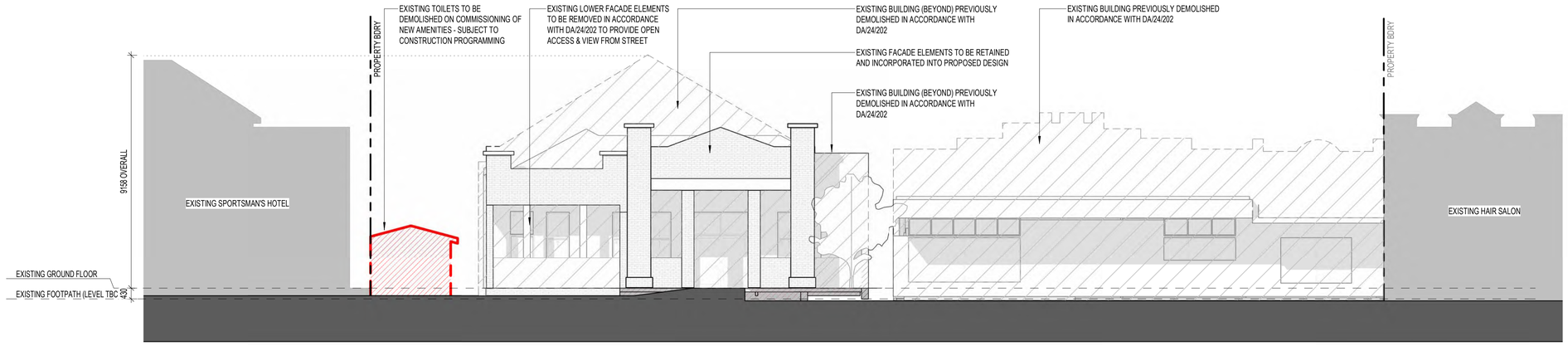

1 / 101 EXISTING WEST ELEVATION - STREETSCAPE

1 : 100

2 / 102 PROPOSED WEST ELEVATION - STREETSCAPE

1 : 100

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PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
BUILDING ELEVATIONS

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
PRINT DATE	31-Jan-24 1:55:57 PM

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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	401	B

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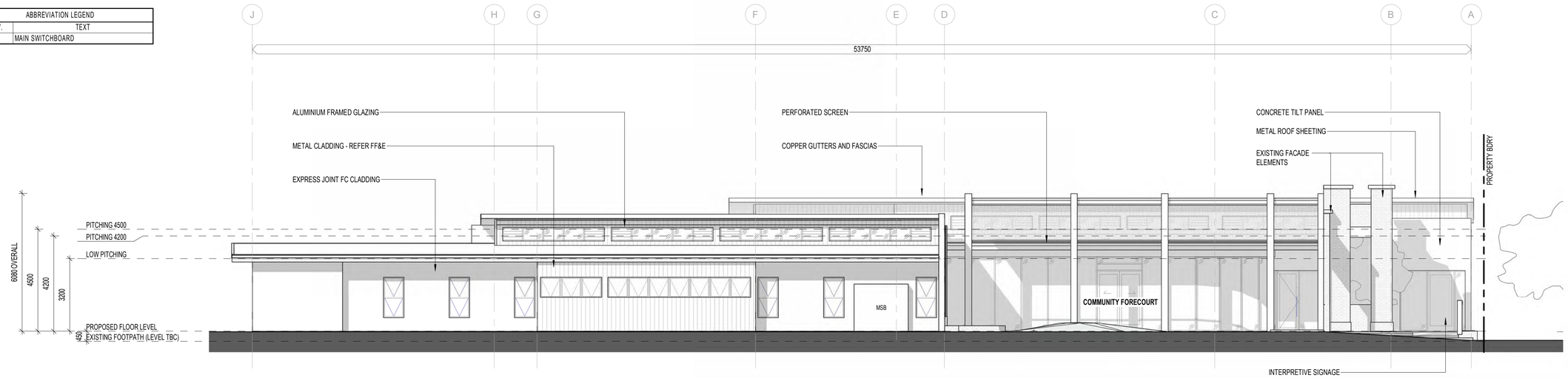
ABBREVIATION LEGEND	
ABBREV.	TEXT
MSB	MAIN SWITCHBOARD



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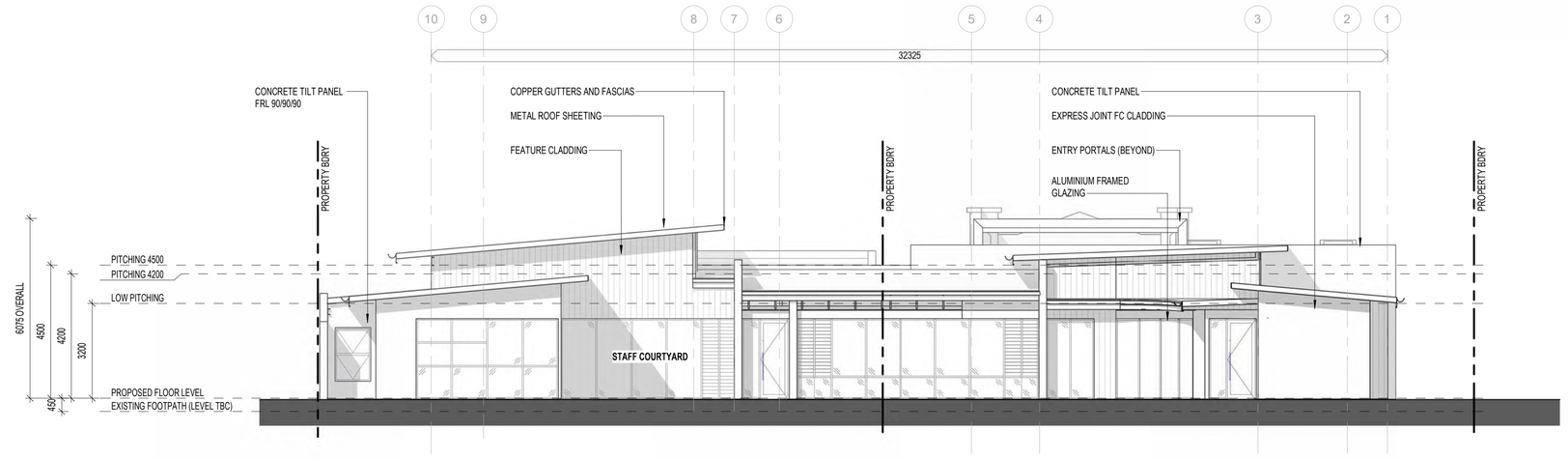
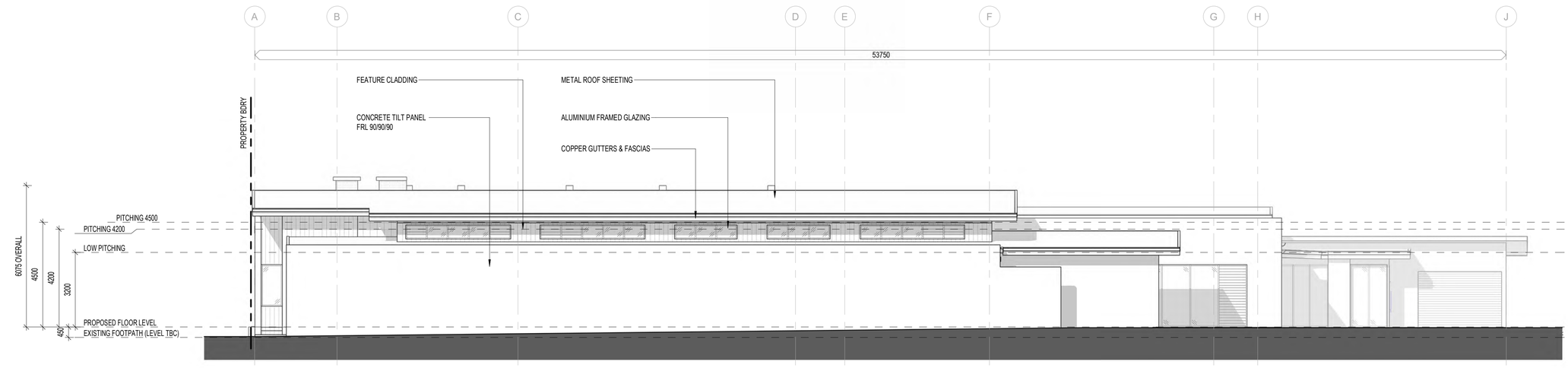
1 : 100



2/102 EAST ELEVATION

1 : 100



3/102 SOUTH ELEVATION

1 : 100

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ISSUE	DESCRIPTION	DATE
B	RFI	31.01.2024
A	FOR DEVELOPMENT APPLICATION	02.11.2023

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
BUILDING ELEVATIONS

SHEET DETAIL

AUTHOR	DOH
DESIGNER	OCK
ORIGINAL SIZE	594 x 841 - ISO A1
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	231967	DA	402	B

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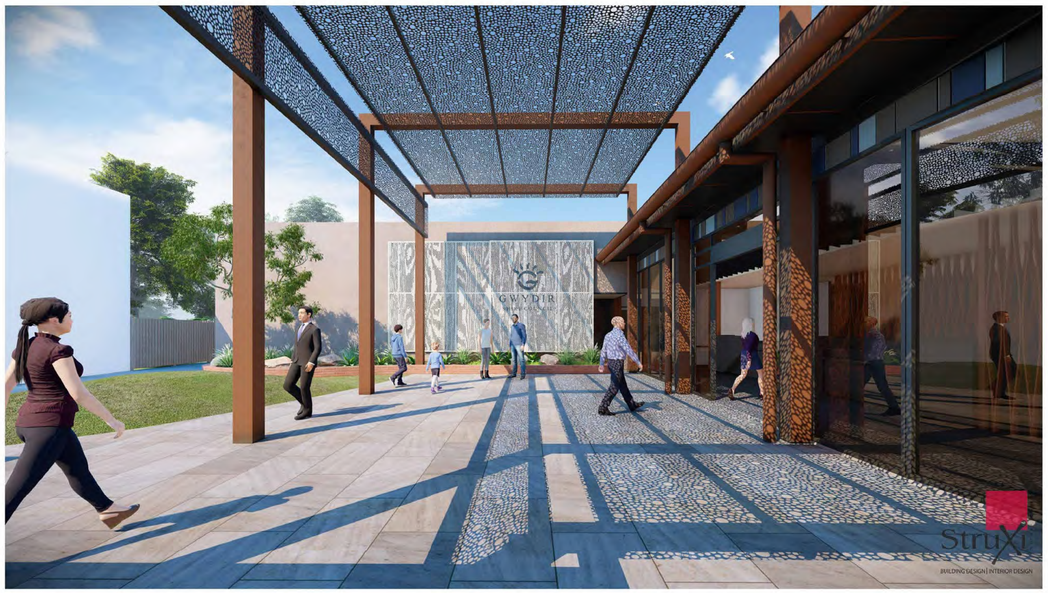

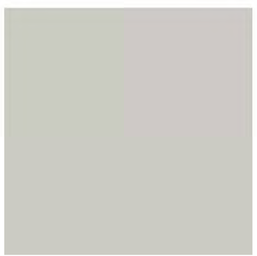

EXISTING PORTICO & FACADE - MAIN BRICKWORK
COLOUR: DULUX *UNFORGETTABLE*

EXISTING PORTICO & FACADE - ARCHITECTURAL DETAILING
COLOUR: DULUX *MOUNT BULLER*

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A	FOR DEVELOPMENT APPLICATION	02.11.2023

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
ILLUSTRATIVE VIEWS

SHEET DETAIL

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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	901	B

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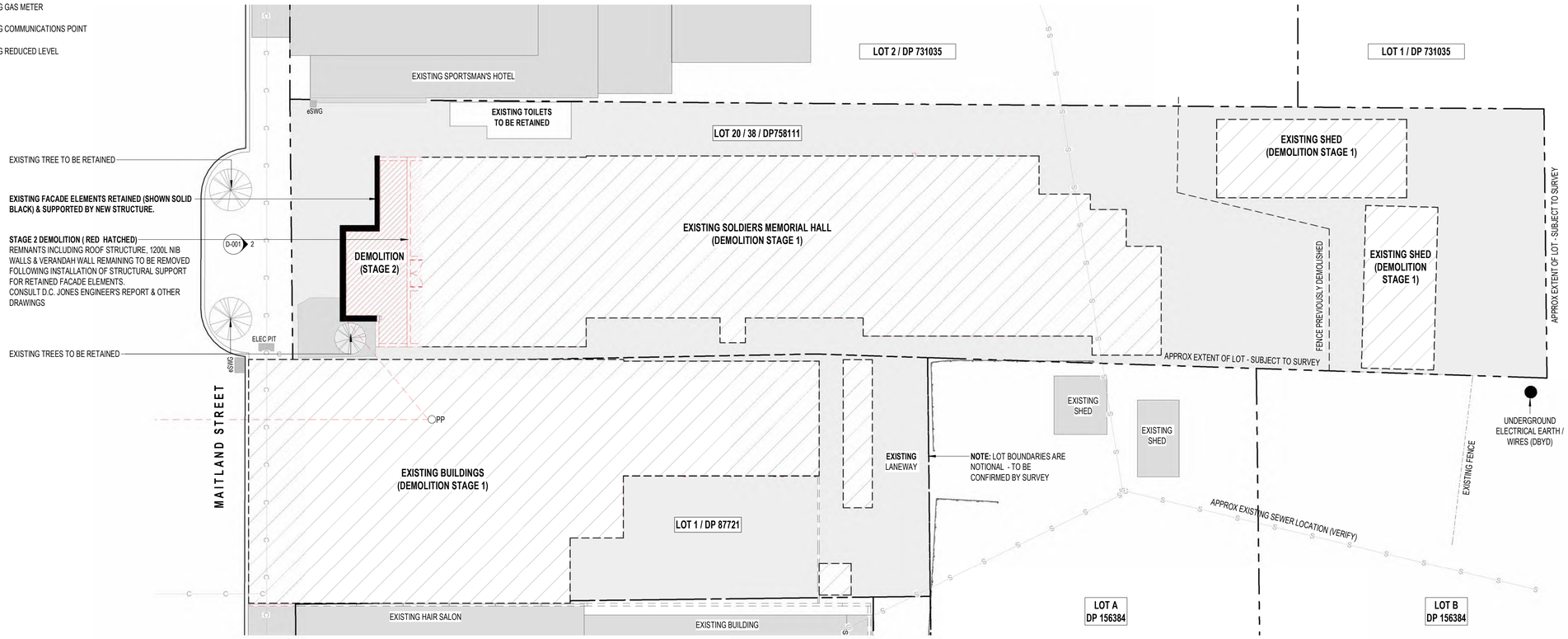
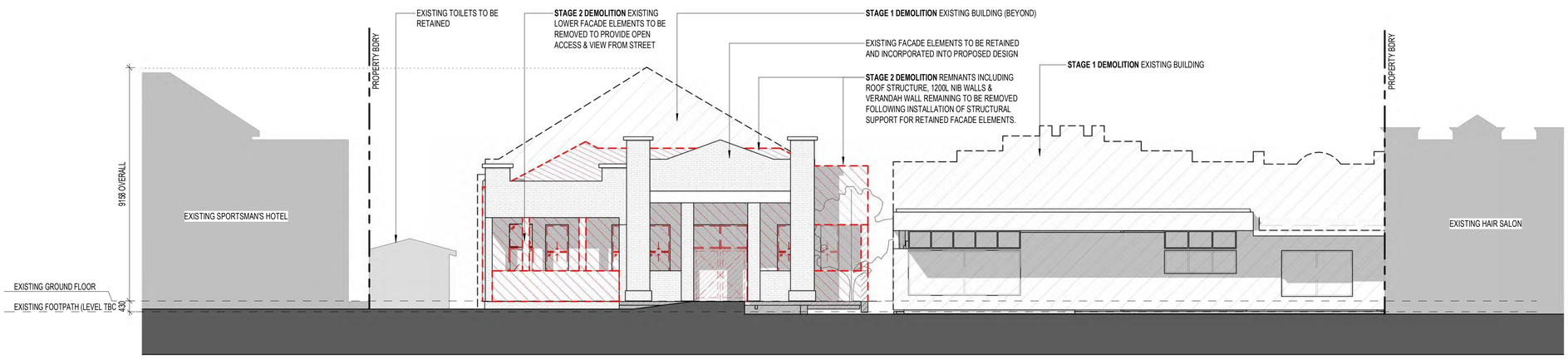
KEY

SYMBOL	DESCRIPTION
	EXISTING ELEMENTS TO BE DEMOLISHED (STAGE 1)
	EXISTING ELEMENTS TO BE DEMOLISHED (STAGE 2)
	EXISTING ELEMENTS TO BE RETAINED
eHC	EXISTING HOSECOCK
GAS	EXISTING GAS METER
eC	EXISTING COMMUNICATIONS POINT
eRL 59.600	EXISTING REDUCED LEVEL



EXISTING & DEMOLITION SITE PLAN

1 : 200



EXISTING & DEMOLITION ELEVATION

1 : 100

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MEMBER NUMBER: 730

SHEET ISSUE HISTORY

ISSUE	DESCRIPTION	DATE
B	RFI	31.01.2024
A	FOR REVIEW	24.01.2024

PROJECT DETAILS

PROJECT NAME
BINGARA ADMINISTRATION HUB

STREET ADDRESS
33-35 MAITLAND ST
BINGARA NSW 2404

REAL PROPERTY DESCRIPTION
L1 DP87721
L20 Section 38 DP758111

CLIENT
GWYDIR SHIRE COUNCIL

SHEET TITLE
DEMOLITION STAGING PLANS

SHEET DETAIL

AUTHOR	DOH
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PROJECT NO.	PHASE	SHEET NO.	ISSUE
231967	DA	D-001	B

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ATTACHMENT 3 – Contaminated Land Investigation

ABN | 37 350 897 968
PH | 0477 442 024
www.revolutiontp.com.au | admin@revolutiontp.com.au
PO Box 1978, Toowoomba Qld 4350

range
environmental
consultants

Contaminated Land Preliminary Site Investigation

33-35 Maitland Street, Bingara

CLIENT: SOILTECH TESTING SERVICES PTY LTD

PROJECT NO.	**J001694**
STATUS	**FINAL**
DATE	**8/12/2023**

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Where site inspections, testing, surveying or fieldwork have taken place, this report is based on the site conditions and information made available by the Client or their agents or nominees during the visit, the visual observations and any subsequent discussions with regulatory authorities. It is further assumed that normal activities were being undertaken at the site on the day of the site visit(s), unless explicitly stated otherwise.

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Document Control

Version	Purpose	Lead Author	Reviewer	Approved by	Date
1.	Final Report	AN & MCW	LMT	LMT	8/12/2023

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1 Introduction

Range Environmental Consultants was engaged by Soiltech Testing Services Pty Ltd (Soiltech) on behalf of Gwydir Shire Council (the client) to undertake a contaminated land Preliminary Site Investigation (PSI) at 33-35 Maitland Street, Bingara (hereafter 'the site') (Figure 1). This investigation was undertaken across a portion of land parcel Lot 20 Section 38 on DP75811 and wholly across land parcel Lot 1 on RP87721, with a combined approximate area of 2,306m^2 (Figure 2) (hereafter 'the investigation area').

The northern portion of the investigation area had an extensive history as the Soldiers Memorial Hall which commenced operation in 1922. Prior to this, the building was utilised as a school of the arts which was opened in 1907. It is expected that the Soldiers Memorial Hall has had multiple land uses over the years, with it most recently being occupied by the Gwydir Shire Council (GSC).

The southern portion of the investigation area historically operated as the Clifton's Ltd Motor Garage and included car sales, mechanical repairs and the sale of fuel. The Cliftons Motor Garage continued trading as a service station until 2000. This portion of the investigation area was redeveloped by the GSC in 2004 and included the establishment of a Landcare office and Veterinary Clinic. The Veterinary Clinic was closed in December 2021 and remained vacant.

Land parcels that comprised the site were not included on the NSW Contaminated Land Record of Notices or the NSW List of Notified Contaminated Sites at the time this report was prepared.

Range Environmental understands that the Gwydir Shire Council intends to redevelop the investigation area and establish a new administration building comprised of multiple offices, meeting rooms, a customer service desk, visitor information centre, and relevant amenities.

This investigation was undertaken by Sam Donald, Abraham Naudé, and Miranda Wyeth of Range Environmental. Sam is a suitably qualified and experienced contaminated land consultant for undertaking contaminated land investigations.

1.1 Investigation Objectives

The objectives of this contaminated land PSI were to:

- Identify potentially contaminating activities that are currently being performed at the investigation area and that may have been performed in the past at the investigation area.
- Identify the occurrence and extent of potential contamination at the investigation area from onsite and offsite sources.
- Determine if the condition of the investigation area was suitable for its proposed commercial land use.
- Preparation of a contaminated land PSI report (this report).

1.2 Compliance Statement

The PSI was conducted in general accordance with the following:

- Range Environmental proposal Q002132, dated 8 May 2023.
- National Environment Protection (Assessment of Site Contamination) Measure (Amendment No. 1 2013) 1999 (NEPC, 2013).
- AS4482.1-2005: Guide to Sampling and Investigation of Potentially Contaminated Soil (Part 1: Non-volatile and Semi volatile Compounds).
- AS4482.2-1999: Guide to Sampling and Investigation of Potentially Contaminated Soil (Part 2: Volatile Compounds).

- Western Australian Department of Health (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia. Government of Western Australia.
- NSW EPA (2020) Contaminated Land Guidelines - Consultants Reporting on Contaminated Land.
- NSW EPA (2022) Contaminated Land Guidelines.
    - Sampling Design Part 1 - Application.
    - Sampling Design Part 2 - Interpretation.

Australian Standard's AS4482.1-2005 and AS4482.2-1999 had been withdrawn at the time of this investigation. These Australian Standards were still included as they provide a good resource to complement current guidance for contaminated land investigations.

1.3 Site Identification

The site particulars are provided in Table 1. The current title certificates for the site are provided at Appendix A.

Table 1 Site particulars

Descriptor	Description	
Location		
Street address	33-35 Maitland Street, Bingara NSW	
Real property description	Lot 20 Section 38 on DP75811	Lot 1 on DP87721
Central coordinates	Longitude: 150.57208°, Latitude: -29.86809°	
Ownership	Gwydir Shire Council	
Key features		
Land parcel area	1397m² (portion)	909m²
Area of the investigation area	2,306m²	
Contamination listing	NA – site not included on NSW Contaminated Land Record of Notices or NSW List of Notified Contaminated Sites.	
Zoning		
Local Government Area	Gwydir Shire Council (GSC)	
Land use zoning	RU5 – Village under the Gwydir Local Environmental Plan (LEP) 2013 (current version 18 August 2023)	

1.4 Proposed Future Land Use

The investigation area is proposed to be redeveloped into a new administration building that will be comprised of offices, meeting rooms, customer service desk, visitor information centre and amenities such as staff rooms. Layout plans for the proposed development are provided in Appendix B.

Figure 1
Site Locality

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Investigation area
- Cadastre
- Roads
- Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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Figure 2 Site Plan

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Investigation area
- Cadastre
- Roads
- Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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2 Current Land Use & Condition of Investigation Area

2.1 Approach

The assessment of the current land use and condition of the investigation area involved the following:

- Review of publicly available GSC databases and resources, including property searches.
- Inspection of the investigation area on 13 November 2023 by Abraham Naudé of Range Environmental (Section 2.4).
- Before You Dig Australia (BYDA) search for underground utilities (Section 2.5.4) (Appendix C).

2.2 Current Land Use Zoning

The site is zoned as RU5 – Village under the Gwydir Local Environment Plan (LEP) (2013). The objectives of this land use zone were to provide for a range of land uses, services and facilities that are associated with a rural village.

2.3 Current Land Use

The investigation area forms a portion of the Gwydir Shire Council Depot. The remaining portion of the investigation area is comprised of multiple buildings and tenancies. The tenancies recently included:

- Bingara Veterinary Clinic – closed in 2021.
- Local Landcare office.
- Soldiers Memorial Hall – GSC Bingara office (closed).

Buildings within the investigation were no longer in use due to health and safety concerns due to mould contamination (refer to Section 3.3). These land uses were consistent with the land use zoning (Section 2.2).

2.4 Condition of Investigation Area

An inspection of the investigation area was undertaken by Abraham Naudé on 13 November 2023. Photographs and descriptions of aboveground infrastructure at the investigation area are provided in

Table 2.

Table 2 Investigation area photographs and descriptions

Photograph	Description
Lot 20 DP758111	
 View to the south-east of the Soldiers Memorial	• The Soldiers Memorial Hall occurred across the northern portion of the investigation area. • The building comprised of a brick-and-mortar construction. • Painted façades of the building fronting Maitland Street were in good condition and no flaking was observed. • Painted surfaces toward the rear of the building (eastern portion) appeared weathered and some flaking was observed. Flaking was noticeable on painted timber doors. • The interior of the building was unable to be accessed at the time of the inspection as the building was boarded up. This was expected to be related to the mould infestation noted by SMK (2023) (Section 3.3). • No visual signs of contamination, including fragments of bonded asbestos fibre (“fibro”) was observed during the inspection.
 View to the north-west of the sealed hardstand area	• The northern and eastern portions of the investigation area adjacent to the Soldiers Memorial Hall comprised of sealed asphalt hardstand. • The area was used for covered car parking along the east of the Memorial Hall. • The northern portion of the investigation area also served as a thoroughfare to Maitland Street and extended from Cunningham Street further south of the investigation area. • A public toilet occurred within the northern portion of the investigation area adjacent to the Memorial Hall.

Lot 1 DP87721	
 View to the south-east of a filled inspection pit	• The southern portion of the investigation area was historically used as a mechanical workshop and machine shop (refer to Section 3.4). • Two (2) inground inspection pits occurred within the historic workshop area. • Both inspection pits were filled with concrete at the time of the inspection. This was confirmed by Wayne Andrews of GSC at the time on the investigation. • No further details, including depth of the pits were provided.
 View of grease trap	• Two (2) grease traps occurred directly adjacent to the south of the warehouse (Figure 3). • The grease trap was connected to a sealed stormwater gully by a fibre cement pipe. The exposed section of the pipe was suspected to be a bonded fibre asbestos pipe.
 View to the north of the workshop area	• The workshop comprised of a sealed concrete hardstand floor. • Minor staining was observed within the eastern portion of the workshop. • Cracks were observed in the concrete floor. • The area was used as storage for various miscellaneous items, including chairs, tables, and catering equipment. • The eastern portion of the workshop comprised of grass cover. No staining was observed within the grassed area.

 View of sealed inspection pit at the workshop area	• A second inspection pit occurred within the workshop area. • The pit was filled with concrete at the time of the inspection. Wayne Andrews of GSC confirmed this at the time of the investigation. • No further details, including depth of the inspection pit was provided. • The remaining portion of the workshop comprised sealed concrete hardstand. • A large crack was observed within the concrete hardstand area behind the Veterinary Clinic.
 View of local Landcare Office	• Two (2) tenancies occurred within the western portion of the warehouse. • The local Landcare Office and Veterinary Clinic operated within the two buildings. • Mr. Wayne Andrews of the GSC advised that the tenancies were constructed after Clifton's Motor Garage ceased operation in 2000. • The exterior of the veterinary building comprised of corrugated iron sheeting. Internal panels were gyprock.
 View of Landcare Office interior	• Mr Wayne Andrews of GSC advised that at least one (1) underground storage tank (UST) remained within the Landcare Office. • The tank(s) were historically connected to a set of bowsers located within the footpath fronting Maitland Street. • Further details of the tank are provided in Section 2.5.2

View of Landcare Office entrance

- Mr. Wayne Andrews of GSC advised that a set of bowsers occurred within the footpath, west of the investigation area boundary.
- The bowsers were part of the historical Clifton Motor Garage operations (Section 2.5.2).

2.4.1 Areas Not investigated

Investigation of the Soldiers Memorial Hall building on Lot 20 could not be inspected as part of this investigation. The building was boarded up and condemned due to mould infestation noted in the SMK (2023) PSI. The SMK (2023) PSI visually identified ACM on the ceiling and walls of the male and female toilet building. Furthermore, floor tiles consisted of vinyl tiles suspected to contain ACM based on their age.

2.5 Underground Utilities

2.5.1 Site-specific Infrastructure

Known site-specific infrastructure included electrical, stormwater, sewer, and communication networks. Service location services identified a sewer pipeline within the northern portion of the site. The sewer was expected to service the public toilet building that occurred directly adjacent the Soldiers Memorial Hall to the north and was laid in an east-west orientation. The sewer extended further east on to the adjacent lot.

2.5.2 On-site Underground Petroleum Storage System (UPSS)

Anecdotal evidence

Mr Wayne Andrews of the GSC advised that one or more underground storage tanks (USTs) occurred within the western portion of the investigation area. The tanks were located within the existing Landcare Office. The tanks were historically connected to a set of bowsers located within the footpath along Maitland Street to the west of the investigation area. Mr Wayne Andrews provided the following information relating to UPSS that occurred within a portion of the investigation area (Figure 3).

- Tank(s) were located within the western portion of the investigation area and remained in-situ.
- As part of remedial works, the USTs were filled with sand prior to the construction of the current Landcare Office (Between approximately 2000 and 2004).
- A concrete slab floor was placed over the UST and dip points during construction of the Landcare Office.
- Bowsers within the footpath were removed and a layer of paved brick was placed over the footings.

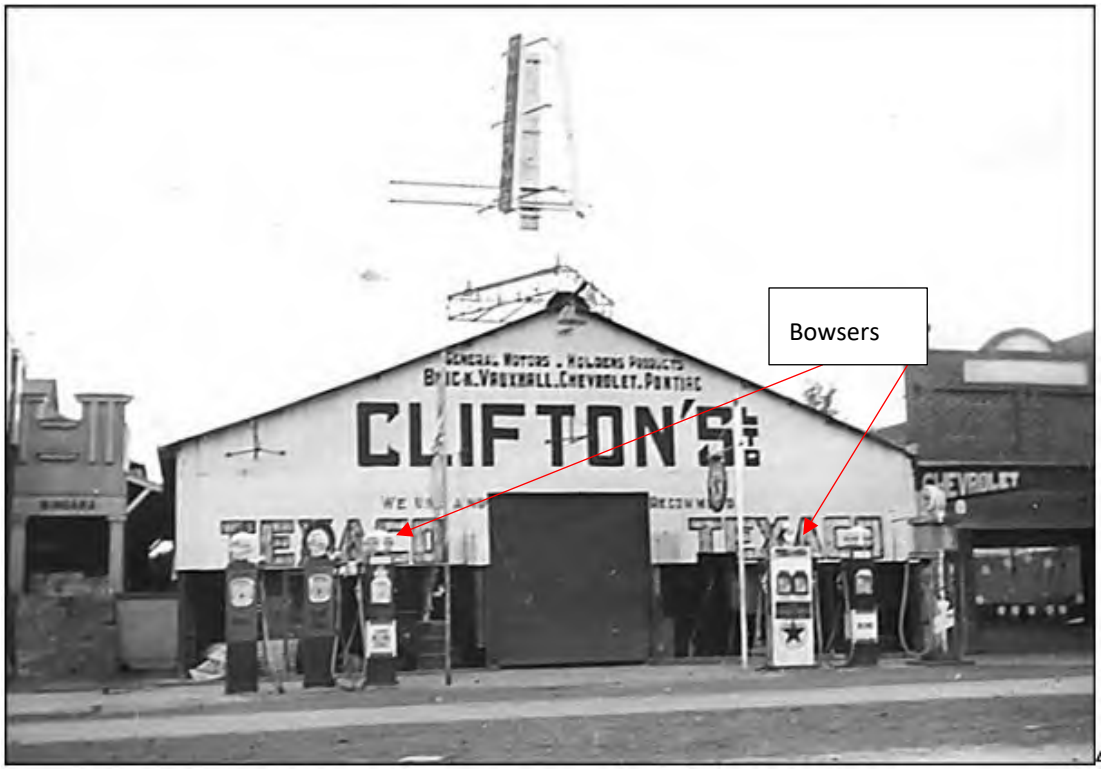
No further details of the UPSS were provided, including the number of tanks, fuel type, and tank volume.

The SMK (2023) PSI indicated that a second UST occurred within the eastern portion of the investigation area, in front of the mechanical workshop. During the site inspection the location of the second tank could not be identified,

however, based on information provided by SMK (2023) it is expected to occur within the grassed area toward the rear portion of the Clifton's Motor Garage The UPSS was expected to be related to the historic operation of the Clifton's Motor Garage described in Section 3.3 and Section 3.4.

Bingara Museum

The Clifton's Motor Garage operated on the southern portion of the investigation area since 1912 and operated as a service station. A photograph (Photograph 1) of the investigation area supplied by the Bingara Museum shows six (6) fuel bowsers along the footpath adjacent to Maitland Street.



Photograph 1 View of Clifton's Motor Garage. Image Date: circa 1920

2.5.3 Grease traps

Two (2) grease traps occurred within the eastern portion of the mechanical workshop area. Both traps were connected by a sealed concrete stormwater runoff trench. The grease traps measured approximately 1.5m in length and 1.5m in width. The traps could not be opened for inspection during the investigation.

2.5.4 Standard Utilities

Results of a Before You Dig Australia (BYDA) enquiry for the investigation area are summarised below. Refer to Appendix C for the complete BYDA enquiry results including location, size, and type of above and below ground utilities.

- Essential Energy owned and operated aboveground poles that occurred within the north-eastern portion of the investigation area.
- NBN Co owned and operated two (2) buried cables that occurred within the eastern portion of the investigation area. NBN Co also owned a pillar that occurred within the western portion of the investigation area.

- Telstra owned and operated two (2) other carrier asset (16mm and 6mm) buried cables that extent on across the western portion of the investigation area. Telstra also own two (2) cabinets within the eastern portion of the investigation area.

2.5.5 Assessment of Contamination Risk

Service trenches can present potential contaminant migration pathways as they were commonly backfilled or bedded with sand or crusher dust and may present a path of least resistance for contaminant migration (NEPC, 2013).

Underground utilities and infrastructure may pose a potential contamination risk to the site because they intersect adjacent properties and high-risk infrastructure which could potentially present a contamination risk to the site. Known sewer pipelines intersects the council depot directly adjacent the site to the east.

Figure 3 Indicative layout of existing UPSS at the investigation area

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Investigation area
- Site boundary
- Cadastre
- Roads

AEC 2

- Understound Storage Tank
- Fuel Bowsers
- Indicative location of second tank noted by SMK
- Feedlines

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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2.6 Waste Storage & Disposal

General waste and recyclable wastes including plastic and cardboard were collected in council supplied bins and removed by the GSC (Photograph 2).

Photograph 2 Council supplied bins

3 Site History & Land Use Analysis

3.1 Approach

The site history and land use analysis involved the following:

- Review of publicly available GSC databases and resources, including property searches.
- Review of contaminated land registers and databases (Section 3.5) (Appendix E).
- Analysis of historical aerial imagery for the investigation area and adjoining land as an anecdotal approach to determining former land uses and activities (Section 3.3 & Section 3.7) (Appendix D).
- Review of historical land use zoning for the site and adjoining land (Section 3.2).

3.2 Historical Land Use Zoning

Zone maps for the Bingara Local Environmental Plan 1994 were not available for review at the time of this report's preparation.[1]

3.2.1 Approvals & Licenses over the investigation area

There was one (1) development application (DA) available for review on the GSC Development Application portal. DA24/2023 was lodged on 15 May 2023 by SMK Consultants Pty Ltd on behalf of GSC and was for the proposed demolition of two (2) existing buildings and ancillary infrastructure (Appendix B). The application was approved by GSC on 28/09/2023. Key information regarding the application included:

- The two existing buildings are proposed to be demolished due to the presence of mould contamination.
- Demolition in four (4) stages: 1) removal and disposal of asbestos containing materials (ACM) from the buildings; 2) demolition and removal of debris/material to Bingara landfill; 3) more detailed soil investigations to inform contaminated soil removal; and 4) undertake remediation and validation works.
- A PSI was undertaken by SMK Consultants Pty Ltd (refer to Section 3.3 below).

The DA was considered to be associated with the proposed redevelopment of the site (Section 1.4).

3.3 Previous Investigations

SMK Consultants Pty Ltd (SMK Consultants) undertook a PSI in March 2023 as part of a Statement of Environmental Effects which was submitted as part of the DA (refer to Section 3.2.1 above). The PSI was revised in April 2023 for issue to the client. Key findings of the PSI are summarised below in

[1] Bingara Local Environmental Plan 1994 - NSW Legislation

Table 3.

Table 3 Key findings of the SMK Consultants (2023) PSI report

Item	Description
Background	• The site history analysis indicated that the School of Arts was built within the northern portion of the investigation area around 1907 and would later become the Soldiers Memorial Hall. • The building located to the south at 35 Maitland Street was built in 1912 and used as a mechanical workshop and traded under the name Clifton's Motor Garage. The mechanical workshop closed down in 2000. The building was purchased by the GSC and converted into two shops.
Observations	**Soldiers Memorial Hall** • Internal part of the building comprised of brick, timber, metal sheeting, and non-asbestos wall sheeting. • Asbestos containing material (ACM) was visually identified on the ceiling and wall of the male and female toilet building. • Floor tiles within the main hall consisted of vinyl tile. These were suspected to contain asbestos due to their age. • Paint on the external wall of the male and female toilet, window frames, doors, and facia board were suspected to contain lead-based paint. Some areas were in poor condition and paint flaking was observed. **Mechanical workshop** • Visual assessment of the internal walls of the Bingara Veterinary Clinic and Landcare Office did not identify ACM. • Paint flakes were observed on the ground surface around the buildings. • Below ground fuel tank infrastructure was identified on site. One if the tanks was located beneath the present Landcare building while a second tank was located in front of the shed of the old mechanical workshop.

Summary of the sampling program	• Two (2) sample sites were selected at the subject site (one sample per land parcel).
	  • Composite samples were collected the samples included a mixture of samples mixed together to create one (1) sample. One (1) soil sample was collected from subsurface soils (0.5m) on each land parcel.
	  • Soil samples were subject to laboratory analysis for hydrocarbons and heavy metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc, and mercury).
	• A sample of the vinyl floor tiling (suspected ACM) from within the main hall was collected.
	• A sample of the paint flakes was collected for lead analysis.

Summary of findings	• The paint flake collected from Lot 20 on DP758111 (33 Maitland Street) reported a lead concentration of 583 mg/kg. • The concentration of lead in sample 22-33-2 (from Lot 1) was reported to be 898 mg/kg, which exceeded the HIL A

3.4 Chronology of Investigation area Ownership, Development & Land Uses

The past and present land uses and activities at the investigation area were identified from a review of available documentation, including the analysis of historical aerial imagery (Appendix D) and a review of available online resources (Table 4).

The northern portion of the investigation area had an extensive history as the Soldiers Memorial Hall which commenced operation in 1922. Prior to this, the building was utilised as a school of the arts which was opened in 1907.

It is expected that the Soldiers Memorial Hall has had multiple land uses over the years, with it most recently being occupied by the Gwydir Shire Council (GSC).

The southern portion of the investigation area historically operated as the Clifton's Ltd Motor Garage and included car sales, mechanical repairs and the sale of fuel. The Cliftons Motor Garage continued trading as a service station until 2000. This portion of the investigation area was redeveloped by the GSC in 2004 and included the establishment of a Landcare office and Veterinary Clinic. The Veterinary Clinic was closed in December 2021 and remained vacant.

Table 4 Chronology of land use activities

Period	Land use activities

Pre-1964	**Lot 20**
	The assessment of land use activities occurring at the investigation area was limited due to the poor resolution of the 1964 imagery.
	• The existing northern building was initially built as the School of Arts in approximately 1907 (refer to picture below).
	 
	Australian Town and Country Journal, published 27 July 1889[2]
	• Information included in the SMK Consultants (2023) PSI indicated that the hall was extensively renovated and renamed the Soldiers Memorial Hall in 1922.
	  • The hall was used as a ballroom, picture theatre, and Bingara Returned Services Club.
	  • GSC took over the building in 1947 for use as the Shire Chambers.
	Lot 1
	• A review of available online resources indicated that Clifton's Motor Garage operated from buildings within the southern portion of the investigation area.

[2] 27 Jul 1889 - Bingara, New South Wales. - Trove (nla.gov.au)

	• Information included in the SMK Consultants (2023) PSI and information provided by the Bingara Museum (Section 2.5.2) indicated that the Cliftons Motor Garage opened in 1912. Clifton's Motor Garage comprised of car sales, fuel sales, and a mechanical workshop.  **View of Cliftons Motor Garage (circa 1912). Image provided by Bingara Museum.**
1964-1974	• The assessment of land use activities occurring at the investigation area was limited due to the poor resolution of the 1974 imagery.
1974-1983	• The assessment of land use activities occurring at the investigation area was limited due to the poor resolution of the 1983 imagery.
1983-1997	• There were no observable changes to land uses and activities occurring at the investigation area.
1997-2013	**Lot 20** • There were no observable changes to land uses and activities occurring at the investigation area. **Lot 1** • There were no observable changes to land uses and activities occurring at the investigation area. • Information included in the SMK Consultants (2023) PSI indicated that the GSC purchased the buildings on Lot 1 in approximately 2004. The building was then converted into two (2) shops.
2013-2023	• There were no observable changes to land uses and activities occurring at the investigation area. **Lot 20** • Due to health and safety concerns over mould within the memorial hall between 2019/2020, operational use of the building ceased. **Lot 1** • Bingara Veterinary Clinic closed in December 2021 due to health and safety concerns over mould. • The Landcare office is still using one of the shop located within the old Cliftons Motor Garage building.

3.5 Land Register Search Results

3.5.1 NSW Contaminated Land databases

The site was not included on the NSW EPA contaminated land record of notices or the NSW list of notified contaminated sites as of 9 November 2023 (Appendix E).

3.5.2 UXO Database

The site was not listed on the Department of Defence's Unexploded Ordnance (UXO) database (Appendix E).

3.6 Environmental Incidents

A review of available resources did not identify any environmental incidents reported at the investigation area or surrounding areas. The absence of any available documented evidence of an environmental incident does not mean that one (1) or more environmental incidents did not occur at the investigation area.

3.7 Chronology of Development & Land Use Activities Adjoining the Investigation area

Past and present land uses and activities adjoining the investigation area were determined from the analysis of historical aerial imagery (Appendix D). Current surrounding land uses are shown in Figure 4.

Land uses to the north, east, and south were considered to present a low contamination risk to the investigation area due to the large number of residential dwellings and separation distances between activities that may present a potential contamination risk (i.e., Bingara Rural Fire Service station).

Land uses to the east (the Gwydir Shire Council Depot) were considered to present a potential contamination risk to the site due to the presence of UPSS in close proximity to the site, and the presence of underground services which may present preferential pathways of contaminations to the investigation area (refer to Section 3.7.2.1).

3.7.1 North

Period	Land use activities
Pre-1964	• Land to the north of the investigation area and comprised multiple residential and commercial buildings. • The Wilkinson's Commercial Hotel (now the Sportsman's Hotel) occurred directly north of the investigation area. • The assessment of land use activities occurring at the investigation area was limited due to the poor resolution of the 1964 imagery.
1964-1974	• The assessment of land use activities occurring north of the investigation area was limited due to the poor resolution of the 1974 imagery.
1974-1983	• The assessment of land use activities occurring north of the investigation area was limited due to the poor resolution of the 1983 imagery.
1983-1989	• The assessment of land use activities occurring north of the investigation area was limited due to the poor resolution of the 1989 imagery.
1989-1993	• The assessment of land use activities occurring north of the investigation area was limited due to the poor resolution of the 1993 imagery.
1993-1997	• The assessment of land use activities occurring north of the investigation area was limited due to the poor resolution of the 1997 imagery.
1997-2013	• Development occurred to the Imperial Hotel north of the investigation area.

2013-2017	• There were no observable changes to land uses or activities occurring north of the investigation area.

2017-2023	• Changes to ground cover (grass and hardstand) occurred on land parcels further north of the site.
	• Land uses to the north of the investigation area included:
	  ◦ The Sportsman's Hotel.
	  ◦ Imperial Hotel Motel Bingara.
	  ◦ Australia Post – Bingara LPO.
	  ◦ Residential

3.7.2 East

Period	Land use activities
Pre-1964	• The assessment of land use activities occurring east investigation area was limited due to the poor resolution of the 1964 imagery. • An unsealed road occurred to the south-east of the investigation area. • Multiple buildings, including residential dwellings occurred on land further east of the investigation area.
1964-1974	• The assessment of land use activities occurring east of investigation area was limited due to the poor resolution of the 1974 imagery. • An overall increase in overstorey vegetation on land to the east occurred. • A single large shed occurred on land directly adjacent the investigation area to the east. • An unsealed access road extended further east of the investigation area.
1974-1985	• The assessment of land use activities occurring east of the investigation area was limited due to the poor resolution of the 1985 imagery.
1983-1989	• Cunningham Street is formalised, and a sealed asphalt road occurred to the south-east of the investigation area. • Two (2) large sheds and unsealed laydown areas occurred on land directly adjacent the investigation area to the east. • Multiple residential dwellings occurred on land further east of the investigation area.
1989-1993	• Two (2) additional ancillary buildings occurred on land directly adjacent the investigation area to the east. • There were no additional changes observed on land to the east of the investigation area.
1993-1997	• There were no observable changes to land uses and activities on land to the east of the investigation area.
1997-2013	• A sealed concrete access road occurred on land directly to the east and extended off Cunningham Street. • Additional ancillary buildings occurred on land further east of the investigation area. • Sealed asphalt hardstand laydown areas occurred on land further east of the investigation area. • Multiple parking lots occurred to the south-east of the investigation area. • Google Streetview images indicated that land directly east of the investigation area was used as the Gwydir shire council depot and included an asphalt silo and multiple fuel bowsers.

	 Google Streetview to the north of the Gwydir council depot. Image date: March 2010.
2013-2017	• An increase in equipment stored within the laydown areas to the east of the investigation area was observed. • Additional ancillary buildings occurred adjected residential dwellings further east of the investigation area.

2017-2023	• There were no observable changes to land uses and activities on land to the east of the investigation area.
	• Land uses to the east of the investigation area included:
	  • GSC Bingara Depot.
	  • Residential

3.7.2.1 Gwydir Shire Council Depot

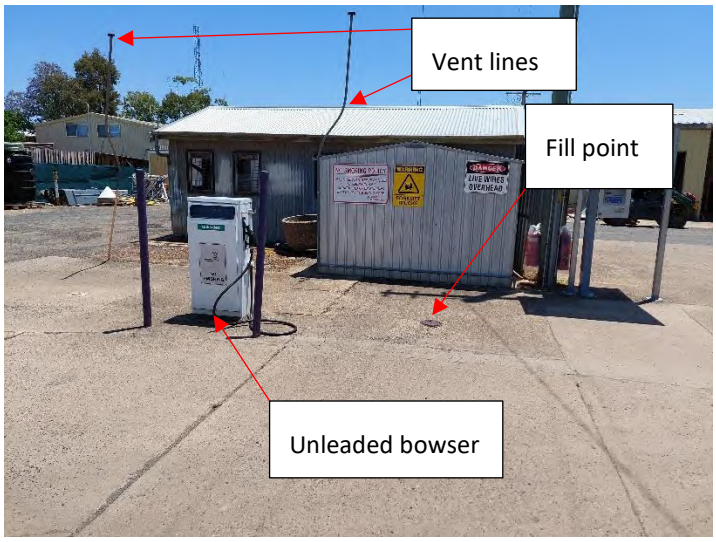
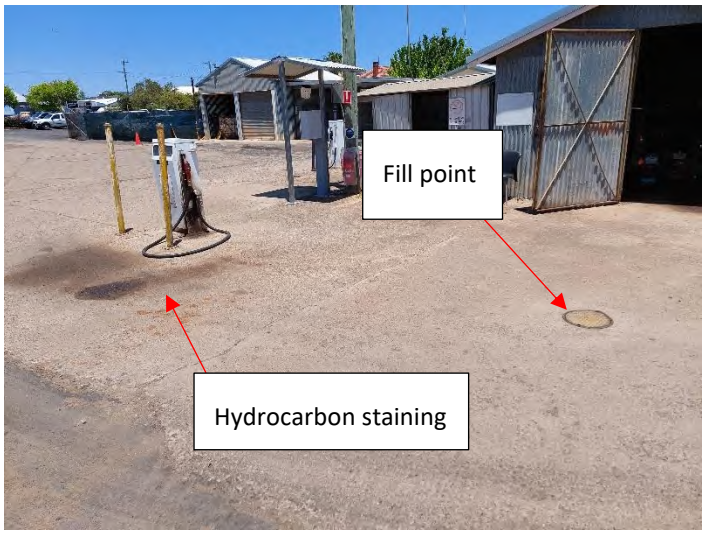
The eastern portion of the site (outside the investigation area) formed part of a larger land parcel that included the Gwydir Shire Council Depot further east. Descriptions of key infrastructure that occurred at the council depot are provided in Table 5.

The council depot included an Underground Petroleum Storage System (UPSS) that occurred within the southern portion of the lot. The UPSS observed on site were three (3) fuel bowsers (two (2) diesel bowsers), two (2) vent lines, three (3) fill points and one (1) dip point. The UPSS occurred approximately 35m east of the investigation area. Additional maintenance infrastructure observed at the depot was vehicle lifts, a tyre repair station, forklift storage, and construction materials storage.

Table 5 Council depot infrastructure

Photos	Descriptions


View to the north of the council depot
	• The depot included maintenance sheds and garages. Services and equipment observed at the depot included:
	  ◦ Car lifts
	  ◦ Tyre repairs
	  ◦ Refuelling
	  ◦ Forklift storage.
	  ◦ Construction material storage.
	• The site comprised of concrete hardstand and unsealed laydown areas.
	• Three (3) bowsers occurred at the depot that included one (1) unleaded bowser and two (2) diesel bowsers.

 View to the north of unleaded bowser	• An unleaded bowser, dip point and fill point occurred within the southern portion of the lot. • Two (2) vent lines were observed further north of the unleaded bowser. • No storage volumes or inventories of fuel storage at the depot were provided during the investigation.
 View to the west of the diesel bowser	• Two (2) diesel bowsers occurred adjacent the unleaded bowser to the east. • An additional two dip/fill points occurred within close proximity to the diesel bowsers. • Hydrocarbon staining was observed around the diesel bowser, located to the north of the unleaded fuel bowser.

3.7.3 South

Period	Land use activities
Pre-1964	• Images provided by the Bingara Historical Society indicated that buildings further south of the investigation area was known as Harry Fay's store and was operated as a general store.  View of Harry Fay's Store front along Maitland Street. Image date: 1925 • An unsealed road occurred further south of the investigation area south of the investigation area. • Two (2) large buildings occurred further south of the investigation area. • The assessment of land use activities occurring south the investigation area was limited due to the poor resolution of the 1964 imagery.
1964-1974	• Multiple large sheds occurred on land further south of the investigation area. • The assessment of land use activities occurring south of the investigation area was limited due to the poor resolution of the 1974 imagery.
1974-1983	• The assessment of land use activities occurring south of the investigation area was limited due to the poor resolution of the 1983 imagery.
1983-1989	• A vacant block of land occurred on the corner of Maitland Street and Cunningham Street to the south. • Additional buildings occurred to the south-west of the investigation area along Maitland Street. • Additional small buildings occurred on land further south of the investigation area.
1989-1993 1993-1997	• There were no observable changes to land uses and activities on land to the south of the investigation area.
1997-2013	• A sealed asphalt laydown area occurred on land further south of the investigation area. • The vacant block was redeveloped. Small structures and grass cover occurred to the south of the investigation area. • Google Streetview images indicate that the Bingara IGA (Fay's) and a small park occurred on land to the south of the investigation area. The building occurred in the same location as Harry Fay's store pictured in in 1925 above.

	 Google Streetview to the south-east of IGA(Fay's). Image date: March 2010. • Google Streetview images indicate that True Value Hardware occurred directly south of the investigation area. The investigation area was used for the sale of hardware and equipment hire  Google Streetview to the south of True Value Hardware. Image date March 2010.

2013-2017
2017-2023
	• There were no observable changes to land uses and activities on land to the south of the investigation area.
	• Land uses to the south of the investigation area included:
	  • Fay's Park.
	  • Bingara IGA Plus Liqour.
	  • Roxy Theatre & Roxy Café.
	  • H. Fay & Sons True Value Hardware.
	  • Bi-Rite Home Appliances.
	  • Bingara Bake House.
	  • Bingara Community (health) centre.

3.7.4 West

Period	Land use activities
Pre-1964	• The assessment of land use activities occurring west of the investigation area was limited due to the poor resolution of the 1964 imagery.

	• Multiple commercial buildings occurred along Maitland Street to the west of the investigation area. The buildings included Fader & Co. Merchants and Importers. The building was constructed in 1906.
1964-1974 1974-1983	• There were no observable changes to land uses and activities on land to the west of the investigation area.
1983-1989	• An unsealed access road and oval occurred on land further west of the investigation area. • Maitland Street is formalised, and a sealed asphalt road occurred directly adjacent the investigation area to the west.
1989-1993	• There were no observable changes to land uses and activities on land to the west of the investigation area.
1993-1997	• Land further west of the investigation area was cleared and a vacant block of land occurred further west of the investigation area.
1997-2013	• Two (2) additional buildings occurred on land further west of the investigation area. • An increase in overstorey vegetation was observed on land to the west of the investigation area.
2013-2017	• Two (2) additional silos and equipment occurred on land further west of the investigation area. • Google Streetview images indicated that McGregors Agricultural Services occurred on land further west of the investigation area.  Google Streetview to the north of McGregors Agricultural Services. Image date: March 2010.

2017-2023	• There were no observable changes to land uses and activities on land to the west of the investigation area.
	• Land uses to the west of the investigation area included:
	  ◦ The Salvation Army family store.
	  ◦ Meat on Maitland (butcher).
	  ◦ The Bingara Pharmacy.
	  ◦ Sapphire Salt Cave (gift shop).
	  ◦ McGregor Gourlay.
	  ◦ Bingara Rural Fire Service.

Figure 4
Current Surrounding Land Uses

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend
- Investigation area
- Cadastre
- Watercourse
- Roads
- Site boundary

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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4 Existing Environmental Values

4.1 Vegetation

The investigation area occurred within a highly modified commercial/industrial area of low ecological value. Vegetation was limited to grass cover within the southern and eastern portion of the investigation area (Photograph 3). The remaining portion of the investigation area comprised of sealed concrete and asphalt hardstand. A small landscaped garden occurred at the western façade of the Soldiers Memorial Hall.

Photograph 3 View of groundcover at the investigation area

4.2 Topography

The investigation area generally graded from approximately 301m AHD in the western portion of the investigation area to approximately 300m AHD in the eastern portion of the investigation area at a slope of approximately 0.1%.

4.3 Soils & Geology

4.3.1 Regional Soils & Geology

The investigation area was mapped as Q_au alluvial valley deposits under the MinView database. This quaternary aged geological unit was generally described as silt, clay, [fluvially deposited] lithic to quartz-lithic sand, and gravel.[3]

[3] MinView | Regional NSW | Mining, Exploration and Geoscience

The investigation area was mapped as the Bingara Rises soil monitoring unit.[4] The Bingara Rises are characterised as red and yellow chromosols. The land use was generally characterised as improved and native pastures and woodlands.

4.3.2 Local Soil Conditions

Soil conditions encountered during this preliminary investigation are presented in detail in the soil borecard reports included at Appendix F. The soil conditions encountered at the investigation area are described below in Table 6.

Table 6 Summary of local soil conditions encountered

Item	Description
Capping	• BH1 was overlain by brick pavers. • A layer of road base and asphalt was encountered at boreholes BH5, BH6, and BH4.
Fill	• Fill was encountered at all boreholes excavated as part of this investigation between depths of 0.1 and 0.5mbgl. • Fill was generally described as a dark brown silty sand with interspersed gravel
Natural	• Natural soils were encountered at all boreholes excavated as part of this investigation. Natural soils generally occurred at depth form 0.5mbgl. • Natural soils were generally described as a sandy silty clay, silty clay, or sandy gravel with alluvial pebbles.
Bedrock	• Bedrock was not encountered as part of this preliminary investigation.
Groundwater	• Groundwater was not encountered as part of this preliminary investigation.
Potential indicators of contamination	• Paint flakes were observed within surface soils at the rear (eastern portion) of the building directly underneath the Soldiers Memorial Hall located at Lot 1 on DP87721.

4.3.3 Acid Sulfate Soils

The investigation area is not mapped under the Acid sulfate soil risk mapping in the NSW Environment eSPADE v2.2 mapping database. The investigation area occurs at an elevation between 300-301m AHD. Acid Sulfate Soils (ASS) generally occur in estuarine sediments at an elevation <5m AHD.

4.3.4 Fire Ants

As of 25 November 2023, the NSW Department of Primary Industries reported a recent detection of three (3) red imported fire ant nests in South Murwillumbah, 13km from the Queensland border, which is located approximately 450km north-east of the investigation area.[5] There was considered a low potential for fire ants to occur at the investigation area.

[4] State of the catchments 2010 - Border Rivers Gwydir region - Soils (nsw.gov.au)

[5] NSW Government responds to detection of Red Imported Fire Ants in northern NSW

4.4 Hydrogeology

4.4.1 Regional Hydrogeology

There were no registered groundwater bores onsite. There were 13 registered groundwater bores within a 500m radius of the investigation area (Figure 5). Borecard reports are presented in Appendix G. A summary of the available information based on the information provided in the registered groundwater borecard reports is presented in Table 7.

The closest registered groundwater bore with additional information was GW969978, which was located approximately 195m west of the investigation area. The report for this bore showed that a water bearing zone was encountered between 8 and 15m below ground level (mbgl). The screened interval was 9-15 mbgl and a standing water level of 5m was recorded.

Groundwater flow was inferred by groundwater bores GW070492, GW900610, and GW969978 to be towards the north and north-east. This was generally consistent with topographical conditions and proximity to Halls Creek and the Gwydir River.

Table 7 Summary of registered groundwater bore details

Bore (GW)	Use	Distance from site (m) & direction	SWL (mbgl)	Top of shallowest aquifer (mbgl)	Bottom of deepest aquifer (mbgl)	Screened interval (m) & formation
070377	Domestic	330 (N)	9.2	13.4	14.3	12.2-14.3, NA
070492	Domestic	243 (N)	9.15	12.2	15.8	10.67-15.85, NA
071859	Domestic	437 (E)	NA	10	11.2	10-11.2, NA
900374	Stock, domestic	402 (S)	5.7	6.1	11	9-11, NA
900610	Domestic	248 (E)	7	10	13	10-13, NA
900993	Domestic	237 (E)	11.9	12.81	21.05	0-2.7, 12-2.4, NA
904843	Domestic	480 (NW)	7	6	12	6-12, NA
966138	Monitoring bore	475 (NE)	NA	NA	NA	NA
966139	Monitoring bore	465 (SE)	8	8	21	NA
966788	Domestic	357 (S)	9	9	12	10-14, NA
966857	Domestic	345 (S)	9	17	29	18-30
969978	Domestic	195 (W)	5	8	15	9-15, NA
970944	Domestic	227 (SE)	10	10	15	10-15, NA

4.5 Surface Water Hydrology

4.5.1 Regional Drainage Network

The investigation area occurred within the Gwydir River basin. The Gwydir River forms part of the Northern Basin catchment of the Murray Darling Basin.

Halls Creek occurred approximately 385m north-east of the investigation area. Halls Creek is a tributary of the Gwydir River, which occurred approximately 500m north of the investigation area. The Gwydir River flows from the Copeton Dam in the south-east in a north-westerly direction towards the alluvial floodplains of Pallamallawa.[6]

4.5.2 Flooding & Water Resources

The site was not mapped under the Hazard – Flood Planning Map on the NSW Planning Portal spatial viewer or on the Flood Inundation Map 'Gwydir River and Halls Creek at Bingara' map (Water Resources Commission NSW, 1979).

The NSW 'Government Gwydir Surface Water Resource Plan' had been withdrawn in May 2023. No further information about water resource plans were available for review.

4.5.3 Surface Water Features

There were no wetlands or watercourse within or adjoining the investigation area.

4.5.4 Stormwater

Lot 20

Stormwater on the roof of the Soldiers Memorial Building was directed into a stormwater holding tank (approximately capacity of 5,000L) (Photograph 4) located adjacent the building to the east. Overland flow from the sealed areas flowed to the west where it was directed to the council operated stormwater drains along Maitland Street.

[6] Gwydir catchment | Murray–Darling Basin Authority (mdba.gov.au), Gwydir | Water (nsw.gov.au)

Photograph 4 View to the south of the stormwater tank

Lot 1

Stormwater on the roof of the mechanical workshop was directed to ground along the northern side of the building. Stormwater from the unsealed areas flowed to a concrete drainage channel located along the southern portion of the mechanical workshop. The concrete drainage channel was connected to two (2) grease traps (Section 2.5.3).

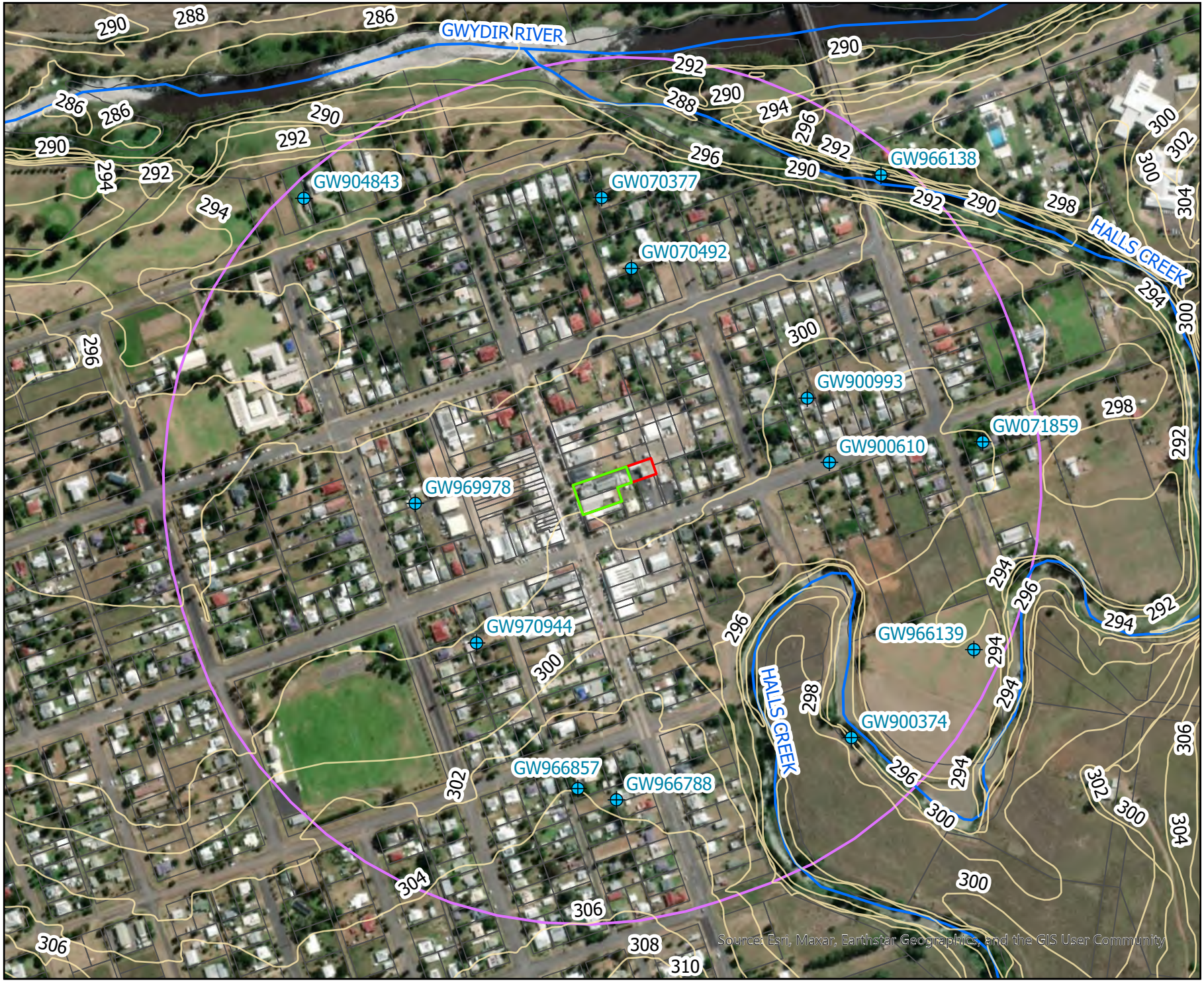

Figure 5
Topographical, hydrological & hydrogeological features

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Site boundary
- Investigation area
- 500m buffer
- Groundwater bores
- Watercourse
- Contour

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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5 Areas of Environmental Concern

Five (5) Areas of Environmental Concern (AEC) were identified from the site history and land use analysis together with the investigation area inspection. The AEC at the investigation area and COPC are described below in Table 8. The locations of AEC are shown in Figure 6.

Table 8 Areas of Environmental Concern

AEC	Justification for classification as AEC	COPC	Environmental Media
1. Fill	• Refer to Section 4.3.2 for a description of fill material encountered at the investigation area. • Refer to Section 4.3.2 for descriptions of • Fill can present a potential contamination risk if it was imported to the investigation area or sourced from an area of the investigation area subject to potentially contaminating activities.	Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene (BTEXN), Polycyclic Aromatic Hydrocarbons (PAH), Organochlorine (OC) and Organophosphorus (OP) pesticides, Polychlorinated Biphenyl (PCBs), Per- and Poly-fluoroalkyl Substances (PFAS), select heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc), asbestos	Soil
2. Historic land uses (Clifton's Motor Garage)	• Refer to Sections 3.3 and 3.4 for a description of the historic motor garage that previously occurred at the investigation area. • Underground infrastructure included UPSS, grease trap and inspection pits. • Refer to Section 2.5.2 for a description of the Underground Petroleum Storage System (UPSS) that occurred on site. This included USTs located in the investigation area and the former bowser locations in Maitland Street. • Leaks and spills of petroleum hydrocarbons may have occurred during refilling or refuelling activities and/or leaks and spills from the UPSS infrastructure, service pits or grease trap.	TRH, BTEXN, PAH, phenols, VOC/SVOC and lead.	Soil and groundwater
3. Historical & existing (pre-1990) buildings	• Refer to Section 3.3 and Section 3.4 for descriptions of historical and existing buildings that occurred at the investigation area. • Lead based paints were used prior to 1970 and used to paint the external features of buildings, including walls, window frames,	Arsenic, lead, asbestos, OC pesticides	Soil

	doors, skirting boards, gutters and metal surfaces. • Due to the age of the historical buildings at the investigation area, it was considered likely that lead-based paints were historically used. It is also possible that lead impacted soils may occur at the investigation area resulting from the use of lead-based paints. • Asbestos products were also used prior to 1990 in roofing, sheeting, pipes and floor tiles. The historical and existing buildings were considered likely to include or have included Asbestos Containing Materials (ACM). • Arsenic and organochlorine (OC) pesticides were historically used as pest/vector control and may have been used at the investigation area. • The potential use of hazardous materials and poor maintenance and management practices may have resulted in the release of contaminants to the surface soils.		
4. Stormwater and sewer lines.	• Refer to section 2.5.1 for a description of potential stormwater and sewer pipelines that intersected the council depot adjacent to the site. It is possible that contaminants may have migrated along the sewer and stormwater lines from the council depot.	TRH, BTEXN, PAH, phenols, VOC/SVOC and lead.	Soil, stormwater and groundwater
Adjoining AEC			
5. Council Depot & fuel storage (adjoining land use)	• The GSC depot occurred withing the eastern portion of Lot 20 on DP758111 • Refer to Section 2.5.2for a description of the UPSS that occurred at the council depot adjacent to the site. • Leaks and spills of petroleum hydrocarbons may have occurred during refilling or refuelling activities and/or leaks and spills from the UPSS infrastructure. • Contaminants may have migrated to the investigation area via overland stormwater flow or groundwater.	TRH, BTEXN, PAH, phenols, VOC/SVOC and lead.	Soil, stormwater and groundwater

Figure 6
Areas of Environmental Concern

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Investigation area
- Site boundary
- Cadastre

AEC

- AEC 1 - Fill
- AEC 2 - Clifton's Motor Garage
- AEC 3 - Historical & existing (pre-1990) buildings
- AEC 4 - Council Dept & fuel storage (adjoining land use)

Underground infrastructure

- Understound Storage Tank
- Fuel Bowsers
- Indicative location of second tank noted by SMK
- Grease traps
- Inspection pits
- Feedlines

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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6 Preliminary Conceptual Site Model

For contamination at the site to present a potential human health or ecological risk to a proposed land use, all of the following must be in place:

- Contaminant source(s)
- Exposure pathway(s)
- Receptor(s)

This preliminary Conceptual Site Model (CSM) (Table 9) was developed to describe potential contaminant sources and potential exposure pathways in a commercial/industrial land use setting.

Five (5) AECs were identified. The preliminary CSM shows that the site presents a potential risk to human health and ecological values in a commercial/industrial land use setting as contaminant sources, exposure pathways and receptors may potentially be present.

Table 9 Preliminary Conceptual Site Model (CSM)

AEC	Primary release mechanism/contaminant source	Secondary source	Transport mechanism	Exposure pathways	Exposed population
1. Fill	• Fill may have been imported to the site that was contaminated. • Alternatively, soil from other AEC at the investigation area may have been used as fill.	Soi	• Physical importation of contaminated fill. • Relocation of soil from other AEC.	• Dermal contact, ingestion and inhalation. • Uptake by plants (ecological receptors).	• Human and ecological receptors in a commercial/industrial land use setting. • In-ground maintenance workers.
2. Historic land uses (Clifton's Motor Garage).	• Leaks and spills of petroleum hydrocarbons from UPSS that occurred on site due to poor maintenance, refilling and refuelling.	Soil and groundwater	• COPC from leaks and spills may have been transported directly to ground. • COPC may have been transported to groundwater by leaks and spills of petroleum hydrocarbons associated with the UPSS.		
3. Historical & existing (pre-1990) buildings	• Poor maintenance and management practices, including during construction and extension of ancillary buildings on site, could release contaminants to surface soil.	Soil	• Contaminants may have been transported to soil through poor management of hazardous materials.		

	• Use of hazardous building materials (e.g., lead based paint and asbestos fibre sheeting) and building pest management practices could release persistent contaminants to surface soils such as arsenic or OC pesticides				
4. Council Depot & fuel storage (adjoining land use)	• Leaks and spills of petroleum hydrocarbons from fuel storage on land to the eats of the site due to poor maintenance, refilling and refuelling.	Soil and groundwater	• COPC may have migrated to the site via stormwater. Underground services as preferential pathway. • COPC may have been transported to groundwater by leaks and spills of petroleum hydrocarbons associated with the UPSS.		
5. Stormwater and sewer lines.	• Migration of contaminants from adjacent properties and offsite migration of contaminants.	Soil	• Underground services as preferential pathways.		

7 Sampling & Analysis Quality Plan

The preliminary soil sampling and analysis program was undertaken within the investigation area by Abraham Naudé on 13 November 2023.

7.1 Target Media

Soil was the media targeted by this investigation. Other environmental media, such as groundwater or soil vapour, were not targeted due to the preliminary nature of this investigation.

7.2 Contaminants of Potential Concern

- Select heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc).
- Total Recoverable Hydrocarbons (TRH).
- Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene (BTEXN).
- Polycyclic Aromatic Hydrocarbons (PAH).
- Phenols.
- Organochlorine (OC) pesticides.
- Asbestos.

Additional COPC were identified in the site history and land use analysis (Section 5) were not targeted due to the preliminary nature of this investigation.

7.3 Investigation Levels

7.3.1.1 Commercial & Industrial Land Use

Soil contaminant concentrations were compared with human health and ecological investigation levels in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended in 2013) (NEPM) for a commercial land use which are consistent with the exposure risk presented to sensitive receptors in the current commercial land use setting at the investigation area. The following soil screening criteria from NEPC (2013) were used (for fine/silt soil types) (aged contaminant):

- Health-based Investigation Levels (commercial and industrial) (HIL D).
- Soil Vapour Health Screening Level (commercial and industrial) (HSL D).
- Generic Ecological Investigation Level (commercial and industrial) (Generic EIL).
- Site-specific Ecological Investigation Level (commercial and industrial) (aged contaminant) (Site-specific EIL).
- Ecological Screening Level (ESL) (commercial and industrial).
- Management Limit (commercial and industrial).

7.3.1.2 Low-Density Residential

Soil contaminant concentrations were compared with human health and ecological screening criteria in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended in 2013) (NEPM) for a low-density residential land use.. This was to inform any potential contaminated soil management obligations during redevelopment (including remediation).

The following soil screening criteria from NEPC (2013) were used for (fine/silt) (aged contaminant):

- Health-based Investigation Levels Residential A (HIL A).
- Soil Vapour Health Screening Level (low-high density residential) (HSL A/B).
- Generic Ecological Investigation Level (Urban Residential and Public Open Space) (Generic EIL).
- Site-specific Ecological Investigation Level (Urban Residential and Public Open Space) (aged contaminant) (Site-specific EIL).
- Ecological Screening Level (ESL) (Urban Residential and Public Open Space).
- Management Limit (Residential, Parkland and Open Space).
- Soil aesthetic criteria.

7.4 Sampling Strategy

7.4.1 Preliminary Soil Sampling

The preliminary soil sampling and analysis program is described at Table 10. Sample locations are shown at Figure 7.

Table 10 Preliminary soil sampling strategy

Descriptor	Description

Sample density	• Six (6) sample locations
	  ◦ This sampling rate did not meet the minimum requirements of the NSW EPA (2022) for characterisation of the investigation area based on the detection of circular hotspots using a square grid pattern for an area (9 samples for an area <0.3ha).
	  ◦ The number and locations of sample points BH1 to BH4 were provided to Range Environmental in the quotation requested by Soil Tech Pty Ltd. This sampling strategy was undertaken in strict compliance with the information provided by Soil Tech Pty Ltd.

Sample method	• A 150mm rig mounted solid flight auger was used to excavate boreholes. • This meets the minimum requirements of the NEPM (2013) for the identification and assessment of asbestos or potential indicators of asbestos (including construction and demolition waste) and other visual indicators of contamination in soil.
Sample locations	• Four (4) sample locations (BH1 – BH4) were selected by Soiltech as part of their geotechnical investigation. ◦ BH3 was selected to assess potential contamination from AEC 2 (Historic land uses). • BH5 was selected to target AEC 3 (Historic buildings). BH5 also targeted (AEC 1) fill that occurred on site. • BH6 was selected to target potential contaminants from AEC 4 (Council depot) and AEC 6 (sewer and stormwater).

Borehole depths	• Boreholes were excavated to a minimum depth or 0.5m into the natural soil profile, underneath target infrastructure, or until refusal, whichever encountered first.
	  ◦ BH2 was excavated to a depth of 1.0 meters below ground level (mbgl).
	  ◦ BH1 was excavated to a depth of 1.6mbgl.
	  ◦ BH4 and BH6 was excavated to a depth of 4mbgl.
	  ◦ BH3 was excavated to a depth of 6mbgl.

Sample collection	• Samples were generally collected at the soil surface (0-0.1m), 0.4-0.5m, 0.9-1m and 1m intervals thereafter.

	• Sample depths varied based on field observations.
Sample analysis	• Samples BH1-2 (0.4-0.5m), BH2-3 (0.9-1m), BH3-3(0.9-1m), BH3-4 (1.9-2m), BH3-7 (4.9-5m), BH4-2 (0.4-0.5m), BH4-5 (2.9-3m), BH5-2 (0.4-0.5m), BH6-2 (0.4-0.5m), and BH6-5 (2.9-3m) were subject to laboratory analysis of select heavy metals, TRH, and BTEXN. • Samples BH2-2 (0.3-0.4m) and BH6-3 (0.7-0.8m) were also screened for PAH and phenols. • Samples BH4-1 (0-0.1m) and BH5-1 (0-0.1m) were also screened for OC pesticides. • Samples BH1-1 (0.05-0.1m), BH2-1 (0-0.1m), BH2-2 (0.4-0.5), BH3-1 (0-0.1m), BH3-2 (0.4-0.5m), BH4-1 (0-0.1m), BH5-1 (0-0.1m), and BH6-1 (0-0.1m) were also subject to laboratory inspection for the presence/absence of asbestos.
Criteria for sample selection & analysis	The following criteria was applied in the selection of soil samples requested for analysis: • Samples that were from material that presented a high potential contamination risk based on the site history and land use analysis and field observations. High risk areas included fill, soils deemed to be vulnerable to impact and soils with evidence of contamination (including visual and olfactory). • Soils that underlay a high-risk soil, including natural soils beneath fill material. This is to assess potential contaminant migration. • Soil samples were also selected to obtain a lateral and horizontal spread, including of fill material and natural soils.
General	• One (1) background sample was collected from a 'clean' part of the investigation area to permit the calculation of concentration thresholds for metals, pH, and Cation Exchange Capacity (CEC). • Samples were field screened using a calibrated Photoionisation Detector (PID) (Appendix H). • A subset of samples was held by the laboratory without testing being undertaken. These samples would be considered for analysis if results indicate potential contamination risk at their sampled location.

Figure 7 Sample Locations

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 7/12/2023
Approved by: AN Date: 7/12/2023

Metres
0 100 200

Legend

- Investigation area
- Site boundary
- Cadastre
- Sample locations

AEC

- AEC 1 - Fill
- AEC 2 - Clifton's Motor Garage
- AEC 3 - Historical & existing (pre-1990) buildings
- AEC 4 - Council Dept & fuel storage (adjoining land use)

Underground infrastructure

- Understound Storage Tank
- Fuel Bowsers
- Indicative location of second tank noted by SMK
- Grease traps
- Inspection pits
- Feedlines

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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8 Quality Assurance (QA) & Quality Control (QC)

8.1 Field QA/QC Protocols

The field QA/QC protocols adopted for this investigation are summarised below:

- The investigation area inspection and soil sampling program were undertaken by appropriately qualified team members in accordance with relevant guidelines.
- Soil samples were collected directly from the solid flight auger. When able to do so, the outer surface was 'skinned' prior to sample collection. This was to avoid potential cross contamination.
- Soil samples were field screened with a calibrated PID (Appendix H).
- Disposable nitrile gloves were worn at all times and changed after collection of each single sample to prevent cross contamination.
- Certain equipment (e.g., solid flight auger) were relatively difficult to decontaminate and it was therefore necessary to opt for a simpler sampling system. As per Section 8.2.4.3 of NEPM (2013), a simpler sampling system described below was adopted to avoid potential cross contamination was considered suitable:
  - 'skinning' the soil from the auger prior to sampling.
  - The auger bits were visually inspected after each borehole to ensure it was free of soil clods before moving to the next sample point.
- Soil samples were placed into laboratory supplied glass jars with no headspace to minimise the loss of volatiles.
- Asbestos samples were placed into laboratory supplied plastic bags and then double bagged and placed in an esky.
- Additional samples were collected for field quality control purposes. These included:
  - Duplicate and triplicate samples were collected at a minimum rate of 1 in 20 for COPC (1:12 for soil samples).
  - One (1) soil trip blank sample. One (1) trip blank sample was collected per day.
  - One (1) soil trip spike sample. One (1) trip spike sample was collected per day.
- Standardised field forms were used to document key information for each borehole excavated, including borehole logs, PID readings, sample depths and labelling (Appendix H).
- Samples were kept in an ice-packed esky at all times and transported directly to a National Association of Testing Authorities (NATA) accredited laboratory at Stafford (QLD).
- Chain of Custody (COC) forms were provided with samples.

8.2 Laboratory QA/QC Protocols

- Analysis was performed by three (3) ALS laboratories including ALS Stafford (QLD), ALS Springvale (VIC) and ALS Smithfield (NSW).
- Laboratory QA/QC protocols included method blanks, laboratory control samples, laboratory duplicates and matrix spikes.
- Laboratory documentation is provided at Appendix I.

9 Quality Assurance & Quality Control Results

9.1 Field QA/QC Results

- No analysis holding time or sample preservation non-compliances were reported by ALS Stafford (QLD) or Als Smithfield (NSW).
- Field QC samples were collected at the required rates.
- Samples were received with ice present, indicating that sample preservation methods were adhered to (-1.1 and 2.4°C).
    - One esky in Batch EB2335897 was received with an elevated temperature (24.2°C). This esky was used to transport asbestos samples and were not required to be chilled.
    - One esky in Batch ES2339971 was received slightly elevated (12°C). All samples subject to analysis were transported by Range Environmental to ALS Stafford (QLD). Triplicate samples were then forwarded by ALS to ALS Smithfield (NSW). ALS Stafford (QLD) were unable to provide further comment on the handling of samples between receipt at ALS Stafford (QLD) and ALS Smithfield (NSW).
- VOCs (TRH C_6-C_{10}) and BTEXN were below the Limit of Reporting for the trip blank sample. These results indicate that the soil sample preservation methods were suitable for preventing cross contamination by volatile compounds.
- There were no exceedances of the Relative Percent Difference (RPD) threshold for the soil trip spike sample. These results indicated that soil sample preservation methods were adhered to and were suitable for preventing the breakdown or loss of analytes during the sampling process (including transport).
- There was an exceedance of the typical Relative Percent Difference (RPD) threshold between the primary (BH2-2) and triplicate (Triplicate 1) for chromium (51%) and nickel (41%). The RPD exceedances were due to the low contaminant concentrations reported and sample heterogeneity and were not expected to affect the quality of data used in this investigation.
- There were no other exceedances reported between the primary and duplicate, or between the primary and triplicate samples.

9.2 Laboratory QA/QC Results

9.2.1 ALS Stafford (QLD)

Batch EB2335897

- No method blank, matrix spike, surrogate recovery, or quality control sample frequency outliers occurred.
- Duplicate outliers exist for zinc as the RPD exceeded the LOR based limits. ALS Stafford reported that poor duplicate results was due to sample heterogeneity which was confirmed by visual inspection.
- Laboratory control outliers exist for 2.6-Dichlorophenol was the recovery was greater than the upper control limit.
- Analysis holding time outliers exist for pH in the background sample ‘BG’. The samples were provided to ALS Stafford with adequate time to complete analysis. The holding time outliers exist for physico-chemical parameters only and therefore this does not affect the data quality used in this investigation.

9.2.2 ALS Smithfield (NSW)

Batch ES2339971

- No method blank, duplicate, laboratory control, surrogate recovery, analysis holding time, or quality control sample frequency outliers occurred.
- Matrix spike outliers were reported for chromium, copper, nickel, and zinc. ALS Stafford reported the MS recovery could not be determined as the background level was greater than or equal to 4 times the spike level.

9.3 Data Quality Evaluation

The data quality evaluation results demonstrate that the data obtained from this assessment of soil contamination risk is of acceptable quality to make a preliminary assessment of the soil contamination risk presented to the site and potential suitability of the investigation area for its proposed future land use.

10 Results & Discussion

Laboratory certificates of analysis are provided at Appendix I. A summary of the analytical results and comparison to investigation levels are provided at Appendix J.

10.1 Physical Contaminants

Asbestos Containing Materials (ACM) and indicators of potential occurrence of ACM, including construction and demolition waste, were not observed during the investigation area inspection or the excavation of any boreholes as part of this investigation. As a conservative approach, selected samples were subject to laboratory inspection for the presence/absence of asbestos. Asbestos was not detected in any soil sample subject to inspection by the laboratory.

Notwithstanding, ACM is very common in urban areas and it is possible that it could occur within the soil at the site.

10.2 Inorganic Contaminants

For all samples analysed, the reported concentrations of cadmium, chromium, copper, lead, mercury, nickel, and zinc were below the applied criteria for a low-density residential land use (the most sensitive land use).

10.2.1 Lead

The reported concentration of lead in the 'background' sample (556mg/kg) exceeded the applied Health Investigation Level for a low-density residential land use (HIL A) (300mg/kg) but did not exceed the commercial/industrial land use criteria (1500 mg/kg). The sample was collected within close proximity to the Soldiers Memorial Hall and could indicate impact within surface soils as a result of paint flakes observed at this location. The reported concentration of lead for all other samples as part of this preliminary investigation was below the applied criteria for a low-density residential land use.

10.2.2 Arsenic

The reported concentration of arsenic in samples BH4-2 (258 mg/kg) and BH5-2 (108mg/kg) exceeded the generic EIL and HIL A for a low-density residential land use (100mg/kg). The concentration of arsenic at BH4-2 also represented a contamination hotspot for low-density residential land use (>2.5 times the investigation level). The concentration of arsenic at BH4-2 also exceeded the generic EIL for commercial/industrial land use (160 mg/kg) but not the HIL-D (3000 mg/kg). Statistical analysis was not able to be undertaken due to the preliminary nature of this investigation.

The reported concentration of arsenic for all other samples analysed as part of this preliminary investigation were below the applied criteria for a low-density residential land use.

10.3 Organic Contaminants

For all samples analysed, the reported concentration of TRH, BTEXN, PAH, phenols, and OC pesticides were below the applied human health and ecological investigation levels for a low-density land use (the most sensitive land use). Due to site constraints, the areas of the site

11 Summary & Recommendations

11.1 Summary

- Range Environmental were engaged by Soiltech Testing to undertake a contaminated land Preliminary Site Investigation at 33-35 Maitland Street, Bingara.
- The investigation area had a long commercial/industrial land use history that commenced in approximately 1907 with the establishment of the School of Arts. This building was redeveloped in 1922 to the Soldiers Memorial Hall and in 1947 it commenced use as the council chambers until the building was condemned in 2023. The Clifton's Motor Garage occurred on the adjacent lot to the south and operated as a mechanical workshop and service station until 2000 when it was redeveloped into a veterinary clinic and Land care office. The buildings within the investigation area are no longer in use due to mould contamination.
- The site was not included on the NSW Contaminated Land Record of Notices or the NSW List of Notified Contaminated Sites.
- Five (5) Areas of Environmental Concern (AEC) were identified at the investigation area from the site history and land use analysis together with observations made during the site inspection.
- A preliminary soil sampling and analysis program was undertaken on 13 November 2023 in accordance with the scope provided by Soil Tech Pty Ltd. Four (4) sample locations were selected at predetermined locations by Soil Tech Pty Ltd. Range Environmental did not provide guidance on the sample location selection for these four sample points.
- Potential bonded ACM panels and floor tiles were observed by SMK (2023) in the interior of the Soldiers Memorial Hall on Lot 20. The building could not be accessed during this investigation due to the presence of mould and was barricaded off.
- Elevated concentrations of lead were reported for the 'background' sample collected at the site.
- Elevated concentrations of arsenic were reported in two (2) soil samples collected at the site.
- There were data gaps and uncertainties that were not able to be addressed due to the preliminary nature of this investigation. Further investigation is recommended if the client wishes to better understand the contamination risk at the site.

11.2 Data Gaps

Due to the preliminary nature of this investigation, there are data gaps and uncertainties that were not able to be fully assessed as part of this investigation. Data gaps include:

- The investigation was limited and did not constitute a detailed site investigation. As such the investigation could not provide an accurate assessment of contamination risk with respect to the proposed land use.
- Due to the irregular distribution of waste material such as asbestos, it is possible that ACM could occur within the soil profile but could not be identified or encountered by this preliminary investigation. Contaminants in soil such as ACM are common in urban areas.
- The investigation was limited to soil only. Potential risks to groundwater and soil gas were not considered as part of this preliminary investigation at the investigation area.
- Soil condition beneath the existing infrastructure and sealed areas was not able to be assessed due to site access constraints. Soil conditions beneath existing infrastructure and sealed areas would need to be assessed following demolition works at the site.

- The condition of soils adjacent to UPSS, grease trap and service pits were not able to be adequately investigated.
- Right to Information (RTI) applications were not submitted as part of this scope of work. Documents provided through the RTI application process may include previous investigations undertaken at the site.

11.3 Recommendations

11.3.1 General

- A contaminated land Detailed Site Investigation (DSI) is recommended if the Client requires a more comprehensive and complete understanding of the contamination risk at the site and suitability of the site for the proposed use.
- If visual or olfactory (e.g., fragments of fibro, staining, odour, waste material etc.) indicators of contamination in soil are identified during earthworks and/or construction works then further investigation is recommended.
- Due to the mould contamination, appropriate workplace health and safety procedures should be considered and implemented during proposed demolition works.

11.3.2 USTs/UPSS on site

From information provided by Wayne Andrews of the Gwydir Shire Council and the SMK report, Range Environmental understands that UST/s associated with the historical Clifton's Motor Garage remained within the investigation area. The indicative location of the UST/s was within the current Land care office building and near the workshop. Range Environmental recommends the UST and any associated Underground Petroleum Storage System (UPSS) infrastructure (i.e., feedlines, fill points, and vent lines) be removed from site as part of the demolition works. Any residual contamination should be remediated, and validation sampling undertaken to confirm contaminants are removed to an acceptable or safe level.

11.3.2.1 Ground Penetrating Radar

A Ground Penetrating Radar (GPR) survey is recommended to positively identify the existence of UPSS infrastructure. Data obtained from the GPR survey will be used as an input to provide guidance on a Remediation Action Plan (RAP) (Section **Error! Reference source not found.**).

11.3.3 Groundwater Investigation

Range Environmental recommends a groundwater investigation following the demolition of onsite infrastructure. The installation of three (3) groundwater monitoring bores will allow for the opportunity to assess the risk of groundwater impact from onsite UST and offsite impact from UST that occur at the council depot to the east. Three (3) groundwater monitoring bores will also enable the determination of groundwater flow direction.

11.3.4 Protocols for Unexpected Contamination

The following actions are recommended to be taken if offensive or noxious odours and/or evidence of contamination is observed during any site earthworks or excavation. The actions are recommended to be taken to immediately abate the potential for harm to human health and the environment:

1. Stop work immediately.
2. Report signs/evidence of contamination to the Site Manager and engage the appointed contaminated land consultant.

3. Contain any potentially contaminated material, if safe to do so. This may include the installation of temporary erosion and sediment controls surrounding the potentially contaminated area and covering with a sheet of 200 µm plastic sheeting (i.e., heavy, duty concrete underlay or similar).
4. Isolate the area with a physical barrier such as temporary fencing, hazard fencing etc.
5. Assume the area is contaminated until an assessment by a contaminated land consultant has been undertaken. Below are general actions that would be taken.
    a. Sample the material as per all relevant guidelines and standards.
    b. Analyse the samples at a NATA-accredited laboratory.
    c. Determine appropriate management strategies for any contaminated soil.

Appendices

Appendix A Current Title

Provided by CITEC Confirm

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 20/38/758111

SEARCH DATE	TIME	EDITION NO	DATE
7/12/2023	2:53 PM	-	-

LAND

LOT 20 OF SECTION 38 IN DEPOSITED PLAN 758111
AT BINGARA
LOCAL GOVERNMENT AREA GWYDIR
PARISH OF BINGARA COUNTY OF MURCHISON
(FORMERLY KNOWN AS ALLOTMENT 20 OF SECTION 38)
TITLE DIAGRAM CROWN PLAN 3.1470

FIRST SCHEDULE

GWYDIR SHIRE COUNCIL (CA101335)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
* 2 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT 1900. THIS TITLE WAS CREATED USING LAND AND PROPERTY INFORMATION RECORDS IN ACCORDANCE WITH SECTION 28D OF THE REAL PROPERTY ACT 1900. DELIVERY OF THE TITLE AND/OR REGISTRATION OF ANY DEALING WILL REQUIRE LODGMENT OF A STATEMENT OF TITLE PARTICULARS SUPPLYING COMPLETE OWNERSHIP DETAILS.
* 3 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 7.5.2008 BK 2016 NO 335
* 4 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Provided on 07/12/2023 01:53 PM by CITEC Confirm

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register.

CITEC Confirm hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with section 96B(2) of the Real Property Act, 1900.

Information contained in this document is provided by CITEC Confirm, ABN 52 566 829 700, confirm.com.au, an approved NSW Land Registry Services Information Broker.

Provided by CITEC Confirm

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/87721

SEARCH DATE	TIME	EDITION NO	DATE
7/12/2023	2:55 PM	2	4/8/2004

LAND

LOT 1 IN DEPOSITED PLAN 87721
AT BINGARA TOWN
LOCAL GOVERNMENT AREA GWYDIR
PARISH OF BINGARA COUNTY OF MURCHISON
TITLE DIAGRAM DP87721

FIRST SCHEDULE

GWYDIR SHIRE COUNCIL (T AA855439)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 BK 1566 NO 614 RIGHT OF WAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE LAND SHOWN SO BURDENED IN VOL 6789 FOL 17

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Provided on 07/12/2023 01:55 PM by CITEC Confirm

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register.

CITEC Confirm hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with section 96B(2) of the Real Property Act, 1900.

Information contained in this document is provided by CITEC Confirm, ABN 52 566 829 700, confirm.com.au, an approved NSW Land Registry Services Information Broker.

Appendix B Proposed Redevelopment Plans

SMK

CONSULTANTS

surveying – irrigation – environmental – planning
ABN 63 061 919 003

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Moree NSW 2400
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33 & 35 Maitland Street Bingara

STATEMENT OF ENVIRONMENTAL EFFECTS

Gwydir Shire Council
Locked Bag 5
Bingara NSW 2404

APRIL 2023

This document has been prepared by SMK Consultants Pty Ltd.

SMK

CONSULTANTS

surveying – irrigation – environmental – planning

ABN 63 061 919 003

DOCUMENT CONTROL

Project Name	33 & 35 Maitland Street Bingara
Applicant	Gwydir Shire Council Locked Bag 5 Bingara NSW 2404
Project Reference	23-33
Report Number	23-33-1
Prepared for	Gwydir Shire Council Locked Bag 5 Bingara NSW 2404
Prepared by	SMK Consultants 39 Frome Street Moree, NSW 2400
Contact	Bruno Nwokolo bruno@smk.com.au 02 6752 1021
Author	
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Company	SMK Consultants
Reviewed By	
	Peter Taylor
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Position	Director
Company	SMK Consultants

Revision History			
Version Number	Date	Authority	Details
0	February 2023	Peter Taylor	Initial Submission
1	April 2023	Peter Taylor	Issued to Council

EXECUTIVE SUMMARY

This Statement of Environmental Effects (SoEE) has been prepared by SMK Consultants on behalf of Gwydir Shire Council ("the Applicant") to support the demolition of two (2) buildings and ancillary infrastructure located at 33 and 35 Maitland Street in Bingara. Council aims to demolish the buildings, as one of the buildings is contaminated by mould and the other is falling into a state of disrepair. A new building will be built at 33 Maitland Street. This will be smaller than the existing Soldier's Memorial Hall currently present on-site. The remainder of the site will be redeveloped as a green space.

Applicant:	Gwydir Shire Council Locked Bag 5 Bingara NSW 2404
Owner:	Gwydir Shire Council Locked Bag 5 Bingara NSW 2404
Subject Land:	Lot 20 Section 38 DP758111 Lot 1 DP87721 Address: 33 & 35 Maitland Street Bingara NSW 2402
Local Government Authority:	Gwydir Shire Council
Proposed Development:	Demolition of two buildings and ancillary infrastructure on Maitland Street, Bingara.
Type of Development:	Local Development under the *Gwydir Local Environmental Plan 2013*.
Permissibility:	The proposed development is permissible with the consent of Gwydir Shire Council.

Approvals and Licences

The following approvals are required to demolish the existing buildings located at 33 and 35 Maitland Street in Bingara:

- Development Consent from Gwydir Shire Council under Part 4 of the *Environmental Planning and Assessment Act 1979*.

TABLE OF CONTENTS

1 Introduction

This Statement of Environmental Effects has been prepared on behalf of Gwydir Shire Council to accompany a Development Application (DA) for the demolition of two buildings located at 33 & 35 Maitland Street in Bingara. The building at 33 Maitland Street is the Soldier's Memorial Hall, which is over 100 years old. This building has been impacted by extensive mould contamination which was discovered approximately 18 months ago as a result of the damp coursing around the building having failed. The building is owned by Gwydir Shire Council and housed the Gwydir Shire Council offices until the closure of the building as a result of the health risks to staff and customers due to the uncontrollable mould contamination.

Council have been through an extensive process of assessment and evaluation, ruling out several alternative options prior to deciding to demolish the building. Works were initially undertaken to attempt to dry out the building, however this did not remediate the problem. The nature and cost of required repair and renovation works were also assessed, and it was determined that the building would require extensive works including shelling and re-fitting the entire building at a minimum cost of $3 million. This option was considered too onerous and unviable. The cost of the demolition and reconstruction of the building is estimated to be $2 million. In addition to the lower capital investment, a new build would also have significantly lower maintenance and repair costs in the long-term. The actual cost of the proposed demolition works is estimated to be approximately $150,000.

Council is also the owner of the adjoining building located at 35 Maitland Street in Bingara. The building does not have mould issues; however, the building is ageing and falling into a state of disrepair. Council reviewed a range of options for renovating the building. The outcome of the review determined that the best option is to demolish this building in order to redevelop the site. The building was previously used by the Bingara Vet Clinic, which closed in 2021. The Local Landcare offices used part of the building. Council has determined that the site of this building will benefit the commercial precinct as a green space area.

Persons involved in the preparation of this Statement of Environmental Effects and its appendices are:

- **Marie Duffy** **B.Sc. M.Sc.**
- **Bruno Nwokolo** B.Sc. M.Sc.
- **Peter Taylor** **BSc MEIANZ CIAg LAA**

2 Site Description and Proposed Development

The proposed development involves demolition of the Soldier's Memorial Hall and outbuildings at 33 Maitland Street in Bingara, as well as demolition of the adjoining buildings

at 35 Maitland Street. Both buildings are located in Bingara's main street and commercial precinct.

The development site, consisting of Lot 20 Section 38 in DP758111 and Lot 1 in DP87721, is Rural Zone RU5 – Village under the *Gwydir Local Environmental Plan 2013* (LEP) and has a total area of approximately 3,000 m^2. The site has frontage to Maitland Street in Bingara's centre and the site is bounded by other commercial buildings to the north and south. The Council's Bingara works depot is located to the east.

The Soldier's Memorial Hall is located on Lot 20 DP758111 and was initially built as a School of Arts in 1907. In 1922 the building was extensively renovated and renamed the Memorial Hall to honour fallen soldiers. It was operated as a ballroom and, briefly, as a picture theatre. The building later became the Bingara Returned Services Club and in 1947, Council Chambers moved into the building until its recent closure. There is also a gravelled area at the back of the building which has been used as a car park.

The internal part of the Memorial Hall building mostly consists of rendered brick walls, timber, metal sheeting and non-asbestos wall sheeting. The external wall of the building is made of brick and the roof is corrugated iron.

For the Memorial Hall, asbestos based materials were visually identified on the eaves, on the wall and ceiling of the male and female toilet, and on the upper wall sheeting in the store/cubical in the first room on the northwest of the building.

The paint on the building includes numerous layers of the original paint which will have a higher lead content than modern paints. This old paint needs to be carefully treated as it has the potential to contaminate soil and become a safety risk for inhalation when disturbed.

The Memorial Hall building is not a listed heritage item; however, Council intends to retain the logo on the front façade and to incorporate it in the new building's façade. Council will also ensure that the tree located in the south-western corner of Lot 20 DP758111, (front right of the Memorial Hall building when viewed from Maitland Stret) will be retained as part of the new development proposal.

The extended part of the development site at 35 Maitland Street Bingara (Lot 1 in DP87721) south of the Memorial Hall was previously used for the Local Landcare office and Bingara Veterinary Clinic. Prior to being used for offices, the site as used as a mechanical workshop in the 90's. When the mechanical workshop ceased operations, the property was purchased by Gwydir Shire Council. The western side of the property facing Maitland Street was renovated to provide rooms and office space for the Bingara Veterinary Clinic and Local Landcare office. Some of the structures of the old mechanical workshop are still present at the eastern side of

the site. The Landcare office only used a small area of the existing building on the site, while the larger portion of the building was used as a Veterinary Clinic. Use of the building ceased in about December 2021.

The internal materials of the Landcare and Veterinary building are made of mostly gyprock sheeting while the external parts of the building are made of timber, concrete, corrugated iron, and other mixed materials. The shed on the east of the property is made of corrugated iron and timber. The paint within the shed is suspected to be lead based paint. The lawn area remains maintained and mown on a regular basis. The sewage or water pipes were exposed in several places at the rear of 35 Maitland Street were visually identified as asbestos based pipes. It is suspected that more of this pipe remains below ground.

Several materials in both buildings were identified as containing asbestos and lead. Additional details regarding the occurrence of these hazardous materials and their appropriate removal and disposal is provided in Appendix 2 of this report, in the form of a preliminary site investigation report. This report provides a recommended demolition process for remediation of the site.

The presence of the uncontrollable mould in the Memorial Hall makes the building unusable and therefore Council has determined that demolition is the safest option for this building. The Veterinarian Clinic no longer provides a commercial standard of building as it requires repair. Based on Council assessment, it highly unlikely whether a new business will viably refurbish the site for commercial use.

Council has indicated that the Soldier's Memorial Hall will be reconstructed as a smaller building which will house both Council and Landcare offices. The site at 35 Maitland Street will be redeveloped as a green space to make the space more visually attractive. These actions will be the subject of a separate development application to be prepared and assessed by Council.

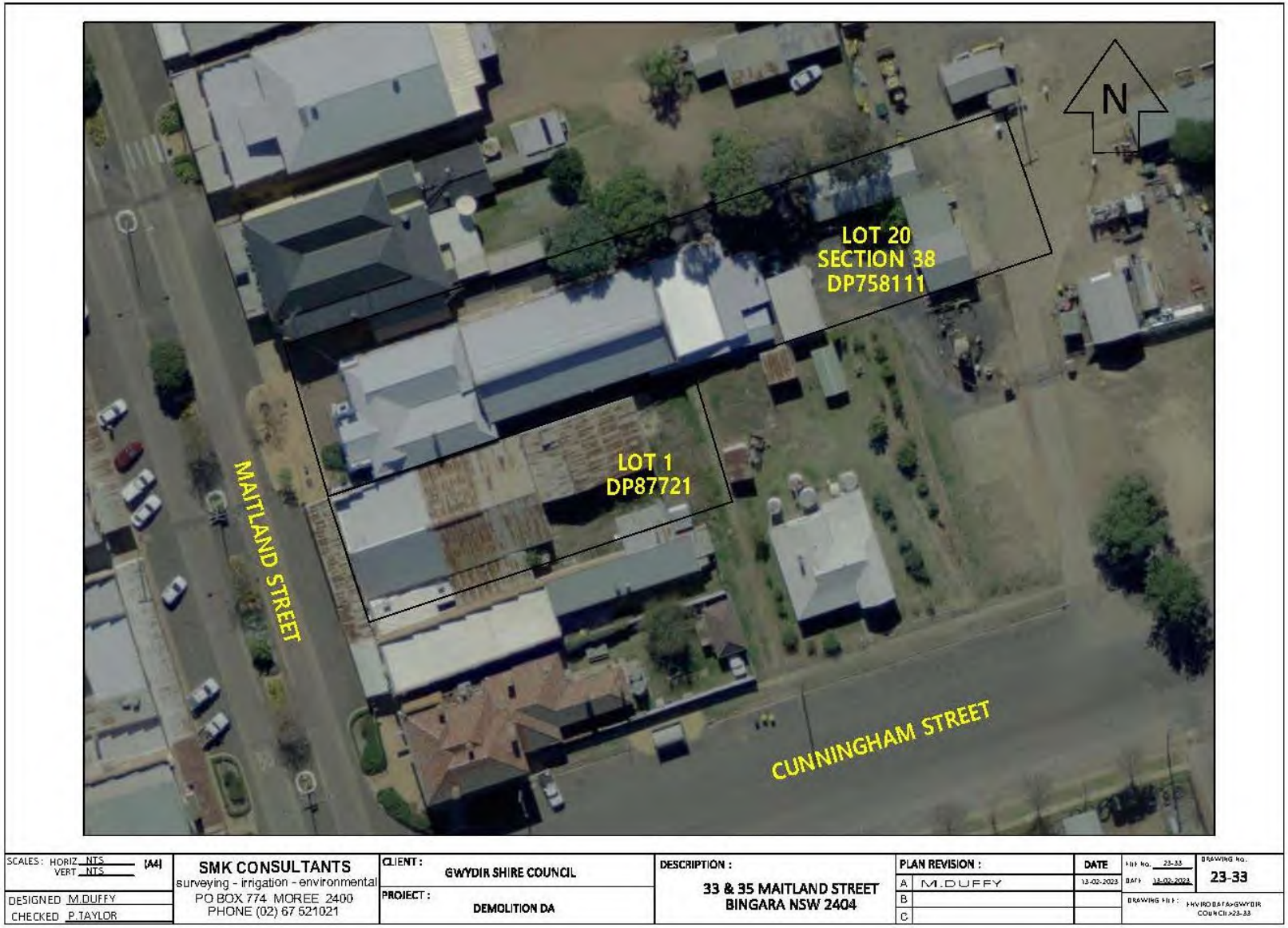
The following plan presents an aerial image showing the site and surrounding area.

2.1 Site Operations

Site operations during the demolition are anticipated to involve specialist demolition and removalist crews, associated plant and equipment. Haulage trucks will also be required to remove debris and material.

Trucks will mainly enter the site from the rear access via the Bingara Works Depot. Once loaded they will return to Cunningham Street via the works depot.

The following provides an aerial image showing the buildings and the Lot boundaries.



SCALES: HORIZ NTS VERT NTS (A4) DESIGNED M.DUFFY CHECKED P.TAYLOR	SMK CONSULTANTS surveying - irrigation - environmental PO BOX 774 MOREE 2400 PHONE (02) 67 521021	CLIENT: GWYDIR SHIRE COUNCIL PROJECT: DEMOLITION DA	DESCRIPTION: 33 & 35 MAITLAND STREET BINGARA NSW 2404	PLAN REVISION: A M.DUFFY B C	DATE 13-02-2023	File No. 23-33 DATE 13-02-2023 DRAWING No. 23-33 DRAWING FILE: ENVIRODATA>GWYDIR COUNCIL>23-33

Fencing will be erected around the site and front footpath. Pedestrians will be directed to the western side of Maitland Street during the demolition and removal process to ensure their safety.

Ample parking for light vehicles will be available on the eastern extent of Lot 38 (behind the Soldier's Memorial Hall) for workers.

It is noted that the majority of the demolition works will be contracted out, and it is expected that as many materials as possible will be recycled/re-used. To ensure the most effective reuse of items, debris will be removed in groups according to material type.

Prior to the commencement of site operations, neighbours will be notified of the development on the site and the site supervisors' details will be provided.

The design of the new building on Lot 20 in DP758111 and re-development of the adjoining site on Lot 1 in DP87721 is yet to be finalised. Redevelopment of the site will be subject to a separate development application and construction certificate process through Council.

This development application solely covers the proposed demolition works. The demolition works are expected to take two to three months from commencement to final remediation. It is anticipated that redevelopment of the site would be able to commence by September 2024.

2.2 Demolition

Demolition works will consist of four main stages. Firstly, the removal and disposal of asbestos containing materials from the building. This would be followed by the demolition and the hauling of debris and material to the Bingara Landfill. Once most building materials are removed from the site, more detailed soil investigations will be undertaken to locate and plan the removal of any contaminated materials in the soil. Once a suitable remediation plan is developed, the remediation will be undertaken and followed by validation testing to ensure the remediation process is completed to the required standards.

Construction hours will be from 7am to 6pm weekdays and from 7am to 2 pm on Saturdays. The construction work is expected to take two to three months, dependent on weather and the availability of contractors.

SMK Consultants completed an inspection of the building and identified asbestos containing materials in various locations. The asbestos material is in a non-friable state and generally in good condition with a consistent paint covering. Prior to the main demolition of the building, asbestos containing materials must be appropriately removed. The services of Licenced

Asbestos Removalists will be required to remove and dispose of asbestos materials safely without emitting asbestos fibres.

NSW EPA has specific transport requirements for amounts of asbestos waste over 10m^2. EPA's *Waste Regulation* (2014) requires transporters to use 'Waste Locate', an online system for tracking the movement of asbestos waste in NSW. The waste must also be covered and double wrapped in plastic to prevent the release of asbestos fibres during transport. This is particularly important as the 3km route to Bingara's waste facility goes through central Bingara and passes a number of residential dwellings.

Once the asbestos material has been removed, the demolition process will commence. The details of the demolition will be subject to structural investigations. Works will require excavator, water trucks and trucks for carting waste.

Due to the site's proximity to Maitland Street, one of Bingara's main commercial streets, care will need to be taken in barricading the site from the public. The site will also need to be locked and inaccessible after hours with appropriate signage and warning notices.

The carting of demolition debris will increase the frequency of trucks through Bingara as trucks either travel the 1.5km route from the site to the Bingara Waste Recycling Centre off the Cobbadah Road to the south of Bingara, or 3.3km west of the town to the Bingara Landfill, located off the Killarney Gap Road. Trucks can only cart waste during Landfill operating hours of between 8.30am and 5.30pm.

2.3 Required Approvals

The Development Application is considered Local Development under the *Environmental Planning and Assessment Act 1979*. Approval is therefore required from the Gwydir Shire Council before the proposal can proceed.

Once development approval is obtained, demolition works can commence subject to civil investigations and approval conditions.

3 Policy and Legislation Assessment

3.1 Commonwealth Legislation and Regulations

3.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires the approval of the Commonwealth Minister for the Environment for actions on Commonwealth land or those that may have a significant impact on matters of national environmental significance.

The proposal is for small-scale demolition works in the Bingara town centre. The development is not considered to produce off-site impacts which will degrade or alter either Commonwealth land or matters of national environmental significance.

3.2 State Legislation, Regulations and Policies

3.2.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* provides the framework for NSW Planning Legislation. Under this Act, local councils prepare Local Environmental Plans (LEPs) that specify planning controls for specific parcels of land. The Act also provides for State Environmental Planning Policies (SEPPs) and Regional Environmental Plans (REPs). Applicable SEPPs are discussed in Section 2.2.4.

This document has been prepared in accordance with the requirements of this Act. The following sections address matters for consideration outlined under Section 79C (1) of the Act to provide an assessment of how the development complies with relevant legislation and policies, and how the proposal will be developed and managed to protect the built and natural environment.

3.2.2 Environmental Planning and Assessment Regulation 2000

The *NSW Environmental Planning and Assessment Regulation 2000* requires that certain documents must accompany a development application. This Statement of Environmental Effects and its attachments including the Remediation Action plan satisfy these requirements.

3.2.3 Biodiversity Conservation Act 2016

The BC Act outlines requirements in relation to the listing of threatened species, biodiversity impact assessment, offsetting, and related offences. The assessment of biodiversity values on land and the impacts of activities on those biodiversity values are to be carried out in accordance with the Biodiversity Assessment Method (BAM). The objective of the BAM is to adopt a standard approach that will result in no net loss of biodiversity in NSW.

The Act also outlines the Biodiversity Offset Scheme (BOS). Development that is subject to the BOS scheme includes development needing consent under Part 4 of the EP&A Act (excluding complying development), activities under Part 5 of the EP&A Act, State significant development and State significant infrastructure.

Where development or an activity is, “likely to significantly affect threatened species”, a Biodiversity Development Assessment Report (BDAR) must be prepared, and consent authorities are required to consider the likely impact of the proposed development on biodiversity values before granting approval.

Section 7.2. of the BC Act states that an activity is "likely to significantly affect threatened species" (and therefore whether a BDAR is required) is reached if:

- the test in section 7.3 of the BC Act identifies matters that may significantly impact threatened species, populations or endangered communities;
- the Biodiversity Offset Scheme (BOS) Threshold is exceeded; and
- the development is carried out in a declared area of outstanding biodiversity value.

The subject land was assessed using the online Biodiversity Offsets Scheme Entry Tool, which determines whether any proposed clearing would be above or below the area thresholds or lies within an area mapped as having high biodiversity value. According to BOS, the area clearing threshold for each of the two subject lots is up to 0.25 hectares of native vegetation. The subject site does not support native vegetation or natural habitat. In the absence of native vegetation clearance, the BOS threshold would therefore not be exceeded.

The proposed development site is not located within a declared area of outstanding biodiversity value.

Proponents are also required to carry out a 'test of significance' for all development proposals that do not exceed the Biodiversity Offset Scheme Threshold. Given the absence of native vegetation on the site, it was determined that the proposal is not likely to significantly affect threatened species and that a test of significance is not required.

3.2.4 State Environmental Planning Policies

Error! Reference source not found. presents a summary and comment on current State Environmental Planning Policies and identifies their relevance to the proposed development.

Table 1: List of State Environmental Planning Policies

SEPP Title	Relevance
State Environmental Planning Policy (Planning Systems) 2021	Not Relevant
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Review provided below
State Environmental Planning Policy (Resilience and Hazards) 2021	Review provided below
State Environmental Planning Policy (Transport and Infrastructure) 2021	Review provided below
State Environmental Planning Policy (Industry and Employment) 2021	Not Relevant
State Environmental Planning Policy (Resources and Energy) 2021	Not Relevant

SEPP Title	Relevance
State Environmental Planning Policy (Primary Production) 2021	Not Relevant
State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021	Not Relevant
State Environmental Planning Policy (Precincts – Central River City) 2021	Not Relevant
State Environmental Planning Policy (Precincts – Western Parkland City) 2021	Not Relevant
State Environmental Planning Policy (Precincts – Regional) 2021	Not Relevant

3.2.4.1 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 4 of the *SEPP (Biodiversity and Conservation) 2021* applies to land within each local government area listed in Schedule 2 of the SEPP, with certain exceptions such as land zoned RU1 – Primary Production. The Gwydir LGA is included in this schedule, and none of the exceptions listed apply to the site. The proposal is therefore to be assessed pursuant to Chapter 4 of the SEPP.

Clause 4.9 of the SEPP states that an assessment of the potential impact of the development on Koalas should be carried out where the proposal has an area of more than 1 Hectare and no approved Koala plan of management has been prepared for the land.

Comment

The Gwydir Shire is included in Schedule 2 of the SEPP; however, the proposed development site only has an area of <0.3 Hectares, therefore an assessment of Koala Habitat is not required. Further, the site is in an urban area and there are no trees or shrubs that are considered as Koala habitat within the site. The proposal is unlikely to have any impacts on local Koala populations.

3.2.4.2 State Environmental Planning Policy (Resilience and Hazards) 2021

3.2.4.2.1 Hazardous and Offensive Development

Chapter 3 of the SEPP applies to proposals falling under the definition of *'potentially hazardous industry'* or '*potentially offensive industry'*. Under the SEPP, the permissibility of industrial proposals is linked to safety and pollution control performance. The SEPP aims to ensure the merit of proposals are properly assessed before being determined. It aims to ensure that developments can only proceed if they are suitably sited and can demonstrate that they will be built and operated with an adequate level of safety.

The hazardous substances and dangerous goods to be held or used on the proposed development site are required to be identified and classified in accordance with the risk screening method contained within the document entitled Applying SEPP 33 (Department of

Planning, 2011). Hazardous materials are defined within guidelines for *Applying SEPP 33* as substances falling within the classification of the Australian Code for Transportation of Dangerous Goods by Road and Rail (Dangerous Goods Code).

No hazardous material is stored onsite or will be dealt with onsite as part of the proposal.
A minor amount of asbestos sheeting is present onsite which is not considered hazardous materials if it remains undisturbed. The demolition work will adopt the require removal and remediation actions for asbestos removal prior to demolition. This is considered as acceptable. Appropriate waste handling procedures will be undertaken when moving and disposing of asbestos containing materials. All materials will be double wrapped and sealed in plastic to prevent fibre release. If deemed necessary by the Licenced removalist, the removal area will also be wet down to prevent fibre release during the removal process.

Water will be used to mitigate dust generated from the demolition process. This will also be essential to avoid mould spore emissions during the demolition process.

Based on the risk screening method of Applying SEPP 33, the proposal is not considered potentially hazardous under SEPP 33. As such, there is no requirement to undertake a Preliminary Hazard Analysis for the proposal.

Offensive Development
Offensive industries and potentially offensive industries are defined under Clause 4 of SEPP 33 as follows:

- *Offensive Industry: a development which, when all measures proposed to reduce or minimise its impact on the locality have been employed, would emit a polluting discharge in a manner which would have a significant adverse impact.*
- *Potentially Offensive Industry: a development which, if it were to operate without employing any measures to reduce or minimise its impact, would emit a polluting discharge in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land.*

The proposal does not involve activities which would generate offensive odours or waste products. The proposal may generate noise and dust; however, this is not deemed as “offensive” as defined by this Policy. Further, the applicant proposes to implement the necessary controls to ensure no excessive dust or noise is experienced at locations surrounding the development site.

3.2.4.3 Remediation of Land

Chapter 4 of the *Resilience and Hazards SEPP 2021* covers remediation of land and aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm

to human health and the environment. For a development that would change the use of the land, a consent authority must consider whether the land is contaminated and if it is, whether the land is suitable for the proposed landuse in its present state or whether remediation is required. Even where no change of use is proposed, a consent authority must consider whether the land is suitable for the proposed development if the land has been used for a purpose listed in Table 1 of Appendix 1 in Contaminated Land Planning Guidelines (NSW Government, 2018 (Draft)).

The site is not listed on the NSW EPA Contaminated Land Record suggesting there is no known significant contamination at the site. However, the register does not contain a comprehensive index of every contaminated site in the State, as the register cannot account for contaminated sites which have not yet been identified. An examination of the register must therefore be accompanied by a site assessment to determine a site's likelihood of being contaminated.

An initial walkover of the site by SMK's Contaminated Land Consultant identified a range of contamination on the site. A Preliminary Site Investigation Report is presented in appendix 1.

The land at 35 Maitland Street Bingara was once used as a mechanical workshop which may have produced contamination from oils or fuels. Below ground fuel tank infrastructure was identified onsite. The fuel tanks have not been used for a period of 30-years or more. One of the tanks is located beneath the present Landcare building while the second tank is located in front of the shed of the old mechanical workshop.

Removal of the tanks under the Landcare office building would potentially involve a requirement to demolish the building to allow safe access for removal of the tank and below ground pipe infrastructure. The option of in-situ remediation for old disused fuel tanks is available, subject to investigation and concurrence from NSW EPA. This is considered routine for old fuel tanks that have not been used for an extended period. It is normal procedure to drain the tanks and then fill them with an inert material such as concrete.

The second fuel tank is located in the open lawn area in front of the old mechanical shed and therefore its removal would not entail a requirement for demolishing a building. The preference is to excavate this tank, remediate any surrounding contamination and dispose of the tank according to regulations.

As previously stated, the paint on external walls of the male and female toilet on both sites, the doors, window frames, and fascia board of the Memorial Hall, the shed of the formal mechanic workshop consists of old lead in the paint which has a high lead content. Lead contamination of the adjoining soil was identified during the site investigation. The lead contaminated soil will need to be removed from the site as part of the remediation process.

Asbestos materials are present in the buildings. The site investigation visually identified asbestos material on the wall and ceiling of the male and female toilet, the eaves of the Memorial Hall, on the upper wall sheeting of the cubical/store in the first room on the northwest of the Memorial Hall and the floor tiles within the Memorial Hall. At the adjoining site at 35 Maitland Street, asbestos material was visually identified on the ceiling and walls of the male and female toilet, and on the underground water pipes within the site. All the asbestos materials at the site should be removed by a Licenced Asbestos Removalist prior to demolition works at the proposed development site.

The site investigation has not accessed beneath the buildings as this would require demolition of the buildings. In the event that demolition works reveal contamination, further investigations by an appropriately qualified land contamination consultant is recommended to determine the extent and concentration of the contamination or alternatively provide validation results to show a lack of contamination.

In summary, the primary concern within 35 Maitland Street relates to the potential of at least two or more below ground fuel tanks, related fuel pipes, asbestos contaminated materials and lead contaminated soils. The primary concern for 33 Maitland Street relates to mould, asbestos materials, and lead paint contamination. On this basis, validation testing in the form of a Visual Asbestos Clearance Certificate and final Validation Report will need to be completed as part of the demolition plan. This should be reflected in approval conditions.

3.2.4.4 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP provides development controls for infrastructure and services.

The proposed development does not trigger the provisions set out in Schedule 3 of the SEPP as traffic generating development that requires referral to the Roads and Maritime Services as the proposal is defined as ‘any other purpose’ and will not generate 200 or more motor vehicle movements per day.

3.3 Local Planning Instruments

3.3.1 Gwydir Local Environmental Plan 2013

In accordance with the LEP, the demolition of a building or work may be carried out only with development consent. This proposed development is therefore permissible with consent under the *Gwydir Shire LEP 2013*.

Land Use Zoning

The proposal falls under the *Gwydir Local Environmental Plan 2013*. The subject lots and those adjacent are zoned as RU5 – Village. This zoning is consistent throughout Bingara with the exception of parks and recreation spaces zoned as RE1 – Public Recreation.

Objectives of Zone RU5

The objectives of Zone RU5 are:

- To provide for a range of land uses, services and facilities that are associated with a rural village.

Comment: The proposal will support this objective by ensuring the continued provision of key services to the community. This is not possible with these buildings in their current condition. Demolition works will make way for a new building which, subject to Council approval outside of the scope of this application, will house the Gwydir Shire Council office in Bingara as well as the Local Landcare office. Leaving the buildings in their current state does not serve the Bingara community to the site's fullest potential as the Soldier's Memorial Hall is currently unusable due to mould contamination.

3.3.2 Heritage Conservation

Part 5, Clause 5.10 of the LEP deals with heritage items and heritage conservation areas. The objectives of this clause are as follows:

a) To conserve the environmental heritage of Gwydir,
b) To conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings, and views,
c) To conserve archaeological sites, and
d) To conserve Aboriginal objects and Aboriginal places of heritage significance.

Comment

The proposal is not in the direct vicinity of any heritage items in accordance with Council's Local Environmental Plan or under State or Federal legislation. There are several heritage items in the township of Bingara and the closest, the former police station and residence (Item No. I007 in the Gwydir Shire LEP) is situated approximately 80m north of the subject lot at 32 Finch Street. The subject site is sufficiently separated from the heritage building to avoid any adverse impacts.

3.3.3 Bushfire Hazard Reduction

Section 5.11 of the LEP deals with land that is considered bushfire prone and may require bushfire hazard reduction work. Bushfire hazard reduction work authorised by the *Rural Fires Act 1997* may be conducted on any land without development consent.

Bushfire hazard reduction work includes the following:

a) the establishment or maintenance of firebreak on land, and
b) the controlled application of appropriate fire regimes or other means for the reduction or modification of available fuels within a predetermined area to mitigate against the spread of a bushfire,

But does not include construction of a track, trail or road.

Comment

The subject land consists of an existing cleared area of land and the NSW Planning and Environment Property Report tool does not identify the property as Bushfire Prone Land. The risk of bushfire impacting the site is low and no bushfire hazard reduction work is deemed necessary.

3.3.4 Earthworks

Part 6, Clause 6.1 of the LEP deals with development requiring earthworks. The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighboring uses, cultural or heritage items or features of the surrounding land. Development consent is required for earthworks unless:

a) the earthworks are exempt development under this Plan or another applicable environmental planning instrument, or
b) the earthworks are ancillary to development that is permitted without consent under this Plan or to development for which development consent has been given.

Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters:

a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development,
b) the effect of the proposed development on the likely future use or redevelopment of the land,
c) the quality of the fill or the soil to be excavated, or both,
d) the effect of the proposed development on the existing and likely amenity of adjoining properties,
e) the source of any fill material and the destination of any excavated material,
f) the likelihood of disturbing relics,
g) the proximity to, and potential for adverse impacts on any watercourse drinking water catchment or environmentally sensitive area,

h) Any appropriate measures proposed to avoid, minimise or mitigate of the development.

Comment

Earthworks will be required for the removal of building foundations and concrete pads in outbuildings. Adequate erosion and sediment control devices will need to be established on site prior to and during the demolition works in accordance with standard sediment and erosion control requirements. An erosion and sediment control plan could be prepared for the proposal as part of the detailed demolition plans. Earthworks on the site are considered low risk and will not have a detrimental impact on environmental functions and processes, neighboring uses, cultural or heritage items or features of the surrounding land.

3.4 Development Control Plan

Gwydir Shire Council does not currently have a development control plan.

3.5 Development Contribution Plan

The *Section 94 Development Contribution Plan No. 1 – Traffic Generating Development 2011* provides for an assessment of development proposals that may result in significant damage to bitumen sealed and/or gravel public roads. The proposed development is not considered a traffic generating development. Construction will involve several heavy vehicles for delivery of equipment required for demolition and removal of waste materials from the site. This is considered a minor short-term impact on local roads and therefore should not attract a requirement for a road contribution.

3.5.1 Draft Environmental Planning Instruments

No draft environmental planning instruments apply to this proposal.

4 Environmental Assessment

Items considered include matters set out under Section 79C of the *Environmental Planning and Assessment Act 1979.*

4.1 Land Use Conflict

The demolition site adjoins active commercial premises in the main business precinct of Bingara. There is potential for conflict if appropriate actions are not followed during the demolition and remediation of the buildings subject to this application.

Barriers and fencing need to be erected to enclose the demolition site. Strict operating hours will be adhered to during demolition works to reduce the nuisance demolitions works may have on the surrounding businesses.

The hours for haulage of demolished materials from this site will be governed by opening hours at the local Landfill. These are identified as between 8.30am and 5.30pm. Only limited minor works can be undertaken outside of these hours.

To limit conflict with adjoining commercial business operations, an appropriate notification process will need to be adopted for the demolition works. This will need to include notification of neighbours as well as provision of site supervisor contact details for landowners to discuss issues or requests to limit activities on specific occasions where Maitland Street is being used for extended community activities.

4.2 Soil and Lithology

The surface geology around Bingara is classed as alluvial valley deposits. It is characterised by the nutrient rich sediment layers which are deposited by the Gwydir River.

Publicly available bore log data (MinView, 2023) within the area was examined to assess the spatial variation in soil type, the depth of bedrock at the site and the depth to groundwater. There are six (6) groundwater bores located within approximately 300m of the subject property. The bore logs available for these bores show that the soil profile in the area is variable, consisting of either clay soils with a minimum depth of 4m or shallow topsoils (less than 1m) underlain by sand or gravelly sand. Bedrock was typically not encountered, with one exception where shale river stone was identified at a depth of 6 metres.

Groundwater monitoring wells drilled in the area report water bearing layers at depths ranging from 8m to 18m below ground level. No shallow water bearing zones were encountered in the vicinity of the subject site.

The site is not considered to have any existing salinity issues and the development proposal as designed will not increase the risk of salinity on the property. There is no risk of acid sulphate soils at or surrounding the development site.

Land slope is essentially flat. Erosion is not considered a risk. However, given the nature of the proposed development, best practice drainage and sediment controls will be implemented on site. A Construction Environmental Management Plan (CEMP) could be prepared for the demolition works prior to undertaking any earthworks if this is identified in Council approval conditions.

4.3 Land Contamination

The subject site is not listed as contaminated under the NSW EPA Contaminated Land Register.

The two properties were subject to a preliminary contamination assessment to identify whether contamination is present and provide recommendations for remediation if contamination was identified. Appendix 1 presents the Preliminary Site Investigation report. Contamination was found.

The report provides a recommendation for the demolition and remediation of this site. This is summarised in the following table:

Table 2: Recommended Staging of Demolition Project for 33 and 35 Maitland Street

Stage	Process	Comment
1	Establishment of exclusion fencing, signage of activities and contact details for site supervision	Standard procedure before asbestos is removed or demolition commences.
2	Removal of asbestos by a Class B Licensed Asbestos assessor	Permits to be obtained from Safework NSW for non-friable asbestos removal.
3	Visual Asbestos Clearance Certificate	To be obtained in accordance with Safework NSW requirements to confirm removal of all asbestos materials.
4	Demolition of buildings	Building materials can be disposed of as general building waste or recycled as asbestos free building waste.
5	Detailed site investigation	Soil sampling to determine depth of excavation of soil for removal of lead and hydrocarbon contamination, locate fuel tanks and review their condition and any contamination from the tanks.
6	Preparation of a Remediation Action Plan (RAP)	To provide specific details for appropriate remediation of the site to the required standards.
7	Site Remediation	In accordance with the RAP
8	Validation	Conduct a site Validation investigation to confirm RAP has been completed to required standards.

4.4 Water Resources

The closest surface waters include Halls Creek located 400m north-east of the site and the Gwydir River located some 600m to the north.

Surface watercourses are considered to have a suitable buffer distance from the subject site and direct impacts to these waterbodies are considered unlikely. No activities associated with the proposed demolition works will occur within riparian areas.

4.4.1 Water Supply

Bingara has a municipal water supply system. The water supply is managed by Council and is considered consistent with appropriate potable water standards. The proposed development will require water for dust suppression which can be obtained from this system. The buildings have an existing connection to water mains.

4.4.2 Wastewater Generation

The buildings are connected to the local sewerage system. This will need disconnection prior to demolition if this is possible. Disconnection will reduce the risk of blocking the sewer main with debris.

No wastewater is anticipated to be produced during the demolition work. Portable toilets will be used by demolition staff throughout the development.

Appropriate erosion and silt management on site will be utilised to prevent the discharge of any runoff from water used in dust suppression into the stormwater system. If a significant rainfall event is predicted, temporary erosion and sediment control structures such as straw bales and silt fences will be installed to minimise the potential for sediment/debris laden runoff to enter Walls Creek and the Gwydir River to the north of the town.

4.5 Air Quality

During demolition, dust may be generated through the use of equipment and earthworks. Construction work would be undertaken during normal working hours. It is anticipated that through the use of standard dust control measures, such as the use of water for dampening of exposed areas and materials, the dust emissions during the work can be limited. It will be essential to cover trucks used to remove loads of debris from the site.

During extreme conditions, such as hot, dry, windy conditions, dust generating work would be suspended as necessary to prevent undue dust impacts.

4.6 Noise Impacts

The primary source of noise from the site will be generated by equipment and tools required for demolition and the movement and loading of trucks for waste disposal.

The surrounding background noise will be below general threshold levels recognised for more metropolitan locations as Bingara is a quiet town. The majority of significant noise generated within Bingara results from passing traffic.

Noise from trucks and vehicles will be mitigated by site speed limits of 5 km/h and noise limitation signs. Trucks and machinery will need to reduce noise by idling or being turned off when not in use. Noise emitted from idling vehicles is expected to have minimal impact on adjoining businesses and the community that uses Maitland Street.

Construction hours will be from 7am to 6pm weekdays and from 7am to 2 pm on Saturdays. The works are anticipated to take place on an intermittent basis, depending on contractor availability. The loudest noise of loading trucks will be limited to the hours of operation for the local Landfill. On this basis, truck loading may not commence until after 8am and cease at approximately 4pm.

The potential impact of noise from the demolition work will involve short bursts of noise and would not be continuous.

Adjacent businesses will need to be notified of the demolition dates and the anticipated timeframe of the work. They will also need to be supplied with the site supervisor contact number if they wish to raise concerns.

4.7 Odour Emissions

Investigation of the site has not identified a risk of odour being generated from the site other than the odour of old building materials when it is wetted down. This is not considered as an offensive odour. It is preferable to wet down the building material during the process to avoid dust and therefore this minor odour cannot be avoided.

The potential for unacceptable odour generation from this site is considered unlikely.

4.8 Energy

The proposed development is not predicted to be energy-intensive.

4.9 Safety, Security & Crime Prevention

During demolition, a temporary fence will be erected. This fence will be locked to block public access into the site for safety purposes.

All plant and equipment left onsite will be locked and secured. The site will be kept in a tidy state each evening. No hazardous materials will be left exposed on the site outside of work hours. The construction/demolition certificate stage will outline the demolition plan to ensure the buildings are never left in an unstable state if there is a risk of collapse.

4.10 Waste

Waste materials produced by the demolition will be carted to the nearby Bingara Waste Recovery Centre and/or the Bingara Landfill. Appropriate waste tracking requirements such as the EPA's Waste Locate App will be utilised for any hazardous materials taken from site including asbestos sheeting. Asbestos materials will also be wrapped and sealed in plastic to ensure fibres are not emitted during the transport stage.

Where possible materials will be recycled by the Waste Recovery Centre. For example, Council intend to organise the removal of concrete by Council staff and this is to be crushed and recycled for use as road base subject to inspection to ensure no hazardous material is included with the bricks and concrete materials.

4.11 Natural Hazards

The land is geologically stable and not subject to volcanism, earthquake or soil instability such as subsidence, slip or mass movement.

4.11.1 Bushfire Risk

The parcel of land is not classified as bushfire prone land according to the Rural Fire Service's "Bush Fire Prone Land Mapping Tool". The township of Bingara is not at significant risk overall as its immediate surroundings have been cleared of vegetation. While there are large expanses of remnant vegetation on hills to the east and west of the town, there is limited fuel load in its immediate surrounds.

4.11.2 Flooding Liability

The site is considered flood free, per Council mapping show in in Figure 1 below. Bingara has historically not been flooded in storm or flood events associated with Bingara Creek to the north.

Figure 1: Flood mapping for the proposed development site

4.12 Cultural Heritage

4.12.1 Indigenous Heritage

The site has been developed as part of Bingara since the town was established. The original vegetation was removed and therefore no potential exists for scar trees or similar markings on native vegetation.

The ground on this site has been highly modified over time for the construction and operation of existing buildings and historical activities on-site over the last 100 years. The potential for any artefacts remaining on site is negligible. The development is not considered to create any risk of disturbing unknown artefacts.

4.12.2 Non-indigenous Heritage

No non-indigenous heritage items have been found within or adjoining the development site according to the NSW Government State Heritage Inventory and the Gwydir LEP. There are several heritage items in the township of Bingara however and the closest, the former police station and residence (Item No. I007 in the Gwydir LEP), is situated approximately 80m north of the subject lot on 32 Finch Street. The subject site is sufficiently separated from the heritage building to avoid any adverse impacts.

4.13 Visual Impacts

The proposed development aims to prevent the eventual decline of the subject premises which would negatively impact the visual amenity of Bingara. The Soldier's Memorial Hall in particular has had to be closed down for health and safety reasons, and the site is barricaded to prevent public access at present. Similarly, the premises located at 35 Maitland Street is ageing and is falling into a state of disrepair.

Reconstruction works at the site will improve the overall visual amenity of the site and significantly enhance the presentation of the site relative to its current state.

It should be noted that subject to a separate Council approval, the façade of the Memorial Hall will be retained for historical purposes.

4.14 Access, Transport and Parking

During the demolition, the site will be accessible for trucks and equipment via the two existing access points; one from Maitland Street and one from a Council owned laneway providing access to 33 Maitland Street off Cunningham Street. The two points will provide access to all areas of the demolition site, with the laneway entry being preferred where possible in order to minimise disruptions on Maitland Street.

The existing access from Maitland Street on the northern side of the Memorial Hall may be considered by Council as unsuitable for heavy vehicles due to the pedestrian traffic along the footpath area. On this basis, it is considered preferable for heavy vehicles to access the site from the east.

Vehicles and plant will be able to park on the eastern side of Lot 20 Section 38 DP758111, at the back of the Soldier's Memorial Hall.

Overall, the subject site is considered to have acceptable site access, internal flow for traffic and provision for parking. The layout of the site is further outlined in associated site plans.

4.15 Services and Utilities

The site is connected to the Bingara electricity supply and town water. The site must be disconnected from these facilities prior to demolition works beginning.

The services and utilities can be reconnected as needed for the construction and operation of the new building. This process will be subject to a separate development application.

4.16 Social and Economic Impacts

The proposed development will prevent the further decline of the existing buildings. The buildings are over 100 years old and the Soldier's Memorial Hall has been closed down for health and safety reasons due to mould contamination and earth movement around the building. If left in their current state, the buildings will fall into a state of disrepair and therefore negatively impact the visual amenity of the town. They will also remain vulnerable to crime.

Demolishing the buildings to allow for the reconstruction of a building with a smaller footprint, more appropriate to the current needs of the community, and the addition of a small area of green space as proposed by Council once the demolition is completed, will ensure the continued use of the site to serve community members by improving the visual amenity of the Commercial precinct of Bingara.

4.17 Cumulative Impacts

The proposed development will not require the clearing of any native vegetation or habitat. The proposed development is small-scale and is not anticipated to have significant impacts upon flora, fauna, heritage and amenity of the locality.

The potential cumulative impacts associated with noise, air quality and water resources would be negligible given the small-scale nature of the proposed development and the best practice management and mitigation measures which would be implemented during the works.

The demolition and reconstruction of a building on this site will provide positive economic and social benefits for the surrounding region, as well as eliminating a known health hazard in the Memorial Hall building.

Overall, the demolition of the buildings for the reconstruction of a smaller modern building with associated green space is considered an improvement for the town of Bingara.

5 Development and Investigation Summary

- The proposed development involves the demolition of two buildings and ancillary infrastructure on Lot 20 Section 38 DP758111 and Lot 1 DP 87721 at 33 and 35 Maitland Street, Bingara, NSW 2404 respectively.
- The proposed development is to be located on Maitland Street, one of the main streets in Bingara. The site is located centrally in Bingara within a walking distance of many residences.

- The site is zoned RU5 Village under the provisions of Gwydir Shire Council's Local Environmental Plan 2013;
- The subject site currently supports two old buildings which are shut down with the exception of the local Landcare office, which takes up part of the smaller of the two buildings. The proposed development will result in a positive impact on the aesthetics and appearance of the site;
- Defining elements of the Soldier's Memorial Hall, including the tree in front of the building and the logo on the building's façade, will be retained/unimpacted by the demolition works. The logo will be incorporated into the new building;
- The demolition process is only anticipated to a short period, causing minimal impact to neighbours. The site shares a boundary with only one (1) residence.
- The site is large enough to host the required demolition equipment and trucks. Minimal impact to Maitland Street is therefore anticipated to occur during demolition. The site is also located 2km from the Bingara Waste Recycling Centre meaning the clean-up process will not be hindered by haulage distances.
- The proposed development will have no significant adverse impacts on the native flora and fauna in the surrounds.
- The land is not identified as bushfire prone, or flood prone based on available online mapping provided on the ePlanning Spatial Viewer;
- The contamination levels identified by the preliminary site inspection are considered to be minimal, in relation to the site's history of commercial use. Most of the analytical results for soil obtained from the site were below the relevant NEPM Assessment Criteria for a playground apart from the presence of lead and some fractions of hydrocarbon that were identified in the soil samples. Potential contaminants of concern at 33 Maitland Street appear to be limited to the topsoil, having little opportunity to permeate down into the underlying clay soils. While the extent of contaminants of concern at 35 Maitland Street will need further investigation during the demolition work;
- Some building materials used at the site were identified as asbestos containing materials;
- The development as proposed is considered to address the requirements of sustainable development being a key consideration under the provisions of the *Environmental Planning & Assessment Act 1979*.

Overall, the site is considered suitable and capable of supporting the proposed demolition works without causing any significant adverse impacts to the surrounds.

5.1 Any submissions made in accordance with this Act or the Regulations

Public participation is addressed under Section 79A of the Environmental Planning and Assessment Act 1979 for advertised development and other notifiable development.

The consent authority must ensure a development application is advertised/notified in accordance with this clause and any relevant environmental planning instrument and/or development control plan.

5.2 The Public Interest

The public's interest will be considered during the proposed development as the application will be notified/advertised in accordance with Schedule 1 of the *Environmental Planning and Assessment Act 1979* and any relevant environmental planning instrument and development control plan to ensure the public are notified accordingly and given their right to be heard.

Do any policy statements from Federal or State Governments have relevance?

No

Are there any relevant planning studies or strategies?

No.

How will the health and safety of the public be affected?

The health and safety of the public will not be negatively impacted by the proposed development. On the contrary, the proposal will contribute to an amelioration of public health as an unsound, mould contaminated building is being removed from the centre of Bingara. The demolition work will be undertaken in accordance with Safework NSW Guidelines and under the control of demolition and asbestos related permits to be issued by Safework NSW to appropriately licensed contractors.

6 Conclusion

This Statement of Environmental Effects provides an investigation into the proposed demolition of the Soldier's Memorial Hall at 33 Maitland Street and the adjoining building to the south at 35 Maitland Street in Bingara. The findings of this Statement of Environmental Effects include the following:

- The proposal is considered to comply with local planning guidelines and meets the objectives of the *Gwydir Local Environmental Plan 2013,* subject to obtaining Council consent;
- Without demolition, the unsound buildings will remain disused and continue to fall into a state of disrepair and decay;
- Council has determined that the Soldiers Memorial Hall contains a hazardous mould infection which cannot be dealt with to ensure complete removal of this risk without demolition of the building as proposed;
- The applicant has considered that demolition of the two buildings is the most cost-effective way of addressing the health and safety issues associated with the mould infestation and earth movement of the Soldier's Memorial Hall building;
- The demolition process can be managed to limit any nuisance to neighbours from dust and noise;
- The demolition process will need to include remediation of the land to remove contamination that has been identified onsite;
- The proposal will result in an option for the applicant to rebuild the site and provide a positive outcome to the commercial precinct in Bingara.

Appendix 1 – Preliminary Site Investigation

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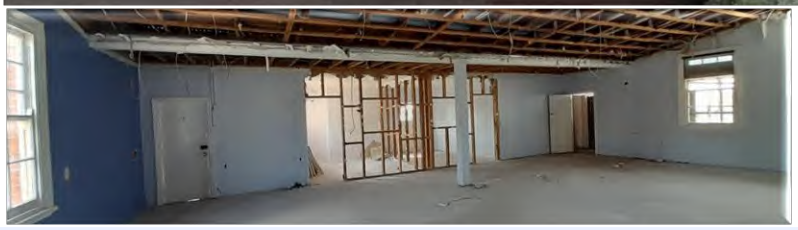

33 & 35 Maitland Street Bingara NSW 2404

Preliminary Site Investigation

Prepared for:

Gwydir Shire Council
Locked Bag 5
Bingara NSW 2404

April 2023

This document has been prepared by SMK Consultants Pty Ltd.

SMK

CONSULTANTS

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ABN 63 061 919 003

DOCUMENT CONTROL

Project Name	Preliminary Site Investigation Report
Proponent	33 Maitland Street Bingara NSW 2404
Project Reference	23-33
Report Number	23-33-PIS
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Revision History			
Version Number	Date	Authority	Details
0	March 2023	P. Taylor	Preliminary Report
1	April 2023	P. Taylor	Issued to Client

CONTENTS

1 Introduction

SMK Consultants were instructed by Gwydir Shire Council to undertake a Preliminary Site Investigation (PSI) of the property at 33 and 35 Maitland Street in Bingara. The property includes Lot 20 Section 38 Deposited Plan 758111 and Lot 1 Deposited Plan 87721 respectively.

The property is zoned R5: Village under the Gwydir Local Environmental Plan 2013.

The sites were assessed to determine the presence of any contamination constraints that need to be considered during the proposed demolition of the buildings on this land.

This report presents the field and laboratory results, discussion, and recommendations of the PSI.

The demolition and remediation of the site is subject to a development application to the Gwydir Shire Council who is the owner and applicant for this project.

2 Objective

The objective of the PSI is to determine whether the site has any contamination constraints that need to be dealt with during and after the demolition of the buildings on this land.

3 Scope of work

The PSI has been prepared in accordance with the regulatory framework established by NSW Contaminated Site Investigation guidelines.

The scope of works adopted for this investigation follows the NSW EPA Guideline for Consultants Reporting on Contaminated Sites (2020).

The primary scope of works involved the following steps:

- Desktop assessment of available information about the site;
- Review of historical aerial photographs of the property and surrounds;
- Onsite assessment of visible landscape to identify any potential contamination in relation to historical activity on site;
- Risk assessment of previous landuse;
- Sampling of soils to determine whether contamination is present;
- Analysis of samples by a NATA Laboratory including screening for a range of relevant parameters based on site observations and history;
- Review of results to compare standard threshold levels for analytes; and
- Preparation of a Preliminary Site Investigation Report to outline the investigation.

The activities undertaken to achieve the above objectives are reported and discussed in the following sections.

4 Site Details

The site is located on Lot 20 Section 38 Deposited Plan 758111 and Lot 1 Deposited Plan 87721 respectively under the Gwydir Local Environmental Plan 2013. The site is located within the main street precinct of Bingara.

Figures 1, 2, and 3 present historical aerial photographs of the property and the cadastral boundary.

4.1 Land Use

The subject site was occupied by Gwydir Shire Council who utilised the buildings for their main office. The main Council office is also known as Soldiers Memorial Hall. The adjoining land

supports buildings that were used for the Bingara Veterinary Clinic and Bingara Landcare office. All three buildings onsite are considered as commercial buildings.

4.2 Surrounding Land Use

The site adjoins other commercial premises in the main street of Bingara. These include a range of shops and offices. The site is located in the main commercial precinct of Bingara. Land to the east is used for the Gwydir Shire Council's Bingara Works depot. Other surrounding landuses are limited to commercial activity but no industrial or potential contaminating activity.

A single residence at 39 Cunningham Street has a common boundary with both Lots subject to this investigation.

4.3 Site Condition

4.3.1 Site Condition

The proposed development site at 33 and 35 Maitland Street is located within the commercial sector of Bingara. The sites have historically been used for office and meeting facilities.

No heavy industry or potential high risk contaminating activities are noted to have occurred on the site.

The building at 33 Maitland Street is named as the Soldier's Memorial Hall, which is over 100 years old. Since the mid-1900's, the building has been used as the Gwydir Shire Council chambers and offices. Neither activity can be related to a potential contaminating activity.

The adjoining 35 Maitland Street has more recently been used as office space and light activities. Historical information suggests that this site was used as a mechanical workshop. This use may have resulted in some contamination which will require investigation of potential hydrocarbon contamination.

In relation to the site conditions of both buildings, the primary issue relating to their demolition is the age of the buildings and the fact that materials such as asbestos was available when the buildings were renovated over the past 60-years or more. Additionally the buildings would have been subject to many coats of paint, which means that layers of the original high lead based paint would be present. Both of these materials can create contamination issues, but also need to be considered in the demolition and remediation of the site for site safety during the demolition work and removal of these materials to remediate the land to an appropriate level for ongoing use.

4.3.2 Site History

In order to gain a better understanding of the site and the surrounding areas, an aerial photograph search was conducted for the site and the local area. The aerial photograph of the area available on NSW historical imagery website are from: 1956, 1964, 1974, 1975, 1985, 1989, 1993, 1997, 2006, 2010, 2013, 2016, 2015, 2017, 2018, 2019, 2020, and 2021 google aerial photographs of the area.

The NSW historic aerial imagery does not have aerial photos prior to 1956. The 1956 historical imagery shows buildings on the land.

Historical records show that the Memorial Hall building was built as a School of Arts in about 1907. In 1922 the building was extensively renovated and named the Soldiers Memorial Hall. The building also operated as a ballroom and, briefly, as a picture theatre. The building later became the Bingara Returned Services Club and in 1947, the building was taken over by Gwydir Shire Council and became the Shire Chambers. In about 2019/20, mould was noticed in the ceiling and walls of the building. The mould could not be controlled to a safe level and use of the building has now ceased.

Figure 1: Memorial Hall in 1923*

*Courtesy of Bingara Historical Society

The adjoining property at 35 Maitland Street Bingara is part of the proposed demolition project. This site is on the southern side of the Memorial Hall. It has recently been used for the Local Landcare office and Bingara Veterinary Clinic. History of the site indicates that it was originally built as a mechanical workshop in 1912 which continued trading through to about 2000. Historical information suggests the site was purchased by the Shire in about 2004, who converted it into two shops.

Figure 2: Historical image of the front of 35 Maitland Street

*Courtesy of Bingara Historical Society

The Landcare office is still using a part of the existing building for their Bingara office. The Bingara Veterinary Clinic closed in December 2021.

The following table provides a listing of aerial images assessed. Three of these historical aerial images are presented below to identify changes of buildings on the properties.

Table 1: Listing of Historic Aerial Photos (Bingara) available for the site.

Year	Site Status	Comment
1956-1985	Building on the site	No change was observed
1989-2022	Building on the site	Few Changes were observed at the site

Figure 3: 1956 Aerial image of the site.

Figure 4: 1965 Aerial image of the site.

Figure 5: 1998 Aerial image of the site.

Figure 6: Investigation Site Plan

4.3.3 Areas of Environmental Concern

The following provides a description of potential contaminating materials resulting from historical use of the site.

Table 2: Risk Assessment Table

Location	Material Status	Potential Concern	Risk Class	Comment
Lawn and open areas	Residual Contamination Risk	Heavy metals	Low	There is a possibility of surface contamination due to past activities on the property
		Hydrocarbon		
	Surface Contamination	Contaminated Soil		
Buildings	Building materials	Asbestos	Low	Most buildings of this age contain Asbestos sheeting or asbestos materials
	Residual contamination risk	Heavy metals	Low	Paint on old buildings usually contains a high amounts of lead.

4.3.4 NSW EPA Contaminated Land Register

A search on NSW EPA contaminated land register found no contamination record for the site.

4.3.5 Protection of the Environment Operations Act (POEO) Public Register

A search on POEO public register was conducted for Environment Protection Licences, applications, notices, audits, or pollution studies, and reduction programs. No results were found for this site. The site does not require an Environmental Protection Licence (EPL).

5 Sampling and Analysis and Plan

5.1 Sample Program

A Preliminary Site Investigation was undertaken on the 24th of January and 1st of February 2023. The subject site was visually assessed for visible surface soil contamination and other potential contaminants. The purpose of the inspection was to identify any material or object of environmental concern present on the site. If materials of concern or unexplained bare ground or dead vegetation were present, the inspection was to involve sampling of the soil and further investigation of the source of the material and the potential extent of the contamination.

The pattern and number of samples to be obtained would be determined by the presence of contamination. If minor contamination was present, selective sampling patterns were to be used to target the contamination. If extensive contamination were identified, a pattern of sampling would be adopted from NSW Contaminated Site Guideline Sampling Procedures which determines the number of samples, depth of samples, and requirements for re-sampling.

Based on the condition of the site, a selective sampling protocol was adopted. The Investigation Site Plan provides details of the buildings and soil sampling points. Table 3 provides a description of the soil sampling sites. The selection of the sampled locations was

based on site observations and the presence of extensive paint flakes around the building foundations.

The test parameters chosen for the materials include asbestos, Hydrocarbon, and common heavy metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg) for the soil and materials obtained from the site.

Two soil sample sites were identified. Samples were taken as composite samples to include several soil samples mixed together from each location. The composite samples of the soil were taken using a stainless-steel trowel and nitrile gloves to avoid contamination of the sample from the sampler. Samples were labelled and placed in prepared sample bottles.

Suspected asbestos material that could not be visually classified onsite and suspected lead-based paint present at the site were also sampled.

The samples were sent to a NATA Accredited Laboratory for analysis. A description of the samples is presented in table 3.

Table 3: Sample identification and description

SMK Sample Number	Sample Description	Tested parameters
23-33-1	Soil from the 33 Maitland Street	Hydrocarbon, and heavy metals
23-33-2	Soil from the 35 Maitland Street	Hydrocarbon, and heavy metals
23-33-3	Vinyl tile from Memorial Hall floor	Asbestos in Bulk Solids
23-33-4	Paint flakes	Lead content

5.2 Quality Assurance and Quality Control

The sampling was undertaken in accordance with SMK Consultants' standard protocol as presented in Appendix 1. This ensures thorough decontamination of all field equipment before and during testing.

Quality control of sample analysis is achieved by utilising a NATA accredited laboratory. These laboratories follow ASTM standard methods which are supported by internal duplicates and blanks, surrogate spikes, and matrix spikes. ALS Laboratories provide the details of surrogates and spikes, percent recoveries of surrogates and spikes used, as well as instrument detection limits in the Certificate of Analysis.

Field observations are also compared with laboratory results. If inconsistencies are detected, re-sampling and re-analysis of a sample is undertaken.

6 Adopted Assessment Criteria

The National Environmental Protection Measure 2013 (NEPM) provides a nationally consistent approach for the assessment of residential site contamination. NEPM presents thresholds for soil and contaminants relating to potential affects on human health and the environment. The guideline values or site criteria are referred to as Health Based Investigation Levels (HIL's) and Groundwater Investigation Levels (GIL's). NSW EPA and National Authorities have prepared other similar documents to provide additional threshold levels for contaminants.

Schedule B (1) – Guidelines on Investigation Levels for Soil and Groundwater (NEPC 2011) were used to establish the appropriate threshold levels for contamination on this site.

The proposed development on the site is characterised to have an intended landuse of Recreational C as it will involve the development of playground and commercial building on the subject site. HIL criteria adopted for this site are based on this classification.

7 Field and Analytical results

7.1 Field results

The following provides details of the field investigation for this site:

7.1.1 33 Maitland Street

33 Maitland Street is accessible via a narrow laneway adjoining the north side of the Soldiers Memorial Hall as well as rear access to the site via land associated with the Council works depot. The site has served as Gwydir Shire Council office building for a period of approximately 66-years.

At the time of the inspection, renovation work had been undertaken to strip internal walls from the building. This work was noted to involve the removal of most of the wall and ceiling sheeting, floor covers and doors inside the hall and the rooms/offices on the east of the hall. This work was associated with the removal of materials from the building to manage a mould infestation.

The internal part of the building is made of brick, timber, metal sheeting, and non-asbestos wall sheeting.

Asbestos containing material was visually identified on the ceiling and wall of the male and female toilet in the adjoining toilet building east of the Memorial Hall. Asbestos containing material was also visually identified on the upper wall sheeting of the storeroom in an open shed, northwest of the main hall.

The floor tiles within the Memorial Hall consisted of a vinyl tile. These were suspected to contain asbestos due to their age and size. A sample of the floor tile was obtained and sent to NATA accredited laboratory for analysis. This was tested as sample 23-33-3. The analysis indicated that the floor tiles contain Chrysotile (white) asbestos materials. The tiles are possibly 50-years old and were observed to be in a bonded condition.

The external parts of the building and the lawn area around the building was visually inspected for the presence of asbestos and other contaminants. The external wall of the building is made of brick or concrete block.

The roof is a corrugated iron structure. The eaves of the building were considered to be a 1950's/60' feature and therefore a suspected asbestos containing material.

Paint on the external wall of the male and female toilet, window frames, doors, fascia board, and other parts of the Memorial Hall building is suspected to be lead base paint. Some of the paint was in poor condition and paint flakes were identified around the edge of the building and toilet block. Sections where the paint is flaking off the building were observed. Other areas of paint remain in good condition with minimal paint flaking occurring.

A soil sample and paint flake sample were taken from these areas and sent to NATA accredited laboratory for analysis. These samples were marked as 23-33-1 and 23-33-2.

The soil sample had a lead level of 241 mg/kg. This can be compared to a health investigation level of 300 mg/kg for the most stringent use of the land. The paint flake had a lead level of 583 mg/kg which is considered high for paint. The presence of these paint flakes will need to be considered as part of site remediation.

The following provides photographs of 33 Maitland Street.

Figure 7: Asbestos floor tiles within the Memorial Hall. (Sample: 23-33-3).

Figure 8: Suspected asbestos containing material on the eaves of the building.

Figure 9: Suspected asbestos containing material on the upper wall sheeting of the storeroom.

7.1.2 35 Maitland Street

The site at 35 Maitland Street consists of a commercial building with signage on the front of the building showing the Bingara Veterinary Clinic and Local Landcare office. Historical use of the site included a mechanical workshop which had operated between about 1912 and 2000. Items associated with a mechanical workshop were identified on the eastern section of the site. This included work benches and the original vehicle hoist.

Visual assessment of the site identified internal walls and ceiling of the Bingara Veterinary Clinic and Landcare Office as modern materials. No asbestos material was visible inside the building.

Building materials at the back of the site (eastern sector) include steel, corrugated iron, timber and concrete flooring. The paint on the wall in parts of this area is old and therefore would have an elevated lead level. Paint flakes are scattered on the ground. The paint sample which was tested proved to have a high lead level. The ground surface sample 23-33-2 taken from the rear of these buildings had an elevated lead level of 898 mg/kg. This soil sample did not contain visible paint flakes. The paint flakes on the ground around these buildings will need to be treated as a contaminant and therefore scraped up and removed from the site. An example of this is presented in the following image.

Figure 10: Paint flakes scattered on the ground adjacent to a flaking painted wall.

Below ground sewage or water pipes were exposed in one or more locations. The exposed sections of pipe were visually identified as asbestos containing material. This pipe will need to be included in the demolition and remediation process as it appears to be close to the surface and in poor condition.

Figure 11: Asbestos based pipe exposed.

The toilet southeast of the building was also assessed for the presence of contaminants. The external walls of the toilet were made of timber with suspected lead based paint, while the internal walls and ceiling of the toilet were visually identified as asbestos sheeting.

Figure 12: Internal walls of the toilet suspected to be asbestos contaminated material.

Figure 13: Confirmed lead base paint on the walls and topsoil around the toilet building (sample: 23-33-4).

No hydrocarbon odour was noted on the site. A few bare/dead patches of vegetation were identified across the site. These bare patches of soil can be related to gravelled areas with limited topsoil.

Advice provided by the current owner is that historical works on the site included covering of possibly two below ground fuel tanks. One is suspected to be located beneath the floor of the front office of the Vet Clinic. A second tank is believed to be located within the old workshop area at the back (east) of 35 Maitland Street. If these tanks remain in place, they may have been active until closure of the mechanical workshop in 2000. No vent pipes, bowser locations, or fill points were visible during this site inspection. It is suspected that the tanks have not been in use for more than 30 or 40-years as the sale of fuel was removed from most workshops to actual service stations. Bingara has two remaining services station and both are outside of the commercial precinct.

7.2 Laboratory Results and Analysis

Two laboratories were needed to test the samples obtained from this site. One laboratory specialises in dust and asbestos. The second laboratory specialises in soil and water analysis.

The following Table 4 presents results of the soil samples 23-33-1 and 23-33-2. The soil samples were primarily tested for the presence of common metals and a range of hydrocarbons that may have resulted from use of the site as a mechanical workshop.

Table 4 also includes available health Investigation levels from NEPM 2013 Table 1A(1) – Health Investigation level for soil contaminants. For this site, the selected Health Based Investigation level is for a site described as Recreational Level C (HIL-C). Landuse under this classification includes public open space such as parks, playgrounds, playing fields (e.g., ovals), secondary schools, and footpaths. This HIL-C is more stringent than HIL-D which is a Commercial Industrial Use of the land. The published HIL levels are included in table 4 for comparison of the results for the two soil samples.

The Certificate of Analysis for these results are presented in Appendix 2.

The term NL is included in the following tables to indicate No Level for thresholds. These chemicals are assessed through a risk process based on the analyte's risk to human health and the environment.

Table 4: Summary of soil analysis with NEPM 2013 HIL C - Recreational C Threshold Criteria

Analyte	Unit	LOR[1]	HIL C - Recreational C	23-33-1	23-33-2
Depth	mm		-	0.5m	0.5m
EA055: Moisture Content (Dried @ 105-110°C)					
Moisture Content	%	1.0	-	11.7	5.2
EG005(ED093)T: Total Metals by ICP-AES					
Arsenic	mg/kg	5	300	10	7
Cadmium	mg/kg	1	90	<1	2
Chromium	mg/kg	2	300	30	26
Copper	mg/kg	5	17000	17	142
Lead	mg/kg	5	600	241	898
Nickel	mg/kg	2	1200	28	22
Zinc	mg/kg	5	30000	345	463
EG035T: Total Recoverable Mercury by FIMS	mg/kg				
Mercury	mg/kg	0.1	80	<0.1	<0.8

Analyte	Unit	LOR[1]	HIL C - Recreational C	23-33-1	23-33-2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons	mg/kg				
Naphthalene	mg/kg	0.5	170	<0.5	<0.5
Acenaphthylene	mg/kg	0.5	NL*	<0.5	<0.5
Acenaphthene	mg/kg	0.5	NL	<0.5	<0.5
Fluorene	mg/kg	0.5	NL	<0.5	<0.5
Phenanthrene	mg/kg	0.5	NL	<0.5	<0.5
Anthracene	mg/kg	0.5	NL	<0.5	<0.5
Fluoranthene	mg/kg	0.5	NL	<0.5	<0.5
Pyrene	mg/kg	0.5	NL	<0.5	<0.5
Benz(a)anthracene	mg/kg	0.5	NL	<0.5	<0.5
Chrysene	mg/kg	0.5	1	<0.5	<0.5
Benzo(b+j)fluoranthene	mg/kg	0.5	1	<0.5	<0.5
Benzo(k)fluoranthene	mg/kg	0.5	1	<0.5	<0.5
Benzo(a)pyrene	mg/kg	0.5	NL	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	mg/kg	0.5	NL	<0.5	<0.5
Dibenz(a.h)anthracene	mg/kg	0.5	NL	<0.5	<0.5
Benzo(g.h.i)perylene	mg/kg	0.5	NL	<0.5	<0.5
Sum of polycyclic aromatic hydrocarbons	mg/kg	0.5	NL	<0.5	<0.5
Benzo(a)pyrene TEQ (zero)	mg/kg	0.5	NL	<0.5	<0.5
Benzo(a)pyrene TEQ (half LOR)	mg/kg	0.5	NL	0.6	0.6
Benzo(a)pyrene TEQ (LOR)	mg/kg	0.5	NL	1.2	1.2
EP080/071: Total Petroleum Hydrocarbons					
C6 - C9 Fraction	mg/kg	10	NL	<10	<10
C10 - C14 Fraction	mg/kg	50	NL	<50	<50
C15 - C28 Fraction	mg/kg	100	NL	<100	1480
C29 - C36 Fraction	mg/kg	100	NL	<100	1920
C10 - C36 Fraction (sum)	mg/kg	50	NL	<50	3400
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions					
C6 – C9 Fraction	mg/kg	120*	180*	<10	<10
C6 - C10 Fraction minus BTEX (F1)	mg/kg	NL	5,100	<10	<10
>C10 - C16 Fraction	mg/kg	25*	120*	<50	<50
>C16 - C34 Fraction	mg/kg	100	5,300	<100	2920
>C34 - C40 Fraction	mg/kg	100	2800	<100	1010
>C10 - C40 Fraction (sum)	mg/kg	50	7,400	<50	3930
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	50	NL	<50	<50
EP080: BTEXN					
Benzene	mg/kg	10	50	<0.2	<0.2
Toluene	mg/kg	10	85	<0.5	<0.5
Ethylbenzene	mg/kg	10	70	<0.5	<0.5
meta- & para-Xylene	mg/kg	NL	-	<0.5	<0.5
ortho-Xylene	mg/kg	NL	-	<0.5	<0.5
Total Xylenes	mg/kg	NL	-	<0.5	<0.5
Sum of BTEX	mg/kg	NL	-	<0.2	<0.2
Naphthalene	mg/kg	1	3	<1	<1

Notes:

(1) LOR = Limit of Reporting
(2) HIL for arsenic assumes 70% oral bioavailability. Site-specific bioavailability may be important and should be considered where appropriate.
(3) NL – No published threshold

Source of Threshold Levels: National Environment Protection (Assessment of Site Contamination) Measure August 2022, Schedule B1-NEPC 2011

Two samples were submitted in relation to lead and asbestos. The lead test was undertaken on a paint flake from old paint to examine the level of lead in the paint. The asbestos samples was a floor tile from within the Memorial Hall. Appendix 3 presents the laboratory certificate of analysis for asbestos and lead for the material obtained from the site during the site investigation. The following table presents a summary of the results.

Table 5: Summary of the analysed asbestos/paint samples from the site

Sample ID	Sampling Date	Sample Location	Asbestos/Lead Detected	Asbestos/lead Type
23-33-4	03-02-2023	Floor tile from the Memorial Hall	Yes	Chrysotile
23-33-4	03-02-2023	Paint flake from the building walls	583 mg/kg	Lead based paint

8 Discussion

The buildings at 33 and 35 Maitland Street Bingara NSW are both old buildings and have been subject to a range of modifications and renovations. The original structures would not have contained asbestos as this was not widely used for building material until after the 2nd World War. Both sites now have asbestos based materials within the building structures including asbestos fibro cement sheeting and asbestos floor tiles. Asbestos based water or sewer pipes are also present on the sites.

The site at 35 Maitland Street has a historical use as a mechanical workshop which introduces issues of fuel and lubricant contamination or residues. Advice received indicates that old fuel tanks are also present beneath the floors of the current building structures.

The risk of contamination identified at these sites during this preliminary assessment includes heavy metals from the paint (lead) and asbestos materials. Hydrocarbon contamination was identified in the soil sample from 35 Maitland Street.

8.1 Heavy metals

A sample of the paint flake (sample ID: 23-33-4) obtained from the door on the southern side of the Memorial Hall shows the presence of lead in the paint cover. The paint sample returned a level of 583 mg/kg of lead. This is consistent with historical lead based paints. This is a potential source of contamination on the property as the paint falls off the surfaces and is disturbed during the proposed demolition works. The paint is also scattered on the ground around parts of the building where the paint is highly weathered and flaking off.

Sampling and analysis of the subsoil (sample ID: 23-33-1) below the paint flakes adjacent to 33 Maitland Street (Memorial Hall) indicated the presence of 241 mg/kg of lead in the subsoil which is below the threshold level for the development of a playground.

The soil sample obtained from the middle of the lawn area south of the old mechanical workshop at 35 Maitland Street was also screened for the presence of heavy metals. The composite soil sample (sample ID: 23-33-2) returned a level of 898 mg/kg of lead. The Threshold level established for the intended landuse is 600 mg/kg.

On this basis, the general area around the buildings where paint is flaking off the external surfaces is considered contaminated or will eventually become contaminated as a result of more paint flakes as the lead in the paint is released and becomes absorbed in the soil.

Remediation of the site will therefore need to include scraping of the soil surface around the building edges to a depth of 500mm or more, according to soil test cores. Once the scraping has been done, testing will need to be undertaken to validate that sufficient soil has been removed to ensure the overall lead level in the soils on this site are below a threshold level of 600 mg/kg.

The most stringent HIL for lead in soil is 300 mg/kg which is described as Residential A landuse. Landuses for Residential A include an accessible garden producing home produce, childcare centres with soil access, preschools and primary schools. Such landuses have a risk of soil ingestion or uptake of contamination via garden produce.

It would be preferable to have validation results below 300 mg/kg as an end result of the remediation works.

8.2 Hydrocarbons

Historical landuse on 35 Maitland Street included a mechanical workshop. Advice indicates that below ground fuel tanks remain onsite but in a stable condition. Historical landuse on 33 Maitland Street has little or no risk of hydrocarbon contamination.

The concentrations of hydrocarbons (PAH, TRH, TPH, and BTEX) were below the limit of reporting for the composite soil sample collected from 33 Maitland Street. The composite soil sample 23-33-2 from 35 Maitland Street had concentrations of hydrocarbons TPH and TRH above threshold levels for Recreational C landuse. This suggests some historical contamination from oils and fuel remains in the soil as a result of the mechanical workshop activity on the site.

No hydrocarbon contamination would be associated with the Veterinarian practice or the Landcare office.

This area of contamination as identified in the Site Investigation Plan will require remediation in the form of excavation and removal of soil material that has the hydrocarbon contamination. This process will require validation testing to ensure sufficient depth of soil is removed.

The presence of below ground fuel tank within 35 Maitland Street can only be assessed once the buildings and foundation materials are removed during the demolition work. The specific location and potential contamination from these tanks can only be determined by destructive access to the tanks. Once further information is known about the tanks and final site plans are established for the ongoing landuse, the decision to either remove the tanks or backfill them with inert material in-situ can be made. Based on information available, the tanks have not been used for a period of more than 30-years. They may contain old fuel or may have been emptied and filled with concrete or other product.

The tanks will need further investigation once the demolition process is almost completed and access to the tanks is possible using an excavator or similar equipment to dig soil samples from the base of the fuel tanks. The appropriate contamination threshold values for hydrocarbon are included in table 4 above. Soil samples need to be obtained around the base of the tanks to determine the require remediation works.

8.3 Asbestos

Asbestos materials were identified at both 33 and 35 Maitland Street.

33 Maitland Street has asbestos containing materials on the eaves of the building, the internal walls of the male and female toilets, the upper wall sheeting in the store shed office outside of the Hall, and vinyl floor tiles of the Memorial Hall.

35 Maitland Street has asbestos materials on the internal walls of the male and female toilets. Asbestos water pipes are exposed in the eastern sector of the property. These pipes would extend beneath the land and to the boundary of the site. It is assumed that these pipes are either water or stormwater pipes. The exposed sections are weathered and damaged but due to the integrity of these pipes, they remain in a bonded condition.

The demolition process for this site will need to commence with the removal of asbestos materials once the construction site is established. The area of asbestos exceeds the minimum of 10 sq.m and therefore asbestos removal will require the services of a Class B Asbestos Removalist. The work will need to include excavation of the below ground asbestos pipe. This process may require removal of concrete foundations/slabs constructed over the original pipes. Excavation and removal of these pipes will require a discovery process.

Once the asbestos is removed, the site will require a Visual Asbestos Clearance Certificate before proceeding to works involving the removal of other building materials. The other building materials once free of asbestos can be subject to recycling or disposal as general building waste without a risk to workers at the Landfill or users of the recycled products.

9 Conclusions and Recommendations

The long-term landuse of 33 and 35 Maitland Street in Bingara has been described as commercial activity in addition to a greenspace. The higher risk from contamination of these two activities is use of the land for greenspace. Uses of a green space may include a park area and playground. The area may or may not include garden beds and grassed areas. Both forms of vegetation would provide minimal exposure to soils and therefore the health investigation levels for this landuse are higher than levels adopted for a residential development or childcare centre under guidelines.

Asbestos based materials were identified at different locations at the site. It is recommended that the asbestos is removed once the site is established as a construction area with a security fence and appropriate exclusion of the public has occurred.

This investigation has identified lead contamination in exceedance of threshold levels adopted for this site. Lead issues are associated with old paint which is flaking off the external walls of some buildings and accumulating in the topsoil around the buildings. A soil sample from the site identified an exceedance level. On this basis, remediation of the site will need to include scraping and removal of soil once the demolition works reaches a point where access to the topsoil is available. The lead has leached into the soil to a depth of 500mm or more.

The process of removing this topsoil after the demolition has all but been completed is recommended on the basis that further paint flakes will accumulate on the ground as the building materials are disturbed during the demolition process.

As a result of the contamination identified on this site, several stages will need to occur in the demolition process. These stages could be addressed as a remediation action plan. The recommended stages of the demolition process is presented below.

Table 5: Recommended Staging of Demolition Project for 33 and 35 Maitland Street

Stage	Process	Comment
1	Establishment of exclusion fencing, signage of activities and contact details for site supervision	Standard procedure before asbestos is removed or demolition commences.
2	Removal of asbestos by a Class B Licensed Asbestos assessor	Permits to be obtained from Safework NSW for non-friable asbestos removal.
3	Visual Asbestos Clearance Certificate	To be obtained in accordance with Safework NSW requirements to confirm removal of all asbestos materials.
4	Demolition of buildings	Building materials can be disposed of as general building waste or recycled as asbestos free building waste.
5	Detailed site investigation	Soil sampling to determine depth of excavation of soil for removal of lead and hydrocarbon contamination, locate fuel tanks and review their condition and any contamination from the tanks.
6	Preparation of a Remediation Action Plan (RAP)	To provide specific details for appropriate remediation of the site to the required standards.
7	Site Remediation	In accordance with the RAP
8	Validation	Conduct a site Validation investigation to confirm RAP has been completed to required standards.

Once the remediation is completed and the Validation Report has been prepared, the site can be declared suitable for ongoing use for commercial activities and development of a greenspace within the commercial precinct of Maitland Street.

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10 Limitations

This report is based on observation at the time of the investigation and the history of the site available to the authors. The conclusions and recommendations are based on the scope of works adopted, the methodology presented in this report and the results of laboratory analysis undertaken for this investigation.

11 Bibliography

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- Contaminated Sites – Guidelines for the NSW Site Auditor Scheme – NSW EPA 1998
- Department of Urban Affairs and Planning, NSW Environmental Protection Authority, Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land, 1998;
- Health based soil investigation levels, National Environmental Health Forum (NEHF), 1999
- Managing asbestos in or on Soil, (NSW Government, 2014)
- National Environmental Protection Council (NEPC) – National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM), (2013);
- NEPM Appendix 1 – The Derivation of S for Metals and Inorganics, 2013;
- NEPM Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater, 2013;
- NEPM Schedule B2 – Guideline on Site Characterisation, 2013;
- NEPM Schedule B7 – Guideline on Derivation of Health – Based Investigation Levels, 2013;
- NSW EPA, Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme, 2017 (4th Edition);
- NSW EPA, Contaminated Sites: Guideline for Assessing Service Station Sites, 2003;
- NSW EPA, Guidelines for Consultants Reporting on Contaminated Sites, 2020;
- NSW EPA, Guidelines on the Duty to Report Contamination under Contaminated Land Management Act, 1997;
- NSW EPA, Sampling Design Guidelines, 1995;
- NSW EPA, Waste Classification Guidelines Part 1: Classifying Waste, 2014;
- Protection of the Environment Operations (Waste) Regulation (NSW EPA 2014)
- Protection of the Environment Operations (Waste) Regulations, 2005;
- SafeWork NSW Code of Practice, How to Manage and Control Asbestos in the Workplace, 2016;
- SafeWork NSW Code of Practice, How to Safely Remove Asbestos, 2016;
- SafeWork NSW, Managing Asbestos in or On Soil , 2014
- Standards Australia (2005) AS4482.1 2nd Edition: Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil – Part 1: Non-Volatile and Semi-Volatile Compounds.
- Waste Classification Guidelines, Part 1 – Classifying Waste (NSW EPA, 2014)
- Work Health and Safety Act, 2011; and
- Work Health and Safety Regulation, 2011.

Appendix 1 – Standard Sampling Procedure

SMK Consultants - Soil Sampling, Storage, Transport and Laboratory Procedures

1. **Field sampling**
   - **Preparation of Equipment -** All equipment to be utilised for the excavation, collection and storage of field samples is to be cleaned prior to entering the investigation site.
   - **Onsite Sampling –** All equipment used for sample collection and excavation is to be cleaned between sampling action. Cleaning to be done using clean water and cleaning equipment to be dried prior to the next sampling action to ensure that all soil and water is removed from the sampling implement.
   - **Field Observations –** The sampler is to record date of sampling, location of sampling, conditions of sampling (weather), observation of condition of soil, odours, potential contamination, level and type of contamination.
   - **Sampling Order –** Where it is envisaged that parts of the investigation area are more contaminated than other parts, the less contaminated areas are to be sampled before contaminated areas.
2. **Sample Storage**
   - All samples are to be placed in cold storage (esky, fridge) and chilled to approximately 3-4 C^0 as soon as practicable.
   - All samples are to be documented and forwarded to the selected laboratory as soon as practicable.
3. **Transport of Samples**
   - Chain of Custody forms are to be prepared for inclusion with samples for Transport. Forms are to include project reference, Client, date of sampling, listing of laboratory testing to be done on each sample, sample container description, date of transport, and condition of samples at time of despatch.
   - Laboratory to be advised by fax/email of pending arrival date for samples and type of testing to be done. (E.g. Forward a copy of COC form)
   - Samples to be securely packed in esky with sufficient ice to maintain the sample temperature at the required level until received by the Laboratory.
   - Courier to be contacted for pick-up of samples at latest possible time.
4. **Laboratory Analysis**
   - The laboratory is to prepare a response COC to indicate that samples were delivered in suitable condition to maintain integrity of samples, a list of testing required was received and expected date for issue of results.
   - The Laboratory is to undertake the required and documented QC/QA procedures as set out by the national Association of Testing Authorities (NATA)
   - Where the Laboratory has its own procedures, these procedures are to be documented and noted on the test results.
   - Laboratory to maintain their appropriate system of internal check samples, duplicates and external laboratory comparisons.
5. **Correlation of Field Observations and Laboratory Results**
   - Field observations are to be correlated with laboratory results.
   - Where a laboratory result does not correlate with a field observation, the investigation must consider re-sampling of the site to provide additional evidence to determine whether the contamination is present.
6. **Laboratory Duplication Requirements**
   - Laboratory duplications are required during a detailed site investigation where the risk of contamination and the potential consequences of contamination are considered as significant to human health or the environment, or where the laboratory operates this procedure as part of standard quality assurance management practices.
   - Duplications are to be in two forms when it is determined that duplications are required.
   - Field duplications are to be undertaken at a rate of one sample per 10-field samples. The field duplicate preparation involves obtaining sufficient sample material from the randomly selected point to prepare two samples. The duplicate is to be identified with a reference known to the sampler to ensure that the laboratory is unaware of the field duplicate identification or reference. The duplicate sample is to be tested for the same parameters as the original sample and then results are to be compared once laboratory results are provided. The scientist/sampler is then required to assess the results for the duplicated sample to determine variations in laboratory results. If a significant variation is noted, the laboratory should be advised to enable retesting of the sample to determine whether the results are correct or whether procedural errors have occurred in the laboratory.
   - Laboratory duplicates and external duplicates to be determined by the Laboratories QC/QA system. Laboratory to be advised of duplicate requirements prior to submission of samples.

Appendix 2 – Certificate of Analysis for soil samples

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2303789**	Page	: 1 of 6
Client	: **SMK CONSULTANTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR PETER TAYLOR	Contact	: Customer Services ES
Address	: P.O.Box 774 39 FROME STREET MOREE NSW, AUSTRALIA 2400	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6752 1021	Telephone	: +61-2-8784 8555
Project	: 33 Maitland St Bingara	Date Samples Received	: 07-Feb-2023 10:25
Order number	: ----	Date Analysis Commenced	: 07-Feb-2023
C-O-C number	: ----	Issue Date	: 13-Feb-2023 17:42
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 2		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sanjeshni Jyoti	Senior Chemist Volatiles	Sydney Organics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER

General Comments

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

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

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

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

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

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

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

- 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.
- 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.

Page : 3 of 6
Work Order : ES2303789
Client : SMK CONSULTANTS PTY LTD
Project : 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	23-33-1 33 Maitland Street	----	----	----	----
				Sampling date / time	03-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2303789-001	--------	--------	--------	--------	
				Result	---	---	---	---	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	11.7	----	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	10	----	----	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----	
Chromium	7440-47-3	2	mg/kg	30	----	----	----	----	
Copper	7440-50-8	5	mg/kg	17	----	----	----	----	
Lead	7439-92-1	5	mg/kg	241	----	----	----	----	
Nickel	7440-02-0	2	mg/kg	28	----	----	----	----	
Zinc	7440-66-6	5	mg/kg	345	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----	

Page : 4 of 6
Work Order : ES2303789
Client : SMK CONSULTANTS PTY LTD
Project : 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	23-33-1 33 Maitland Street	----	----	----	----
				Sampling date / time	03-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2303789-001	--------	--------	--------	--------
					Result	---	---	---	---
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		91.3	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		93.9	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		73.1	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		103	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		101	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		117	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		97.0	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		101	----	----	----	----

Page	: 5 of 6
Work Order	: ES2303789
Client	: SMK CONSULTANTS PTY LTD
Project	: 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	23-33-1 33 Maitland Street	----	----	----	----
				Sampling date / time	03-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2303789-001	--------	--------	--------	--------
					Result	---	---	---	---
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		103	----	----	----	----

Page	: 6 of 6
Work Order	: ES2303789
Client	: SMK CONSULTANTS PTY LTD
Project	: 33 Maitland St Bingara

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
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

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2305090**	Page	: 1 of 6
Client	: **SMK CONSULTANTS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR PETER TAYLOR	Contact	: Customer Services ES
Address	: P.O.Box 774 39 FROME STREET MOREE NSW, AUSTRALIA 2400	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 6752 1021	Telephone	: +61-2-8784 8555
Project	: 33 Maitland St Bingara	Date Samples Received	: 16-Feb-2023 12:00
Order number	: ----	Date Analysis Commenced	: 20-Feb-2023
C-O-C number	: ----	Issue Date	: 22-Feb-2023 16:56
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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- 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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

Page	: 2 of 6
Work Order	: ES2305090
Client	: SMK CONSULTANTS PTY LTD
Project	: 33 Maitland St Bingara

General Comments

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

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

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

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

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

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

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

- 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.
- 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.
- EG035: Positive Mercury result for ES2305090 #001 has been confirmed by reanalysis.

Page : 3 of 6
Work Order : ES2305090
Client : SMK CONSULTANTS PTY LTD
Project : 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	23-33-2 35 Maitland Street - old car yard	----	----	----	----
			Sampling date / time	15-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2305090-001	--------	--------	--------	--------
				Result	---	---	---	---
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.2	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	7	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	2	----	----	----	----
Chromium	7440-47-3	2	mg/kg	26	----	----	----	----
Copper	7440-50-8	5	mg/kg	142	----	----	----	----
Lead	7439-92-1	5	mg/kg	898	----	----	----	----
Nickel	7440-02-0	2	mg/kg	22	----	----	----	----
Zinc	7440-66-6	5	mg/kg	463	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.8	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								

Page : 4 of 6
Work Order : ES2305090
Client : SMK CONSULTANTS PTY LTD
Project : 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	23-33-2 35 Maitland Street - old car yard	----	----	----	----
				Sampling date / time	15-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2305090-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		1480	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		1920	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		3400	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		2920	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		1010	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		3930	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		79.1	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		78.4	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		85.0	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		96.0	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		89.6	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		91.8	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									

Page	: 5 of 6
Work Order	: ES2305090
Client	: SMK CONSULTANTS PTY LTD
Project	: 33 Maitland St Bingara

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	23-33-2 35 Maitland Street - old car yard	----	----	----	----
				Sampling date / time	15-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2305090-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		106	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		102	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		106	----	----	----	----

Page	: 6 of 6
Work Order	: ES2305090
Client	: SMK CONSULTANTS PTY LTD
Project	: 33 Maitland St Bingara

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
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

Appendix 3: Certificate of Analysis for Paint and Asbestos Samples

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EN2301192**	Page	: 1 of 4
Client	: **SMK CONSULTANTS PTY LTD**	Laboratory	: Environmental Division Newcastle
Contact	: MR PETER TAYLOR	Contact	:
Address	: P.O.Box 774 39 FROME STREET MOREE NSW, AUSTRALIA 2400	Address	: 5/585 Maitland Road Mayfield West NSW Australia 2304
Telephone	: +61 02 6752 1021	Telephone	: +61 2 4014 2500
Project	: 23-33 33 Maitland Street Bingara	Date Samples Received	: 07-Feb-2023 11:20
Order number	: ----	Date Analysis Commenced	: 08-Feb-2023
C-O-C number	: ----	Issue Date	: 16-Feb-2023 15:30
Sampler	: ----		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive 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*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

RIGHT SOLUTIONS | RIGHT PARTNER

Page	: 2 of 4
Work Order	: EN2301192
Client	: SMK CONSULTANTS PTY LTD
Project	: 23-33 33 Maitland Street Bingara

General Comments

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

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

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

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

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

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

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

- EG005P conducted by ALS Sydney, NATA accreditation no. 825, site no 10911.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EG005P: Poor precision was obtained for Lead on sample ES2303876 #1 due to sample heterogeneity. Results have been confirmed by re-extraction and reanalysis.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- EA200: N/A - Not Applicable

Page	: 3 of 4
Work Order	: EN2301192
Client	: SMK CONSULTANTS PTY LTD
Project	: 23-33 33 Maitland Street Bingara

Analytical Results

Sub-Matrix: PAINT (Matrix: SOIL)			Sample ID	23-33-4 Wall paint	----	----	----	----
			Sampling date / time	03-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EN2301192-002	--------	--------	--------	--------
				Result	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Lead	7439-92-1	5.00	mg/kg	583	----	----	----	----

Page	: 4 of 4
Work Order	: EN2301192
Client	: SMK CONSULTANTS PTY LTD
Project	: 23-33 33 Maitland Street Bingara

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)			Sample ID	23-33-3 Linoleum tile from the floor	----	----	----	----
			Sampling date / time	03-Feb-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EN2301192-001	--------	--------	--------	--------
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	Yes	----	----	----	----
Asbestos Type	1332-21-4	-	--	Ch	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	N/A	----	----	----	----
Sample weight (dry)	----	0.01	g	8.31	----	----	----	----
Synthetic Mineral Fibre	----	-	-	No	----	----	----	----
Organic Fibre	----	-	-	No	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: SOLID

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	23-33-3Linoleum tile from the floor - 03-Feb-2023 00:00	Two pieces of asbestos vinyl tile.

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(SOIL) EG005(ED093)T: Total Metals by ICP-AES

Appendix C Before You Dig Australia Search Results

Job No 35440860

Phone: 1100
www.byda.com.au

Caller Details

Contact:	Abraham Naude	**Caller Id:**	3199544	**Phone:**	0484 384 394
Company:	Not supplied				
Address:	Unit 18 189 Hume Street Toowoomba City QLD 4350	**Email:**	abraham.naude@rangeenviro.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: J001694
Working on Behalf of: Private

Enquiry Date:	Start Date:	End Date:
09/11/2023	14/11/2023	14/11/2023

Address:
35 Maitland Street
Bingara NSW 2404

Job Purpose:
Excavation

Onsite Activities:
Mechanical Excavation

Location of Workplace:
Private

Location in Road:

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Not supplied

Your Responsibilities and Duty of Care

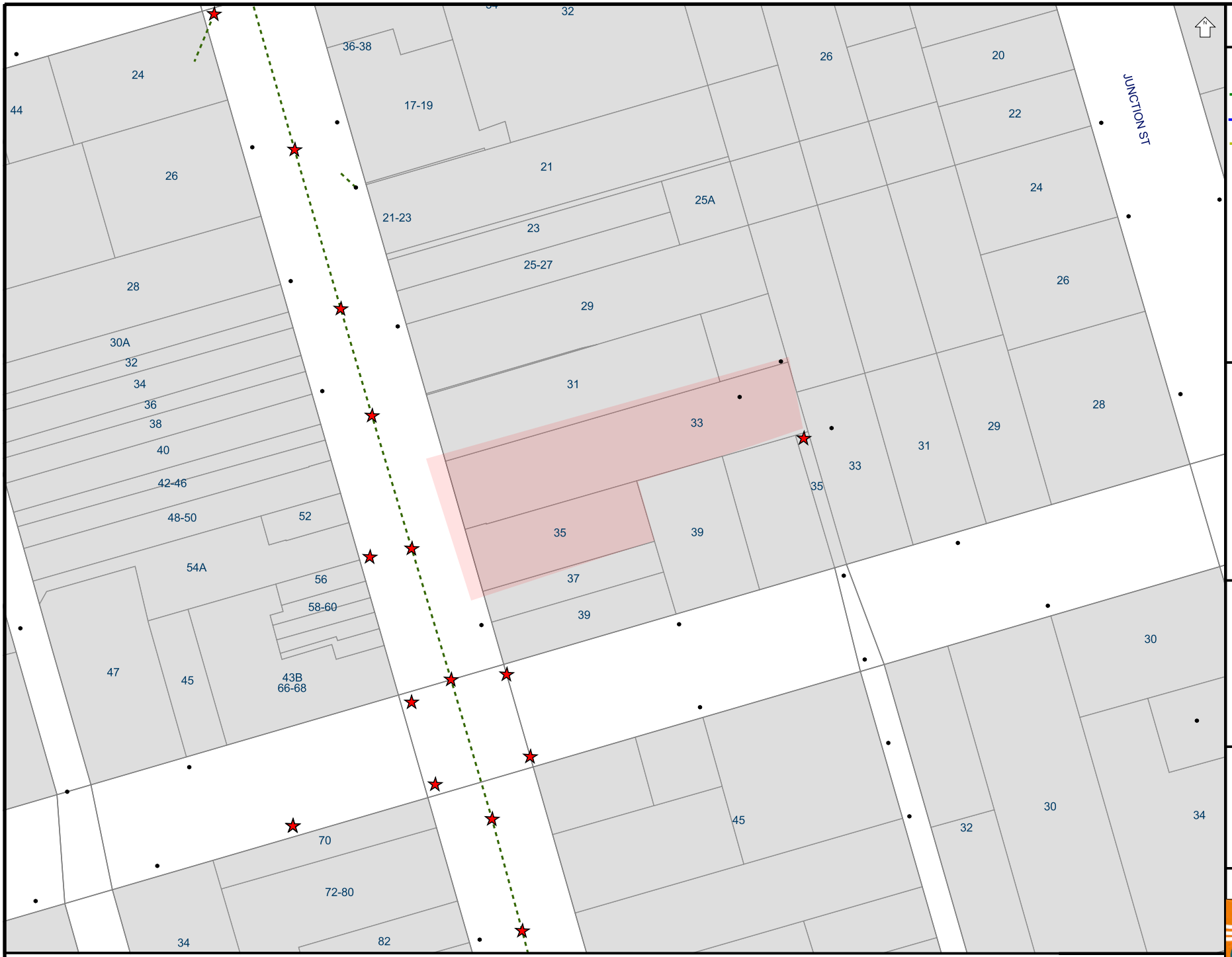
- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.byda.com.au**
- **For more information on safe excavation practices, visit www.byda.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash # require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
231953549	Essential Energy	13 23 91	NOTIFIED
231953548	NBN Co NswAct	1800 687 626	NOTIFIED
231953550	Telstra NSW North	1800 653 935	NOTIFIED

END OF UTILITIES LIST



Overhead wires not shown
LOOK UP & LIVE!

LEGEND

- LV Underground Cable
- HV Underground Cable
- Underground Pipe
- Underground Earth or Wires
- Ground Substation
- Pole
- Cubicle
- Pit
- Area of Interest

Critical Assets

Contact Essential Energy on 13 23 91

- Zone Substation
- Underground Cable
- Underground Fibre

Proposed Works

- Area of proposed works

Proposed assets are shown as orange symbols

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE. If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

ISSUE DATE: 09/11/2023

You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 | SCALE: 1:1417

Job Number: 35440860 Sequence number: 231953549 Job location: 35 Maitland Street, Bingara

Map Centre: 150° 34' 19.9", -29° 52' 5.0"

essential energy

ELECTRICITY SAFETY WHILE EXCAVATING

When working near underground electrical infrastructure

NSW legislation requires people who are planning to do excavation work to obtain copies of underground electricity cable plans through Dial Before you Dig (Phone 1100) and to make sure that the plans are no more than 30 days old when excavation commences.

The aim of the legislation is to ensure that when workers dig or drive items near underground electricity cables, ducting, and pipes, they will establish the exact location of the cables and thus avoid coming into contact with them or damaging them. These items carry vital services such as electricity, water, gas and communications, and establishing their location before digging will help ensure worker safety and prevent damage to the network which may cause disruption of essential services to local communities.

Excavate safely and protect underground assets

Dial Before You Dig (DBYD) is the first step to excavating safely. You should use DBYD when you will be undertaking (but not restricted to) the following:

- Any excavation using machinery digging deeper than 150mm. This includes but is not restricted to back hoes, excavators, borers & kanger hammers (ploughing or ripping activities)
- Any excavation using hand tools deeper than 300mm which includes shovels, spades and crow bars
- Any vertical or horizontal boring.

Note: The above examples are general and may not cover all situations in the regulations where a DBYD would be required e.g. driving metal posts in the ground.

Regardless of the size of your project you should lodge an enquiry with DBYD before commencing work. This applies to small tasks like backyard landscaping, driving items into the ground as well as heavy work such as directional boring or directional drilling. DBYD strive to respond to enquiries within two business days.

Dial Before You Dig

- Phone 1100
- Web www.1100.com.au
- Download the DBYD iPhone app

DIAL BEFORE YOU DIG
www.1100.com.au
The Essential First Step

When a DBYD has been obtained, contact Essential Energy on **13 23 91** to identify any underground pipes and/or cables in the vicinity of excavation works to be carried out. Allow at least **two weeks or 10 working days advance notice** in your construction program to permit Essential Energy time to allocate the necessary field resources to carry out an onsite inspection if required. This service may incur a fee & should be stated at the time of making the appointment.

In the event the excavation does not commence within 28 days of receipt of a plan, a new plan should be obtained. The excavator **must** retain the plans on site for the duration of the excavation works.

Your responsibility

All individuals have a duty of care they must observe when working in the vicinity of underground cables, ducts and pipes. Be aware of the requirement set out in the latest WorkCover Codes of Practice 'Work near Underground Assets Guideline' and 'Work near Overhead Powerlines' which can be viewed at **www.workcover.nsw.gov.au** or you can purchase a copy of the Code of Practice by contacting WorkCover on 1300 799 003.

You should also be familiar with Essential Energy's operational procedures 'Work near Essential Energy's underground assets' CEOP8041 and 'Construction work near electricity network' CEOP1116, which can be found at essentialenergy.com.au/construction

- Employers: If you're an employer or employing someone to excavate, complete construction or drive items into the ground even at home you have a legal obligation to ensure their safety
- Excavators: It is the excavator's responsibility to visually expose the underground pipes and cables manually before any construction begins.

Note – when excavating involving high pressure water or compressed air to break up the ground, which is then removed by a powerful vacuum unit to expose critical utilities after they have been electronically located to confirm identity, size, number of services and depth, checks should be carried out to ensure the pressure is acceptable for all cables and other assets which may be found prior to commencing pot holing by this method. Warning: CONSAC cables shouldn't be potholed by this method and must be de-energised before any work carried out near them. It's recommended to only use air/vacuum equipment to pot hole that operates at or less than 13,790Kpa (2000psi).

Be safe, because they need you

No Go Zone for powered excavation

Extract from WorkCover "**Work near Underground Assets**"

TABLE 1: Types of assets and limits of underground approach

Assets	Clearances	No Go Zone for Powered Excavation	Controls	Typical Depths
Low voltage electricity cables – voltages less than or equal to 1000V (1kV)	Close proximity with the use of hand tools	300 mm	Must contact asset owner for specific conditions	450 – 750 mm
Electricity conductors from 11,000V (11kV) up to 33,000V (33 kV)	Close proximity with the use of hand tools	600 mm	Must contact asset owner for specific conditions	900 mm
Underground sub-transmission cables 33,000V up to 132,000V (132 kV)	Must contact asset owner	Must contact asset owner	Must be carried out under the supervision of the asset owner	900 mm
High Voltage Electricity cables – voltages from 1000V (1kV) up to (33 kV)	Close proximity with the use of hand tools	Must contact asset owner	Must contact asset owner for specific conditions	600 – 1000 mm
Extra High Voltage Electricity Transmission cables – voltages above (132 kV) and 330,000V (330 kV)	Must contact asset owner	Must contact asset owner	Work must be carried out under the supervision of the asset owner	800 – 1200 mm

How to expose cables or pipes

Location plans provide an indication of the presence of underground assets only; they do not pinpoint the exact location. This is why manual exposure is required, which can be done by potholing. Underground assets must first be exposed by pot-holing with non-conductive tools to identify their location. Excavation with hand tools shall be carried out carefully up to, but not closer than, the minimum distances specified in Table 1. Several potholes may need to be dug manually to determine and satisfy yourself of the exact locations of cables or pipes to avoid any mishaps. Manual pot-holing needs to be undertaken with extreme care, common sense and while employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable. Look out for sand, plastic strips or specially marked bricks when excavating, which signal the presence of underground cables.

Only once all underground assets have been located, marked and protected against damage can the excavation proceed with caution.

No Go Zone for powered excavation

Directional boring is powered excavation and contact with the asset owner must be made before excavation takes place. For directional boring across the line of an asset a minimum clearance of **300 mm** from the asset shall be maintained. When boring across the line of an underground asset, the location of the asset/s shall be positively proven by hand digging (pot-holing) or by another approved method and a safety observer appointed.

Note: Where the risk assessment identifies a potential risk of making contact with either underground assets, safety observer/s would be required. The safety observer's responsibility is to ensure that approach distances from underground and overhead assets are maintained.

For boring under electricity cables, the only true way of knowing where the directional drill is, is to "see" it. It is necessary to excavate a slit trench at right angles to the approaching drill and 500mm deeper than the asset being protected and beside the cables to confirm the depth of the cables and ensure the drill is not within the minimum approach distance of the cable (specified in Table 1).

For directional boring parallel to the asset and at the level of the asset, a clearance of **500 mm** shall be maintained from the edge of the nearest asset and pot holed at 10m intervals to ensure clearances are maintained with a safety observer appointed.

The four Ps of safe excavation

1. Plan – Plan your job. Use the Dial Before You Dig service before your job is due to begin to help keep your project safe. Contact Essential Energy on 13 23 91 to identify any underground pipes and/or cables in the vicinity
2. Pothole – Potholing (digging by hand) is a method to assist in establishing the exact location of all underground infrastructure. Only use air/vacuum equipment to pot hole that operates at or less than 13,790Kpa (2000psi)
3. Protect - Protecting and supporting exposed infrastructure is the excavator's responsibility. Always erect safety barriers in areas at risk to protect underground networks
4. Proceed – But ONLY when you have planned, potholed and put the protective measures in place.

Digging safely

You cannot be too careful when it comes to safe excavation. Avoiding underground ducting pipe and cable damage is as simple as having the right tools, the right skills and the right information.

- Study the plans you receive from asset owners thoroughly
- Check to see if they relate to the area you requested and make sure you understand them. If you are unclear about what the symbols mean or how to proceed, contact the relevant network owner
- Check the work area for other forms of electrical equipment, including street lights, ground substations, phone boxes or traffic lights – all good indicators that underground cables will be present
- Remember underground cables can also be present even if overhead powerlines have been identified
- Never assume the depth or alignment of pipes and cables. Installed networks assets may not have been installed in a straight line
- Always observe any instructions stated on the plans provided by the asset owner
- Remember, plans and maps identifying the location of underground cables and depths can alter after road upgrades or developments and underground assets may be as little as a few millimetres below the surface
- Other service lines (for example gas mains (pipes) and communication cables) can also be present. Shared trenches are frequently used on underground runs to premises
- New electrical cables are sometimes laid using existing old conduits
- Various methods of protecting underground cables may be utilised (for example electrical bricks, conduits, concrete or flat PVC barriers) or may be direct buried or installed by under-boring methods which may have no visual disturbance of the ground
- Ensure overhead & electrical structures aren't undermined during excavation.

Earth cables

Earth cables are an important part of all electrical installations and have two main purposes:

- To safeguard against the possibility of danger to life
- To maintain the good working order of the electrical network.

They can have potentially dangerous electrical current flowing through them. Usually they have a green and yellow covering but could be a bare cable buried directly in the ground.

Even if the map provided does not show underground cables, earth cables may be present. These earth cables are usually associated with electrical equipment located on the pole such as transformers, switching equipment, permanent earthing points or Padmount / kiosk subs.

It's recommended that if any excavation is to take place within **10m** of a power pole with a cable running down it into the ground, contact is made with Essential Energy on **13 23 91** to have the earthing system located. While an effort is made to install the earthing under the powerline and guy if installed, sometimes circumstances may require a variation to this, so done assume where they are installed. The distance and configuration that the earthing cable is installed varies due to the soil conditions and system type (e.g. Single wire earth return (SWER)).

Additional earthing electrodes stakes may be installed to ensure the required earthing reading is obtained.

WARNING:SWER installations

- Contacting SWER earthing can be deadly
- Voltage is present on SWER transformer earthing systems either at 12.7 kV or 19.1kV
- NO excavation is allowed within 10 metres of a SWER transformer pole.

Excavating around electrical poles

Anyone intending to excavate around any electrical item risks serious injury or death as a result of contact with underground cables or the earthing system.

Assets around poles

For excavation depths greater than 250mm near power poles and stays you must arrange for an Essential Energy representative to attend the worksite 2 weeks prior to work commencing. Call Essential Energy on 13 23 91. More information is available in Essential Energy's operational procedure, 'Work near Essential Energy's underground assets: CEOP8041' which can be found at essentialenergy.com.au/construction

Unless otherwise agreed, underground assets and other obstructions around poles are to be kept a minimum distance of 300mm from the periphery of the pole, to allow inspections by the asset owner employees.

No excavation within 10 metres of a SWER transformer pole is to occur without the approval of the local electricity asset owner. It should be noted that the NSW Service and Installation Rules require a sketch of the underground service/consumers mains to be marked inside the switchboard.

The risks are higher for those earthing systems of the SWER constructions as the earthing is utilised as the return path.

Typically any electrical item installed on a pole will have an earth wire running down the pole into the ground, which includes:

- Transformers in urban and rural situations
- Isolation, protection and regulation items.

Transformers located on the ground (padmount and kiosk), besides having underground electrical cables, will have an earthing system installed around them.

Damaged earthing

If an earth cable has been damaged, maintain a clearance of eight (8) meters and contact Essential Energy on 13 23 91. **DONT ATTEMPT** to re-join the cable - this will place you at serious risk.

Operating near underground cables and earths

- Underground cables should never be moved or relocated unless under the express authority of the organisation or person responsible for the powerlines
- The excavator shall report all damage made to Essential Energy assets immediately. Damage includes: gouges, dents, holes and gas escapes
- Never undermine poles, cables, earthing cable, pad-mount and kiosk substations.

Above: Poles with become unstable if undermined

Make sure it can't go wrong

You should ensure that people at work, their equipment (tools and plant) or materials do not come within close proximity to underground powerlines unless:

- A written risk assessment has been completed and a safe system of work implemented
- The relevant safety precautions and worker training requirements, including WorkCover Codes of Practice and Essential Energy's requirements, have been implemented and complied with.

If working in close proximity to underground cables is unavoidable and the risk assessment has been completed, the following should be considered to control the risks and ensure work safety:

- Have the power switched off by Essential Energy
- Consider all conductors as live unless it is positively known they have been de-energised
- Where appropriate, provide ground markings to identify location and warn workers of the presence of underground power and other assets.

Emergency situations

In the event that contact with an underground powerline occurs or cables are exposed or damaged, remembering the following points could help save a life:

- If the situation is at all life threatening, immediately contact the Emergency Services on 000 (triple zero)
- Call Essential Energy's 24-hour supply interruptions line – **13 20 80** to switch off the power if required or report damage or exposure cables / conduits

- If any other underground assets are damaged you should contact the affected asset owners immediately
- Treat underground cables as alive, even if they appear to be dead
- Keep everyone at least eight metres away from the incident site, the person or any machinery making contact with underground cable

- Don't panic or touch the person receiving the electric shock – this could place you at risk
- Untrained, unequipped persons should not attempt to rescue a person receiving an electric shock. All too often secondary deaths occur when others go to the aid of earlier victims
- Remain on/inside the machinery until the supply is disconnected
- If possible, break contact between the machinery and underground cable.

For more information

Essential Energy's Public Safety team is available to facilitate Electrical Awareness sessions and discuss any questions relating to electrical safety. For more information on electrical safety please call

- Essential Energy General Enquiries 13 23 91
- Essential Energy Supply Interruptions 13 20 80
- WorkCover NSW 13 10 50
- Dial Before You Dig www.1100.com.au 1100
- Follow us
- or visit essentialenergy.com.au/safety

Safety first: Before you dig or drive items into the ground

1. Contact DBYD
2. DO NOT attempt to excavate with in 10m of any power pole or electrical item
3. Contact Essential Energy on 13 23 91 for assistance to locate cables and earthing
4. Locate asset: Pot-hole
5. Proceed only if you have satisfied yourself it is safe.

Be safe, because they need you

CABLE/PIPE LOCATION

Assets were found in the search area

COMPANY NAME:	Not supplied
ATTENTION:	Abraham Naude
SEARCH LOCATION:	35 Maitland Street Bingara NSW 2404
SEQUENCE NO:	231953549
DATE:	Thursday, 9 November 2023

Provision of Plans:
Please find enclosed plans depicting approximate locations of **Essential Energy** assets in the search location***. The excavator must not assume that there may not be assets owned by other network operators in the search location.***

Underground assets searched for	Underground assets found
Essential Energy Electrical	☑
Essential Energy Water & Sewerage	☐

Plans are updated from time to time to record changes to underground assets and may be updated by Essential Energy without notice. In the event that excavation does not commence within 28 days of receipt of a plan, a new plan should be obtained.

The excavator must retain the plans on site for the duration of the works.

The excavator shall report all damage made to Essential Energy assets immediately. Note that damage includes gouges, dents, holes and gas escapes.

IN CASE OF EMERGENCY OR TO REPORT DAMAGE:
PHONE 13 20 80

DISCLAIMER

Please be aware that plans may **not** reflect alterations to surface levels or the position of roads, buildings, fences etc. **Cable and pipe locations are approximate** and the plans are **not** suitable for scaling purposes. *Essential Energy does not retain plans for privately-owned underground electrical or water & sewerage assets located on private property.* ***Privately-owned underground electrical assets located on private property are the responsibility of the owner.***

The plans have been prepared for Essential Energy's sole use and benefit. **Essential Energy cannot and does not warrant the accuracy or completeness of the plans**. Essential Energy supplies them at no cost with the object of reducing the serious risk of unintentional damage being caused to its cables and pipes. **Essential Energy does not accept any responsibility for any omissions, inaccuracies or errors in the plans, or any reliance place on the material. Any reliance placed on any plan provided in response to your request is at your own risk.**

www.essentialenergy.com.au
ABN 37 428 185 226
PO Box 5730 Port Macquarie NSW 2444
Telephone: 13 23 91 Facsimile: 1800 354 636

Essential Energy retains all intellectual and industrial property rights which exists or may exist in or with respect to the plan(s). The material provided is not to be copies or distributed beyond you.

You release Essential Energy from and against all claims, demands, actions and proceedings arising out of or in any way related to the use of the provided material.

Location of Assets on Site:
The plans indicate only that cables and pipes may exist in the general vicinity – they do not pinpoint the exact location of the cables and pipes.

If it is found that the location of cables or pipes on the plans can be improved, please notify Essential Energy on 13 23 91 (or fax 1800 354 636).

All individuals have a duty of care they must observe when working in the vicinity of underground cables and pipes. It is the **excavator's responsibility to visually expose the underground cables and pipes manually**, **ie. by using hand-held tools and non-destructive pot-holing techniques prior to any mechanical excavation.** The excavator will be held responsible for all damage caused to the Essential Energy network or cables and pipes, and for the costs associated with the repair of any such damage. The excavator will also be held responsible for all damage caused to any persons.

When digging in the vicinity of underground assets, persons should observe the requirements of the applicable Codes of Practice published by the NSW Work Cover Authority or Safe Work Australia, and any amendments from time to time by the Authorities, including although not limited to:

- Excavation Work
- Managing Electrical Risks in the workplace
- How to manage and control asbestos in the workplace

(Please refer to https://www.workcover.nsw.gov.au/law-and-policy/legislation-and-codes/codes-of-practice).

When digging in the vicinity of **electrical assets** persons should observe the requirements of the **Electricity Supply Act 1995.**
Persons excavating near live underground electrical reticulation and/or earthing cables **must exercise extreme caution at all times and adhere to the requirements of Essential Energy's Electrical Safety Rules.** (These are available on our website: http://www.essentialenergy.com.au/content/safety-community and include

- **Work near Essential Energy's Underground Assets:**
  http://www.essentialenergy.com.au/asset/cms/pdf/contestableWorks/CEOP8041.pdf , and
- **Asbestos Fact Sheet**:
  http://www.essentialenergy.com.au/asset/cms/pdf/safety/AsbestosFactSheet.pdf

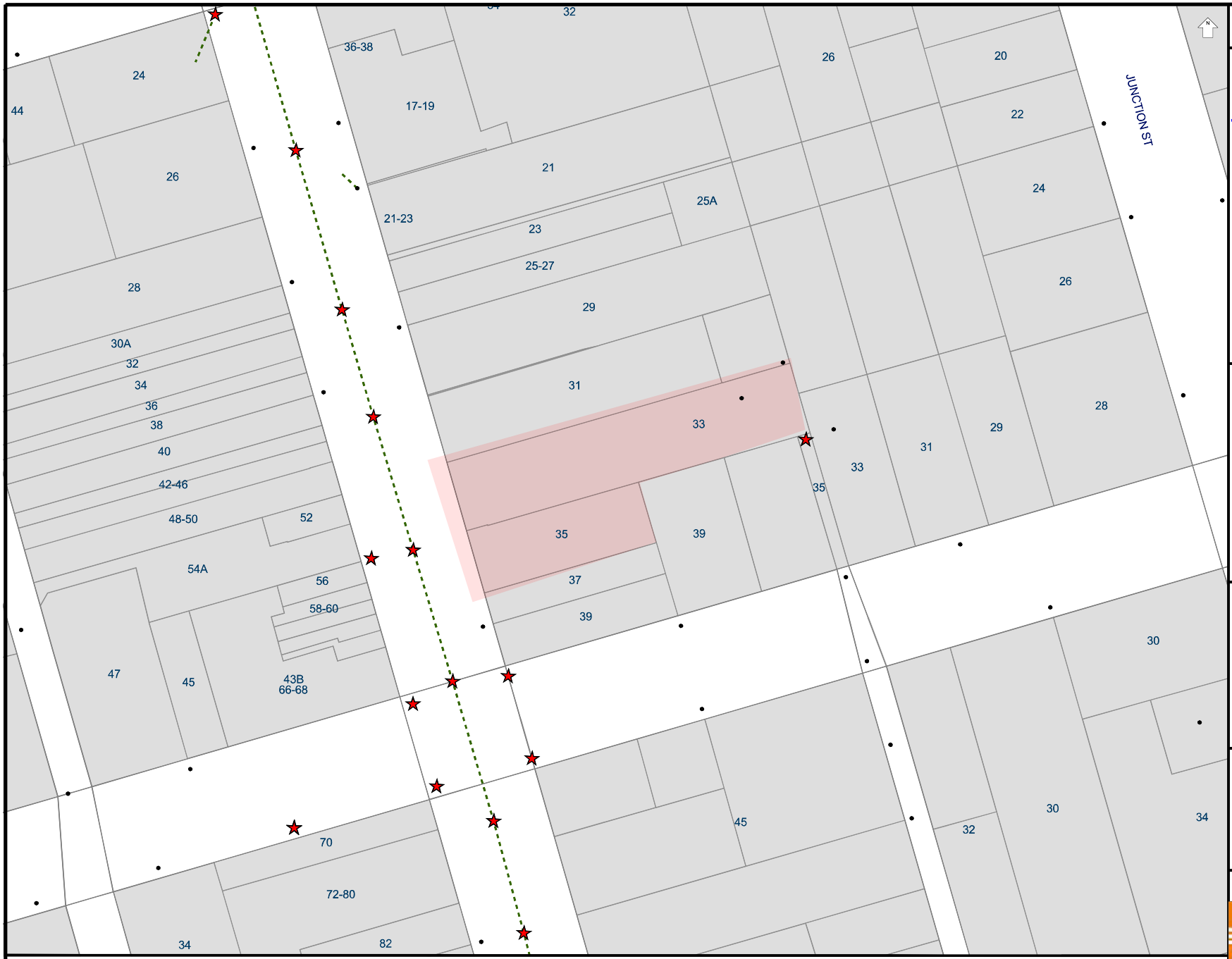
In some situations these procedures call for work to be performed by authorised staff.
Should there be any doubt as to the exact location of any underground electrical assets, and the potential for conflict with live underground cables caused by excavation at your work site, you should contact **13 23 91** to arrange for an on-site visit by an Essential Energy representative**.** No construction or mechanical excavation work is to commence prior to this on-site visit and approval being obtained.

When digging in the vicinity of **water or sewer assets** persons should observe the requirements of the **Water Management Act 2000.**
Should there be any doubt as to the exact location of any underground water and sewer assets, and the potential for conflict with underground water and sewer pipes caused by excavation at your work site, you should contact **13 23 91** to arrange for an on-site visit**.** No construction or excavation work is to commence prior to this on-site visit and approval being obtained.

Prior Notification:
Please note that for excavation depths greater than 250mm near power poles and stays you should allow for **advance notice** in your construction program to permit Essential Energy time to allocate the necessary field resources to carry out the inspection at the site a **minimum of fourteen (14) working days prior to work commencing**. This service may incur a fee and this can be negotiated with the local Area Coordinator at the time of making the appointment. Failure to give reasonable notice to the local Area Coordinator may result in disruption to Essential Energy's planned works program in the district and could incur an extra charge over and above the normal rate for this service.

For further information please call 13 23 91.

www.essentialenergy.com.au
ABN 37 428 185 226
PO Box 5730 Port Macquarie NSW 2444
Telephone: 13 23 91 Facsimile: 1800 354 636



Overhead wires not shown
LOOK UP & LIVE!

LEGEND

- LV Underground Cable
- HV Underground Cable
- Underground Pipe
- Underground Earth or Wires
- Ground Substation
- Pole
- Cubicle
- Pit
- Area of Interest

Critical Assets

Contact Essential Energy on 13 23 91

- Zone Substation
- Underground Cable
- Underground Fibre

Proposed Works

- Area of proposed works

Proposed assets are shown as orange symbols

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE.
If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

ISSUE DATE: 09/11/2023

You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 | SCALE: 1:1417

essential energy

Job Number: 35440860 Sequence number: 231953549 Job location: 35 Maitland Street, Bingara

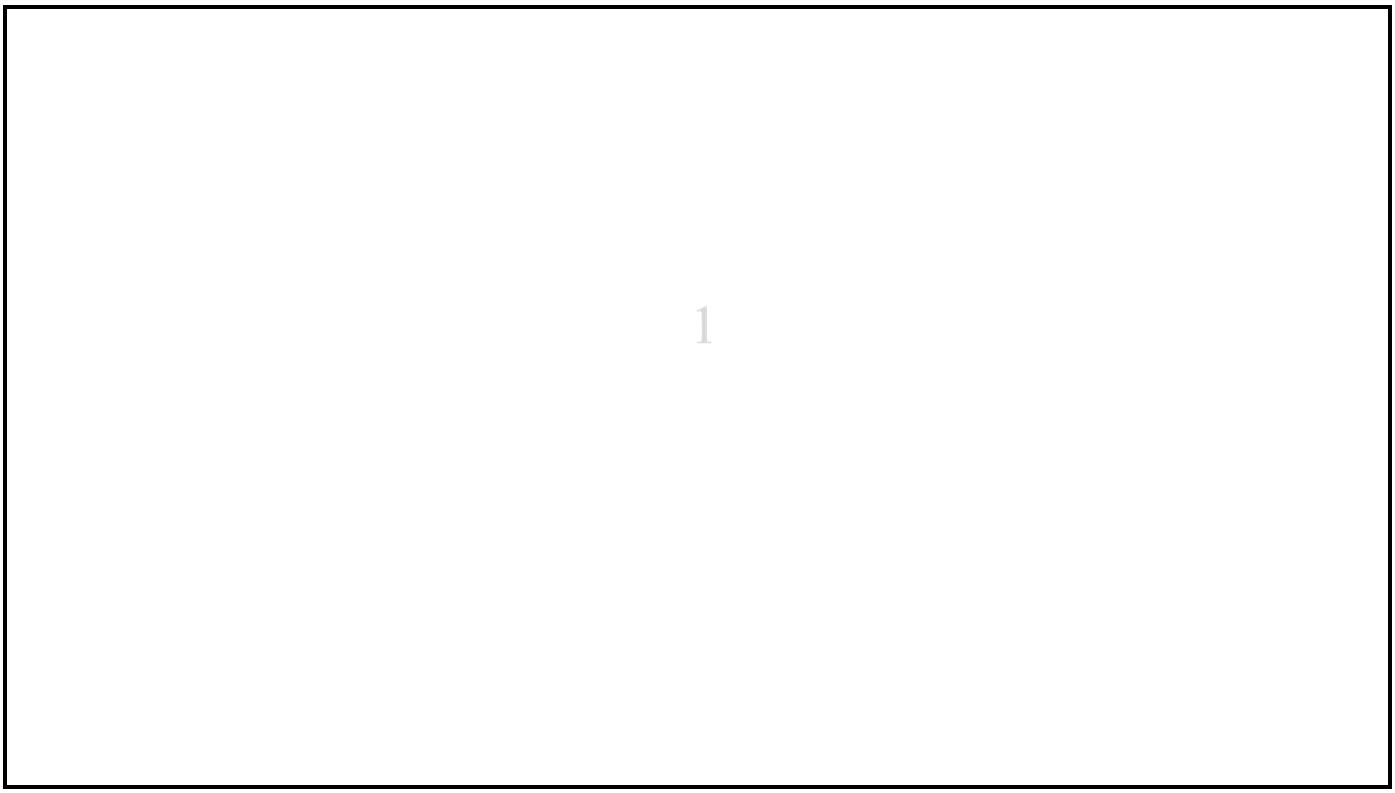
Map Centre: 150° 34' 19.9", -29° 52' 5.0"

To:	Abraham Naude
Phone:	Not Supplied
Fax:	Not Supplied
Email:	abraham.naude@rangeenviro.com.au

Dial before you dig Job #:	35440860
Sequence #	231953548
Issue Date:	09/11/2023
Location:	35 Maitland Street , Bingara , NSW , 2404

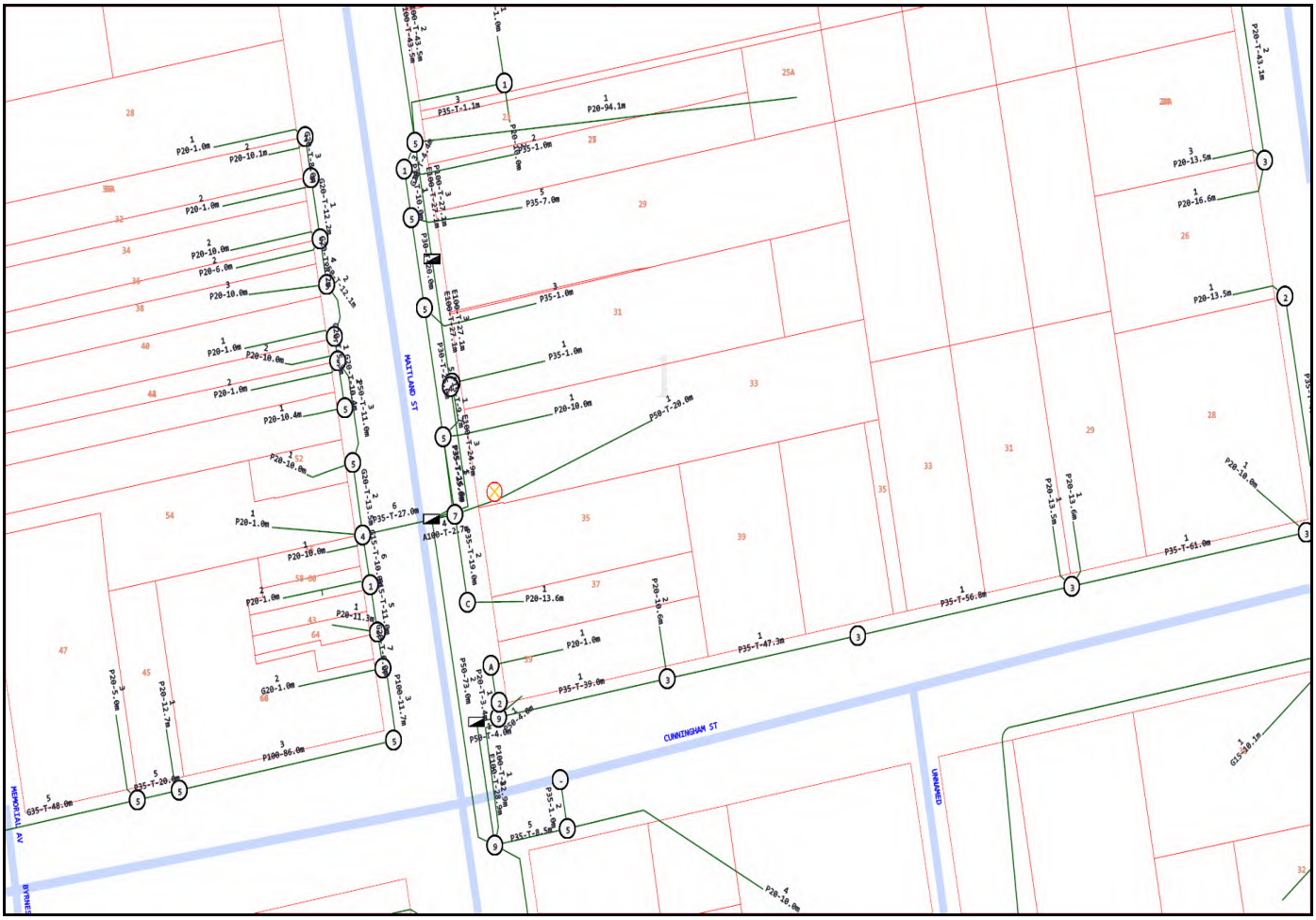
DIAL BEFORE YOU DIG www.1100.com.au

Indicative Plans



LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

To:	Abraham Naude
Phone:	Not Supplied
Fax:	Not Supplied
Email:	abraham.naude@rangeenviro.com.au

Dial before you dig Job #:	35440860
Sequence #	231953548
Issue Date:	09/11/2023
Location:	35 Maitland Street , Bingara , NSW , 2404

Information

The area of interest requested by you contains one or more assets.

nbn™ Assets	Search Results
Communications	Asset identified
Electricity	No assets

In this notice **nbn™ Facilities** means *underground fibre optic, telecommunications and/or power facilities, including but not limited to cables, owned and controlled by **nbn™***

Location of **nbn™** Underground Assets

We thank you for your enquiry. In relation to your enquiry at the above address:

- **nbn's** records indicate that there **ARE** **nbn™** Facilities in the vicinity of the location identified above ("Location").
- **nbn** indicative plan/s are attached with this notice ("Indicative Plans").
- The Indicative Plan/s show general depth and alignment information only and are not an exact, scale or accurate depiction of the location, depth and alignment of **nbn™** Facilities shown on the Plan/s.
- In particular, the fact that the Indicative Plans show that a facility is installed in a straight line, or at uniform depth along its length cannot be relied upon as evidence that the facility is, in fact, installed in a straight line or at uniform depth.
- You should read the Indicative Plans in conjunction with this notice and in particular, the notes below.
- You should note that, at the present time, the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables. As such, consistent with the notes below, particular care must be taken by you to make your own enquiries and investigations to precisely locate any power cables and manage the risk arising from such cables accordingly.
- The information contained in the Indicative Plan/s is valid for 28 days from the date of issue set out above.You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™**

Facilities during any activities you carry out on site).

We thank you for your enquiry and appreciate your continued use of the Dial Before You Dig Service. For any enquiries related to moving assets or Planning and Design activities, please visit the **nbn** Commercial Works website to complete the online application form. If you are planning to excavate and require further information, please email dbyd@nbnco.com.au or call 1800 626 329.

Notes:

1. You are now aware that there are **nbn™** Facilities in the vicinity of the above property that could be damaged as a result activities carried out (or proposed to be carried out) by you in the vicinity of the Location.
2. You should have regard to section 474.6 and 474.7 of the *Criminal Code Act 1995* (CoA) which deals with the consequences of interfering or tampering with a telecommunications facility. Only persons authorised by **nbn** can interact with **nbn's** network facilities.
3. Any information provided is valid only for **28 days** from the date of issue set out above.

Referral Conditions

The following are conditions on which **nbn** provides you with the Indicative Plans. By accepting the plans,you are agreeing to these conditions. These conditions are in addition, and not in replacement of, any duties and obligations you have under applicable law.

1. **nbn** does not accept any responsibility for any inaccuracies of its plans including the Indicative Plans. You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™** Facilities during any activities you carry out on site).
2. You acknowledge that **nbn** has specifically notified you above that the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables.
3. You should not assume that **nbn™** Facilities follow straight lines or are installed at uniformed depths along their lengths, even if they are indicated on plans provided to you. Careful onsite investigations are essential to locate the exact position of cables.
4. In carrying out any works in the vicinity of **nbn™** Facilities, you must maintain the following minimum clearances:
    - 300mm when laying assets inline, horizontally or vertically.
    - 500mm when operating vibrating equipment, for example: jackhammers or vibrating plates.
    - 1000mm when operating mechanical excavators.
    - Adherence to clearances as directed by other asset owner's instructions and take into account any uncertainty for power cables.
5. You are aware that there are inherent risks and dangers associated with carrying out work in the vicinity of underground facilities (such as **nbn™** fibre optic,copper and coaxial cables,and power cable feed to **nbn™** assets).Damage to underground electric cables may result in:
    - Injury from electric shock or severe burns, with the possibility of death.
    - Interruption of the electricity supply to wide areas of the city.
    - Damage to your excavating plant.
    - Responsibility for the cost of repairs.
6. You must take all reasonable precautions to avoid damaging **nbn™** Facilities. These precautions may include but not limited to the following:
    - All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs if present must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the likelihood of damage to the cable, for example: the blades of hand equipment should be aligned parallel to the line of the cable rather than digging across the cable.
    - If any undisclosed underground cables are located, notify **nbn** immediately.

- All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.
- The safety of the public and other workers must be ensured.
- All excavations must be undertaken in accordance with all relevant legislation and regulations.

7. You will be responsible for all damage to **nbn™** Facilities that are connected whether directly, or indirectly with work you carry out (or work that is carried out for you or on your behalf) at the Location. This will include, without limitation, all losses expenses incurred by **nbn** as a result of any such damage.
8. You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.
9. Except to the extent that liability may not be capable of lawful exclusion, **nbn** and its servants and agents and the related bodies corporate of **nbn** and their servants and agents shall be under no liability whatsoever to any person for any loss or damage (including indirect or consequential loss or damage) however caused (including, without limitation, breach of contract negligence and/or breach of statute) which may be suffered or incurred from or in connection with this information sheet or any plans(including Indicative Plans) attached hereto. Except as expressly provided to the contrary in this information sheet or the attached plans(including Indicative Plans), all terms, conditions, warranties, undertakings or representations (whether expressed or implied) are excluded to the fullest extent permitted by law.

All works undertaken shall be in accordance with all relevant legislations, acts and regulations applicable to the particular state or territory of the Location. The following table lists all relevant documents that shall be considered and adhered to.

State/Territory	Documents
National	Work Health and Safety Act 2011
	Work Health and Safety Regulations 2011
	Safe Work Australia - Working in the Vicinity of Overhead and Underground Electric Lines (Draft)
	Occupational Health and Safety Act 1991
NSW	Electricity Supply Act 1995
	Work Cover NSW - Work Near Underground Assets Guide
	Work Cover NSW - Excavation Work: Code of Practice
VIC	Electricity Safety Act 1998
	Electricity Safety (Network Asset) Regulations 1999
QLD	Electrical Safety Act 2002
	Code of Practice for Working Near Exposed Live Parts
SA	Electricity Act 1996
TAS	Tasmanian Electricity Supply Industry Act 1995
WA	Electricity Act 1945
	Electricity Regulations 1947
NT	Electricity Reform Act 2005
	Electricity Reform (Safety and Technical) Regulations 2005
ACT	Electricity Act 1971

Thank You,

nbn DBYD

Date: 09/11/2023

Working near nbn™ cables

nbn has partnered with Dial Before You Dig to give you a single point of contact to get information about **nbn** underground services owned by **nbn** and other utility/service providers in your area including communications, electricity, gas and other services. Contact with underground power cables and gas services can result in serious injury to the worker, and damage and costly repairs. You must familiarise yourself with all of the Referral Conditions (meaning the referral conditions referred to in the DBYD Notice provided by **nbn**).

Practice safe work habits

Once the DBYD plans are reviewed, the Five P's of Excavation should be adopted in conjunction with your safe work practices (which must be compliant with the relevant state Electrical Safety Act and Safe Work Australia "Excavation Work Code of Practice", as a minimum) to ensure the risk of any contact with underground **nbn** assets are minimised.

Plan: Plan your job by ensuring the plans received are current and apply to the work to be performed. Also check for any visual cues that may indicate the presence of services not covered in the DBYD plans.

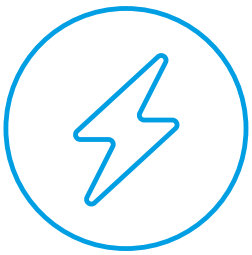
Prepare: Prepare for your job by engaging a DBYD Certified Plant Locator to help interpret plans and identify on-site assets. Contact **nbn** should you require further assistance.

Pothole: Non-destructive potholing (i.e. hand digging or hydro excavation) should be used to positively locate **nbn** underground assets with minimal risk of contact and service damage.

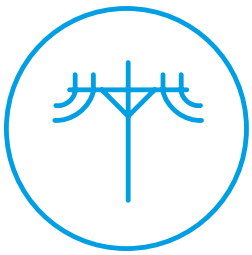
Protect: Protecting and supporting the exposed **nbn** underground asset is the responsibility of the worker. Exclusion zones for **nbn** assets are clearly stated in the plan and appropriate controls must be implemented to ensure that encroachment into the exclusion zone by machinery or activities with the potential to damage the asset is prevented.

Proceed: Proceed only when the appropriate planning, preparation, potholing and protective measures are in place.

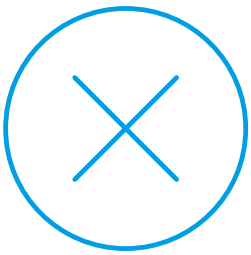
Working near nbn™ cables



Identify all electrical hazards, assess the risks and establish control measures.



When using excavators and other machinery, also check the location of overhead power lines.



Workers and equipment must maintain safety exclusion zones around power lines.

Once all work is completed, the excavation should be re-instated with the same type of excavated material unless specified by **nbn**. Please note:

- Construction Partners of **nbn** may require additional controls to be in place when performing excavation activities.
- The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

Contact

All nbn™ network facility damages must be reported online here.
For enquiries related to your DBYD request please call 1800 626 329.

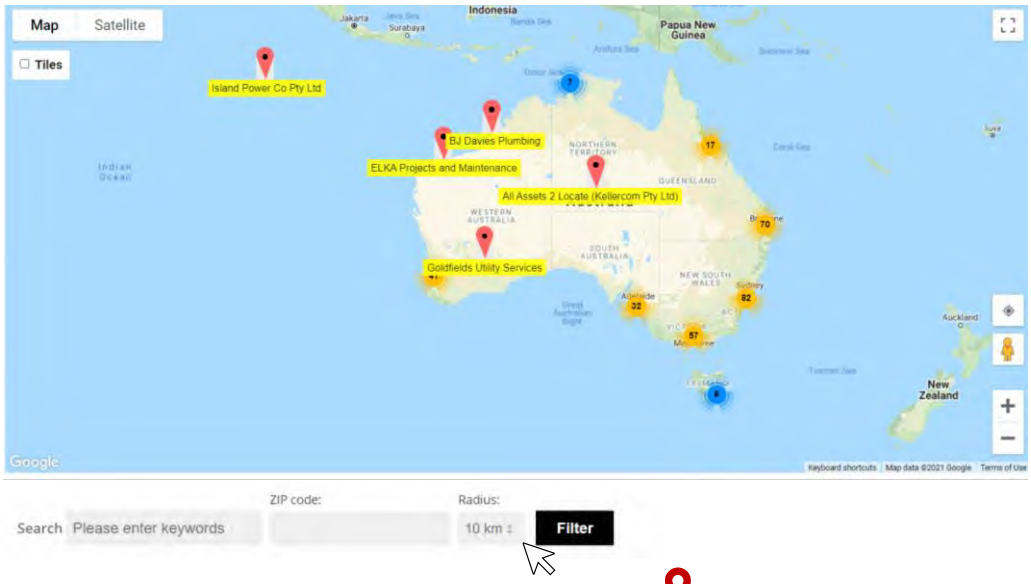
DIAL BEFORE YOU DIG
www.1100.com.au

Certified Locating Organisations (CLO)

Find the closest CLO to your worksite on: https://dbydlocator.com/certified-locating-organisation/

Read the disclaimer and click: Accept and Search Now

A national map and an A-Z list of Certified Locating Organisations is displayed.



Use the map to zoom to your work area and choose the closest Locator indicated.

OR search by entering the **postcode** of your work area.

1. **Enter the post/zip code**
2. **Choose your search radius**
3. **Click filter** (If there is no result, you may have to increase the search radius)
4. **Click on the closest for CLO details or view the results displayed below the map**

Locator skills have been tested, and the Organisation has calibrated location and safety equipment.

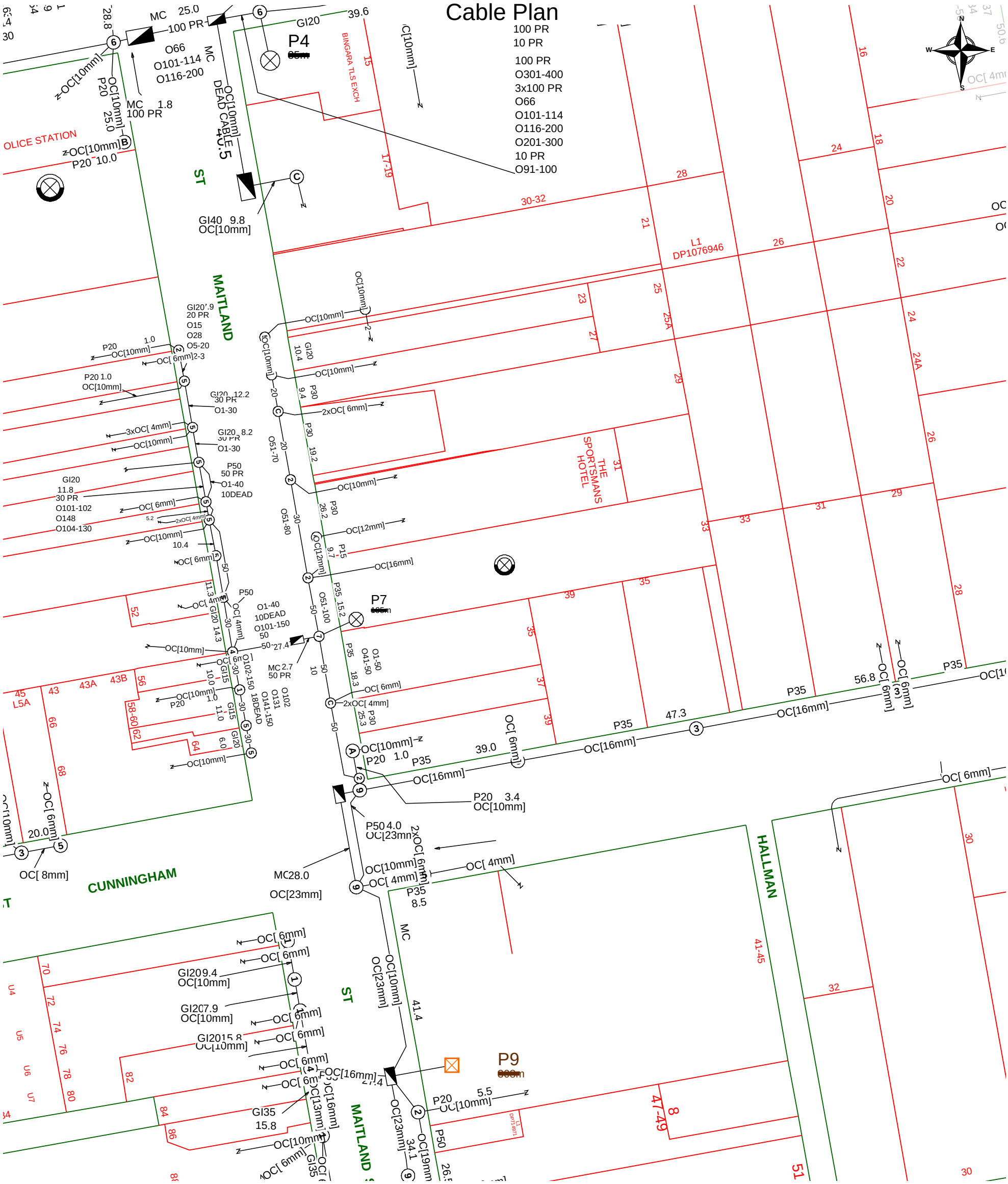
Telstra is aware of each Certified Locating Organisation and their employee locators.

Only a DBYD Certified Locator registered with a Certified Locating Organisation is authorised to access Telstra network for locating purposes.

Each Certified Locator working for a CLO is issued with a photo ID Card, authorising them to access Telstra pits and manholes for the purpose of cable and plant locations.

Please ask to see your Locators' CLO ID Card.

Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 09/11/2023 17:37:57

Sequence Number: 231953550

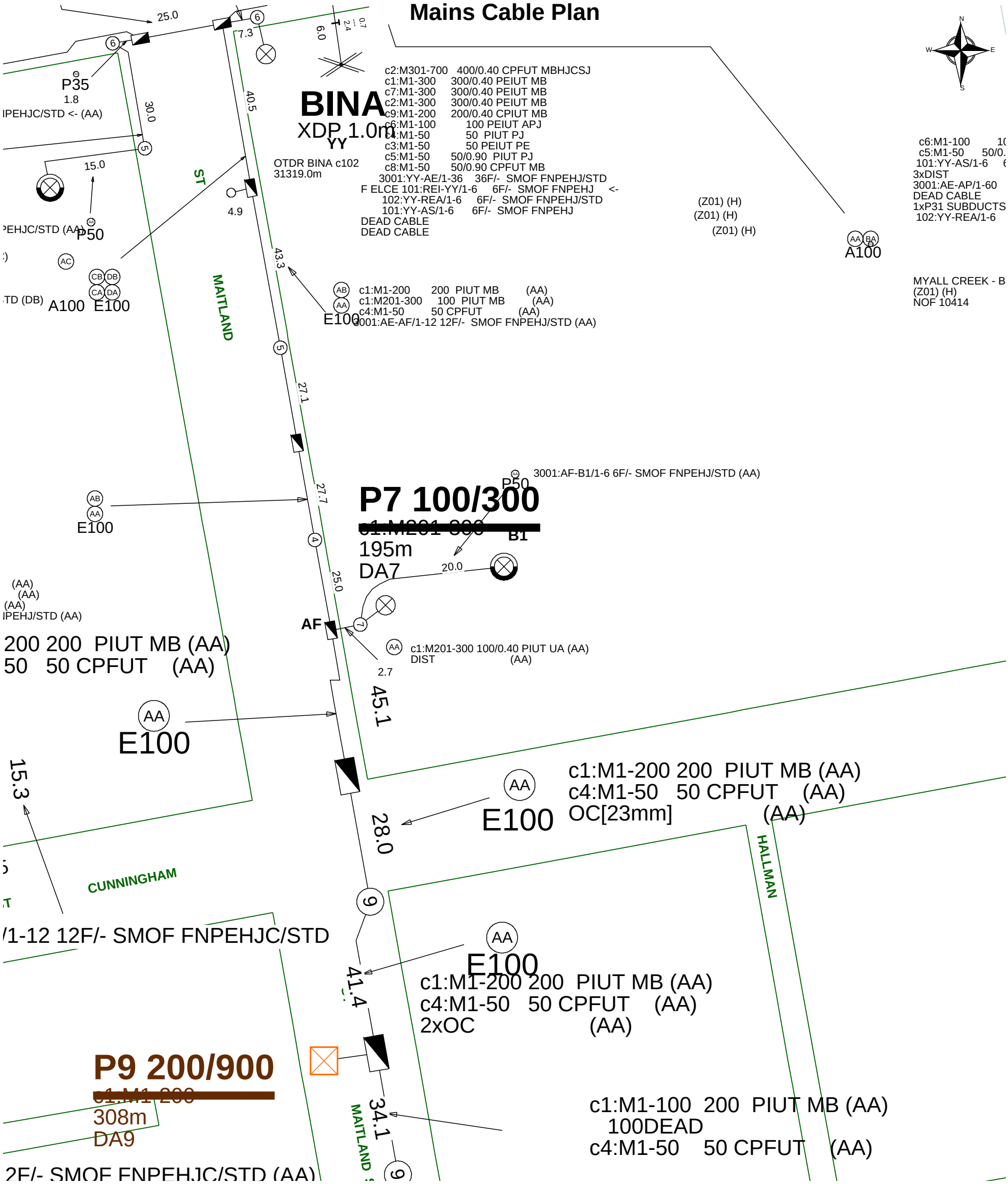
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.
As such,Telstra supplied location information is indicative only.Spatial accuracy is not applicable to Quality Level D.
Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.
Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.
A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

Mains Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 231953550
TELSTRA LIMITED A.C.N. 086 174 781	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.
Generated On 09/11/2023 17:37:59	

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.
As such,Telstra supplied location information is indicative only.Spatial accuracy is not applicable to Quality Level D.
Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.
Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.
A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

Before You Dig Australia

Think before you dig

This document has been sent to you because you requested plans of the Telstra network through Before You Dig Australia (BYDA).

If you are working or excavating near telecommunications cables, or there is a chance that cables are located near your site, you are responsible to avoid causing damage to the Telstra network.

Please read this document carefully. Taking your time now and following the steps below can help you avoid damaging our network, interrupting services, and potentially incurring civil and criminal penalties.

Our network is complex and working near it requires expert knowledge. Do not attempt these activities if you are not qualified to do so.

Your checklist

1. Plan

Plan your work with the latest plans of our network.

Plans provided through the BYDA process are indicative only*.

This means the actual location of our asset may differ substantially from that shown on the plans.

Refer to steps 2 and 3 to determine actual location prior to proceeding with construction.

2. Prepare

Engage a DBYD Certified Locating Organisation (CLO) via dbydlocator.com to identify, validate and protect Telstra assets before you commence work.

3. Pothole

Validate underground assets by potholing by hand or using non-destructive vacuum extraction methods.

Electronic detection alone (step 2) is not deemed to validate underground assets and must not be used for construction purposes.

If you cannot validate the Telstra network, you must not proceed with construction.

4. Protect

Protect our network by maintaining the following distances from our assets:

- 1.0m Mechanical Excavators, Farm Ploughing, Tree Removal
- 500mm Vibrating Plate or Wacker Packer Compactor
- 600mm Heavy Vehicle Traffic (over 3 tonnes) not to be driven across Telstra ducts or plant
- 1.0m Jackhammers/Pneumatic Breakers
- 2.0m Boring Equipment (in-line, horizontal and vertical)

5. Proceed

You can proceed with your work only once you have completed all the appropriate preparation, potholing and protection.

Useful information

Report any damage immediately

https://www.telstra.com.au/forms/report-damage-to-telstra-equipment

13 22 03

If you receive a message asking for an account or phone number say "I Don't have one" Then say "Report Damage" then press 1 to speak to an operator.

Relocating assets

If your project requires the relocation of a Telstra asset, please contact the Telstra Network Integrity Group:

Request Asset Relocation Or Commercial Works (telstra.com.au)

NetworkIntegrity@team.telstra.com

1800 810 443 (AEST business hours only)

Never try to move or alter our network infrastructure without authorisation. By law, only authorised people can work on our assets or enter a facility owned or operated by us. Any interference, including unauthorised entry or tampering, may result in legal action.

Further information

Plan enquiries

1800 653 935 (AEST business hours only)

Telstra.Plans@team.telstra.com

Information on how to find cables and request asset relocations:

https://www.telstra.com.au/consumer-advice/digging-construction

Asset Plan Readers

PDF Adobe Acrobat Reader DC Install for all versions
DWF Download Design Review | DWF Viewer | Autodesk

Disclaimer and legal details

*Telstra advises that the accuracy of the information provided by Telstra conforms to Quality Level D as defined in AS5488-2013.

It is a criminal offence under the Criminal Code Act 1995 (Cth) to tamper or interfere with telecommunications infrastructure.

Telstra will also take action to recover costs and damages from persons who damage assets or interfere with the operation of Telstra's networks.

By receiving this information including the indicative plans that are provided as part of this information package you confirm that you understand and accept the risks of working near Telstra's network and the importance of taking all of the necessary steps to confirm the presence, alignments and various depths of Telstra's network. This in addition to, and not in replacement of, any duties and obligations you have under applicable law.

When working in the vicinity of a telecommunications plant you have a "Duty of Care" that must be observed. Please read and understand all the information and disclaimers provided below.

The Telstra network is complex and requires expert knowledge to interpret information, to identify and locate components, to pothole underground assets for validation and to safely work around assets without causing damage. If you are not an expert and/or qualified in these areas, then you must not attempt these activities. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers. The 5 P's to prevent damage to Telstra assets are listed above. Construction activities and/or any activities that potentially may impact on Telstra's assets must not commence without first undertaking these steps. Construction activities can include anything that involves breaking ground, potentially affecting Telstra assets.

If you are designing a project, it is recommended that you also undertake these steps to validate underground assets prior to committing to your design.

This Notice has been provided as a guide only and may not provide you with all the information that is required for you to determine what assets are on or near your site of interest. You will also need to collate and understand all of the information received from other Utilities and understand that some Utilities are not a part of the BYDA program and make your own enquiries as appropriate. It is the responsibility of the entities undertaking the works to protect Telstra's network during excavation / construction works.

Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose.

Telstra plans or other details are provided only for the use of the applicant, its servants, agents, or Certified Locating Organisation. The applicant must not give the plans or details to any parties other than these and must not generate profit from commercialising the plans or details.

Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.

Please ensure Telstra plans and information provided always remains on-site throughout the inspection, location, and construction phase of any works.

Telstra plans are valid for 60 days after issue and must be replaced if required after the 60 days.

Data Extraction Fees

In some instances, a data extraction fee may be applicable for the supply of Telstra information. Typically, a data extraction fee may apply to large projects, planning and design requests or requests to be supplied in non-standard formats. For further details contact Telstra Planned Services.

Telstra does not accept any liability or responsibility for the performance of or advice given by a Certified Locating Organisation. Certification is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.

Neither the Certified Locating Organisation nor any of its employees are an employee or agent for Telstra. Telstra is not liable for any damage or loss caused by the Certified Locating Organisation or its employees.

Once all work is completed, the excavation should be reinstated with the same type of excavated material unless specified by Telstra

The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

When using excavators and other machinery, also check the location of overhead power lines.

Workers and equipment must maintain safety exclusion zones around power lines

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the assets are protected during construction works. The exact position of Telstra assets can only be validated by physically exposing them. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Privacy Note

Your information has been provided to Telstra by BYDA to enable Telstra to respond to your BYDA request. Telstra keeps your information in accordance with its privacy statement. You can obtain a copy at www.telstra.com.au/privacy or by calling us at 1800 039 059 (business hours only).

OPENING ELECTRONIC MAP ATTACHMENTS -

Telstra Cable Plans are generated automatically in either PDF or DWF file types dependant on the site address and the size of area selected. You may need to download and install free viewing software from the internet e.g.

PDF Map Files (max size A3)

Adobe Acrobat Reader (http://get.adobe.com/reader/),

DWF Map Files (all sizes over A3)

Autodesk Viewer (Browser) (https://viewer.autodesk.com/) or

Autodesk Design Review (http://usa.autodesk.com/design-review/) for DWF files. (Windows)

Telstra BYDA map related enquiries

email - Telstra.Plans@team.telstra.com

1800 653 935 (AEST Business Hours only)

REPORT ANY DAMAGE TO THE TELSTRA NETWORK IMMEDIATELY

Report online - https://www.telstra.com.au/forms/report-damage-to-telstra-equipment

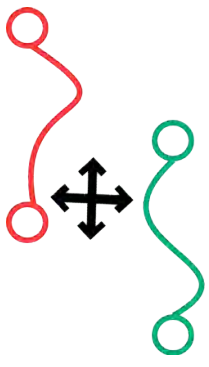
Ph: **13 22 03**

If you receive a message asking for a phone or account number say:

“I don’t have one” then say “Report Damage” then press 1 to speak to an operator.

Telstra New Connections / Disconnections

13 22 00



Telstra asset relocation enquiries: 1800 810 443 (AEST business hours only).

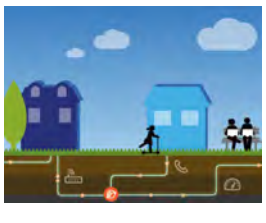
NetworkIntegrity@team.telstra.com

https://www.telstra.com.au/consumer-advice/digging-construction

Certified Locating Organisation (CLO)

https://dbydlocator.com/certified-locating-organisation/

Please refer to attached Accredited Plant Locator.pdf



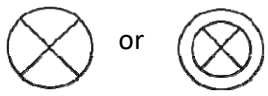
Telstra Smart Communities
Information for new developments (developers, builders, homeowners)
https://www.telstra.com.au/smart-community

LEGEND

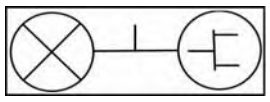
For more info contact a Certified Locating Organisation or Telstra Plan Services 1800 653 935

Exchange
(Major Cable Present)

Footway Access Chamber
(can vary from 1-lid to 12-lid)



Pillar / Cabinet
(above ground / free standing)



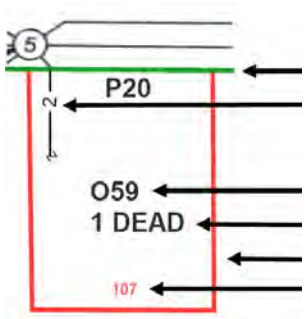
Above ground complex equipment housing (eg RIM)
Please Note: This equipment is powered by 240V Electricity

OC

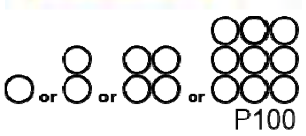
Other Carrier Telecommunications Cable/Asset

Dist
MC

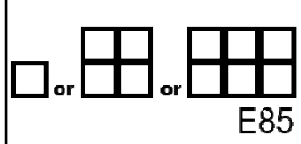
Distribution cables in Main Cable ducts
Main Cable ducts on a Distribution plan
Blocked or damaged duct.



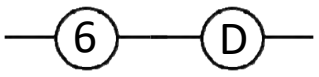
Roadside / Front Boundary
2 pair lead-in to property from pit in street 1
pair working (pair ID 059)
1 pair dead (i.e. spare, not connected)
Side / Rear Property Boundary
Property Number



Single to multiple round conduit
Configurations 1,2,4,9 respectively
(attached text denotes conduit type and size)



Multiple square conduit
Configurations 2, 4, 6 respectively
(attached text denotes conduit type and size)



Cable Jointing Pit
(number / Letter indicating Pit Type)

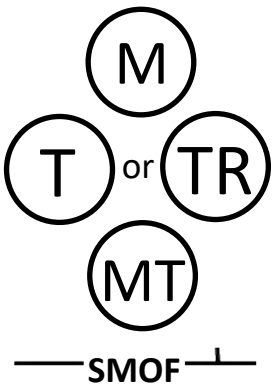
Elevated Joint
(above ground joint on buried cable)

Telstra Plant in shared Utility trench

Aerial Cable / Overhead (includes on wall)

Aerial Cable
(attached to joint Use Pole eg. Power)

Direct Buried Cable

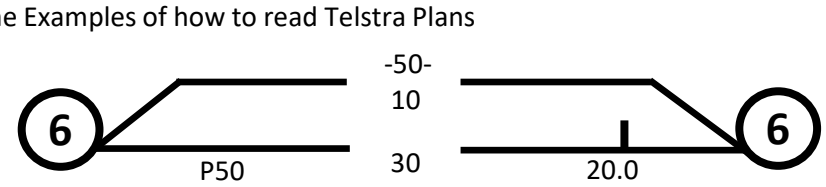


Marker Post Installed
Buried Transponder
Marker Post, Transponder
Optical Fibre cable direct buried

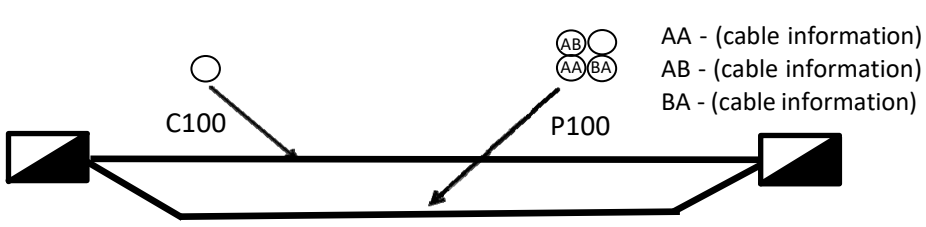
Some examples of conduit type and size:

A - Asbestos cement, P - PVC / Plastic, C - Concrete,
GI - Galanised iron, E - Earthenware
Conduit sizes *nominally* range from 20mm to 100mm
P50 50mm PVC conduit
P100 100mm PVC conduit
A100 100mm asbestos cement conduit

Some Examples of how to read Telstra Plans



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits. approximately 20.0m apart, with a direct buried 30-pair cable along the same route



Two separate conduit runs between two footway access chambers (manholes) approximately 245m apart A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100)

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the assets are protected during construction works. The exact position of Telstra assets can only be validated by physically exposing them. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Appendix D Historical Aerial Imagery

1964 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

1974 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

1985 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

1989 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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range environmental consultants

1993 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

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range environmental consultants

1997 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

2013 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

2017 Historic Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

The content of this document includes third party data. Range Environmental Consultants does not guarantee the accuracy of such data.

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

2023 Aerial Imagery

Project: Preliminary Site Investigation

Client: Soiltech Testing Services Pty Ltd

Project No.: J001694

Compiled by: MCW Date: 9/11/2023
Approved by: AN Date: 9/11/2023

Metres
0 100 200

Legend

Site boundary

Source: Cadastral data sourced from DNRME (2022). Aerial imagery sourced from Metromap (2022).

N

range environmental consultants

Appendix E Land Register Search Results

Search results

Your search for: LGA: GWYDIR SHIRE COUNCIL

Search Again | Refine Search

did not find any records in our database.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register

9 November 2023


Terrain
Gwydir River
Junction Park
Copeton Dam Rd
Bingara Multi Purpose Service Hospital
Cunningham Park
Halls Creek
Keera St
Riddell St
Junction St
B95
Link St
Bora Rd
Bombelli St
Keera Pastoral
Frazer St
Maitland St
Searched Address:
33 MAITLAND STREET BINGARA NSW 2404
Lot #: 20/38/758111
Cunningham St
Finch St
SES Bingara Shire
Byrnes St
Bingara Communtiy centre
Heber St
Legend
Lat: -29.8636, Lng: 150.5614
Decimal Degrees (latitude, longitude)
Degrees Minutes Seconds
MGA
Substantial Potential
Slight Potential
Remote Potential
Information
Other
Sea Dumping of Depth Charges
Other Sea Dumping Sites
Defence Controlled Area
Property Cadastral Area

Appendix F Soil borecard reports

ENVIRONMENTAL BOREHOLE / TESTPIT BH5

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 1.6m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
					Brick paver	
	0.8	BH1-1 (0.05-0.1m)	Y		FILL: Light brown, Silty sand, alluvial gravels.	
	1.0	BH1-2 (0.4-0.5m)	Y			
0.5					Dark brown, sandy silty clay, stiff, moist.	
	0.8	BH1-3 (0.9-1.0m)	N			
1						
1.5	1.9	BH1-4 (1.5-1.6m)	N			
					Termination Depth at: 1.6m	

Disclaimer This log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 06 Dec 2023

ENVIRONMENTAL BOREHOLE / TESTPIT BH2

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 1.6m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
	0.1	BH2-1 (0-0.1m)	Y		FILL: Dark brown silty sand with gravel and pebbles.	
					Dark brown, sandy silty clay with alluvial pebbles, very stiff.	
	0.6	BH2-2 (0.3-0.4m)	Y			Duplicate 1 Triplicate 1
0.5						
	1.3	BH2-3 (0.9-1.0m)	Y			
1					Termination Depth at: 1.0m	

ENVIRONMENTAL BOREHOLE / TESTPIT BH3

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 6m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
0	0.5	BH3-1 (0-0.1m)	Y		FILL: Dark brown silty sand with gravel and pebbles.	
					FILL: Light brown silty sand, loose	
0.5	0.5	BH3-2 (0.4-0.5m)	Y		Light brown silty clay, stiff	
1	1.0	BH3-3 (0.9-1.0m)	Y			
1.5						
2	1.6	BH3-4 (1.9-2.0m)	N		Light brown sandy silty clay with alluvial gravel	
2.5						
3	0.0	BH3-5 (2.9-3.0m)	N			
3.5						
4	0.0	BH3-6 (3.9-4.0m)	N			
4.5						
5	0.1	BH3-7 (4.9-5.0m)	Y			
5.5						
6	0.1	BH3-8 (5.9-6.0m)	N			
					Termination Depth at: 6.0m	

produced by ESlog.ESdat.net on 06 Dec 2023

ENVIRONMENTAL BOREHOLE / TESTPIT BH4

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 4m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
0	0.7	BH4-1 (0-0.1m)	Y		FILL: Dark brown silty sand with crusher dust, loose	
0.5	1.4	BH4-2 (0.4-0.5m)	Y			
	1.6	BH4-3 (0.7-0.9m)	N		Red brown silty clay, stiff	
1						
1.5						
2	1.6	BH4-4 (1.9-2.0m)	N			
2.5						
3	1.1	BH4-5 (2.9-3.0m)	Y		Light brown sandy gravel, loose	
3.5						
4	0.8	BH4-6 (3.9-4.0m)	N			
					Termination Depth at: 4.0m	

produced by ESlog.ESdat.net on 07 Dec 2023

ENVIRONMENTAL BOREHOLE / TESTPIT BH5

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 2m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
					Asphalt	
	1.2	BH5-1 (0.05-0.1m)	Y		FILL: Dark brown, silty sandy clay with gravel and asphalt	Duplicate 2 Triplicate 2
					Red brown, silty clay with traces of gravel, very stiff	
	1.5	BH5-2 (0.4-0.5m)	Y			
0.5						
	1.2	BH5-3 (0.9-1m)	N			
1						
1.5						
	1.3	BH5-4 (1.9-2.0m)				
2					Termination Depth at: 2.0m	

Disclaimer This log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 07 Dec 2023

ENVIRONMENTAL BOREHOLE / TESTPIT BH6

PROJECT NUMBER J001694
PROJECT NAME Preliminary Site Investigation
CLIENT Soiltech Testing Services Pty Ltd
ADDRESS 33-35 Maitland Street, Bingara

DRILLING DATE 13/11/2023
DRILLING COMPANY Range Environmental
DRILLER Abraham Naudé
DRILLING METHOD 150mm Solid flight auger
TOTAL DEPTH 4m

LOGGED BY Abraham Naudé
CHECKED BY Sam Donald

COMMENTS

Depth (m)	PID	Samples	Is Analysed?	Graphic Log	Material Description	Additional Observations
0	0.5	BH6-1 (0-0.1m)	Y		FILL: Dark brown, silty sand and gravel	
0.5	1.2	BH6-2 (0.4-0.5m)	Y			
0.7	0.7	BH6-3 (0.7-0.8m)	Y		FILL: Light brown, silty clay with minor gravel	
1.5	0.4	BH6-4 (1.9-2.0m)	N		Light brown sand and alluvial gravel.	
3	0.0	BH6-5 (2.9-3.0m)	Y			
4	0.0	BH6-6 (3.9-4.0m)	N			
					Termination Depth at: 4.0m	

Appendix G Groundwater borecard Reports

WaterNSW
Work Summary

GW070377

Licence: 90WA828241 **Licence Status:** CURRENT

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date: **Final Depth:** 14.30 m
Completion Date: 06/02/1993 **Drilled Depth:** 14.30 m

Contractor Name: (None)
Driller:
Assistant Driller:

Property: N/A NSW **Standing Water Level (m):**
GWMA: - **Salinity Description:**
GW Zone: - **Yield (L/s):**

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	L4
Licensed:	MURCHISON	BINGARA	Whole Lot //

Region: 90 - Barwon **CMA Map:** 9038-3N
River Basin: 418 - GWYDIR RIVER **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6693713.000 **Latitude:** 29°51'53.5"S
Elevation Source: R.L. at Surface **Easting:** 265488.000 **Longitude:** 150°34'19.8"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** PR.,ACC.GIS

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Welded Steel	0.00	14.30	153			
1	1	Opening	Slots	12.20	14.30	153		1	Sawn, A: 4.00mm

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)
13.40	14.30	0.90	Unconsolidated	9.20		1.26			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	6.10	6.10		Topsoil	

6.10	12.20	6.10	Loose Gravel	Gravel	
12.20	14.32	2.12	Tightly Packed River Gravel/water	Gravel	

Remarks

06/02/1993: ACC = 8

***** End of GW070377 *****

WaterNSW
Work Summary

GW070492

Licence: 90WA828239 **Licence Status:** CURRENT

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type:
Work Status:
Construct.Method: Rotary Air
Owner Type:

Commenced Date:
Completion Date: 30/01/1993
Final Depth: 15.85 m
Drilled Depth: 15.85 m

Contractor Name: Francis Arthur RANDALL
Driller: Francis Arthur Randall
Assistant Driller:

Property: N/A NSW
GWMA: -
GW Zone: -
Standing Water Level (m): 9.150
Salinity Description:
Yield (L/s): 1.890

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	LOT 3,4 SECT 30
Licensed:	MURCHISON	BINGARA	Whole Lot //

Region: 90 - Barwon
River Basin: 418 - GWYDIR RIVER
Area/District:
CMA Map: 9038-3N
Grid Zone:
Scale:

Elevation: 295.00 m (A.H.D.)
Elevation Source: Est. Contour 8-15M.
Northing: 6693627.000
Easting: 265524.000
Latitude: 29°51'56.3"S
Longitude: 150°34'21.0"E

GS Map: -
MGA Zone: 56
Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	15.85	157			Rotary Air
1	1	Casing	Steel	0.00	15.85	153	143		Seated on Bottom
1	1	Opening	Slots - Vertical	10.67	15.85	153		1	Stainless Steel, SL: 5.2mm, A: 4.00mm

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)
12.20	15.80	3.60	Unconsolidated	9.15		1.89	15.85		

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

0.00	6.10	6.10	Topsoil	Topsoil	
6.10	12.20	6.10	Gravel Loose	Gravel	
12.20	15.85	3.65	Gravel - very tightly compact	Gravel	

***** End of GW070492 *****

WaterNSW
Work Summary

GW071859

Licence: 90WA828242
Licence Status: CURRENT

Authorised Purpose(s): DOMESTIC
Intended Purpose(s):

Work Type: Bore
Work Status:
Construct.Method: Rotary
Owner Type:

Commenced Date:
Completion Date: 09/12/1993
Final Depth: 11.20 m
Drilled Depth: 11.20 m

Contractor Name: NK & DO MANNION
Driller: Jason Roger Mannion
Assistant Driller:

Property: N/A NSW
GWMA: -
GW Zone: -
Standing Water Level (m):
Salinity Description: Good
Yield (L/s): 1.515

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		UNKNOWN	
Licensed:	MURCHISON	BINGARA	Whole Lot 1//608485

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693415.000
Easting: 265953.000
Latitude: 29°52'03.5"S
Longitude: 150°34'36.8"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	11.20	160			Rotary Air
1	1	Casing	Steel	0.00	11.20	160	152		Seated on Bottom
1	1	Opening	Slots - Vertical	10.00	11.20	160		1	Oxy-Acetylene Slotted, Steel, A: 0.04mm

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)
10.00	11.20	1.20	Unknown			1.52	11.20		

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

0.00	0.30	0.30	TOPSOIL	Unknown	
0.30	3.90	3.60	CLAY	Unknown	
3.90	10.00	6.10	CLAY & GRAVEL	Unknown	
10.00	11.20	1.20	GRAVEL	Unknown	

Remarks

09/12/1993: Form A Remarks:
BY DAVEY PRESSURE PUMP WITH 1 1/2" POLY
19/12/2003: cadaster data obtained form GDS; Charting done at the center of the property using Arc View GIS due to lack of actual site data.
10/10/2011: Adjusted Inside, Outside Diameter and Thickness due to data entry errors with advice from Madhwan Keshwan. GDS Data Cleanup project 2011.

***** End of GW071859 *****

WaterNSW
Work Summary

GW900374

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Cable Tool
Owner Type:

Commenced Date:
Completion Date: 16/05/1996
Final Depth: 11.00 m
Drilled Depth: 11.00 m

Contractor Name: NEW ENGLAND DRILLING COMPANY
Driller: Tony Michael Abra
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description: Good
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	LOT 1 SECTION 36
Licensed:			

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693054.000
Easting: 265792.000
Latitude: 29°52'15.1"S
Longitude: 150°34'30.6"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	11.00	170			Other
1	1	Casing	Steel	0.00	11.00	170	152		Driven into Hole, Welded
1	1	Opening	Slots - Horizontal	9.00	11.00	170		1	Steel, SL: 300.0mm, A: 3.00mm

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)
6.10	11.00	4.90	Unknown	5.70		1.20	11.00	01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

0.00	1.20	1.20	TOP SOIL	Unknown	
1.20	1.80	0.60	GRAVEL SAND "DRY"	Unknown	
1.80	6.10	4.30	CLAY GRAVEL MIXED	Unknown	
6.10	11.00	4.90	SAND GRAVEL WATER LIGHT BROWN CLAY	Unknown	

Remarks

10/10/2011: Adjusted Inside, Outside Diameter and Thickness due to data entry errors with advice from Madhwan Keshwan. GDS Data Cleanup project 2011.

***** End of GW900374 *****

WaterNSW
Work Summary

GW900610

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary
Owner Type:

Commenced Date:
Completion Date: 05/05/1997
Final Depth: 13.00 m
Drilled Depth: 13.00 m

Contractor Name: H2O DRILLING
Driller: Allan James Hibbert
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	PT 2A SECTION 36
Licensed:			

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693390.000
Easting: 265765.000
Latitude: 29°52'04.2"S
Longitude: 150°34'29.8"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	13.00	140			Rotary
1	1	Casing	P.V.C.	0.00	13.00	140			Glued
1	1	Opening	Slots - Vertical	10.00	13.00	140		0	Sawn, PVC, A: 3.00mm

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)
10.00	13.00	3.00	Unknown	7.00	9.00	2.63	12.00	02:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

0.00	6.00	6.00	clay	Unknown	
6.00	12.00	6.00	shale river stone	Unknown	
12.00	13.00	1.00	river gravel	Unknown	

***** End of GW900610 *****

WaterNSW
Work Summary

GW900993

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Cable Tool
Owner Type:

Commenced Date:
Completion Date: 20/04/1996
Final Depth: 24.00 m
Drilled Depth: 24.00 m

Contractor Name: NEW ENGLAND DRILLING COMPANY
Driller: Tony Michael Abra
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		UNKNOWN	
Licensed:			

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693469.000
Easting: 265739.000
Latitude: 29°52'01.6"S
Longitude: 150°34'28.9"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	24.00	150			Cable Tool
1	1	Casing	Pvc Class 9	0.00	24.00	125			Seated on Bottom
1	1	Casing	Steel	0.00	2.70	150			Suspended in Clamps
1	1	Opening	Slots - Vertical	0.00	2.70	150		0	Slotted In Hole, Steel
1	1	Opening	Slots - Vertical	12.00	24.00	125		0	Slotted In Hole, PVC Class 9, SL: 12.0mm, A: 3.00mm

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)
12.81	13.42	0.61	Unknown	11.90	1.50	0.13	14.50	01:00:00	
18.00	21.05	3.05	Unknown	11.85	2.30	1.47	24.00	01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.90	0.90	top soil	Unknown	
0.90	12.81	11.91	sandy soil	Unknown	
12.81	13.42	0.61	sand gravel water	Unknown	
13.42	18.00	4.58	clay gravel	Unknown	
18.00	21.05	3.05	sand gravel water	Unknown	
21.05	24.00	2.95	gravel clay	Unknown	

***** End of GW900993 *****

WaterNSW
Work Summary

GW904843

Licence: 90WA837122
Licence Status: CURRENT

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method:
Owner Type:

Commenced Date:
Completion Date: 29/01/2021
Final Depth: 12.00 m
Drilled Depth: 12.00 m

Contractor Name: LederWaterDrill
Driller: Jake Caleb Steele
Assistant Driller: Nathan Turner

Property: 25 Keera St BINGARA 2404
GWMA: -
GW Zone: -
Standing Water Level (m): 7.000
Salinity Description:
Yield (L/s): 1.400

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:		Unknown	6/21/DP758111
Licensed:	MURCHISON	BINGARA	Whole Lot 6/21/758111

Region: - (Not set)
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale: 09/02/2021

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 0.000
Easting: 0.000
Latitude: 29°51'53.3"S
Longitude: 150°34'06.2"E

GS Map: -
MGA Zone: 0
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	12.00	170			Rotary - Percussion (Down Hole H
1		Annulus	Cement Grout	5.00	6.00				PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	6.00	12.00				Graded, Q:1.000m3, PL:Poured/Shovelled
1	1	Casing	Pvc Class 9	0.00	12.00	140	128		Seated on Bottom, Glued
1	1	Opening	Slots - Vertical	6.00	12.00	140	128	0	Casing - Hand Sawn Slot, Glued, SL: 100.0mm, A: 1.50mm

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)
6.00	12.00	6.00	Unknown	7.00	10.00	1.40		01:00:00	440.00

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.00	3.00	Soil	Soil	
3.00	12.00	9.00	Gravel	Gravel	

Remarks

29/01/2021: Work GW904843 imported by DWRDRLOGIMP.HSC, version 30 on 17:14:19_10/08/2021
Source file: 90WA837122_1000256592_315.json

***** End of GW904843 *****

WaterNSW
Work Summary

GW966138

Licence: | **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Filled
Construct.Method: Rotary Mud
Owner Type:

Commenced Date:
Completion Date: 27/06/2002
Final Depth: 26.00 m
Drilled Depth: 26.00 m

Contractor Name: ARFRAC DRILLING PTY LTD
Driller: Roy Martin Tyndall
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	LT1 DP/758111
Licensed:			

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: (Unknown)
Northing: 6693741.000
Easting: 265828.000
Latitude: 29°51'52.8"S
Longitude: 150°34'32.5"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	26.00	150			Rotary Mud

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	silty clay	Invalid Code	
6.00	8.00	2.00	gravel	Gravel	
8.00	10.00	2.00	clay	Clay	
10.00	11.00	1.00	sand and gravel	Sand	
11.00	15.00	4.00	sand and gravel	Sand	
15.00	21.00	6.00	gravel	Gravel	
21.00	24.00	3.00	siltstone	Siltstone	
24.00	26.00	2.00	blue-grey chert	Chert	

***** End of GW966138 *****

WaterNSW
Work Summary

GW966139

Licence: | **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status:
Construct.Method: Rotary Mud
Owner Type:

Commenced Date: | **Final Depth:** 36.00 m
Completion Date: 24/06/2002 | **Drilled Depth:** 36.00 m

Contractor Name: ARFRAC DRILLING PTY LTD
Driller: Roy Martin Tyndall
Assistant Driller:

Property: | **Standing Water Level (m):** 8.000
GWMA: | **Salinity Description:**
GW Zone: | **Yield (L/s):** 1.200

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	LT1 DP/758111
Licensed:			

Region: 90 - Barwon | **CMA Map:**
River Basin: - Unknown | **Grid Zone:** | **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) | **Northing:** 6693162.000 | **Latitude:** 29°52'11.7"S
Elevation Source: (Unknown) | **Easting:** 265942.000 | **Longitude:** 150°34'36.2"E

GS Map: - | **MGA Zone:** 56 | **Coordinate Source:** Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	39.00	150			Rotary Mud

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)
8.00	13.00	5.00	Unknown	8.00		0.20			
14.00	21.00	7.00	Unknown			1.20			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	topsoil	Topsoil	

1.00	3.00	2.00	brown silt	Silt	
3.00	6.00	3.00	basalt	Basalt	
6.00	8.00	2.00	brown clay	Clay	
8.00	12.00	4.00	basalt	Basalt	
12.00	18.00	6.00	gravel	Gravel	
18.00	21.00	3.00	sand and gravel	Sand	
21.00	28.00	7.00	clay	Clay	
28.00	29.00	1.00	green clay	Clay	
29.00	34.00	5.00	orange clay	Invalid Code	
34.00	36.00	2.00	sandstone	Sandstone	

***** End of GW966139 *****

WaterNSW
Work Summary

GW966788

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: New Bore
Construct.Method: Rotary - Air/Foam
Owner Type: Private

Commenced Date:
Completion Date: 23/06/2004
Final Depth: 16.00 m
Drilled Depth: 16.00 m

Contractor Name: Francis Arthur RANDALL
Driller: Francis Arthur Randall
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m): 9.000
Salinity Description:
Yield (L/s): 1.890

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	7/60 758111
Licensed:			

Region: 90 - Barwon
River Basin: - Unknown
Area/District:
CMA Map:
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6692978.000
Easting: 265506.000
Latitude: 29°52'17.4"S
Longitude: 150°34'19.8"E

GS Map: -
MGA Zone: 56
Coordinate Source: Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	16.00	165			Rotary - Air/Foam
1	1	Casing	Pvc Class 9	-0.30	16.00	135	127		Seated on Bottom, , Screwed and Glued
1	1	Opening	Slots - Vertical	10.00	14.00	135		0	Casing - Machine Slotted, PVC Class 9, SL: 300.0mm, A: 2.00mm

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)
9.00	12.00	3.00	Unknown	9.00		1.89		01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	Brown top soil	Topsoil	
6.00	9.00	3.00	fine dry gravels	Gravel	
9.00	12.00	3.00	coarse river gravels / water	Gravel	
12.00	16.00	4.00	dark basalt	Basalt	

Remarks

23/06/2004: Form A Remarks:
nominated bore location based on cadastral details provided either by Form A or licence. Charted bore location will differ from actual location.
bore measurements are given.

Casing bottom open ended and water entry desing fixing by glued and screwed.

Krish

***** End of GW966788 *****

WaterNSW
Work Summary

GW966857

Licence: | **Licence Status:**

Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status:
Construct.Method: Rotary
Owner Type:

Commenced Date: | **Final Depth:** 34.00 m
Completion Date: 17/06/2004 | **Drilled Depth:** 34.00 m

Contractor Name: Francis Arthur RANDALL
Driller: Francis Arthur Randall
Assistant Driller:

Property: | **Standing Water Level (m):** 9.000
GWMA: | **Salinity Description:**
GW Zone: | **Yield (L/s):** 2.520

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	9 758111
Licensed:			

Region: 90 - Barwon | **CMA Map:**
River Basin: - Unknown | **Grid Zone:** | **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) | **Northing:** 6692992.000 | **Latitude:** 29°52'16.9"S
Elevation Source: Unknown | **Easting:** 265459.000 | **Longitude:** 150°34'18.1"E

GS Map: - | **MGA Zone:** 56 | **Coordinate Source:** Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	34.00	165			Rotary
1	1	Casing	Pvc Class 9	-0.30	34.00	135	127		Seated on Bottom, Screwed and Glued
1	1	Opening	Slots - Vertical	18.00	30.00	135		0	Casing - Machine Slotted, PVC Class 9, SL: 300.0mm, A: 2.00mm

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)
17.00	29.00	12.00	Unknown	9.00		2.52		02:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	6.00	6.00	topsoil/red	Topsoil	
6.00	12.00	6.00	basalt/brown	Basalt	
12.00	17.00	5.00	basalt	Basalt	
17.00	27.00	10.00	basalt/fractured blue grey	Basalt	
27.00	34.00	7.00	basalt/hard grey	Basalt	

***** End of GW966857 *****

WaterNSW
Work Summary

GW969978

Licence:
Licence Status:
Authorised Purpose(s):
Intended Purpose(s): DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Rotary Air
Owner Type: Private

Commenced Date:
Completion Date: 03/07/2010
Final Depth: 15.00 m
Drilled Depth: 15.00 m

Contractor Name: Universal drilling
Driller: Barry Donald Rogan
Assistant Driller: Ben Walters

Property:
GWMA:
GW Zone:
Standing Water Level (m): 5.000
Salinity Description:
Yield (L/s): 0.700

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	3//1066632
Licensed:			

Region: 90 - Barwon
River Basin: 418 - GWYDIR RIVER
Area/District:
CMA Map: 9038-3N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693340.000
Easting: 265260.000
Latitude: 29°52'05.5"S
Longitude: 150°34'11.0"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	15.00	150			Rotary Air
1		Annulus	Concrete	0.00	0.50	150	115		PL:Poured/Shovelled
1		Annulus	Drill Cuttings	0.50	6.00	150	115		PL:Poured/Shovelled
1		Annulus	Bentonite	6.00	7.00	150	115		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	7.00	15.00	150	115		Graded, PL:Poured/Shovelled
1	1	Casing	Pvc Class 9	0.00	15.00	115	105		Seated on Bottom, Other
1	1	Opening	Slots - Vertical	9.00	15.00	115		0	Casing - Hand Sawn Slot, PVC Class 9, Other, SL: 100.0mm, A: 2.00mm

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)
8.00	15.00	7.00	Unknown	5.00	10.00	0.70		00:30:00	120.00

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Soil	Soil	
1.00	4.00	3.00	Clay	Clay	
4.00	15.00	11.00	Gravel, alluvial	Gravel	

Remarks

03/07/2010: Form A Remarks:
Nat Carling, 27-Feb-2012; Coordinates based on location map provided with the Form-A.

***** End of GW969978 *****

WaterNSW
Work Summary

GW970944

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): STOCK

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hammer
Owner Type: Private

Commenced Date:
Completion Date: 15/08/2010
Final Depth: 15.00 m
Drilled Depth: 15.00 m

Contractor Name: Universal drilling
Driller: Michael Charles Willox
Assistant Driller:

Property:
GWMA:
GW Zone:
Standing Water Level (m): 10.000
Salinity Description:
Yield (L/s): 0.700

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	MURCHISON	BINGARA	17/55/758111
Licensed:			

Region: 90 - Barwon
River Basin: 418 - GWYDIR RIVER
Area/District:
CMA Map: 9038-3N
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6693170.000
Easting: 265335.000
Latitude: 29°52'11.0"S
Longitude: 150°34'13.6"E

GS Map: -
MGA Zone: 56
Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	15.00	203			Down Hole Hammer
1		Annulus	Cement Grout	0.00	5.00	203	168		
1	1	Casing	Steel - Erw	0.00	15.00	168	155		Seated on Bottom, Welded - Butt
1	1	Opening	Slots - Vertical	10.00	15.00	168		0	Casing - Hand Sawn Slot, Steel - ERW, Welded - Butt, SL: 100.0mm, A: 2.00mm

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)
10.00	15.00	5.00	Unknown	10.00	13.00	0.70		01:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.50	0.50	Loam/Soil	Loam	
0.50	2.00	1.50	Sand; gravelly	Sand	
2.00	5.00	3.00	Gravel; medium	Gravel	
5.00	15.00	10.00	Gravel; alluvial, water @ 10-15m	Gravel	

Remarks

15/08/2010: Form A Remarks:
Nat Carling, 9-Sept-2014; All details were provided by owner on Form-AG. Requested Form-A from the drilling contractor. Coordinates based on location map provided with the form. Completion date provided was 'Aug-2010'.
30/04/2015: Nat Carling, 30-Apr-2015; Updated details, as provided on Driller's Form-A.

***** End of GW970944 *****

Appendix H Calibration Certificate

PID Calibration Certificate

Instrument: Honeywell MiniRAE Lite +

Serial No: 595-005281

ITEM	TEST	PASS	COMMENTS
BATTERY	Charge condition	✓	
	Fuses	✓	
	Capacity	✓	
	Recharge OK?	✓	
SWITCH/ KEYPAD	Operation	✓	
DISPLAY	Intensity	✓	
	Operation (segments)	✓	
GRILL FILTER	Condition	✓	
	Seal	✓	
PUMP	Operation	✓	
	Filter	✓	
	Flow	✓	
	Valves, diaphragm	✓	
PCB	Condition	✓	
CONNECTORS	Condition	✓	
SENSOR	PID	✓	
ALARMS	Beeper	✓	Low = 50ppm
	Settings	✓	High = 100ppm
SOFTWARE	Version	✓	
DATA LOGGER	Operation	✓	
DOWNLOAD	Operation	✓	
OTHER TESTS:			

Certificate of Calibration

This is to certify that the above instrument has been calibrated to the following specifications:

Diffusion mode Aspirated mode

Sensor	Serial no.	Calibration gas and concentration	Certified	Gas bottle no.	Instrument reading
		100 ppm Isobutylene		190813	100.2 ppm

Calibrated by: A. Naudé

Calibration date: 9/11/2023

Appendix I Laboratory Documentation

CERTIFICATE OF ANALYSIS

Work Order	: **EB2335897**	Page	: 1 of 19
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Brisbane
Contact	: Samples	Contact	: Customer Services EB
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3243 7222
Project	: J001694 Bingara PSI	Date Samples Received	: 15-Nov-2023 12:27
Order number	: J001694	Date Analysis Commenced	: 17-Nov-2023
C-O-C number	: ----	Issue Date	: 24-Nov-2023 13:57
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 37		
No. of samples analysed	: 24		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive 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*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Soil Preparation, Stafford, QLD

General Comments

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

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

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

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

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

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

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

- ALS is not NATA accredited for the analysis of Exchangeable Aluminium and Exchange Acidity in soils when performed under ALS Method ED005.
- ALS is not NATA accredited for the analysis of Exchangeable Cations on Alkaline Soils when performed under ALS Method ED006.
- 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.
- EG005T (Total Metals by ICP-AES): BH6-2 (EB2335897-029) shows poor duplicate results due to sample heterogeneity. This has been confirmed by visual inspection.
- EG048G (Hexavalent Chromium by Alkaline Digestion and DA Finish): Sample BG (EB2335897-036) was diluted due to matrix interference. LOR adjusted accordingly.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH1-1	BH1-2	BH2-1	BH2-2	Duplicate 1
			Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-001	EB2335897-002	EB2335897-005	EB2335897-006	EB2335897-007
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	----	14.6	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	----	5.8	6.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	No	----
Asbestos (Trace)	1332-21-4	-	-	No	----	No	No	----
Asbestos Type	1332-21-4	-	--	-	----	-	-	----
Synthetic Mineral Fibre	----	-	--	No	----	No	No	----
Organic Fibre	----	-	--	No	----	Yes	Yes	----
Sample weight (dry)	----	0.01	g	663	----	463	459	----
APPROVED IDENTIFIER:	----	-	--	M. TRAN	----	M. TRAN	M. TRAN	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	7	----	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	<1
Chromium	7440-47-3	2	mg/kg	----	19	----	26	29
Copper	7440-50-8	5	mg/kg	----	29	----	10	10
Lead	7439-92-1	5	mg/kg	----	76	----	22	28
Nickel	7440-02-0	2	mg/kg	----	33	----	23	24
Zinc	7440-66-6	5	mg/kg	----	54	----	20	24
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	0.6	----	<0.1	0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	<0.5
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	<0.5
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	<1
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1-1	BH1-2	BH2-1	BH2-2	Duplicate 1
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-001	EB2335897-002	EB2335897-005	EB2335897-006	EB2335897-007
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	<0.5
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	<0.5
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	<0.5
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	<0.5
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	<0.5
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	<0.5
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	<2
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		----	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		----	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		----	----	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	**0.6**	**0.6**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1-1	BH1-2	BH2-1	BH2-2	Duplicate 1
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-001	EB2335897-002	EB2335897-005	EB2335897-006	EB2335897-007
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		----	----	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		----	<10	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg		----	<50	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg		----	<100	----	<100	<100
C29 - C36 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		----	<10	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		----	<10	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		----	<50	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		----	<50	----	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		----	<50	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg		----	<0.2	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg		----	<0.5	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		----	<1	----	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		----	----	----	**106**	**108**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH1-1	BH1-2	BH2-1	BH2-2	Duplicate 1
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-001	EB2335897-002	EB2335897-005	EB2335897-006	EB2335897-007
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	111	113
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	72.6	71.9
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	129	130
Anthracene-d10	1719-06-8	0.5	%		----	----	----	107	112
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	115	118
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		----	80.6	----	83.5	85.1
Toluene-D8	2037-26-5	0.2	%		----	82.3	----	87.1	86.4
4-Bromofluorobenzene	460-00-4	0.2	%		----	78.4	----	81.2	81.3

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH2-3	BH3-1	BH3-2	BH3-3	BH3-4
			Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-008	EB2335897-009	EB2335897-010	EB2335897-011	EB2335897-012
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	**12.1**	**----**	**----**	**8.7**	**15.5**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**----**	**No**	**No**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-	**----**	**No**	**No**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**----**	**-**	**-**	**----**	**----**
Synthetic Mineral Fibre	----	-	--	**----**	**No**	**No**	**----**	**----**
Organic Fibre	----	-	--	**----**	**Yes**	**Yes**	**----**	**----**
Sample weight (dry)	----	0.01	g	**----**	**506**	**436**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**----**	**M. TRAN**	**M. TRAN**	**----**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	**----**	**----**	<5	**8**
Cadmium	7440-43-9	1	mg/kg	<1	**----**	**----**	<1	<1
Chromium	7440-47-3	2	mg/kg	**52**	**----**	**----**	**24**	**39**
Copper	7440-50-8	5	mg/kg	**23**	**----**	**----**	**12**	**29**
Lead	7439-92-1	5	mg/kg	**9**	**----**	**----**	**12**	**8**
Nickel	7440-02-0	2	mg/kg	**78**	**----**	**----**	**23**	**74**
Zinc	7440-66-6	5	mg/kg	**34**	**----**	**----**	**27**	**52**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	**----**	**----**	<0.1	<0.1
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	**----**	**----**	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	**----**	**----**	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	**----**	**----**	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	**----**	**----**	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	**----**	**----**	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	**----**	**----**	<10	<10

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH2-3	BH3-1	BH3-2	BH3-3	BH3-4
				Sampling date / time	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-008	EB2335897-009	EB2335897-010	EB2335897-011	EB2335897-012
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	----	----	<1	<1
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**82.6**	----	----	**84.6**	**83.3**
Toluene-D8	2037-26-5	0.2	%		**86.0**	----	----	**88.1**	**85.4**
4-Bromofluorobenzene	460-00-4	0.2	%		**81.0**	----	----	**84.6**	**79.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH3-7	BH4-1	BH4-2	BH4-5	BH5-1
			Sampling date / time	14-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-015	EB2335897-017	EB2335897-018	EB2335897-021	EB2335897-023
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	10.2	----	12.7	4.9	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	6.4	----	----	6.2
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	No
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	No
Asbestos Type	1332-21-4	-	--	----	-	----	----	-
Synthetic Mineral Fibre	----	-	--	----	Yes	----	----	No
Organic Fibre	----	-	--	----	Yes	----	----	Yes
Sample weight (dry)	----	0.01	g	----	515	----	----	316
APPROVED IDENTIFIER:	----	-	--	----	M. TRAN	----	----	M. TRAN
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	8	----	258	16	----
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	----
Chromium	7440-47-3	2	mg/kg	31	----	28	21	----
Copper	7440-50-8	5	mg/kg	19	----	21	10	----
Lead	7439-92-1	5	mg/kg	6	----	66	<5	----
Nickel	7440-02-0	2	mg/kg	44	----	24	31	----
Zinc	7440-66-6	5	mg/kg	29	----	155	21	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	0.2	<0.1	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	----	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	----	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	----	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	----	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	----	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH3-7	BH4-1	BH4-2	BH4-5	BH5-1
				Sampling date / time	14-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-015	EB2335897-017	EB2335897-018	EB2335897-021	EB2335897-023
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Heptachlor	76-44-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Aldrin	309-00-2	0.05	mg/kg		----	<0.05	----	----	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		----	<0.05	----	----	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		----	<0.05	----	----	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		----	<0.05	----	----	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		----	<0.05	----	----	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		----	<0.05	----	----	<0.05
Dieldrin	60-57-1	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		----	<0.05	----	----	<0.05
Endrin	72-20-8	0.05	mg/kg		----	<0.05	----	----	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		----	<0.05	----	----	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		----	<0.05	----	----	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		----	<0.05	----	----	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		----	<0.05	----	----	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		----	<0.2	----	----	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		----	<0.05	----	----	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		----	<0.2	----	----	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		----	<0.05	----	----	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		----	<0.05	----	----	<0.05
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	<100	<100	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	<50	<50	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH3-7	BH4-1	BH4-2	BH4-5	BH5-1
			Sampling date / time	14-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-015	EB2335897-017	EB2335897-018	EB2335897-021	EB2335897-023
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg	<50	----	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	95.4	----	----	118
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	111	----	----	123
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	81.9	----	78.5	83.3	----
Toluene-D8	2037-26-5	0.2	%	84.5	----	79.6	84.0	----
4-Bromofluorobenzene	460-00-4	0.2	%	78.9	----	75.4	80.1	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH5-2	BH6-1	BH6-2	BH6-3	BH6-5
			Sampling date / time	13-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-025	EB2335897-028	EB2335897-029	EB2335897-030	EB2335897-032
				Result	Result	Result	Result	Result
EA055: Moisture Content								
Moisture Content	----	1.0	%	14.7	----	12.3	----	7.4
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	----	15.8	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	----	No	----	----	----
Asbestos (Trace)	1332-21-4	-	-	----	No	----	----	----
Asbestos Type	1332-21-4	-	--	----	-	----	----	----
Synthetic Mineral Fibre	----	-	--	----	No	----	----	----
Organic Fibre	----	-	--	----	Yes	----	----	----
Sample weight (dry)	----	0.01	g	----	258	----	----	----
APPROVED IDENTIFIER:	----	-	--	----	M. TRAN	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	108	----	56	10	6
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	24	----	20	39	21
Copper	7440-50-8	5	mg/kg	12	----	13	18	12
Lead	7439-92-1	5	mg/kg	20	----	22	7	<5
Nickel	7440-02-0	2	mg/kg	39	----	20	28	38
Zinc	7440-66-6	5	mg/kg	45	----	86	28	22
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	----	<0.1	<0.1	<0.1
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	----	----	----	<0.5	----
2-Chlorophenol	95-57-8	0.5	mg/kg	----	----	----	<0.5	----
2-Methylphenol	95-48-7	0.5	mg/kg	----	----	----	<0.5	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	----	----	----	<1	----
2-Nitrophenol	88-75-5	0.5	mg/kg	----	----	----	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5-2	BH6-1	BH6-2	BH6-3	BH6-5
				Sampling date / time	13-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-025	EB2335897-028	EB2335897-029	EB2335897-030	EB2335897-032
					Result	Result	Result	Result	Result
EP075(SIM)A: Phenolic Compounds - Continued									
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		----	----	----	<0.5	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		----	----	----	<0.5	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		----	----	----	<0.5	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		----	----	----	<0.5	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		----	----	----	<0.5	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		----	----	----	<0.5	----
Pentachlorophenol	87-86-5	2	mg/kg		----	----	----	<2	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		----	----	----	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		----	----	----	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		----	----	----	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		----	----	----	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		----	----	----	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		----	----	----	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		----	----	----	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		----	----	----	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		----	----	----	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		----	----	----	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		----	----	----	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		----	----	----	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		----	----	----	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		----	----	----	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		----	----	----	**0.6**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH5-2	BH6-1	BH6-2	BH6-3	BH6-5
			Sampling date / time	13-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	EB2335897-025	EB2335897-028	EB2335897-029	EB2335897-030	EB2335897-032
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	1.2	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	----	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg	<100	----	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	<50	<50	<50
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	<50	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg	<1	----	<1	<1	<1
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	104	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH5-2	BH6-1	BH6-2	BH6-3	BH6-5
				Sampling date / time	13-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00	14-Nov-2023 00:00
Compound	CAS Number	LOR	Unit		EB2335897-025	EB2335897-028	EB2335897-029	EB2335897-030	EB2335897-032
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
2-Chlorophenol-D4	93951-73-6	0.5	%		----	----	----	109	----
2.4.6-Tribromophenol	118-79-6	0.5	%		----	----	----	69.2	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		----	----	----	124	----
Anthracene-d10	1719-06-8	0.5	%		----	----	----	106	----
4-Terphenyl-d14	1718-51-0	0.5	%		----	----	----	111	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		83.5	----	86.2	90.5	84.0
Toluene-D8	2037-26-5	0.2	%		81.7	----	84.7	87.8	83.8
4-Bromofluorobenzene	460-00-4	0.2	%		76.6	----	80.1	81.8	77.4

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Trip spike 4	Trip blank 102316	BG	ALS Control Spike	----
			Sampling date / time	06-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	06-Nov-2023 00:00	----
Compound	CAS Number	LOR	Unit	EB2335897-034	EB2335897-035	EB2335897-036	EB2335897-037	--------
				Result	Result	Result	Result	----
EA001: pH in soil using 0.01M CaCl extract								
pH (CaCl2)	----	0.1	pH Unit	----	----	6.0	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	----	----	6.8	----	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	50	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	0.1	%	----	----	1.4	----	----
ED007: Exchangeable Cations								
Exchangeable Calcium	----	0.1	meq/100g	----	----	5.8	----	----
Exchangeable Magnesium	----	0.1	meq/100g	----	----	1.1	----	----
Exchangeable Potassium	----	0.1	meq/100g	----	----	0.5	----	----
Exchangeable Sodium	----	0.1	meq/100g	----	----	<0.1	----	----
Cation Exchange Capacity	----	0.1	meq/100g	----	----	7.5	----	----
Exchangeable Sodium Percent	----	0.1	%	----	----	0.3	----	----
Calcium/Magnesium Ratio	----	0.1	-	----	----	5.3	----	----
Magnesium/Potassium Ratio	----	0.1	-	----	----	2.0	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	6	----	----
Chromium	7440-47-3	2	mg/kg	----	----	18	----	----
Copper	7440-50-8	5	mg/kg	----	----	40	----	----
Lead	7439-92-1	5	mg/kg	----	----	556	----	----
Nickel	7440-02-0	2	mg/kg	----	----	17	----	----
Zinc	7440-66-6	5	mg/kg	----	----	599	----	----
EG048: Hexavalent Chromium (Alkaline Digest)								
Hexavalent Chromium	18540-29-9	0.5	mg/kg	----	----	<2.0	----	----
EG049: Trivalent Chromium								
Trivalent Chromium	16065-83-1	2	mg/kg	----	----	18	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip spike 4	Trip blank 102316	BG	ALS Control Spike	----
				Sampling date / time	06-Nov-2023 00:00	13-Nov-2023 00:00	13-Nov-2023 00:00	06-Nov-2023 00:00	----
Compound	CAS Number	LOR	Unit		EB2335897-034	EB2335897-035	EB2335897-036	EB2335897-037	--------
					Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		**42**	<10	**----**	**48**	**----**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		**50**	<10	**----**	**59**	**----**
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		**30**	<10	**----**	**35**	**----**
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		**0.5**	<0.2	**----**	**0.6**	**----**
Toluene	108-88-3	0.5	mg/kg		**8.6**	<0.5	**----**	**9.3**	**----**
Ethylbenzene	100-41-4	0.5	mg/kg		**1.6**	<0.5	**----**	**2.0**	**----**
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		**7.2**	<0.5	**----**	**9.2**	**----**
ortho-Xylene	95-47-6	0.5	mg/kg		**2.6**	<0.5	**----**	**3.3**	**----**
^ **Sum of BTEX**	----	0.2	mg/kg		**20.5**	<0.2	**----**	**24.4**	**----**
^ **Total Xylenes**	----	0.5	mg/kg		**9.8**	<0.5	**----**	**12.5**	**----**
Naphthalene	91-20-3	1	mg/kg		<1	<1	**----**	<1	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**84.9**	**78.3**	**----**	**81.6**	**----**
Toluene-D8	2037-26-5	0.2	%		**88.6**	**77.2**	**----**	**86.1**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**86.6**	**72.9**	**----**	**83.8**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH1-1 - 13-Nov-2023 00:00	Grey brown rocky soil.
EA200: Description	BH2-1 - 13-Nov-2023 00:00	Grey rocky soil with organic matter.
EA200: Description	BH2-2 - 13-Nov-2023 00:00	Brown soil with organic matter.
EA200: Description	BH3-1 - 13-Nov-2023 00:00	Grey soil with organic matter.
EA200: Description	BH3-2 - 13-Nov-2023 00:00	Brown clay like soil with organic matter.
EA200: Description	BH4-1 - 13-Nov-2023 00:00	Brown soil with rock, organic matter and synthetic mineral fibres.
EA200: Description	BH5-1 - 13-Nov-2023 00:00	Brown grey clay like soil with organic matter.
EA200: Description	BH6-1 - 14-Nov-2023 00:00	Black brown clay like soil with rock and organic matter.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	134
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127

Inter-Laboratory Testing

Analysis conducted by ALS Melbourne, NATA accreditation no. 825, site no. 13778 (Chemistry).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

QUALITY CONTROL REPORT

Work Order	: **EB2335897**	Page	: 1 of 10
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Brisbane
Contact	: Samples	Contact	: Customer Services EB
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61 7 3243 7222
Project	: J001694 Bingara PSI	Date Samples Received	: 15-Nov-2023
Order number	: J001694	Date Analysis Commenced	: 17-Nov-2023
C-O-C number	: ----	Issue Date	: 24-Nov-2023
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 37		
No. of samples analysed	: 24		

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

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

This 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*
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
MINNIE TRAN	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Soil Preparation, Stafford, QLD

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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: Total Metals by ICP-AES (QC Lot: 5431311)									
EB2335897-002	BH1-2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	19	24	22.1	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	33	39	16.4	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	7	8	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	29	38	26.7	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	76	100	26.9	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	54	65	18.5	0% - 50%
EB2335897-029	BH6-2	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	20	21	7.8	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	20	24	15.7	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	56	60	6.3	0% - 50%
		EG005T: Copper	7440-50-8	5	mg/kg	13	14	9.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	22	19	11.5	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	86	# 105	20.4	0% - 20%
EA001: pH in soil using 0.01M CaCl extract (QC Lot: 5436643)									
EB2335897-036	BG	EA001: pH (CaCl2)	----	0.1	pH Unit	6.0	6.0	0.0	0% - 20%
EA002: pH 1:5 (Soils) (QC Lot: 5431317)									
EB2335897-036	BG	EA002: pH Value	----	0.1	pH Unit	6.8	6.6	1.9	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 5431316)									
EB2335897-036	BG	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	50	42	17.4	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 (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5430640)									
EB2335463-006	Anonymous	EA055: Moisture Content	----	0.1	%	3.4	3.5	0.0	0% - 20%
EB2335897-015	BH3-7	EA055: Moisture Content	----	0.1 (1.0)*	%	10.2	10.5	2.8	0% - 50%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5431318)									
EB2335897-017	BH4-1	EA055: Moisture Content	----	0.1	%	6.4	6.2	2.9	0% - 20%
ED007: Exchangeable Cations (QC Lot: 5441771)									
EB2335706-003	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	3.1	2.8	10.2	0% - 20%
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	6.8	6.5	4.6	0% - 20%
		ED007: Exchangeable Potassium	----	0.1	meq/100g	0.4	0.4	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	2.4	2.3	0.0	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5431310)									
EB2335897-002	BH1-2	EG035T: Mercury	7439-97-6	0.1 (0.2)*	mg/kg	0.6	0.6	0.0	No Limit
EB2335897-029	BH6-2	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EG048: Hexavalent Chromium (Alkaline Digest) (QC Lot: 5431315)									
EB2335897-036	BG	EG048G: Hexavalent Chromium	18540-29-9	0.5 (2.0)*	mg/kg	<2.0	<2.0	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 5431314)									
EB2335897-017	BH4-1	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: Total Chlordane (sum)	----	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: Endosulfan (sum)	115-29-7	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

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: Organochlorine Pesticides (OC) (QC Lot: 5431314) - continued									
EB2335897-017	BH4-1	EP068: Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Sum of Aldrin + Dieldrin	309-00-2/60-57-1	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
EP075(SIM)A: Phenolic Compounds (QC Lot: 5431313)									
EB2335897-006	BH2-2	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5431313)									
EB2335897-006	BH2-2	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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 (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5430639)									
EB2335463-006	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EB2335897-015	BH3-7	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5431312)									
EB2335897-002	BH1-2	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
EB2335897-029	BH6-2	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 Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5430639)									
EB2335463-006	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EB2335897-015	BH3-7	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5431312)									
EB2335897-002	BH1-2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EB2335897-029	BH6-2	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 5430639)									
EB2335463-006	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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
EB2335897-015	BH3-7	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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

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) Report	Laboratory Control Spike (LCS) 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: 5431311)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	62.7 mg/kg	97.1	84.0	123
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
EG005T: Chromium	7440-47-3	2	mg/kg	<2	13.9 mg/kg	101	83.0	125
EG005T: Copper	7440-50-8	5	mg/kg	<5	37.2 mg/kg	111	86.0	122
EG005T: Lead	7439-92-1	5	mg/kg	<5	44.9 mg/kg	114	84.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	12.07 mg/kg	100	81.5	118
EG005T: Zinc	7440-66-6	5	mg/kg	<5	140.7 mg/kg	110	80.0	120
EA001: pH in soil using 0.01M CaCl extract (QCLot: 5436643)								
EA001: pH (CaCl2)	----	----	pH Unit	----	4 pH Unit	101	99.0	101
				----	7 pH Unit	100	99.0	101
EA002: pH 1:5 (Soils) (QCLot: 5431317)								
EA002: pH Value	----	----	pH Unit	----	4 pH Unit	101	98.0	102
				----	7 pH Unit	100	98.0	102
EA010: Conductivity (1:5) (QCLot: 5431316)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	98.2	97.0	103
ED007: Exchangeable Cations (QCLot: 5441771)								
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	8.9 meq/100g	97.1	79.0	113
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	9.52 meq/100g	93.4	85.0	115
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	1.49 meq/100g	93.4	70.0	122
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	1.3726 meq/100g	94.3	76.0	112
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	21.283 meq/100g	94.8	82.0	112
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5431310)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.09199 mg/kg	123	70.0	125
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 5431315)								
EG048G: Hexavalent Chromium	18540-29-9	0.5	mg/kg	<0.5	20 mg/kg	108	80.0	120
				<0.5	13.93 mg/kg	102	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5431314)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	72.8	127
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	123	71.0	127
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	102	67.5	126

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP068A: Organochlorine Pesticides (OC) (QCLot: 5431314) - continued								
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	106	72.7	127
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	70.6	122
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	64.8	127
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.1	72.4	122
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	104	67.4	125
EP068: Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.6	124
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.7	70.4	122
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.6	125
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	97.6	69.1	124
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.9	72.4	125
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	63.2	127
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.7	120
EP068: Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	100	61.2	124
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	92.1	55.5	125
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.0	57.1	117
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	91.5	51.9	125
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.9	46.5	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	89.6	34.0	130
EP068: Sum of DDD + DDE + DDT	72-54-8/72-5 5-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068: Sum of Aldrin + Dieldrin	309-00-2/60- 57-1	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)A: Phenolic Compounds (QCLot: 5431313)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	1.5 mg/kg	122	78.0	134
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	1.5 mg/kg	126	78.0	132
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	1.5 mg/kg	122	78.0	132
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	3 mg/kg	128	77.2	135
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	1.5 mg/kg	152	42.9	156
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	1.5 mg/kg	129	70.3	141
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	1.5 mg/kg	132	69.9	135
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	1.5 mg/kg	# 143	72.9	136
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	1.5 mg/kg	116	53.3	138
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	1.5 mg/kg	119	50.9	140

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)A: Phenolic Compounds (QCLot: 5431313) - continued								
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	1.5 mg/kg	117	45.5	140
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	3 mg/kg	119	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5431313)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	1.5 mg/kg	97.3	72.6	133
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	1.5 mg/kg	97.8	63.2	144
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	1.5 mg/kg	112	66.0	132
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	1.5 mg/kg	114	76.2	134
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	1.5 mg/kg	92.5	71.8	137
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	1.5 mg/kg	109	77.1	143
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	1.5 mg/kg	112	74.1	140
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	1.5 mg/kg	110	72.0	139
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	1.5 mg/kg	100	58.0	145
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	1.5 mg/kg	96.7	63.0	147
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	1.5 mg/kg	104	70.5	142
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	1.5 mg/kg	98.2	75.5	138
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	1.5 mg/kg	82.8	68.5	140
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	1.5 mg/kg	90.7	58.4	143
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	1.5 mg/kg	86.2	52.1	149
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	1.5 mg/kg	92.9	64.6	140
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5430639)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	18 mg/kg	106	64.0	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5431312)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	378 mg/kg	102	79.4	125
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	407 mg/kg	99.6	78.8	122
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5430639)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	22.5 mg/kg	111	58.1	124
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5431312)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	502 mg/kg	100	81.0	132
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	268 mg/kg	103	67.2	130
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----
EP080: BTEXN (QCLot: 5430639)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	93.6	68.0	107

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP080: BTEXN (QCLot: 5430639) - continued								
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	92.7	69.0	108
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	78.3	68.0	109
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	83.2	70.0	114
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	86.4	74.0	116
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	102	74.0	109

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**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5431311)							
EB2335897-006	BH2-2	EG005T: Arsenic	7440-38-2	50 mg/kg	84.5	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	92.2	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	94.0	70.0	130
		EG005T: Copper	7440-50-8	250 mg/kg	94.4	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	104	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	95.4	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	91.5	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5431310)							
EB2335897-006	BH2-2	EG035T: Mercury	7439-97-6	0.5 mg/kg	97.1	70.0	130
EG048: Hexavalent Chromium (Alkaline Digest) (QCLot: 5431315)							
EB2335897-036	BG	EG048G: Hexavalent Chromium	18540-29-9	100 mg/kg	101	70.0	130
EB2335897-036	BG	EG048G: Hexavalent Chromium	18540-29-9	180 mg/kg	92.2	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5431314)							
EB2335897-023	BH5-1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	103	70.0	136
		EP068: Heptachlor	76-44-8	0.5 mg/kg	108	65.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	100	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	99.6	67.0	129
		EP068: Endrin	72-20-8	0.5 mg/kg	107	60.0	137
		EP068: 4.4`-DDT	50-29-3	0.5 mg/kg	112	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5431313)							
EB2335897-007	Duplicate 1	EP075(SIM): Phenol	108-95-2	1.5 mg/kg	123	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	1.5 mg/kg	127	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP075(SIM)A: Phenolic Compounds (QCLot: 5431313) - continued							
EB2335897-007	Duplicate 1	EP075(SIM): 2-Nitrophenol	88-75-5	1.5 mg/kg	155	42.9	156
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1.5 mg/kg	115	53.3	138
		EP075(SIM): Pentachlorophenol	87-86-5	3 mg/kg	122	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5431313)							
EB2335897-007	Duplicate 1	EP075(SIM): Acenaphthene	83-32-9	1.5 mg/kg	114	66.0	132
		EP075(SIM): Pyrene	129-00-0	1.5 mg/kg	109	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5430639)							
EB2335463-008	Anonymous	EP080: C6 - C9 Fraction	----	8 mg/kg	106	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5431312)							
EB2335897-006	BH2-2	EP071: C10 - C14 Fraction	----	379 mg/kg	98.6	70.0	130
		EP071: C15 - C28 Fraction	----	407 mg/kg	96.2	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5430639)							
EB2335463-008	Anonymous	EP080: C6 - C10 Fraction	C6_C10	8 mg/kg	102	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5431312)							
EB2335897-006	BH2-2	EP071: >C10 - C16 Fraction	----	502 mg/kg	96.9	70.0	130
		EP071: >C16 - C34 Fraction	----	268 mg/kg	99.3	70.0	130
EP080: BTEXN (QCLot: 5430639)							
EB2335463-008	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	101	70.0	130
		EP080: Toluene	108-88-3	2 mg/kg	87.8	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **EB2335897**	Page	: 1 of 10
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Brisbane
Contact	: Samples	Telephone	: +61 7 3243 7222
Project	: J001694 Bingara PSI	Date Samples Received	: 15-Nov-2023
Site	: ----	Issue Date	: 24-Nov-2023
Sampler	: ----	No. of samples received	: 37
Order number	: J001694	No. of samples analysed	: 24

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 Matrix Spike outliers occur.**
- **Duplicate outliers exist - please see following pages for full details.**
- **Laboratory Control 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.**

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	EB2335897--029	BH6-2	**Zinc**	7440-66-6	20.4 %	0% - 20%	**RPD exceeds LOR based limits**
Laboratory Control Spike (LCS) Recoveries							
EP075(SIM)A: Phenolic Compounds	QC-5431313-002	----	**2.6-Dichlorophenol**	87-65-0	143 %	72.9-136%	**Recovery greater than upper control limit**

Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA001: pH in soil using 0.01M CaCl extract						
Soil Glass Jar - Unpreserved						
BG	21-Nov-2023	20-Nov-2023	**1**	----	----	----

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 ***VOC in soils*** 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: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA001: pH in soil using 0.01M CaCl extract							
Soil Glass Jar - Unpreserved (EA001)							
BG	**13-Nov-2023**	**21-Nov-2023**	20-Nov-2023	×	**21-Nov-2023**	21-Nov-2023	✓
EA002: pH 1:5 (Soils)							
Soil Glass Jar - Unpreserved (EA002)							
BG	**13-Nov-2023**	**18-Nov-2023**	20-Nov-2023	✓	**18-Nov-2023**	18-Nov-2023	✓
EA010: Conductivity (1:5)							
Soil Glass Jar - Unpreserved (EA010)							
BG	**13-Nov-2023**	**18-Nov-2023**	20-Nov-2023	✓	**18-Nov-2023**	16-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055)							
BH1-2, BH2-3, BH3-3, BH3-4, BH4-2, BH4-5, BH5-2	**13-Nov-2023**	**----**	----	----	**17-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH3-7, BH6-2, BH6-5	**14-Nov-2023**	**----**	----	----	**17-Nov-2023**	28-Nov-2023	✓
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
BH2-2, Duplicate 1, BH4-1, BH5-1, BG	**13-Nov-2023**	**----**	----	----	**17-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EA055)							
BH6-3	**14-Nov-2023**	**----**	----	----	**17-Nov-2023**	28-Nov-2023	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag (EA200)							
BH1-1, BH2-1, BH2-2, BH3-1, BH3-2, BH4-1, BH5-1	**13-Nov-2023**	**----**	----	----	**17-Nov-2023**	11-May-2024	✓
Snap Lock Bag (EA200)							
BH6-1	**14-Nov-2023**	**----**	----	----	**17-Nov-2023**	12-May-2024	✓
ED005: Exchange Acidity							
Soil Glass Jar - Unpreserved (ED005)							
BG	**13-Nov-2023**	**22-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	11-Dec-2023	✓
ED006: Exchangeable Cations on Alkaline Soils							
Soil Glass Jar - Unpreserved (ED006)							
BG	**13-Nov-2023**	**23-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	11-Dec-2023	✓
ED007: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED007)							
BG	**13-Nov-2023**	**22-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	11-Dec-2023	✓
ED008: Exchangeable Cations							
Soil Glass Jar - Unpreserved (ED008)							
BG	**13-Nov-2023**	**22-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	11-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
BH1-2, BH2-2, Duplicate 1, BH2-3, BH3-3, BH3-4, BH4-2, BH4-5, BH5-2, BG	**13-Nov-2023**	**21-Nov-2023**	11-May-2024	✓	**22-Nov-2023**	11-May-2024	✓
Soil Glass Jar - Unpreserved (EG005T)							
BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**21-Nov-2023**	12-May-2024	✓	**22-Nov-2023**	12-May-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
BH1-2, BH2-2, Duplicate 1, BH2-3, BH3-3, BH3-4, BH4-2, BH4-5, BH5-2	**13-Nov-2023**	**21-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	11-Dec-2023	✓
Soil Glass Jar - Unpreserved (EG035T)							
BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**21-Nov-2023**	12-Dec-2023	✓	**23-Nov-2023**	12-Dec-2023	✓
EG048: Hexavalent Chromium (Alkaline Digest)							
Soil Glass Jar - Unpreserved (EG048G)							
BG	**13-Nov-2023**	**21-Nov-2023**	11-Dec-2023	✓	**23-Nov-2023**	28-Nov-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
BH4-1, BH5-1	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH2-2, Duplicate 1	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH6-3	**14-Nov-2023**	**18-Nov-2023**	28-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH2-2, Duplicate 1	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP075(SIM))							
BH6-3	**14-Nov-2023**	**18-Nov-2023**	28-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Trip spike 4, ALS Control Spike	**06-Nov-2023**	**17-Nov-2023**	20-Nov-2023	✓	**18-Nov-2023**	20-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
BH1-2, BH2-2, Duplicate 1, BH2-3	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**17-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
BH3-3, BH3-4, BH4-2, BH4-5, BH5-2, Trip blank 102316	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**18-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH1-2, BH2-2	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**21-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
Duplicate 1, BH2-3, BH3-3, BH3-4, BH4-2, BH4-5, BH5-2	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080)							
BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**17-Nov-2023**	28-Nov-2023	✓	**18-Nov-2023**	28-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP071)							
BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**18-Nov-2023**	28-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) Trip spike 4, ALS Control Spike	**06-Nov-2023**	**17-Nov-2023**	20-Nov-2023	✓	**18-Nov-2023**	20-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH1-2, BH2-2, Duplicate 1, BH2-3	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**17-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH3-3, BH3-4, BH4-2, BH4-5, BH5-2, Trip blank 102316	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**18-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH1-2, BH2-2	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**21-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP071) Duplicate 1, BH2-3, BH3-3, BH3-4, BH4-2, BH4-5, BH5-2	**13-Nov-2023**	**18-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**17-Nov-2023**	28-Nov-2023	✓	**18-Nov-2023**	28-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP071) BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**18-Nov-2023**	28-Nov-2023	✓	**22-Nov-2023**	28-Dec-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Trip spike 4, ALS Control Spike	**06-Nov-2023**	**17-Nov-2023**	20-Nov-2023	✓	**18-Nov-2023**	20-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH1-2, BH2-2, Duplicate 1, BH2-3	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**17-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH3-3, BH3-4, BH4-2, BH4-5, BH5-2, Trip blank 102316	**13-Nov-2023**	**17-Nov-2023**	27-Nov-2023	✓	**18-Nov-2023**	27-Nov-2023	✓
Soil Glass Jar - Unpreserved (EP080) BH3-7, BH6-2, BH6-3, BH6-5	**14-Nov-2023**	**17-Nov-2023**	28-Nov-2023	✓	**18-Nov-2023**	28-Nov-2023	✓

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**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	3	20	**15.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	**33.33**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	1	1	**100.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	13	**15.38**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	14	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	13	**15.38**	**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)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**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)							
Electrical Conductivity (1:5)	EA010	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**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)							
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
PAH/Phenols (SIM)	EP075(SIM)	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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 in soil using a 0.01M CaCl2 extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
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).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Exchange Acidity by 1M Potassium Chloride	* ED005	SOIL	In house: referenced to Rayment and Lyons, method 15G1. This method is unsuitable for near neutral and alkaline soils. NATA accreditation does not cover performance of this service.
Exchangeable Cations on Alkaline Soils	* ED006	SOIL	In house: Referenced to Soil Survey Test Method C5. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with alcoholic ammonium chloride at pH 8.5. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil.
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations with pre-treatment	ED008	SOIL	In house: Referenced to Rayment & Lyons Method 15A2. Soluble salts are removed from the sample prior to analysis. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. 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)
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)
Hexavalent Chromium by Alkaline Digestion and DA Finish	EG048G	SOIL	In house: Referenced to USEPA SW846, Method 3060. Hexavalent chromium is extracted by alkaline digestion. The digest is determined by photometrically by automatic discrete analyser, following pH adjustment. The instrument uses colour development using dephenylcarbazide. Each run of samples is measured against a five-point calibration curve. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
Trivalent Chromium by Alkaline Digestion and DA Finish	EG049G-Alk	SOIL	In house: Referenced to APHA 3500 Cr-A&B & 3120 and USEPA USEPA SW846, Method 3060. The difference between Total and Hexavalent Chromium. The total Chromium is determined by ICPAES and the Hexavalent chromium is extracted by alkaline digestion and the digest is determined by photometrically by automatic discrete analyser. The instrument uses colour development using dephenylcarbazide. 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)
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.

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl2 extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl2 and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method (Alkaline Soils)	* ED006PR	SOIL	In house: Referenced to Rayment and Lyons method 15C1.
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH4Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Alkaline digestion for Hexavalent Chromium	EG048PR	SOIL	In house: Referenced to USEPA SW846, Method 3060A.
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).
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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB2335897**

Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Brisbane
Contact	: Samples	Contact	: Customer Services EB
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: samples@rangeenviro.com.au	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: ----	Telephone	: +61 7 3243 7222
Facsimile	: ----	Facsimile	: +61-7-3243 7218
Project	: J001694 Bingara PSI	Page	: 1 of 3
Order number	: J001694	Quote number	: EB2017RANENV0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 15-Nov-2023 12:27	Issue Date	: 16-Nov-2023
Client Requested Due Date	: 24-Nov-2023	Scheduled Reporting Date	: **24-Nov-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 3	Temperature	: -1.1°C, 2.4°C, 24.2°C - Ice present
Receipt Detail	: MEDIUM ESKY	No. of samples received / analysed	: 37 / 24

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 note that Triplicate samples have been forwarded to ALS Sydney as requested**
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- **Asbestos analysis will be conducted by ALS Environmental, Melbourne, NATA accreditation No. 825, Site No. 13778.**
- 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.**

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

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-18 TRH(C6-C9)/BTEXN	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
EB2335897-001	13-Nov-2023 00:00	BH1-1			✓				
EB2335897-002	13-Nov-2023 00:00	BH1-2		✓			✓		
EB2335897-003	13-Nov-2023 00:00	BH1-3	✓						
EB2335897-004	13-Nov-2023 00:00	BH1-4	✓						
EB2335897-005	13-Nov-2023 00:00	BH2-1			✓				
EB2335897-006	13-Nov-2023 00:00	BH2-2		✓	✓				✓
EB2335897-007	13-Nov-2023 00:00	Duplicate 1		✓					✓
EB2335897-008	13-Nov-2023 00:00	BH2-3		✓			✓		
EB2335897-009	13-Nov-2023 00:00	BH3-1			✓				
EB2335897-010	13-Nov-2023 00:00	BH3-2			✓				
EB2335897-011	13-Nov-2023 00:00	BH3-3		✓			✓		
EB2335897-012	13-Nov-2023 00:00	BH3-4		✓			✓		
EB2335897-013	14-Nov-2023 00:00	BH3-5	✓						
EB2335897-014	14-Nov-2023 00:00	BH3-6	✓						
EB2335897-015	14-Nov-2023 00:00	BH3-7		✓			✓		
EB2335897-016	14-Nov-2023 00:00	BH3-8	✓						
EB2335897-017	13-Nov-2023 00:00	BH4-1		✓	✓	✓			
EB2335897-018	13-Nov-2023 00:00	BH4-2		✓			✓		
EB2335897-019	13-Nov-2023 00:00	BH4-3	✓						
EB2335897-020	13-Nov-2023 00:00	BH4-4	✓						
EB2335897-021	13-Nov-2023 00:00	BH4-5		✓			✓		
EB2335897-022	13-Nov-2023 00:00	BH4-6	✓						
EB2335897-023	13-Nov-2023 00:00	BH5-1		✓	✓	✓			
EB2335897-024	13-Nov-2023 00:00	Duplicate 2	✓						
EB2335897-025	13-Nov-2023 00:00	BH5-2		✓			✓		
EB2335897-026	13-Nov-2023 00:00	BH5-3	✓						
EB2335897-027	13-Nov-2023 00:00	BH5-4	✓						
EB2335897-028	14-Nov-2023 00:00	BH6-1			✓				
EB2335897-029	14-Nov-2023 00:00	BH6-2		✓			✓		
EB2335897-030	14-Nov-2023 00:00	BH6-3		✓					✓
EB2335897-031	14-Nov-2023 00:00	BH6-4	✓						
EB2335897-032	14-Nov-2023 00:00	BH6-5		✓			✓		
EB2335897-033	14-Nov-2023 00:00	BH6-6	✓						
EB2335897-034	06-Nov-2023 00:00	Trip spike 4						✓	
EB2335897-035	13-Nov-2023 00:00	Trip blank 102316						✓	

			(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - EA200 Asbestos Identification in Soils -	SOIL - EP068A (solids) Organochlorine Pesticides by GCMS	SOIL - S-05 TRH/BTEXN/8 Metals	SOIL - S-18 TRH(C6-C9)/BTEXN	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
EB2335897-036	13-Nov-2023 00:00	BG		✓					
EB2335897-037	06-Nov-2023 00:00	ALS Control Spike						✓	

Matrix: **SOIL**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	SOIL - AG-1 EB Only Agricultural Soil Suite 1 EB Only	SOIL - EA001 pH (CaCl)	SOIL - EG005T (solids) Total Metals by ICP-AES	SOIL - EG049G-Alk Trivalent Chromium by Discrete Analyser
EB2335897-036	13-Nov-2023 00:00	BG	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

All Invoices

- A4 - AU Tax Invoice (INV)	Email	rangeenviro.suppliers@receiptbank.me

RANGE ENVIRO

- EDI Format - ESDAT (ESDAT)	Email	rangeenviro@esdat.com.au

Samples

- *AU Certificate of Analysis - NATA (COA)	Email	samples@rangeenviro.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	samples@rangeenviro.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	samples@rangeenviro.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	samples@rangeenviro.com.au
- Chain of Custody (CoC) (COC)	Email	samples@rangeenviro.com.au
- EDI Format - ESDAT (ESDAT)	Email	samples@rangeenviro.com.au
- EDI Format - XTab (XTAB)	Email	samples@rangeenviro.com.au

Inter-Laboratory Testing

Analysis conducted by ALS Melbourne, NATA accreditation no. 825, site no. 13778 (Chemistry).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

CHAIN OF CUSTODY

ALS Laboratory: *please tick →*

☐BRISBANE 2 Byth Street Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

Environmental Division
Brisbane
Work Order Reference
EB2335897

Telephone : +61-7-3243 7222

CLIENT: Range Environmental		TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	Non Standard or urgent TAT:
OFFICE: Brisbane			
PROJECT: J001694 Bingara PSI	PROJECT NO.: J001694	ALS QUOTE NO.: EN/222/23	
ORDER NUMBER: J001694	PURCHASE ORDER NO.: J001694	COUNTRY OF ORIGIN:	
PROJECT MANAGER: Sam Donald	CONTACT PH: 0407 173 524		
SAMPLER:	SAMPLER MOBILE:		
COC Emailed to ALS? (YES / NO)	EDD FORMAT (or default):		

COC SEQUENCE NUMBER (Circle)
COC: 1 2 3 4 5 6 7
OF: 1 2 3 4 5 6 7

FOR LABORATORY USE
Custody Seal Intact?
Free ice / frozen ice bricks present upon receipt?
Random Sample Temperature on Receipt
Other comment:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:
Abraham Naudé	ED	
DATE/TIME: 14/11/2023	DATE/TIME: 15/11 1227	DATE/TIME:

Email Reports to (will default to PM if no other addresses are listed): samples@rangeenviro.com.au, rangeenviro@esdat.com.au

Email Invoice to (will default to PM if no other addresses are listed): rangeenviro.suppliers@receiptbank.me

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: ALS BRISBANE

ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price). Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).

ALS USE ONLY: LAB ID	SAMPLE ID	DATE / TIME	MATRIX (Solid(S) Water(W))	CONTAINER INFORMATION: TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	As, Pb, Cu, Ni, Cr, Zn	S-18 (TPH, BTEXN, & F1, F2)	S-5 (TRH, BTEXN & 8 metals)	S-27 (TRH, BTEXN, PAH, Phenols & 8metals)	EG048 (Hexavalent Cr)	EG049 (Trivalent Cr)	EP068A (OC Pesticides)	EA001 (pH (CaCl2))	AG-1 (CEC)	EA200 (Asbestos presence/absence)		Additional Information
1	BH1-1	13/11/2023	S	Jar & Bag	2										1		
2	BH1-2	13/11/2023	S	Jar & Bag	2			1									
3	BH1-3	13/11/2023	S	Jar & Bag	2												HOLD
4	BH1-4	13/11/2023	S	Jar & Bag	2												HOLD
5	BH2-1	13/11/2023	S	Jar & Bag	2										1		
6	BH2-2	13/11/2023	S	Jar & Bag	2				1						1		
7	Duplicate 1	13/11/2023	S	Jar & Bag	2				1								
8	BH2-3	13/11/2023	S	Jar & Bag	2			1									
9	BH3-1	13/11/2023	S	Jar & Bag	2										1		
10	BH3-2	13/11/2023	S	Jar & Bag	2										1		
11	BH3-3	13/11/2023	S	Jar & Bag	2			1									
12	BH3-4	13/11/2023	S	Jar & Bag	2			1									
13	BH3-5	14/11/2023	S	Jar & Bag	2												HOLD
14	BH3-6	14/11/2023	S	Jar & Bag	2												HOLD
15	BH3-7	14/11/2023	S	Jar & Bag	2			1									
16	BH3-8	14/11/2023	S	Jar & Bag	2												HOLD
17	BH4-1	13/11/2023	S	Jar & Bag	2							1			1		
18	BH4-2	13/11/2023	S	Jar & Bag	2			1									
19	BH4-3	13/11/2023	S	Jar & Bag	2												HOLD
20	BH4-4	13/11/2023	S	Jar & Bag	2												HOLD
21	BH4-5	13/11/2023	S	Jar & Bag	2			1									
22	BH4-6	13/11/2023	S	Jar & Bag	2												HOLD

23	BH5-1	13/11/2023	S	Jar & Bag	2							1			1		
24	Duplicate 2	13/11/2023	S	Jar & Bag	2												HOLD
25	BH5-2	13/11/2023	S	Jar & Bag	2			1									
26	BH5-3	13/11/2023	S	Jar & Bag	2												HOLD
27	BH5-4	13/11/2023	S	Jar & Bag	2												HOLD
28	BH6-1	14/11/2023	S	Jar & Bag	2										1		
29	BH6-2	14/11/2023	S	Jar & Bag	2			1									
30	BH6-3	14/11/2023	S	Jar & Bag	2				1								
31	BH6-4	14/11/2023	S	Jar & Bag	2												HOLD
32	BH6-5	14/11/2023	S	Jar & Bag	2			1									
33	BH6-6	14/11/2023	S	Jar & Bag	2												HOLD
34	Trip spike 4	13/11/2023	S	Jar & Bag	2		1										
35	Trip blank 102316	13/11/2023	S	Jar & Bag	2		1										
36	BG	14/11/2023	S	Jar & Bag	2	1				1	1		1	1			
				TOTAL	72	1	2	10	3	1	1	2	1	1	8	0	

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
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

ED 15/11 1227

CERTIFICATE OF ANALYSIS

Work Order	: **ES2339971**	Page	: 1 of 7
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Sydney
Contact	: Sam Donald	Contact	: Customer Services ES
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: J001694 Bingara PSI	Date Samples Received	: 17-Nov-2023 10:20
Order number	: J001694	Date Analysis Commenced	: 21-Nov-2023
C-O-C number	: ----	Issue Date	: 24-Nov-2023 16:58
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- 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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

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

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

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

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

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

- 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.
- 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.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Triplicate 1	----	----	----	----
				Sampling date / time	13-Nov-2023 14:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2339971-001	--------	--------	--------	--------
					Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**4.1**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg		<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg		**44**	----	----	----	----
Copper	7440-50-8	5	mg/kg		**13**	----	----	----	----
Lead	7439-92-1	5	mg/kg		**19**	----	----	----	----
Nickel	7440-02-0	2	mg/kg		**35**	----	----	----	----
Zinc	7440-66-6	5	mg/kg		**27**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	----	----	----	----
EP075(SIM)A: Phenolic Compounds									
Phenol	108-95-2	0.5	mg/kg		<0.5	----	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg		<0.5	----	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg		<0.5	----	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg		<1	----	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg		<0.5	----	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg		<0.5	----	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg		<0.5	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg		<0.5	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg		<0.5	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg		<0.5	----	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg		<2	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Triplicate 1	----	----	----	----
				Sampling date / time	13-Nov-2023 14:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2339971-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Triplicate 1	----	----	----	----
				Sampling date / time	13-Nov-2023 14:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2339971-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**93.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**90.9**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**73.9**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**99.9**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**101**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**105**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**118**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**99.0**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Triplicate 1	----	----	----	----
				Sampling date / time	13-Nov-2023 14:30	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2339971-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**97.0**	**----**	**----**	**----**	**----**

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
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	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

QUALITY CONTROL REPORT

Work Order	: **ES2339971**	Page	: 1 of 9
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Sydney
Contact	: Sam Donald	Contact	: Customer Services ES
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: J001694 Bingara PSI	Date Samples Received	: 17-Nov-2023
Order number	: J001694	Date Analysis Commenced	: 21-Nov-2023
C-O-C number	: ----	Issue Date	: 24-Nov-2023
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 2		
No. of samples analysed	: 1		

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

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

This 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*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

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

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

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

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
* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

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: Total Metals by ICP-AES (QC Lot: 5441855)									
ES2339914-001	Anonymous	EG005T: Cadmium	7440-43-9	1 (10)*	mg/kg	17	14	15.9	No Limit
		EG005T: Chromium	7440-47-3	2 (20)*	mg/kg	1600	1430	11.5	0% - 20%
		EG005T: Nickel	7440-02-0	2 (20)*	mg/kg	115000	102000	11.8	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5 (20)*	mg/kg	10300	10900	5.3	0% - 20%
		EG005T: Lead	7439-92-1	5	mg/kg	87	80	8.0	0% - 50%
		EG005T: Zinc	7440-66-6	5 (20)*	mg/kg	21100	18200	14.6	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 5441857)									
ES2339984-001	Anonymous	EA055: Moisture Content	----	0.1 (1.0)*	%	16.4	16.7	1.8	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5441856)									
ES2339914-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP075(SIM)A: Phenolic Compounds (QC Lot: 5435602)									
ES2339911-001	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

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)A: Phenolic Compounds (QC Lot: 5435602) - continued									
ES2339911-001	Anonymous	EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
ES2340005-002	Anonymous	EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	0.0	No Limit
		EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5435602)									
ES2339911-001	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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 hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2340005-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report					
				LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 5435602) - continued									
ES2340005-002	Anonymous	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	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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 hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5435603)									
ES2339911-001	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
ES2340005-002	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 Petroleum Hydrocarbons (QC Lot: 5437798)									
ES2339945-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2339945-015	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5435603)									
ES2339911-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2340005-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5437798)									

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 (%)*
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5437798) - continued									
ES2339945-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2339945-015	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 5437798)									
ES2339945-001	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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
ES2339945-015	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	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		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

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) Report	Laboratory Control Spike (LCS) 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: 5441855)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	105	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	111	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	119	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	105	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	98.9	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	90.6	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	90.7	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5441856)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	89.6	70.0	125
EP075(SIM)A: Phenolic Compounds (QCLot: 5435602)								
EP075(SIM): Phenol	108-95-2	0.5	mg/kg	<0.5	6 mg/kg	99.8	71.0	125
EP075(SIM): 2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	6 mg/kg	98.1	72.0	124
EP075(SIM): 2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	71.0	123
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	12 mg/kg	95.0	67.0	127
EP075(SIM): 2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	6 mg/kg	94.0	54.0	114
EP075(SIM): 2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	6 mg/kg	92.1	68.0	126
EP075(SIM): 2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	6 mg/kg	92.3	66.0	120
EP075(SIM): 2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	6 mg/kg	97.7	70.0	120
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	6 mg/kg	98.0	70.0	116
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	6 mg/kg	99.1	54.0	114
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	6 mg/kg	92.2	60.0	114
EP075(SIM): Pentachlorophenol	87-86-5	2	mg/kg	<2	12 mg/kg	46.8	10.0	80.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5435602)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	97.1	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	102	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	105	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	101	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.9	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	95.5	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	104	73.0	127

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5435602) - continued								
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	95.7	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	100	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	104	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	101	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.2	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	100	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	89.6	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	89.8	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	90.2	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5435603)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	95.2	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	100	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	95.7	71.0	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5437798)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	84.6	72.2	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5435603)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	100	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	97.8	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	98.3	63.0	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5437798)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	86.0	72.4	133
EP080: BTEXN (QCLot: 5437798)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	116	76.0	124
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.2	78.5	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	92.9	77.4	121
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	93.2	78.2	121
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	93.3	81.3	121
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	80.6	78.8	122

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 Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 5441855)							
ES2339914-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	99.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	# Not Determined	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	# Not Determined	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	82.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	# Not Determined	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	# Not Determined	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5441856)							
ES2339914-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	99.4	70.0	130
EP075(SIM)A: Phenolic Compounds (QCLot: 5435602)							
ES2339911-001	Anonymous	EP075(SIM): Phenol	108-95-2	10 mg/kg	94.7	70.0	130
		EP075(SIM): 2-Chlorophenol	95-57-8	10 mg/kg	97.8	70.0	130
		EP075(SIM): 2-Nitrophenol	88-75-5	10 mg/kg	98.9	60.0	130
		EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	10 mg/kg	89.3	70.0	130
		EP075(SIM): Pentachlorophenol	87-86-5	10 mg/kg	83.1	20.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5435602)							
ES2339911-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	98.5	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5435603)							
ES2339911-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	112	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	113	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	129	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5437798)							
ES2339945-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	73.8	60.4	142
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5435603)							
ES2339911-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	106	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	111	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	128	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5437798)							
ES2339945-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	73.4	61.1	142
EP080: BTEXN (QCLot: 5437798)							
ES2339945-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	93.7	62.1	122

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080: BTEXN (QCLot: 5437798) - continued							
ES2339945-001	Anonymous	EP080: Toluene	108-88-3	2.5 mg/kg	80.4	66.6	119
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.7	67.4	123
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	81.0	66.4	121
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	82.3	70.7	121
		EP080: Naphthalene	91-20-3	2.5 mg/kg	69.4	61.1	115

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2339971**	Page	: 1 of 5
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Sydney
Contact	: Sam Donald	Telephone	: +61-2-8784 8555
Project	: J001694 Bingara PSI	Date Samples Received	: 17-Nov-2023
Site	: ----	Issue Date	: 24-Nov-2023
Sampler	: ----	No. of samples received	: 2
Order number	: J001694	No. of samples analysed	: 1

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.**
- **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

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

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
Matrix Spike (MS) Recoveries							
EG005(ED093)T: Total Metals by ICP-AES	ES2339914--001	Anonymous	**Chromium**	7440-47-3	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2339914--001	Anonymous	**Copper**	7440-50-8	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2339914--001	Anonymous	**Nickel**	7440-02-0	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG005(ED093)T: Total Metals by ICP-AES	ES2339914--001	Anonymous	**Zinc**	7440-66-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

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 ***VOC in soils*** 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: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) Triplicate 1	**13-Nov-2023**	**----**	----	**----**	**22-Nov-2023**	27-Nov-2023	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) Triplicate 1	**13-Nov-2023**	**22-Nov-2023**	11-May-2024	✓	**23-Nov-2023**	11-May-2024	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) Triplicate 1	**13-Nov-2023**	**22-Nov-2023**	11-Dec-2023	✓	**24-Nov-2023**	11-Dec-2023	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM)) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	31-Dec-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	31-Dec-2023	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**21-Nov-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	27-Nov-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**21-Nov-2023**	31-Dec-2023	✓
Soil Glass Jar - Unpreserved (EP080) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	27-Nov-2023	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) Triplicate 1	**13-Nov-2023**	**21-Nov-2023**	27-Nov-2023	✓	**22-Nov-2023**	27-Nov-2023	✓

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**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	18	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	18	**11.11**	**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)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**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)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**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)							
PAH/Phenols (SIM)	EP075(SIM)	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

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)
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)
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)
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.

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).
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.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order	: **ES2339971**		
Client	: **RANGE ENVIRONMENTAL CONSULTANTS**	Laboratory	: Environmental Division Sydney
Contact	: Sam Donald	Contact	: Customer Services ES
Address	: Suite 6.07 The Bower 433 Logan Road Stones Corner 4120	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: sam.donald@receiptbank.me	E-mail	: ALSEnviro.Sydney@ALSGlobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: J001694 Bingara PSI	Page	: 1 of 2
Order number	: J001694	Quote number	: EB2017RANENV0001 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 17-Nov-2023 10:20	Issue Date	: 17-Nov-2023
Client Requested Due Date	: 24-Nov-2023	Scheduled Reporting Date	: **24-Nov-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 12.0'C - Ice present
Receipt Detail	: Hard Esky	No. of samples received / analysed	: 2 / 1

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).**
- 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.

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

Matrix: **SOIL**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) SOIL No analysis requested	SOIL - EA055-103 Moisture Content	SOIL - S-27 TRH/BTEXN/PAH/Phenols/8Metals
ES2339971-001	13-Nov-2023 14:30	Triplicate 1		✓	✓
ES2339971-002	13-Nov-2023 00:00	Triplicate 2	✓		

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

All Invoices		
- A4 - AU Tax Invoice (INV)	Email	rangeenviro.suppliers@receiptbank.me
RANGE ENVIRO		
- *AU Certificate of Analysis - NATA (COA)	Email	rangeenviro@esdat.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	rangeenviro@esdat.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	rangeenviro@esdat.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	rangeenviro@esdat.com.au
- Chain of Custody (CoC) (COC)	Email	rangeenviro@esdat.com.au
- EDI Format - ESDAT (ESDAT)	Email	rangeenviro@esdat.com.au
- EDI Format - XTab (XTAB)	Email	rangeenviro@esdat.com.au
Sam Donald		
- *AU Certificate of Analysis - NATA (COA)	Email	sam.donald@receiptbank.me
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	sam.donald@receiptbank.me
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	sam.donald@receiptbank.me
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	sam.donald@receiptbank.me
- Chain of Custody (CoC) (COC)	Email	sam.donald@receiptbank.me
- EDI Format - ESDAT (ESDAT)	Email	sam.donald@receiptbank.me
- EDI Format - XTab (XTAB)	Email	sam.donald@receiptbank.me
Samples		
- *AU Certificate of Analysis - NATA (COA)	Email	samples@rangeenviro.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	samples@rangeenviro.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	samples@rangeenviro.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	samples@rangeenviro.com.au
- Chain of Custody (CoC) (COC)	Email	samples@rangeenviro.com.au
- EDI Format - ESDAT (ESDAT)	Email	samples@rangeenviro.com.au
- EDI Format - XTab (XTAB)	Email	samples@rangeenviro.com.au

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095
Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 2 Byth Street Stafford QLD 4053
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callemondah Drive Clinton QLD 4680
Ph: 07 4971 9890 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740
Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171
Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 129 Sydney Road Mudgee NSW 2850
Ph: 02 6372 6735 E: mudgee mail@alsglobal.com

PERTH 16 Hod Way Malaga WA 6090
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield W
SYDNEY 277-289 Woodpark Road Smithfield NSW 2164
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 48
Ph: PH: 07 4796 0600 E: townsville@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500
Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: Range Environmental			TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT (List due date):		FOR LABORATORY USE ONLY (Circle)
OFFICE: Brisbane					Custody Seal Intact? Yes No N/A
PROJECT: J001694 Bingara PSI	PROJECT NO.:	J001694	ALS QUOTE NO.: EN/222/23	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: J001694	PURCHASE ORDER NO.:	J001694	COUNTRY OF ORIGIN:	COC 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: Sam Doland			CONTACT PH: 0407 173 524	OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER:			SAMPLER MOBILE:	RELINQUISHED BY: *Abraham Naudé*	RECEIVED BY: ED
COC Emailed to ALS? (YES / NO)			EDD FORMAT (or default):	DATE/TIME: *14/11/2023*	DATE/TIME: 15/11 1227
Email Reports to (will default to PM if no other addresses are listed): samples@rangeenviro.com.au, rangeenviro@esdat.com.au				RELINQUISHED BY:	RECEIVED BY:
Email Invoice to (will default to PM if no other addresses are listed): rangeenviro.suppliers@receiptbank.me				DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL: PLS FORWARD TO ALS SYDNEY

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals a									Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-27 (TRH, BTEXN, PAH, Phenols & 8 metals)									ents on likely inant levels, dilutions, ples requiring specific alysis etc.
	Triplicate 1	13/11/2023	S	Jar	1	1									
	Triplicate 2	13/11/2023	S	Jar	1										HOLD
				TOTAL	2	1	0	0	0	0					

Environmental Division
Sydney
Work Order Reference
ES2339971

Telephone : + 61-2-8784 8555

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
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

Appendix J Results Summary

Soil table 1: Metals

						Metals							
						Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting						5	1	2	5	5	0.1	2	5
Commercial/industrial													
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind						160	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						3,000	900	3600*	240,000	1,500	730	6,000	400,000
NEPM 2013 Site-specific EIL commercial and industrial						NA	NA	680^	250	2,356	NA	160	1,100
Low-density residential													
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space						100	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Res A Soil						100	20	100*	6,000	300	40	400	7,400
NEPM 2013 Site-specific EIL urban residential and open public spaces						NA	NA	410^	180	1,656	NA	100	920
Sample Code	**Field ID**	**Date**	**Depth**	**Matrix Description**	**Parent Sample**								
EB2335897002	**BH1-2**	**13 Nov 2023**	**0.4 - 0.5**	**Fill**		7	<1	19	29	76	0.6	33	54
EB2335897006	**BH2-2**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**		<5	<1	26	10	22	<0.1	23	20
EB2335897007	**Duplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<5	<1	29	10	28	0.1	24	24
ES2339971001	**Triplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<5	<1	44	13	19	<0.1	35	27
EB2335897008	**BH2-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		8	<1	52	23	9	<0.1	78	34
EB2335897011	**BH3-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		<5	<1	24	12	12	<0.1	23	27
EB2335897012	**BH3-4**	**13 Nov 2023**	**1.9 - 2**	**Natural**		8	<1	39	29	8	<0.1	74	52
EB2335897015	**BH3-7**	**14 Nov 2023**	**4.9 - 5**	**Natural**		8	<1	31	19	6	<0.1	44	29
EB2335897018	**BH4-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		258	<1	28	21	66	0.2	24	155
EB2335897021	**BH4-5**	**13 Nov 2023**	**2.9 - 3**	**Natural**		16	<1	21	10	<5	<0.1	31	21
EB2335897025	**BH5-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		108	<1	24	12	20	0.1	39	45
EB2335897029	**BH6-2**	**14 Nov 2023**	**0.4 - 0.5**	**Fill**		56	<1	20	13	22	<0.1	20	86
EB2335897030	**BH6-3**	**14 Nov 2023**	**0.7 - 0.8**	**Natural**		10	<1	39	18	7	<0.1	28	28
EB2335897032	**BH6-5**	**14 Nov 2023**	**2.9 - 3**	**Natural**		6	<1	21	12	<5	<0.1	38	22

NA - Not Available

*** denotes criteria for Chromium VI**

^ denotes criteria for Chromium III

Exceeds HIL A & Generic EIL (urban res)

Also exceeds HIL A & generic EIL (urban res)

Soil Table 2: Total Recoverable Hydrocarbons

						TRH						
						C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting						10	10	50	50	100	100	50
Commercial/industrial												
NEPM 2013 Table 1B(7) Management Limits Comm / Ind, Fine Soil						NA	800	NA	1,000	5,000	10,000	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (0-1m)						NA	250	NA	NL	NA	NA	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (1-2m)						NA	360	NA	NL	NA	NA	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (2-4m)						NA	590	NA	NL	NA	NA	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (>4m)						NA	NL	NA	NL	NA	NA	NA
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil (0-2m)						NA	215	170	170	2,500	6,600	NA
Low-density residential												
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil						NA	800	NA	1,000	3,500	10,000	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (0-1m)						NA	40	NA	230	NA	NA	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (1-2m)						NA	65	NA	NL	NA	NA	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (2-4m)						NA	100	NA	NL	NA	NA	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (>4m)						NA	190	NA	NL	NA	NA	NA
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil (0-2m)						NA	180	120	120	1,300	5,600	NA
Sample Code	**Field ID**	**Date**	**Depth**	**Matrix Descrip**	**Parent Sample**							
EB2335897002	**BH1-2**	**13 Nov 2023**	**0.4 - 0.5**	**Fill**		<10	<10	<50	<50	<100	<100	<50
EB2335897006	**BH2-2**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897007	**Duplicate 1**	**13 Nov 2023**		**Natural**	**EB2335897006**	<10	<10	<50	<50	<100	<100	<50
ES2339971001	**Triplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<10	<10	<50	<50	<100	<100	<50
EB2335897008	**BH2-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897011	**BH3-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897012	**BH3-4**	**13 Nov 2023**	**1.9 - 2**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897015	**BH3-7**	**14 Nov 2023**	**4.9 - 5**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897018	**BH4-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897021	**BH4-5**	**13 Nov 2023**	**2.9 - 3**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897025	**BH5-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897029	**BH6-2**	**14 Nov 2023**	**0.4 - 0.5**	**Fill**		<10	<10	<50	<50	<100	<100	<50
EB2335897030	**BH6-3**	**14 Nov 2023**	**0.7 - 0.8**	**Natural**		<10	<10	<50	<50	<100	<100	<50
EB2335897032	**BH6-5**	**14 Nov 2023**	**2.9 - 3**	**Natural**		<10	<10	<50	<50	<100	<100	<50

NA - Not Available

Soil Table: 3 BTEXN

	BTEXN							
	Naphthalene (VOC)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting	1	0.2	0.5	0.5	0.5	0.5	0.5	0.2
Commercial/industrial								
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (0-1m)	NL	4	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (1-2m)	NL	4	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (2-4m)	NL	6	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1A(3) Comm/Ind D Soil HSL for Vapour Intrusion, Silt (>4m)	NL	10	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind	370	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil (0-2m)	NA	95	135	185	NA	NA	95	NA
Low density residential								
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (0-1m)	4	0.6	390	NL	NA	NA	95	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (1-2m)	NL	0.7	NL	NL	NA	NA	210	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (2-4m)	NL	1	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt (>4m)	NL	2	NL	NL	NA	NA	NL	NA
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space	170	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil (0-2m)	NA	65	105	125	NA	NA	45	NA

Sample Code	Field ID	Date	Depth	Matrix Descriptio	Parent Sample							
EB2335897002	**BH1-2**	**13 Nov 2023**	**0.4 - 0.5**	**Fill**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897006	**BH2-2**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897007	**Duplicate 1**	**13 Nov 2023**		**Natural**	**EB2335897006**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
ES2339971001	**Triplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897008	**BH2-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897011	**BH3-3**	**13 Nov 2023**	**0.9 - 1**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897012	**BH3-4**	**13 Nov 2023**	**1.9 - 2**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897015	**BH3-7**	**14 Nov 2023**	**4.9 - 5**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897018	**BH4-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897021	**BH4-5**	**13 Nov 2023**	**2.9 - 3**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897025	**BH5-2**	**13 Nov 2023**	**0.4 - 0.5**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897029	**BH6-2**	**14 Nov 2023**	**0.4 - 0.5**	**Fill**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897030	**BH6-3**	**14 Nov 2023**	**0.7 - 0.8**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2
EB2335897032	**BH6-5**	**14 Nov 2023**	**2.9 - 3**	**Natural**		<1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2

NA - Not Available

Soil Table 4: Polycyclic Aromatic Hydrocarbons

						PAH																
						Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ calc (Zero)	PAHs (Sum of total)
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting						0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Commercial/industrial																								
NEPM 2013 Table 1B(6) ESLs for Comm/Ind, Fine Soil (0-2m)						NA	NA	NA	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	40	40	4,000
Residential																								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil (0-2m)						NA	NA	NA	NA	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Res A Soil						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	3	3	300
Sample Code	**Field ID**	**Date**	**Depth**	**Matrix Descript**	**Parent Sample**																			
EB2335897006	**BH2-2**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
EB2335897007	**Duplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
ES2339971001	**Triplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
EB2335897030	**BH6-3**	**14 Nov 2023**	**0.7 - 0.8**	**Natural**		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5

NA - Not Available

Soil Table 5: Phenols

						Phenols											
						3&4-Methylphenol (m&p-cresol)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting						1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2	0.5
Commercial/industrial																	
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	660	240,000
Low density residential																	
NEPM 2013 Table 1A(1) HILs Res A Soil						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	3,000
Sample Code	**Field ID**	**Date**	**Depth**	**Matrix Description**	**Parent Sample**												
EB2335897006	**BH2-2**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**		<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
EB2335897007	**Duplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
ES2339971001	**Triplicate 1**	**13 Nov 2023**	**0.3 - 0.4**	**Natural**	**EB2335897006**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
EB2335897030	**BH6-3**	**14 Nov 2023**	**0.7 - 0.8**	**Natural**		<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5

NA - Not Available

Soil Table 6: Organochlorine Pesticides

					Organochlorine Pesticides																								
					4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE +DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting					0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2
Commercial/industrial																													
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	640	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil					NA	NA	NA	45	NA	530	NA	NA	NA	NA	NA	3,600	NA	2,000	NA	NA	NA	100	NA	NA	NA	50	NA	2,500
Low density residential																													
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM 2013 Table 1A(1) HILs Res A Soil					NA	NA	NA	6	NA	50	NA	NA	NA	NA	NA	240	NA	270	NA	NA	NA	10	NA	NA	NA	6	NA	300
Sample Code	**Field ID**	**Date**	**Depth**	**Matrix Description**																									
EB2335897017	**BH4-1**	**13 Nov 2023**	**0 - 0.1**	**Fill**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2
EB2335897023	**BH5-1**	**13 Nov 2023**	**0 - 0.1**	**Fill**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2

NA - Not Available

Soil Table 7: Asbestos

Asbestos in soil samples

Sample Code	Field ID	Date	Depth	Asbestos Detected	Asbestos Type
EB2335897001	BH1-1	13/11/2023	0.05-0.1	No	NA
EB2335897005	BH2-1	13/11/2023	0-0.1	No	NA
EB2335897006	BH2-2	13/11/2023	0.4-0.5	No	NA
EB2335897009	BH3-1	13/11/2023	0-0.1	No	NA
EB2335897010	BH3-2	13/11/2023	0.4-0.5	No	NA
EB2335897017	BH4-1	13/11/2023	0-0.1	No	NA
EB2335897023	BH5-1	13/11/2023	0-0.1	No	NA
EB2335897028	BH6-1	13/11/2023	0-0.1	No	NA

NA - Not Available

Soil Table 8: Field Duplicate & Field Triplicate Results

Metals and Metalloids (mg/kg)

Sample	Description	Date	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
BH2-2	Primary Sample	**13/11/2023**	<5	<1	26	10	22	<0.1	23	20
Duplicate 1	Blind Duplicate Sample	**13/11/2023**	<5	<1	29	10	28	0.1	24	24
Triplicate 1	Split Triplicate Sample	**13/11/2023**	<5	<1	44	13	19	<0.1	35	27
Relative Percent Difference (% RPD) (blind duplicate)			NA	NA	-11	0	-24	NA	-4	-18
Relative Percent Difference (% RPD) (split)			NA	NA	-51	-26	15	NA	-41	-30

TRH (mg/kg)

Sample	Description	Date	C6 - C10	C6 - C10 (F1)	>C10 - C16	>C10 - C16 (F2)	>C16 - C34	>C34 - C40	>C10 - C40
BH2-2	Primary Sample	**13/11/2023**	<10	<10	<50	<50	<100	<100	<50
Duplicate 1	Blind Duplicate Sample	**13/11/2023**	<10	<10	<50	<50	<100	<100	<50
Triplicate 1	Split Triplicate Sample	**13/11/2023**	<10	<10	<50	<50	<100	<100	<50
Relative Percent Difference (% RPD) (blind duplicate)			NA	NA	NA	NA	NA	NA	NA
Relative Percent Difference (% RPD) (split)			NA	NA	NA	NA	NA	NA	NA

BTEXN (mg/kg)

Sample	Description	Date	Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Sum of BTEX	Naphthalene
BH2-2	Primary Sample	**13/11/2023**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
Duplicate 1	Blind Duplicate Sample	**13/11/2023**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
Triplicate 1	Split Triplicate Sample	**13/11/2023**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<1
Relative Percent Difference (% RPD) (blind duplicate)			NA	NA	NA	NA	NA	NA	NA	NA
Relative Percent Difference (% RPD) (split)			NA	NA	NA	NA	NA	NA	NA	NA

PAH (mg/kg)

Sample	Description	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a) pyrene TEQ calc (Half)	Benzo(a) pyrene TEQ (LOR)	Benzo(a) pyrene TEQ calc (Zero)	PAHs (Sum of total)
BH2-2	Primary Sample	**13/11/2023**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Duplicate 1	Blind Duplicate Sample	**13/11/2023**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Triplicate 1	Split Triplicate Sample	**13/11/2023**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5
Relative Percent Difference (% RPD) (blind duplicate)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA
Relative Percent Difference (% RPD) (split)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA

Phenols (mg/kg)

Sample	Description	Date	3&4-Methylphenol (m&p-cresol)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4-chloro-3-methylphenol	Pentachlorophenol	Phenol
BH2-2	Primary Sample	**13/11/2023**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
Duplicate 1	Blind Duplicate Sample	**13/11/2023**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
Triplicate 1	Split Triplicate Sample	**13/11/2023**	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<0.5
Relative Percent Difference (% RPD) (blind duplicate)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Relative Percent Difference (% RPD) (split)			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not Available

Soil Table 9: Trip Blank Results

Sample ID	Lab Sample Number	Date	C6 - C10	Benzene	Toluene	Ethylbenz	m+p-xyler	o-xylene	Total xylenes	Napthalene
Trip blank 102316	**EB2335897-035**	13/11/2023	<10	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1
		Limit of Reporting	20	0.1	0.1	0.1	0.2	0.1	0.3	0.5

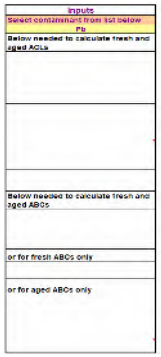
Soil Table 10: Trip Spike Results

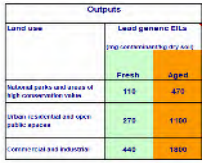
Sample ID	Lab Sample Number	Date	C6 - C10	Benzene	Toluene	thylbenzen	m+p-xylen	o-xylene	Total xylenes	Napthalene
Trip spike 4	**EB2335897-034**	13/11/2023	9.8	0.5	8.6	1.6	7.2	2.6	9.8	<1
ALS Control Spike	**EB2335897-037**	13/11/2023	12.5	0.6	9.3	2	9.2	3.3	12.5	<1
		Relatrive Percent Difference (RPD)	-24	-18	-8	-22	-24	-24	-24	NA

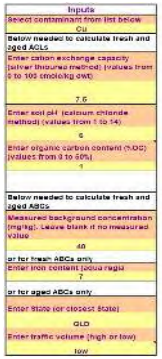
NA - Not Available

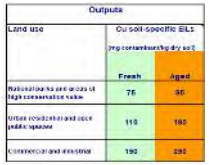
Soil Table 11: Background sample & calculations for site-specific EIL

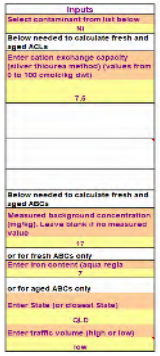
			Metals					
			Arsenic	Chromium (III+VI)	Copper	Lead	Nickel	Zinc
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit of Reporting			5	2	5	5	2	5
Sample Code	**Field ID**	**Date**						
EB2335897036	**BG**	**13 Nov 2023**	6	18	40	556	17	599

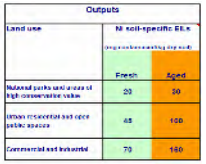


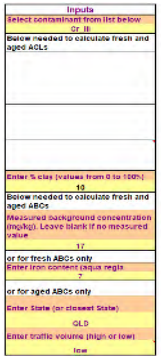


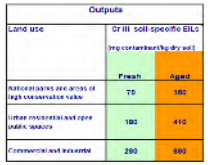


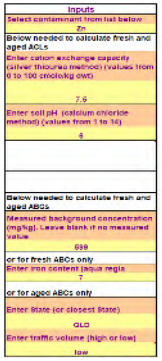


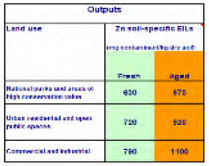












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