CANOPY
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Detailed Site Investigation

402 Macquarie St, Liverpool, NSW, 2170

June 2024

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The undersigned, on behalf of Canopy Enterprises Pty Ltd, confirm that this Report and all images, references and attached appendices have been checked and reviewed for errors, omissions and inaccuracies.

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Acknowledgements and References

The following imagery and documentation is attributed to and gratefully acknowledged:

Location Maps:	NearMap, Whereis
Aerial Photography:	NSW Department of Land Property Information Google Earth Pro
	Six maps
	NearMap

All other sources are referenced as footnotes within the document.

1 Executive Summary

Background and Key Objectives

Canopy Enterprises Pty Ltd (Canopy) was engaged by The Grand Liverpool Pty Ltd (the Client) to undertake a Detailed Site Investigation (DSI) on the property located at 402 Macquarie Street, Liverpool, NSW, 2170 (the Site).

Canopy understands that a DSI is required to satisfy condition 20 of the Liverpool City Council's Notice of Determination of Development Application Ref: DA-1262/2022 dated 15 December 2023 as reiterated below:

' 20. The development application shall include a Detailed (Stage 2) Site Investigation (DSI) and a Remediation Action Plan (RAP), where applicable. The relevant assessments are to be undertaken by a suitably qualified and experienced contaminated land consultant with regard to the potential effects of any contaminants on public health, the environment and building structures and shall meet the sampling density outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995) and subsequent editions. '

Details of the project are provided in the Summary of Site Details as contained in Table 1 in Section 2.4.

Various Reports, as listed in Table 1 below, have previously been issued for investigation carried out at the Site in the past.

This investigation has been undertaken in deference to the relevant guidelines and regulatory documents as presented in Section 12 (among other sources), with crucial consideration being given to the site-specific circumstances and limitations. Particular attention has been given to the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM 2013) (NEPM), the State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP), Chapter 4 Remediation of land, specifically sub-sections 4.6 (1) (a-c) and 4.6 (3), the NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites (2020) (Reporting Guidelines)* and the NSW EPA *Contaminated Land Guidelines; Sampling design part 1 - application* and *Sampling design part 2 -interpretation (August 2022) respectively* (SDG).

Key Findings and Conclusions

Based on the results of the investigation and subject to the limitations in Section 14, the following findings and conclusions are made:

1. The Site is located in a predominantly mixed high density residential and commercial precinct with a size of approximately 2,285 m^2.
2. The Site's history can reasonably be summarised as several blocks of land that were most likely utilised for agricultural purposes including possibly for market gardens, until the late 1950's. The eastern portion of the Site (formerly 180-186 Terminus Street) was converted to a works yard by the Commissioner of Main Roads circa 1958-1967 and then a car dealership from 1967 to 1976, with 190 Terminus Street remaining as a residential property till 1976. The properties then became commercial in nature from 1976 to

around 2016, and including a Motel located at 180-186 Terminus Street (eastern portion of the Site). 2017 saw the demolition of all on-site structures at 190 Terminus Street, with further demolition of all on-site structures at 180-186 Terminus Street in 2019; the overall Site has remained substantially unchanged since then.

3. The Site is not located in an Acid Sulfate prone area and no further investigation into potential ASS is considered necessary.
4. No stress was observed in the vegetation and no surface staining or olfactory evidence of contamination was encountered.
5. Fragments of ACM on the surface of the former motel site (or upper or northern part of the Site) were collected and removed from site and the surface cleared using the Transect Method.
6. No groundwater was encountered as part of the investigation (maximum depth reached was 5.0 m bgl).
7. Groundwater is considered to be unlikely to be impacted by contamination present at the Site's subsurface.
8. Eight boreholes were drilled across the Site as part of the investigation's sampling program, with a total of nine soil samples submitted to the laboratory and analysed for a broad range of contaminants.
9. A fill layer was present to a depth of approximately 0.1 m below ground level (bgl) in the shallow subsurface in two of the eight soil borings. This fill layer was underlain by dark brown to orange silty clays.
10. Analytical results of all soil samples showed concentrations of analytes below the adopted site criteria.
11. The natural clays remaining on the eastern portion of the Site were assessed. Preliminary indications are that this material will be classified as General Solid Waste (non-putrescible).
12. The stockpiled material at the bottom of the approximately 12 m deep excavation on the southern portion of the Site and the material forming the access ramp were assessed. Preliminary indications are that this material will be classified as General Solid Waste (non-putrescible).
13. All soils including the stockpiles and the ramp must be classified in accordance with the NSW EPA Waste Guidelines prior to disposal.
14. No further environmental works or assessment are required, specifically with reference to the intent and purpose of s 4.6 (3) of the RH SEPP.
15. Based on the findings of this assessment, Canopy considers the Site is suitable for the proposed land use (see Section 7.4) being residential with minimal opportunities for soil access which includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

The full suite of findings and conclusions are outlined in Section 11, which should be read together in conjunction with the full Report and the Limitations at Section 14

2 Project Introduction

Canopy Enterprises Pty Ltd (Canopy) was engaged by The Grand Liverpool Pty Ltd (the Client) to undertake a Detailed Site Investigation (DSI) on the property located at 402 Macquarie Street, Liverpool, NSW, 2170 (the Site).

Canopy understands that a DSI is required to satisfy condition 20 of the Liverpool City Councils Notice of Determination of Development Application Ref: DA-1262/2022 dated 15 December 2023 as reiterated below:

> *' 20. The development application shall include a Detailed (Stage 2) Site Investigation (DSI) and a Remediation Action Plan (RAP), where applicable. The relevant assessments are to be undertaken by a suitably qualified and experienced contaminated land consultant with regard to the potential effects of any contaminants on public health, the environment and building structures and shall meet the sampling density outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995) and subsequent editions.'*

Details of the project are provided in the Summary of Site Details as contained in Table 1 in Section 2.4. Various Reports, as listed in Table 1 below, have previously been issued for investigation carried out at the Site in the past.

Particular attention has been given to

- The National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM 2013) (NEPM).
- The State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP), Chapter 4 Remediation of land
  - specifically sub-sections 4.6 (1) (a-c) and 4.6 (3).
- The NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites (2020) (Reporting Guidelines);* and
- The NSW EPA *Contaminated Land Guidelines; Sampling design part 1 -application* and *Sampling design part 2 -interpretation (August 2022) respectively* (SDG).

2.1 Aims and Objectives

Canopy understands that a DSI is required to satisfy condition 20 of the Liverpool City Council's Notice of Determination of Development Application Ref: DA-1262/2022 dated 15 December 2023 in relation to 402 Macquarie Street, LIVERPOOL NSW Lot 100 DP125083 (the Site) which reads:

> *' 20. The development application shall include a Detailed (Stage 2) Site Investigation (DSI) and a Remediation Action Plan (RAP), where applicable. The relevant assessments are to be undertaken by a suitably qualified and experienced contaminated land consultant with regard to the potential effects of any contaminants on public health, the environment and building structures and shall meet the sampling density outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995) and subsequent editions. '*

In the context of substantial previous assessments including a Phase 2 Report[1] (undertaken pre demolishment), a primary aim of this investigation herein is to establish with reasonable certainty whether or not contamination is present at any levels of concern or otherwise significant and to assess if the proposed construction works can proceed without any further environmental investigations. Further, if contamination is present, whether the contamination is at levels that are considered acceptable for the proposed land use in alignment with relevant thresholds and other relevant sections as outlined in NEPM (2013) and sub-section 4 (1) (a) of the RH SEPP, or alternatively if necessary to provide the appropriate contaminated land management framework and future steps (if any) going forward.

A key component of achieving the above aim with a reasonable degree of confidence is to adhere to the requirements as set out in the NSW EPA Sampling Design Guidelines 2022 (SDGs) to the extent practicable. It is noted that the key purpose of SDGs is to specify what is considered to be a suitable sampling regime (in a general sense), for the undertaking of a Detailed Site Investigation (DSI), to ensure with a reasonable level of confidence, that the Site is adequately characterised.

Accordingly, it is noted that the DSI herein has been designed to take account of the SDGs (among other documentation) in conjunction with site and project specific imperatives with regard for the physical setting and limitations. The recommended number of sampling locations is a key imperative of the SDGs, notwithstanding that the SDGs also address a number of other sampling and interpretive elements which are to be considered.

If contamination is found to be present (or present at unacceptable or significant levels) the investigation will determine from a planning perspective whether the Site is able to be made suitable for the proposed land use noting the intent of sub-sections 4.6 (1) (b-c) of the RH SEPP. In this case strategies such as disposal of contaminated material off-site to a licenced land fill facility in accordance with the NSW EPA *Waste Guidelines Part 1: Classifying Waste* (2014) should be explored as such mechanisms may be found to be sufficient, to ensure the Site is able to be made suitable for the proposed land use. Determination will also be provided with respect of whether the requirement for further assessment pre-demolishment or alternatively post demolishment but prior to substantial commencement of construction is triggered with deference to sub-section 4.6 (3) of the RH SEPP.

The objectives of the DSI, to the extent practicable, are as follows:

- To adequately undertake site history and other salient searches to formulate an astute Conceptual Site Model (CSM) prior to the fieldworks being executed.
- To profile contamination laterally and vertically (if any) and to establish whether contamination is likely to be present at unacceptable or significant levels and if so if the contamination is of immediate concern.
- To eliminate or identify any 'data gaps'.

[1] 'Phase 2 Report' is terminology that was historically used in the contaminated land assessment industry and refers to what is now known as a Detailed Site Investigation.

- Prepare a final report which addresses the full suite of available information and data obtained during the assessment process and which incorporates the outcomes from the CSM based enquiries and any unforeseen findings (if any).
- State and whether or not the Site is or is able to be made suitable for the proposed land use in alignment with land-use thresholds outlined in NEPM (2013) among other relevant sections of NEPM (2013) and with the intent and purpose of sub-sections 4.6 (1) (a-c) of the RH SEPP.
- If further assessment is required, then the DSI will provide information to enable appropriate formulation of further assessment and/or remedial works including the preparation of a Remedial Action Plan (if required), with specific deference to the intent and purpose of sub-sections 4 (1) (b-c) and (3) of the RH SEPP.
- If it is considered that a Remedial Action Plan is required in the first instance, then the DSI will provide information to prepare an appropriate level Remedial Action Plan for its later implementation.

The Scope of Works, per Section 2.2 below, lists the steps that are considered to be initially required to satisfactorily address the above aims and objectives.

2.2 Scope of Work

The scope of work for this assessment includes:	
Review of information relating to the current Site condition (soils), including:	➢ Review of all information provided to Canopy by the Client Review of information relating to the current site conditions, including: • previous Reports (as listed Table 1) • Geological maps of the area. • Groundwater data. • Acid Sulfate Soil Risk Map.
Site history review comprising:	➢ Historical aerial photography. ➢ Historical Land Title Search. ➢ NSW Environmental Protection Authority (EPA) Contaminated Land Searches. ➢ Historical contamination assessments (if any). ➢ Historical Information available under reasonable endeavour.
Development of a Conceptual Site Model (CSM)	
Identify potential areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs).	
A detailed inspection of the Site including drilling and sampling of soils.	
Laboratory analysis of select samples for COPCs.	
Preparation of this Report[2].	

[2] In deference to the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (2020)

2.3 Previous Investigations

Several Contaminated Land Consultants have conducted Contamination Investigations and Assessments at the Site or parts of the Site between 2015 and 2023 for the proposed development. Those Reports are listed in Table 1: Summary of Site Details. The observations in the most recent Report, Canopy's Letter Report (Canopy 2023) were as follows:

'The Geotechnique Preliminary Site Investigation, of the only remaining area that contains soils being the former Motel Site, concludes on the most significant points, as follows:

' …the is therefore unlikely to present a risk to human health and the environment… soil will be removed from the entire site due deep basement…it will be entirely removed from the site, waste classification must be carried out, in accordance with the "Waste Classification Guidelines…'

- *Asbestos fragments, presumably from the demolition, had been reported to have been present on-site in a previous report*
- *The area appeared to have been scraped to a depth of approximately 0.3 m to 0.5 m, with the resulting soils having been removed from the Site.*
- *The contiguous piers and concreted walls, noted through to the base of the excavation at approximately 12 m below ground level, along with an access ramp (presumed to be constructed of excavation spoil and road-base). Two relatively small stockpiles totalling approximately 50 m^3 to 80 m^3) were present within the base of the excavation.'*

The conclusions presented in Canopy's Letter Report (2023) were:

' The Site is suitable for the presently proposed land use as a commercial development, with specific reference to the Resilience and Hazards SEPP (2021), specifically Clause 4.6 (1) (a-c).

To the degree that they are still relevant following the already completed excavation work, all previous environmental reports (a combination of PSIs and DSIs) conclude that contamination is not or is unlikely to be present and that no further environmental investigation is required at this Site.'

2.4 Site Identification

The Site details are summarised in Table 1 below:

Table 1: Summary of Site Details

Subject	Description
Site Description (The Site)	Lot 100/DP1250893 402 Macquarie St, Liverpool, NSW, 2170
Approximate Site Area	Total 2,285 m^2 (1,445 m^2 western portion, 830 m^2 eastern portion)
The Client	The Grand Liverpool Pty Ltd Level 1204A, 275 Alfred Street, North Sydney, NSW, 2060

Subject	Description
Council and LEP	Liverpool City Council Liverpool LEP 2008 (Updated 2024)
Present / Proposed Zoning	B4 – Mixed Use
Reason for Assessment	Concept Development Application for the construction of a 31-storey mixed-use development consisting of the establishment of the building envelope, gross floor area, maximum building height, design excellence, public domain works, vehicular access and car parking provision, stormwater management and concept landscape design (per NoD description).
Approximate RL	25 -28 m AHD
Supporting relevant information provided to Canopy	• Preliminary Site Contamination Investigation (Phase 1), Getex Pty Ltd, Report 9255.01.PSCA, dated October 2015 • Site Contamination Assessment (Phase 2), Getex Pty Ltd, Report 9255.01.TSCA, dated November 2015 *(402 Macquarie and 190 Terminus St, Liverpool)* • Preliminary Contamination Assessment by Geotechnique Pty Ltd, Report 14149/1-AA (Phase 1), dated 15 December 2017 *(180-186 Terminus St, Liverpool)* • Geotechnical Investigation Report by STS Geoenvironmental Pty Ltd, Report No: 17/1493, Project No: 21140/8226C, dated May 2017 • Geotechnical Investigation Report by STS Geoenvironmental Pty Ltd, Report No: 16/2464, Project No: 21140/7379C, dated September 2016 • Hazardous Building Materials Report by Douglas Partners Pty Ltd, Project 85980.00, dated June 2017 • Environmental Management Plan, Douglas Partners, Project 85980.00, dated June 2017 • Survey by Douglas Partners Pty Ltd, Project 85900, Dwg 1 Rev A, dated June 2017 • Certificate of Analysis (material testing results) by Envirolab Services Pty Ltd, Ref 167579, May 2017 (requested by Douglas Partners) • Geotechnical Investigation Report: STS Geoenvironmental Pty Ltd Ref: 18/1454, Project No: 21140/9611C, dated May 2018 • Hazardous Materials Survey Report, (180-186 Terminus Street, Liverpool), Australian Industry Group, dated October 2018 • Salinity Management Response at Proposed Mixed-Use Development, by Algorry Zappia & Associates Pty Ltd, (undated). • Contaminated Land Review Letter Report by Canopy Enterprises Pty Ltd Ref: Liverpool-MA20 dated 30 July 2020 (CLR-July 2020) • Architecturals as prepared by Olsson Architecture Ref: Project no.2215 Issue D and dated 28/11/2022 • Liverpool City Council Notice of Determination of Development Application Ref DA-1262/2022 dated 15 December 2023 (NoD)
Additional Information	This DSI has been undertaken by suitably qualified and experienced personnel. A DSI Report will be provided with reference to relevant guidelines and regulations or part thereof, in particular NEPM (2013) and the RH SEPP, Sampling Design Guidelines (SDGs) and Reporting Guidelines.

Figure 1 Location Map

402 Macquarie St, Liverpool, NSW, 2170

(Source: NearMap and Whereis)

3 Site Information and Surroundings

3.1 Regional Setting

The regional setting of the Site and surrounding area are summarised below in Table 2 below.

Table 2: Site Description Land Use

Subject	Description
Site Description & Land Use	The Site consists of an irregularly shaped parcel of land, situated on the corner of Macquarie Street (northern boundary) and Carey Street (western boundary) with the easternmost part of the Site fronting the junction of Macquarie and Terminus Streets. The land parcel is currently vacant. The surrounding area comprises commercial precincts (east and north) with high density residential complexes to the south, east and south-west of the Site. Site photographs are provided in Appendix B.
Surrounding Land Use	North: Macquarie Street immediately north, with commercial properties across from the Site South: High density residential precinct East: Mixed commercial and high-density residential precinct West: Mixed commercial and medium residential housing precinct

3.2 Topography, Geology and Soils

A review of the regional topographic maps from SIX Maps[3] and Free Map Tools[4] indicated that the Site is located at approximately 25 -28 AHD.

Canopy conducted a cursory revision of Topography, Geology and Soils for the Site and concurs with the findings as reported in previous assessments by Getex and Geotechnique, as noted below.

The Getex Report summarises the Topography and Geology for 402 Macquarie Street and 190 Terminus Street as follows:

> *'6.1 Topography*
>
> *The Site has undergone cut and fill activities to create existing ground levels particularly at 190 Terminus Street. The surrounding area has a medium grade running from the north-west down towards the south-east*
>
> *6.2 Geology*
>
> *The Soil Landscapes of the Penrith 1:100,000 Sheet maps show the site to be within an area of the residual Blacktown Soil Landscape in the north-western section of the Site whilst a small strip of the south-eastern section of the Site is within an area of the erosional Luddenham Soil Landscape.'*

[3] http://maps.six.nsw.gov.au/

[4] https://www.freemaptools.com/elevation-finder.htm

The Geotechnique Report for 180-186 Terminus Street summarises the Topography and Geology as follows:

> *'In general the site is flat; however, the front portion ground had a slight slope towards the grate drain within the site and Terminus Street, as shown on Drawing No. 14149/1-AA1.*
>
> *The Geological Map of Penrith (Geological Series Sheet 9030, Scale 1:100,000, Edition 1, 1991), published by the Department of Minerals and Energy indicates the residual soils within the site to be underlain by Triassic Age Shale of the Wianamatta Group, comprising shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff.*
>
> *The Soil Landscape Map of Penrith (soil Landscape Series Sheet 9030, Scale 1:100,000, 1989), prepared by the Soil Conservation Service of NSW, indicates that the northern portion of the site is located within the Blacktown landscape area and the subsurface soil typically consists of highly plastic and relatively impermeable residual soil; whilst the southern portion of the site is located within the Luddenham Landscape area and typically consists of poorly drained/relatively impermeable residual natural soils.*
>
> *Brickmakers Creek and Georges River are situated more than 700 metres (m) to the east and west of the site respectively (Geotechnique).'*

3.3 Hydrology and Hydrogeology

There was no stormwater collection system visible on the. Surface water is believed to discharge into on-site soils.

Table 3: Hydrology and Hydrogeology Summary

Groundwater	Relation to Site
Closest surface water body	The Geotechnique Report reports that '*Brickmakers Creek and Georges River are situated more than 700 metres (m) to the east and west of the site respectively*'. Canopy concurs with this finding. Nevertheless, the distances of surface water receptors of more than 500 m from the Site (500 m is given in the NEPM as a guidance cut-off point for the search of areas of ecological significance) and the geological conditions encountered at the Site (Sections 3.2 and 7.2.1) of low permeability soils make both surface and groundwater unlikely sources of potential off-site impact to the closest surface water bodies. Considering stormwater runoff will likely lead to the Georges River, it can be considered a potential receptor.
Direction of groundwater flow	The direction of groundwater flow cannot reliably be estimated from the available data so far but groundwater flow direction in most scenarios follows the surface gradient and also flows towards the nearest water body. As such it is discerned that groundwater would most likely flow towards the south/south-east of the Site.

Groundwater	Relation to Site
Groundwater bores in close proximity of the Site	The Getex and Geotechnique Reports state that there is one registered bore within a 500 m radius of the Site, and is recorded as being approximately 350 m south-east of the Site. The authorised use of this bore is registered as for monitoring purposes. There were no groundwater bores within the buffer zone registered for domestic or irrigation uses. Canopy conducted a follow up search of the NSW Office of Water Online Database[5] was conducted to identify if any new groundwater bores within the vicinity of the Site have been registered since the previous Reports for this Site were conducted. The search confirmed that there are no new groundwater boreholes exist within a 500 m radius of the Site. The results of the supplemental Groundwater bores search are provided in Appendix C.
Subsurface Conditions	The Getex Report states the following subsurface finding: 'Based on the available geological and hydro-geological information including moisture levels encountered during drill works it is anticipated that groundwater may be encountered at the soil-rock interface as a result of subsurface water movement during and following wet weather and is expected to flow towards the south-east due to the topography of the area surrounding the Site. The permanent groundwater table is anticipated to occur within the underlying bedrock, within zones of relatively higher permeability or associated with inconsistencies in the bedrock (faults, joints, weathered zones, etc).'

3.4 Acid Sulfate Soil Risk

A review of the Liverpool LEP 2008 indicates that the Site is not located within any Acid Sulfate Soil (ASS) Class (1-5). Given the Site's topography (25 -28 m AHD) it is considered that there is no potential for ASS to be present at the Site, hence an Acid Sulfate Soil Assessment is not required.

[5] https://realtimedata.waternsw.com.au/water.stm

4 History

4.1 General History

Liverpool was thought to be originally inhabited by the Cabrogal People. The first European inhabitants in the area was in 1810 when, on November 7, Governor Lachlan Macquarie founded Liverpool and named it in honour of the then Secretary of State for the Colonies, Robert Banks Jenkinson, the 2nd Earl of Liverpool. The area was notably founded as an agricultural centre and is recorded as being the fourth oldest urban settlement in Australia.

'*Liverpool was the first free planned settlement of Australia.*' [6]

Following the planning of Liverpool's Town Square, The Church of St Lukes commenced construction having its foundation stone laid in 1818, with Liverpool's first Post office being opened in 1825.

> *'The coming of the railway, opened in September 1856 and the electric telegraph in 1858, provided speedy, safe transport and communication and began the transformation of Liverpool into a major regional city'.*[7]
>
> *'Until the 1950s, Liverpool was still a satellite town with an agricultural economy based on poultry farming and market gardening. However the tidal surge of urban sprawl which engulfed the rich flatlands west of Sydney known as the Cumberland Plain soon reached Liverpool, and it became an outer suburb of metropolitan Sydney with a strong working-class presence and manufacturing facilities. The Liverpool area also became renowned for its vast Housing Commission estates housing thousands of low-income families after the slum clearance and urban renewal programs in inner-city Sydney in the 1960s.'*[8]

Currently, Liverpool is comprised of a mix of commercial and residential precincts ranging from low density detached and semi-detached houses through to high density high-rise residential complexes.

Canopy reviewed the previous Reports and concurs with the site history investigation as undertaken in the Getex Phase 1 Report (Report No. 9255.01.PSCA) in relation to the Site up until that Report issue date in 2015. The Getex Phase 1 Report results were further summarised in the Getex Phase 2 Report (Report No. 9255.01.TSCA) Table 8-1: Site History Summary and section 4.2 of the Geotechnique (2017) Report as per the tables below:

[6] The Founding of Liverpool

[7] Visit Sydney -Liverpool

Years	Land Use	Source
1891 – 1958	Residential land use by multiple owners	Land Titles, Aerial Photography, Council Records
1958 – 1967	Ownership and use of 190 Terminus St as a works yard by Commissioner for Main Roads. Residential land use of 402 Macquarie Street	Land Titles, Aerial Photography, Council Records
1967 – 1976	Ownership and use of 190 Terminus Street as a car dealership. Residential land use of 402 Macquarie Street	Land Titles, Aerial Photography, Council Records
1976 – Present	Ownership and use of Site by multiple commercial operations including car dealerships, kitchen showroom and mechanical workshops.	Land Titles, Aerial Photography, Council Records

Table 8-1: Site History Summary

Source: Getex Phase 2 Report (Report No. 9255.01.TSCA [*402 Macquarie and 190 Terminus St, Liverpool]*) Section 8 Site History Table 8-1: Site History Summary

4.2 NSW Land & Property Information Records

Reference should be made to Appendix A for the NSW Land & Property Information records. The chronological list of proprietors and lessees for the site is summarised in the table below.

Year	**Proprietor**
2014 - 2017	ACDC Consulting Pty Ltd
2003 - 2014	Milmaa Pty Limited
1974 - 2003	Charles Silva Rallis of Liverpool Motel (Retired Restaurateur) & Agnes Rallis
1959 - 1974	Charles Silva Rallis
1959	Public Trustee
1933 - 1959	Ernest Albert (Alfred) Groves
1905 - 1933	Alice Smith
Year	**Lessee**
2015 - 2019	Liverpool Motel Pty Ltd
2015 - 2019	Oztell Pty Ltd (shops 2 &3)
1997 - 2001	Prabha Ranjanee Kumaragamage for any use subject to council approval (shop)
1987 - 1996	Several leases
1987 - 1990 (?)	Kanaan Khankan for purpose of milkbar and takeaway food bar

The records indicate the site is very likely used as a motel (Liverpool Motel) since 1959 with associated shops.

Source: Geotechnique Phase 1 Report (Report No. 14149/1-AA2017 [*180-186 Terminus St, Liverpool]*) Section 4.2 NSW Land & Property Information Records

For the purpose of this assessment, the Site has been separated into two individual portions. The eastern portion (formerly known as 180-186 Terminus Street) was utilised by multiple commercial tenancies (as noted in the Getex Phase 2 Summary of Site History and the Geotechnique Preliminary Contamination Assessment and reiterated above) including most recently a motel. In early to mid-2019, the buildings on this portion of the Site were demolished and the area cleared.

The western portion of the Site (formerly known as 402 Macquarie Street and 190 Terminus Street) was subject to demolition of all on-site structures in around late 2017 followed by extensive excavation works. This portion consists of a deep excavation that has been shored with concrete walls on all sides and the base. Other than the presence of some stockpiled soils inside the deep excavation, the portion represents a void underlain by natural bedrock and hence was not required to be 'assessed' as part of this investigation. Stockpiled soils however were sampled as outlined in Section 7.2.2.

Both portions of the Site have remained relatively unchanged and vacant since being cleared.

One significant change however was recorded with NSW Lands Registry Service, which registered the consolidation of the several former Lots at the Site into a single Lot on 28 September 2020, the Lot is now referred to as Lot 100 in Deposited Plan 1250893 or 402 Macquarie Street Liverpool, NSW 2170.

4.2 Heritage Registers

The Site or any of its structures were not listed (at the time of preparation of this Report) as a heritage item under Australian and NSW Heritage registers or under Schedule 5 of Council's LEP. The search did not identify the presence of any items of national or state significance in the vicinity of the Site.

The search did however identify the presence of the following item of local significance in the vicinity of the Site per Table 4 below:

Table 4: Summary of Identified Heritage Search Results

Name	Significance	EPI Name	Distance (m) / Direction
Discovery Park and Milestone, including Collingwood Heritage Precinct and Aboriginal Place	Local	Liverpool LEP 2008	333 m / S

Taking into due consideration the nature of the listed items above and distances from the Site, it is not considered likely, within a contaminated land context, that the proposed development will pose material risk to these heritage items.

The results of the heritage database search are provided in Appendix D.

4.3 EPA Records

Getex conducted a search of the EPA public register under the Protection of the Environment Operations Act 1997 (POEO Act), Public Contaminated Land Register and Delicenced Premises still regulated by the NSW EPA was undertaken their findings were as follows:

> *'…The search identified that, for the Site there were*
>
> - *No prevention, clean-up or prohibition notices; and*
> - *No transfer, variation, suspension, surrender or revocation of an environment protection licence (EPL).*
>
> *…The Search did not identify any matters which apply for the Site, or for its immediate surrounding Sites under the Contaminated Land Management Act (CLM Act) 1997.'*

As a matter of diligence, Canopy conducted a further review due to the time period having elapsed between assessments. A search of the registers was undertaken within approximately 500 m of the Site which revealed the following records:

Table 5: Summary of EPA Search Results

Search of POEO Public Register Address	**Registered Activity**	**Distance and Direction from the** Site
No records within 500m radius	N/A	N/A
Search of Notified Sites Register Address	**Contamination Activity Type & Regulation Class**	**Distance and Direction from the Site**
68 Speed Street (former gasworks) 2A Mill Road, Liverpool	Gasworks / Regulation under CLM Act not required	304 m / SE
Woodward Park 84 Memorial Avenue, Liverpool	Other industry/ Regulation under CLM Act not required	305 m / N-NW
Search of Delicenced Premises Address	**Fee based Activities and Scale**	**Distance and Direction from the Site**
No records within 500m radius	N/A	N/A

All NSW EPA search results can be found in Appendix E.

4.4 Per and Poly-Fluoroalkyl Substances (PFAS)

PFAS have been globally identified as chemicals of high concern to human health and the environment due to their persistence and bioaccumulation. PFAS in Australia, are mainly used as mist suppressants in the metal plating industry, hydraulic fluid in aircraft, surfactants in the photographic industry, and in some types of fire-fighting foams (Aqueous Film-Foaming Foams (AFFF). Appendix B of the PFAS National Environmental Management Plan[9] documents a range of activities and sources of PFAS.

[9] PFAS National Environmental Management Plan Version 2.0', Heads of EPA Australia and New Zealand 2020

Information published by NSW Health[10] provides the following information:

> *'NSW Environment Protection Authority (EPA) has established a PFAS Investigation Program and is prioritising sites around NSW where PFASs were used in significant quantities. The investigation is focussing on airports, firefighting training facilities and some industrial sites, particularly those sites where it is determined that there are exposure pathways to these chemicals through bore water usage, surface water usage or fishing.'*

The EPA PFAS investigation program[11] was used to identify any potential PFAS sites in the vicinity of the Site, however no records exist within the dataset buffer.

The detailed historical research program described in Section 4 did not indicate that the Site would be a candidate for PFAS impact due to any of the activities listed above. Based on this information, PFAS impact on the Site is unlikely.

4.5 SafeWork NSW Records

Based on the information obtained as part of Canopy's Site History Research procedure; and in concurrence with the findings in the Getex Phase 1 Report (Report No. 9255.01.PSCA), a search of records of SafeWork NSW was not considered to be necessary for this Site.

4.6 Historical Land Title Search

Canopy reviewed the previous Reports (Getex Phase 1 Report, Report No. 9255.01.PSCA, then summarised in the Getex Phase 2 Report, Report No. 9255.01.TSCA and expanded in the Geotechnique Preliminary Contamination Assessment, Report No 14149/1-AA) which extensively covered the period from circa 1891 to 2019 for the lots associated with the now consolidated Site. Canopy has undertaken a subsequent review in consideration of the period of time since the previous Reports and has noted the following [12].

Table 6: Summary of Historical Land Titles Information

Land Title Certificate Approximate Transfer Date To:	Purchaser/Leasers /Activity
Deposited Plan 28 September 2020 DP1250893	Folio created Edition 1 Executed by Kingdom Towers 1 Pty Ltd Plan consolidation of Lot 1 DP 798853, Lot 10 DP 589509 and Lots 1 & 2 DP741869 – now Lot 100 DP 1250893 registered as 402 Macquarie Street, Liverpool, NSW

[10] http://www.health.nsw.gov.au/environment/factsheets/Pages/pfos.aspx

[11] https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

[12] Reasonable effort has been made to ensure titling accuracy to the extent practicable of the landowner/ ID, approximate date of land transfer and previous land sizes and format. However, the sole purpose and intent of the searches is to establish either general or any Specific activities on the subject Site which may have a reflection on the potential for contaminated land. Therefore, information herein should not be relied upon for titling or any other purposes whatsoever/

Land Title Certificate Approximate Transfer Date To:	Purchaser/Leasers /Activity
Dealing 22 April 2024 AU370	Change of name from Kingdom Towers 1 Pty Ltd to The Grand Liverpool Pty Ltd (current owner), reason for difference being Incorporated Name Change

The title certificates revealed that the Site has been owned by various commercial (industrial) entities in recent years. There are no indicators that the Site has been used for intensive industrial practices. The searches were commensurate with other historic searches and aerial photographs.

Copies of the historical land title certificates, as reviewed by Canopy, are included in Appendix F.

4.7 Aerial Photographs

Historical aerial photographs were reviewed from 1930 to 2014 for the previous Getex Phase 1 Report (per Site History Summary from the Getex Phase 2 Report as noted in section 4.1 above). Canopy conducted a review of the period from 2014 to 2024 via aerial photographs that were sourced from Google Earth Pro, Lotsearch Pty Ltd Aerials, NearMap, Six Maps and NSW Department of Land Property Information (LPI). All historic photographs are shown in Appendix G a summary of the findings is provided below.

Table 7: Summary of Historical Aerial Photograph Information

Year	Site Description	Surrounding Area
2015	There has been no significant change to the Site since the last image reviewed in the Getex Phase 1 Report.	No significant changes to report.
2016	The Site remains unchanged but for a roof restoration having been made to the building on the eastern most lot.	A vacant lot to the south-west has commenced construction of a large complex, no other changes of note.
Jan-Aug 2017	The Site has remained unchanged.	The lot to the south-west previously under construction looks to have been completed, a lot to the east has, since the previous aerial, been redeveloped with construction currently underway, no other changes in the surrounds of significance noted.
Dec 2017	Aerial photographs between 09/08/2017 and 12/12/2017 show that the on-site structures of the western portion have been demolished with heavy machinery evidenced on-site for this lot, the eastern lot has not been changed.	Construction to the lot to the east has been finalised, no other changes in the surrounds of note.

Year	Site Description	Surrounding Area
Jan 2018	The Site appears cleared and levelled; heavy machinery noted in the previous aerial remain present on-site, again the eastern lot of the Site remains unchanged.	No significant changes to report.
May 2018	The cleared (western) portion of the Site is undergoing deeper excavation to the northern/north-western sectors. The eastern portion remains unchanged.	No major changes of note evidenced.
Jul-Dec 2018	The western portion of the Site's excavated depths have been impacted by water in the norther and north-eastern sectors, the eastern lot has not seen any changes.	No significant changes to report.
Mar 2019	The Site remains vacant with water retained to the north/north-west and now eastern sectors of the western lot of the Site. The eastern portion is currently undergoing demolition of its on-site structure.	No changes of note to report.
Jul 2019	The eastern portion has now been cleared with heavy machinery still working, the western portion still appears to have water being retained within the excavation.	No major changes noted.
2020	Clearing work is continuing on eastern portion, the western portion remains unchanged.	No significant changes to report.
2021	The Site remains vacant with water-pooling continuing to be noted on the western sector. The eastern portion appears to have retained a concrete slab to its north-western boundary and a stockpile has been formed to the mid-eastern boundary wall and building debris to its southern boundary and south-eastern corner.	No changes of note to report.
2022	Water levels in the western portion look to be at higher level in this aerial photograph.	No major changes noted.
Jan 2023	The water looks to have subsided across the western portion, no other changes noted.	No significant changes to report.
Oct 2023	Possible soil/damp ground is evidenced where water had previously impacted the western portion. The eastern portion looks to have been cleared of its stockpile previously noted in 2021, the concrete slab looks to have been removed. The portion has been cleared of debris.	No notable changes evidenced.
March 2024	No significant changes, the north-eastern boundary of the entire Site looks to have some debris remaining on-site.	No changes of note to report, the immediate neighbour to the east appears to have significant amounts of dirt/dust on their rooftop.

4.8 Summary of Historical Research

The information obtained from the previous Reports and subsequent historical sources reviewed has been found to be in general agreement with other sources. The Site's history can reasonably be summarised as several blocks of land that were possibly used for agricultural purposes until the late 1950's. The eastern lot of the Site (formerly 180-186 Terminus Street) was converted to a works yard by the Commissioner of main roads circa 1958-1967 then a car dealership from 1967 to 1976, with 190 Terminus Street remaining as a residential property till 1976. The properties then became commercial in nature from 1976 to around 2016, with 2017 seeing to demolition of all on-site structures at 190 Terminus Street with further demolition of all on-site structures at 180-186 Terminus Street in 2019; the overall Site has remained substantially unchanged since then.

Research into the history of the Site did not indicate that the Site was used for purposes other than those noted or for purposes that would be considered to be of a nature that would cause excessive contamination. Nevertheless, the mention of the Site's use as a car dealership and a works yard do represent activities that warrant investigation and the potential for some contamination to have impacted the Site cannot be discounted (see Section 5).

5 Conceptual Site Model

A Conceptual Site Model (CSM) is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. Based on the information presented above, the following Conceptual Site Model is presented:

5.1 Potential Contamination Sources, Areas and Contaminants of Concern

Based on the review information provided above, potential Areas of Environmental Concern (AECs) associated with Contaminants of Potential Concern (CoPCs) that have been identified to potentially be present on-site are summarised in the below table:

Table 8: Summary of AEC

Potential AECs / Activity	Contaminants of Potential Concern
Possible fill layer present across the Site and/or underneath the building footprint	Polycyclic Aromatic Hydrocarbons (PAH), Total Recoverable Hydrocarbons (TRH), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Organochlorine Pesticides (OC), Organophosphorus Pesticides (OP), heavy metals, Polychlorinated Biphenols (PCB)[13], Asbestos
Long history of commercial or industrial land use	Heavy metals, TRH/BTEX, PAHs, OC/OPs, PCBs, Asbestos
Possible pesticide use across the Site in the past	Heavy metals (mainly As), OC/OP
Hazardous Building Materials may be present in the buildings and may have affected on-site soils though handling poor practices in the past	Asbestos, lead, PCB

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The following table summarises the mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC as presented above.

Given the conclusions of previous investigation Reports and documented observations that all fill material has been removed from the Site, the mechanisms and pathways for contamination have almost entirely been eliminated from the Site.

[13] This set of analytes is commonly used to ensure to the extent practicable that there have been no impacts from a range of past activities that may have occurred on (or near) a Site (to the extent the historic activities became known under research or could otherwise be reasonably suspected) or if there is fill material of unknown origin present at a Site.

Table 9: Conceptual Site Model Summary

Item	Description
Potential mechanism for contamination .	• Fill material – importation of impacted material, 'top-down' impacts (e.g., placement of fill, leaching from surficial material etc), or sub-surface release (e.g., impacts from buried material). • Hazardous building materials – 'top-down' (e.g. demolition resulting in surficial impacts in unpaved areas which may have subsequently been covered by new pavements).
Affected Media	Soil and soil vapour have been identified as potentially affected media. Groundwater at the Site is expected to be at a depth of 12 to 15 mbgl and is unlikely to be impacted by on-site activities.
Receptor identification	Human receptors include site occupants/users (adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users (residential and commercial land use scenario). Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas) and aquatic organisms in nearby water receptors.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene, BTEX and VOCs). The potential for exposure would typically be associated with construction and excavation works, and future use of the Site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings.
Potential Exposure Mechanism	The following have been identified as potential exposure mechanisms for site contamination: Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas.
Presence of preferential pathways for contaminant movement	Sewers and other utility lines and the associated sewer trench/trench backfill at the proposed development is a potential preferential pathway for contaminant migrations. This could occur via groundwater/seepage if present, or via soil/vapour migration through the sewer and/or trench backfill.

6 Data Quality Objectives (DQOs)

The Data Quality Objectives (DQO) process is a systematic planning tool based on the scientific method for establishing criteria for data quality and for developing data collection designs. The DQOs define the experimental process required to test a hypothesis.

The objective of the (DQO) is to ensure that efforts relating to data collection are cost effective, by eliminating unnecessary, duplicative or overly precise data whilst at the same time, ensuring the data collected is of sufficient quality and quantity to support defensible decision making. The Data Quality Objective (DQO) process for this project has been derived from the USEPA (2000) "Guidance for the Data Quality Objective Process" and the NEPM "Guideline on Site Characterisation".

The DQO process consists of seven steps, which were designed to clarify the study objectives, define the appropriate type of data and specify tolerable levels of potential decision errors. The seven-step DQO process adopted for this preliminary soil investigation program is summarised as follows:

Step 1. Defining the Problem. The first step in the DQO process is to 'define the problem' that has initiated the investigation.

Step 2. Identify the Decision. The second step in the process is to define the decision statements that the study will attempt to resolve.

Step 3. Identify Inputs to the Decision. In this step, the different types of information needed to resolve the decision statement are identified.

Step 4. Define the Study Boundaries.

Step 5. Develop a Decision Rule.

Step 6. Specify Limits on Decision Errors.

Step 7. Optimise the Design for Obtaining the Data.

6.1 Define the Problem

Historical research and a previous investigation have identified a potential for contamination to be present at the Site in fill materials (see Sections 2.3 and 5.1). Activities related to the former land use and the presence of a shallow fill layer across the Site may have affected the soils from a contamination perspective.

Previous Reports identified a data gap being the potential presence of fill material on the former motel site (being the 830 m^2 portion of the Site in this investigation), but concluded that there was negligible risk of contamination if the fill material being removed from the Site is classified and disposed of under the NSW EPA Waste Guidelines – in other words following normal construction practices.

The fill material is known to have been removed from the Site prior to this investigation and the natural silty clay now exposed, with the remainder of the Site having been excavated to 12 mbgl in residual shale.

Nevertheless, Council's determination on the development requires completion of this DSI.

6.2 Identify the Decision

Objectives of the investigations are outlined in Section 2.1. The decisions to be made are based on these objectives. They can be summarised as:

- Are any Areas of Environmental Concern (AEC) or sources of contamination present at the Site?
- Do analytical results indicate the presence of contamination above the Adopted Site Criteria?
- Do risks associated with any contamination exist?
- Is further investigation or action required?
- Is the Site suitable for its intended future use? Can it be made suitable for its intended future use?

6.3 Identify the Inputs to the Decision

Key data required to resolve the project problem primarily includes the current concentrations of contaminants in the soils, the pathways for contaminant movement, the location of sensitive receptors and the threshold criteria to be used to assess the significance of any identified contamination.

Information sources assisting in addressing the decisions outlines above include the following:

- Review existing information for the Site, including previous investigations.
- Information gathered regarding the Site.
- Sampling of soils and water if encountered.
- Observations made during site visits.
- Laboratory analysis of samples for the CoPC stated.
- The CSM.
- The results of the QA/QC process.
- The Adopted Site Criteria.

6.4 Define the Boundaries of the Study

The boundaries of the study are limited to the extent of the Site as defined Section 2.4 and the depth of sampling.

6.5 Develop a Decision Rule

The analytical results will be assessed against the following criteria. Where applicable, statistical analysis is used to assess laboratory data for samples against the specific site criteria. Exceedances will be evaluated and considered in the context of the CSM and a preliminary risk evaluation based on contamination levels, pathways and potential receptors.

Where data sets a large enough, they will be assessed against the following criteria:

- The 95% Upper Confidence Limit (UCL) of the concentration of contaminants should be less than the site criteria.
- The Coefficient of Variation (standard deviation (SD) divided by the average) of the results must be less than 1.2.
- No single value exceeds 250% of the relevant criterion.
- Samples included in UCL calculations need to be sourced from the same stratigraphic layer.

Statistical calculations are not required if all analytical results are below the site criterion for a contaminant.

In cases where an analyte is determined multiple times for the same sample (either by one sample being a field or laboratory duplicate or by a requested re-analysis of a sample), the average concentration of the analyse of all analysis runs can be used as the result for the analyte. All results must be included in the calculation of the average.

6.6 Specify Limits on Decision Errors

In order to ensure the confident use of the collected data a number of quality assurance parameters were used and are as follows:

1. Completeness.
2. Accuracy.
3. Precision.
4. Sensitivity.
5. Holding times.
6. Representativeness.

These parameters were used to determine the course of any inconsistencies in the collected data.

6.6.1 Completeness

The following documentation demonstrates the completeness of valid measurements compared to the total number of measurements made:

- Chain of Custody forms.
- Sample receipt forms.
- All sample results reported.
- All laboratory duplicates reported and RPDs calculated.
- The matrix spike and matrix spike duplicates (MS/MSD) data reported and RPDs calculated.
- Spike recovery acceptable limits reported.
- Laboratory blanks need to have non-detectable concentrations of the target analytes.
- NATA stamp on reports.

6.6.2 Accuracy

Accuracy is the level of agreement between an experimental determination and the true value of the parameter being measured. Reference samples or matrix spikes are used to determine the accuracy of the analytical technique. The percentage recovery for spiked samples, calculated by the laboratory, are required to be within the acceptance limits for the methods used. The detailed recovery acceptance levels vary between laboratories and methodologies. Laboratory reports will be checked for adherence to acceptance criteria outlined in the reports.

6.6.3 Precision

Replicate analyses are used to determine the precision or reproducibility of results. Precision is normally measured as the relative percentage difference [RPD] between samples. The RPD should be within the recommended range outlined in Section 8.3 for field duplicates and within the levels outlined in the laboratory reports for laboratory duplicates.

Intra-laboratory field duplicate (blind or field duplicates) samples are used to determine the precision associated with all or part of the sample collection and measurement process. Field duplicates also provide a measurement of sample matrix heterogeneity.

The RPDs of all field duplicates should be generally within the recommended range outlined in Section 8.3 for all compounds tested. Field duplicates should be obtained and analysed at an approximate ratio of 1:10. It is noted that if the sampled matrix is of a heterogeneous nature (such as fill material, coarse grained material or material containing foreign matter and the like), the value that field duplicates add to the ability to monitor sample collection and measurement process precision is limited.

6.6.4 Sensitivity

The practical quantitation limit (PQL) is a measure of how sensitively the analytical technique/instrument quantify the concentration of a present compound. The PQLs achieved by the laboratories should be within the criteria for each compound analysed for sufficient confidence to be placed in the results obtained.

6.6.5 Laboratory Blanks

Laboratory blanks are used to monitor unintentionally introduced contaminants to the sample in the laboratory, for example organic or inorganic residues contained on glassware or cleaning reagents. In order to comply with QC acceptance criteria no detectable concentrations of target compounds should be found in blank samples.

6.6.6 Holding Times

The time between the field sampling and analyte result will be as short as possible in order to prevent any biological, chemical or physical alteration of the analyte.

6.6.7 Field Duplicates

Field duplicates are used to monitor the precision of the sampling technique and they also indicate the heterogeneity of the soil matrix. The RPDs of all field duplicates should be generally within the recommended range outlined in Section 8.3 for all compounds tested. Field duplicates should be obtained and analysed at an approximate ratio of 1:10. It is noted that if the sampled matrix is of a heterogeneous nature (such as fill material, coarse grained material or material containing foreign matter and the like), the value that field duplicates add to the ability to monitor sampling technique precision is limited.

6.6.8 Representativeness

Representativeness indicates how accurately and precisely the collected data represent the characteristics of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the use of experienced sampling personnel, by the avoidance of cross-contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

6.7 Optimise the Design of Obtaining Data

The purpose of this step is to identify a resource-effective data collection approach for generating data to meet the project objectives. The overall data set will be optimised by reviewing the data as the project proceeds. When necessary, adjustments will be made to sampling and the analytical program.

7 Field Works and Sampling Program

7.1 Site Inspection

A Site inspection was undertaken by Dr Gunnar Haid, Principal Environmental Engineer, and Wayne Lenardon, Environmental Engineer, on 21 March 2024.

The Site consists of an irregular but almost rectangular vacant lot. The southern portion of the Site has been excavated to approximately 12 m below ground level for a proposed basement, with contiguous concrete pile walls. The northern portion of the Site, the former motel site, forms a vacant lot with exposed natural clay soil; the fill layer had already been removed from the area. Weeds are growing on this part of the Site (see site photographs in Appendix B).

Some demolition rubble, typically tile fragments, small concrete and wood pieces and the like, was visible on the surface at the time of inspection. See Section 7.2.6 for a more detailed discussion of the Asbestos Containing Material (ACM) fragments observed on the surface.

A temporary gravel access ramp has been constructed at the existing driveway entry to the Site from Macquarie St to the northern part of the Site. The ramp consists of a layer of crushed concrete overlain by a layer of granite railway ballast. The ramp is underlain by a geofabric layer placed over the natural clay soil.

On the southern portion of the Site a temporary steep access ramp from Carey St has been constructed using excavated shale material believed to have been won from the excavation of the basement levels.

There was no evidence of unusual surface staining, underground or aboveground storage tanks or stressed vegetation anywhere across the Site.

Some water (assumed to be rainwater) was ponded at the base of the basement excavation on the shale surface. See Section 3.3 for a more detailed discussion of the hydrology and surface water discharge.

7.2 Sampling Program and Subsurface Conditions

The northern portion was subject to a soil sampling program. It is approximately 830 m^2 in area had been stripped of fill material with the natural silty clay surface remaining exposed.

The locations for drilling were cleared of underground utilities before carrying out the drilling activities. Soil sampling was conducted by sampling at eight borehole locations (B1 to B8). Borehole locations were selected in an attempt to cover as much of the northern, not excavated site area as possible taking the CSM and in particular the potential sources, types and distribution patterns of potential contaminants into account. Boreholes were advanced using a truck-mounted drill rig using solid flight augers. The borehole locations are shown in the Site Map contained within Appendix B.

Soil samples were obtained directly from the auger.

All sampling was carried out using fresh disposable gloves at each sampling event and to the extent possible making sure that cross contamination between layers and boreholes was avoided. Augers and the sampling tool were brushed and if necessary, rinsed off between boreholes and samples.

Samples were placed into laboratory supplied sample jars with Teflon-lined lids. Soil sample jars were fully filled in an attempt to minimise head space, labelled and immediately placed in an electrically (battery and/or mains) powered portable refrigeration unit for storage during field work and for transport to the laboratory. A chain of custody (CoC) form was filled in with the sample names, project ID, sampling date and required analyses. This documentation and the samples were then delivered to the laboratory on the day of sampling by a Canopy representative without the use of couriers or third parties. CoC documentation is presented in Appendix H.

7.2.1 Subsurface Conditions

At the time of this investigation the fill material had been removed from the eastern portion of the Site exposing the natural silty clay.

The subsurface consisted fairly homogeneously of natural and what appeared undisturbed stiff orange-brown-brown silty clay with some light grey to tan intrusions. The clay was moist, and stiffness increased with depth. Bore logs providing more information about the subsurface geology are provided in Appendix I.

7.2.2 Stockpiled material on Southern Portion

The deep excavation in the southern portion of the Site included two 'stockpiles' of excavated shale. The first smaller stockpile was a traditional stockpile of excavated material at the base of the excavation.

The second was a much larger volume of what is assumed to be shale – it was not possible to dig beyond the surface at the time of investigation – forming a ramp to access the 12 m deep excavation.

The volume of each stockpile was not calculated for this investigation; three screening or characterisation samples were collected from each stockpile – P1, P2 and P3 and R1, R2 and R3 – to obtain a preliminary indication on waste classification of the materials.

A third pile primarily consisting of concrete slabs and concrete fragments with small amounts of shale mixed in was also present at the bottom of the ramp. It was considered necessary to sample this material for potential contamination.

7.2.3 Groundwater Sampling

Groundwater was not encountered in any of the boreholes drilled during this investigation (maximum depth of 1.0 m).

7.2.4 Field Screening

Samples were thoroughly visually inspected for the presence of ACM in the soils retrieved from the borings. No ACM was observed in any of the samples from the borings.

Several pieces of potential ACM were encountered on the surface of the Site. The encountered pieces were picked up, double bagged in appropriately labelled plastic bags, and safely transported to Canopy's temporary ACM storage container. This container is sealed, and its contents are periodically disposed of at an appropriately licensed facility by trained staff.

One sample was double bagged into two zip lock bags, labelled as potentially containing asbestos and submitted to the laboratory for asbestos identification.

7.2.5 Analytical Schedule

A total of eight soil samples including one field duplicate plus one sample of a fibro sheet fragment were collected at various depths and submitted to the laboratory for analysis. Samples were submitted to NATA accredited laboratory Envirolab Services in Chatswood, NSW. Analytical methods complied with NEPM (2013) and NSW EPA requirements, with Practical Quantitation Limits (PQLs) and Limits of Reporting (LOR) used in the laboratory tests less than the adopted site investigation criteria.

Samples were analysed in accordance with the analytical schedule summarised in the below table.

Table 10: Analytical Schedule

Matrix type	Sample ID	TRH/ BTEX	PAH	Metals (8)	PCB	OC/OP	Asbestos
Soil	BH1-0.15m	✓	✓	✓	✓	✓	-
Soil	BH2-0.15m	✓	✓	✓	✓	✓	-
Soil	BH3-0.1m	-	✓	✓	-	-	-
Soil	BH4-0.1m	-	-	✓	-	-	-
Soil	BH5-0.1m	-	✓	✓	✓	✓	-
Soil	BH6-0.1m	-	✓	✓	✓	✓	-
Soil	BH7-0.2m	-	✓	✓	-	-	-
Soil	BH8-0.1m	-	✓	✓	✓	✓	-
Material	AS1	-	-	-	-	-	✓
Soil	D1	-	-	✓	-	-	-

- = Sample not analysed ✓ = Sample analysed

7.2.6 Asbestos Clearance Inspection by Transects ("Emu Pick")

During a Site inspection conducted by Dr Gunnar Haid, Principal Environmental Engineer and Wayne Lenardon, Environmental Engineer on 21 March 2024, some surface ACM fragments were observed on northern portion of the Site. There is a possibility that as a result of recent heavy rainfall, ACM fragments may have been exposed. It is Canopy's professional judgement that there are no discernible volumes fill material remaining from under the former building, however it was observed that gravel was brought in to form an access ramp.

As per Section 4.11 of NEPM 2013 Schedule B1, Section 5.2.2 of WA DOH 2009, and Section 3.8.2 of WA DOH 2020, an important outcome of any remediation process is to ensure that the surface soil is free of all visible asbestos. During the implementation of the DSI, surface soils surrounding each sampling location were inspected for ACM presence prior to the movement of machinery, and any identified Potential Asbestos Containing Material (PACM) was collected. This ensured the health and safety aspects, being the potential for ACM to be broken or ground-up by machinery involved in the investigation, were managed appropriately.

On 20 May 2024, Canopy representatives Dr Gunnar Haid and Wayne Lenardon conducted a thorough clearance inspection of the northern portion of the Site. Both Canopy representatives have completed Asbestos Awareness courses, Dr Haid also has completed the following asbestos related courses:

- Asbestos Awareness Course (20 June 2016, Cert #OL60095)
- CPCCDE3014A - Remove non-friable asbestos (25 Nov 2020, Cert # 10805029-6857944)
- CPCCBC4051A - Supervise asbestos removal (19 Dec 2019, Cert # 7489305-5770764)
- CPCCDE3015A - Remove Friable Asbestos (25 Feb 2021, Certificate #CRT445719)
- Portable Analytical Solutions Pty Ltd - Hand-held ThermoFisher MicroPhazir Asbestos Analyser Operator Course (4 Apr 2023 Certificate #: 3808)

Both representatives are considered to be a 'Competent Person' as defined by Safework Australia and also the NEPM. A Competent Person is defined by Safework Australia as a person who has acquired through training, qualification or experience, the knowledge and skills to carry out the task. A competent person in the context of asbestos and the NEPM is a person who has acquired through training, qualification or experience, the knowledge and skills to identify, investigate and assess asbestos in the context of an environmental site assessment. This includes identifying the potential for asbestos contamination from site history information.

The procedure adopted during the surface inspection was to traverse sections of the investigation area in approximately 1.5 m to 2 m wide transects, while inspecting surfaces for the presence of any PACM. Transects were completed side by side in an arrangement that covered the entire northern portion of the Site. Completion of a transect was considered to be one 'pass'.

If any PACM fragments were identified during a transect, they were collected (wet-or dry-picked, as appropriate) and placed in a plastic zip-lock bag for later disposal. This was repeated until two passes were complete across sections, and until the entire investigation area had been assessed. Following the procedure, surfaces within the investigation area were considered to be clear of visible surface asbestos.

To increase the efficiency of remediation procedures and to reduce risk, all PACM detected were treated as ACM. The top 0.1 m were not inspected as the soil was clayey and believed to be natural material.

7.2.7 Asbestos in Soils Testing

A meaningful assessment of asbestos in soils is difficult to achieve and generally outside of the scope of initial investigations. When deemed necessary, the methodology outlined in the NEPM requires large amounts of sample to be field screened (and small soil amounts to be laboratory tested) which by its nature causes significant disturbance and damage to on-site surfaces. Considering the specific site circumstances at this Site, such an intrusive investigation was not considered feasible.

A key management message provided in NEPM (2013) Schedule B1 Section 4.10 is that:

> *'As a general guide, where sites are contaminated with bonded ACM only (i.e. no insulation materials or other non-bonded asbestos products) assessment for the presence/absence of free fibres by laboratory analysis is only warranted where greater than 10% of the total bonded ACM is significantly damaged i.e. present as small pieces less than 7 mm x 7 mm or can be crushed/crumbled with hand pressure (significant FA [fibrous asbestos] and/or AF [asbestos fines] is present)'* (comment in square brackets added by Canopy).

Following the above guide, sampling for asbestos fibres in soils using methods outlined in either AS4964-2004 or NEPM (2013) are only reasonably called for when ACM sheets have been visually identified on the surface of a site or in samples obtained from the subsurface.

Analysis for asbestos fibres in soil samples was therefore not considered necessary and hence was not undertaken during this investigation. We do however caution that due to the spotty nature of asbestos contamination in soils, the results of investigation using boreholes with regard to the possible presence of asbestos in soils are to be interpreted cautiously, especially when the results of the investigation were negative.

7.2.8 Adjusted Sampling Density and CoPC

It is acknowledged that the NSW EPA Sampling Design Guidelines prima facie require a minimum of eight samples to be analysed for a site of this size to be adequately characterised. Provided that no fill material (the main source of the CoPC listed in the CSM (Section 5.1) was encountered at the Site, the remaining CoPC revolved around potential pesticide use on the Site, and asbestos from demolition activities. The main concern with past pesticide use is a potential pesticide and, after pesticide breakdown, possible heavy metal impact.

Considering that pesticides by their pure nature are applied via spraying of wide areas, any impact can reasonably be expected to be uniformly distributed across the potentially affected areas. Pesticides break down over time with half-life times even for the longer lasting DDT/DDE family in the order of three to five years, possibly seven in some rarer circumstances.

Almost all pesticides on the NEPM's list of concern have either been outlawed or have ceased to be used in Australia decades ago. It can be argued that pesticides at this Site can be excluded from the list of potential contaminants or that a limited sampling program is implemented as a matter of precaution.

Furthermore, based on olfactory and visual field observations and based on the site history with the removed fill layer, petroleum hydrocarbons were considered unlikely to be present at the Site. Based on the above, some of the CoPC listed in Section 5.1 were eliminated from some samples.

7.3 Revised Conceptual Site Model

The table below presents the revised Conceptual Site Model after inspection of the Site on 21 March 2024.

Table 11: Conceptual Site Model Summary

Item	Description
Potential mechanism for contamination.	Hazardous building materials – 'top-down' (e.g. demolition resulting in surficial impacts in unpaved areas which may have subsequently been covered by new pavements).
Affected Media	Soil has been identified as potentially affected media.
Receptor identification	Human receptors include site occupants/users (adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users (residential and commercial land use scenario).
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust. The potential for exposure would typically be associated with construction and excavation works, and future use of the Site. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance.
Potential Exposure Mechanism	The following have been identified as potential exposure mechanisms for site contamination: Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas.
Presence of preferential pathways for contaminant movement	Sewers and other utility lines and the associated sewer trench/trench backfill at the proposed development is a potential preferential pathway for contaminant migrations. This could occur via groundwater/seepage if present, or via soil/vapour migration through the sewer and/or trench backfill.

7.4 Assessment Criteria

The following broad assessment criteria are provided in the NEPM:

*'**HIL A** - Residential with garden accessible soil home grown produce<10% fruit and vegetable intake (no poultry), also includes childcare centre centres, preschools and primary schools.*

***HIL B** - Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.*

***HIL C** - Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. This does not include undeveloped public open space where the potential for exposure is lower and where a site-specific assessment may be more appropriate.*

***HIL D** - Commercial/industrial, includes premises such as shops, offices, factories and industrial sites.'*

7.4.1 Soils

Assessment criteria relevant to residential land use with minimal opportunities for soil access were selected from Schedule B 1 Guidelines on Investigation Levels for Soil and Groundwater (National Environment Protection (Assessment of Site Contamination) Measure 1999, amended 2013).

Additional screening criteria were adopted from the Cooperative Research Centre for Contaminant Assessment and Remediation of the Environment (CRC CARE) Health Screening Levels (HSLs) for Petroleum Hydrocarbons in Soil and Groundwater (Friebel & Nadebaum, 2011).

The CRC CARE guidance provides the latest approach for assessing the risks of petroleum mixtures for a variety of land use scenarios, and in particular the evaluation of the direct contact and vapour migration intrusion pathways. Consistent with CRC CARE (2011) Petroleum Vapour Intrusion guidance, soil HSLs were applied to the Site, as detailed below.

The guidelines selected as relevant screening criteria for soil include those designed for the inhalation of vapour and for direct contact, considering:

- Health Investigation levels (HILs) for soil contaminants - HIL-B).
- Soil Health Screening Levels for Direct Contact (CRC Care 2011).

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) were used for an 'urban residential and public open space' exposure scenario as outlined in NEPM (2013) and adjusted for the soil type.

EILs for selected metals were calculated based on the conservative added contaminant limit (ACL) values for soils with a pH of 5.5 or more (neutral to slightly acidic soils) presented in Schedule B(1) of NEPM (2013) and published ambient background concentration (ABC) values[14] (50th percentile for background levels in old suburbs with high traffic).

[14] Olszowy, H, Torr, P, Imray, P 1995, Trace element concentrations in soils from rural and urban areas of Australia, Contaminated sites monograph no. 4, South Australian Health Commission.

8 Quality Control and Quality Assurance

The following QA/QC procedures were followed:

8.1 Completeness

The following documentation supporting the completeness of the results has been included in Appendix H of this Report:

- Chain of Custody forms.
- Sample receipt forms.
- Sample analysis results.
- Laboratory duplicate results.
- Surrogate spike data.
- Spike recovery acceptable limits.

8.2 Accuracy

The percentage recovery for spiked samples, calculated by the laboratory, are required to be within the acceptance limits for the methods used. All laboratory reports show that recoveries fell within the acceptance criteria outlined in the reports and that the required frequency of spikes was achieved.

8.3 Precision

Intra-laboratory field duplicate (blind or field duplicates) samples are used to determine the precision associated with all or part of the sample collection and measurement process. Field duplicates also provide a measurement of sample matrix heterogeneity. Field duplicates are two independent samples collected as nearly as possible, from the same point in space and time. The two samples are collected from the same source using the same type of sampling equipment. Each field duplicate is collected and stored in separate sample containers and transported in the same shipping container[15].

The results of the analyses on blind duplicate sample pairs are assessed by calculating the Relative Percent Differences (RPDs) between the results. The RPD is calculated as the difference between the results divided by their mean value and expressed as a percentage. If the RPD exceeds the value adopted for any analytes, additional investigation will be required, or justification provided for not conducting additional investigation.

RPD values are considered acceptable if they are less than:

- 30% for inorganics and 50% for organics for results greater than ten times the laboratory Practical Quantitation Limit (PQL).
- 50% for inorganics and 70% for organics for results between five and ten times the PQL.
- 100% for results less than five times the laboratory PQL.

[15] Lee, C.C. Environmental Engineering Dictionary. 4th ed., Government Institutes, 2005.

The table below summarises the results of the RPD calculations carried out as part of this investigation.

Table 12: Calculated RPDs for Intra Laboratory Blind Duplicates

Analyte	Parent	Duplicate	PQL [mg/kg]	Parent [mg/kg]	Duplicate [mg/kg]	Accepted RPD %	RPD % [rounded]*
Arsenic	B4 0.1m	D1	4	7	5	100	33
Cadmium	B4 0.1m	D1	0.4	<0.4	<0.4	NA	NA
Chromium	B4 0.1m	D1	1	14	11	30	24
Copper	B4 0.1m	D1	1	22	17	30	26
Lead	B4 0.1m	D1	1	13	9	30	36
Mercury	B4 0.1m	D1	0.1	<0.1	<0.1	NA	NA
Nickel	B4 0.1m	D1	1	4	3	100	29
Zinc	B4 0.1m	D1	1	37	30	30	21

* RPD values are only calculated where both results are above the laboratory Practical Quantitation Limit (PQL)

BDL = Value below the Detection Limit reported by the laboratory (also called the PQL)

One field duplicate sample was obtained during the investigation which meets the requirements of a minimum frequency 5%. The above RPDs all fall within the acceptable levels with the exception of the RPD for lead.

The sampled material was clayey material with some inclusions. Such material is generally difficult to adequately duplicate in the field and as such higher than usual RPDs are not uncommon, in fact are expected. This should not in itself be interpreted as an indicator for a failure of the laboratory methodologies or the overall sampling process.

The laboratory carried out internal QA/QC programs including analysis of laboratory duplicates at a frequency meeting they internal NATA imposed requirement. The results are contained in the laboratory reports in Appendix H. Laboratory Relative Percentage Differences (RPD) data was checked in all reports and found to be within the laboratory's acceptance criteria.

8.4 Sensitivity

All laboratory PQLs were below the accepted site criteria.

8.5 Laboratory Blanks

Results for all laboratory blanks were reported to be below the PQL.

8.6 Holding Times

All samples were submitted to the laboratories and all extractions commenced within adequate holding times as evidenced by the COC documentation and sample receipts provided as part of the laboratory reports in Appendix H.

8.7 Field Duplicates, Inter Laboratory Duplicates, Rinsate Samples and Trip Spikes

See Section 8.3 for details about field duplicates.

It must be mentioned that from a strictly scientific point of view and without taking the status of NEPM (2013) as a legislative instrument into account, the suitability of field duplicates as a data quality control mechanism in environmental investigations is of questionable value.

The submission of intra-laboratory duplicate samples is designed to be a scientific single blinded controlled experiment. Such an experimental setup requires that one single input parameter is investigated by controlling for (keeping constant) all other input parameters.

The main input parameters affecting the outcome of an intra-laboratory duplicate analysis can be grouped into the following areas:

- Quality of laboratory procedures and analytical methodologies.
- Quality of sampling and field procedures to obtain identical (and representative) samples.
- Heterogeneity of the sample matrix.

If the aim of a duplicate analysis is to provide a check of the precision (repeatability) of the laboratory's analysis, then the two other input parameters (sampling / field procedures and matrix heterogeneity) must be accountably controlled for. Only then can the total study error of the experiment, should one exceeding the stated quality indicator be encountered, accurately be attributed to the investigated input parameter, i.e., the laboratory procedures and analytical methodologies.

When using soil 'grab samples' as set out in the NEPM and AS4481.1 and 2, it is in the vast majority of cases impossible to control for any two of the three above-mentioned factors at the same time. In other words, it is under field conditions close to impossible to provide the laboratory with two absolutely identical soil samples which is a non-negotiable prerequisite for such a supposedly controlled experiment.

As such, the results of a duplicate analysis of soil field duplicates do not represent the outcome of a controlled single blinded experiment and are hence not suitable as a means of assessing the quality for either of the above input parameters individually or the sample collection and measurement process as a whole.

The use of field duplicate soil samples, in particular when obtained from heterogeneous fill material, is not a scientifically defensible way to assess any part of a sampling program. We hence urge the reader to apply caution to any interpretation of intra and inter-laboratory duplicate samples as a means of data quality control.

We note that the laboratory chosen for the analysis of all samples is NATA registered and has a rigorous internal quality program in place (see laboratory reports in Appendix H). It is regularly audited as part of the NATA registration.

Considering the nature of this investigation and in particular in light of the above paragraphs, it is Canopy's opinion that the rigorous quality controls implemented by the laboratory itself are adequate for this type of investigation. Inter-laboratory duplicate samples (which would add a fourth uncontrollable input parameter to the controlled experiment), would not have added to the quality control of this investigation in a meaningful way and were hence not implemented.

Trip blanks and trip spikes can be a useful part of a QC program when volatile substances are of primary concern and when prolonged time periods are expected between the sampling date and the submission of samples to the laboratory. This could for example be the case at large investigations of remote sites involving groundwater sampling.

Some volatile and semi-volatile substances were part of the CoPC as outlined in the CSM in Section 5 but based on desktop research they were not considered to be a primary target of the investigation. Samples were submitted to the laboratory on the same day and within hours of having been collected. Neither trip blanks nor trip spikes were for those reasons considered necessary to be included in the data quality assessment process of this investigation.

Potential cross contamination between sampling locations can be an issue at contamination assessments. Rinsate samples are used to assess the effectiveness of decontamination procedures. We refer to Australian Standard AS 4482.1-2005, Section 8.2.4 which states that rinsate blanks should be collected where cross-contamination of samples is likely to impact on the validity of the sampling and assessment process. Considering the laboratory detection limits for soil as per the laboratory reports in Appendix H are orders of magnitude lower than the Site Assessment Criteria for the CoPC at the Site, the decontamination procedures deployed during the assessment were considered adequate and did not require checking via rinsate blank samples.

9 Analytical Results

A summary of laboratory results from the investigation is provided below (the laboratory reports are included in Appendix H). A table summarising all analysis results is presented in Table 15 and Table 16.

The following key findings were reported by the laboratory:

9.1 Human Health Criteria Assessment

A brief summary of the analysis result when compared to the site criteria for human health (see Section 7.4) is provided below.

Table 13: Summary Human Health Criteria Assessment

Sample Type	Summary Result
BTEX / TRH	All samples reported concentrations below the adopted site criteria.
Eight Priority Heavy Metals	All samples reported concentrations below the adopted site criteria.
PAHs	All samples reported concentrations below the adopted site criteria.
Benzo(a)pyrene as TEQ *(a calculation that combines weighted concentrations of a number of select PAHs):*	All samples reported concentrations below the adopted site criteria.
OCP, OPP & PCBs	All samples reported concentrations below the adopted site criteria.
Asbestos	PACM was removed from the Site during a clearance using the Transect Method. At the end of the clearance the site surface was considered free of visible asbestos.

9.2 Environmental and Ecological Assessment

A brief summary of the analysis result when compared to the Ecological and Environmental Site Criteria (see Section 7.4) is provided below.

Table 14: Summary Environmental and Ecological Assessment

Sample Type	Summary Result
BTEX / TRH	All samples reported concentrations below the adopted site criteria.
Eight Priority Heavy Metals	All samples reported concentrations below the adopted site criteria.
PAHs	All samples reported concentrations below the adopted site criteria.
DDT	All samples reported concentrations below the adopted site criteria.

Table 15: Summary table - Heavy metals and organics results

	METALS								BTEXN					PAHs			TRHs				Other
Analyte	**As**	**Cd**	**Cr(6+)[1]**	**Cu**	**Pb**	**Hg**	**Ni**	**Zn**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Total Xylenes**	**Naphtha-lene**	**Total PAHs**	**Carcinogenic (as BaP TEQ[2] (half LOR))**	**B(a)P**	**F1[(3)]**	**F2[(4)]**	**F3 (C16-C34)**	**F4 (C34-C40)**	**Asbestos**
Unit of measurement	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	% weight
Assessment criteria																					
NEPM Sch B1 (2013) HILB Table 1A(1)	500	150	500	30,000	1,200	120	1,200	60,000	NA	NA	NA	NA	NA	400	4	NA	NA	NA	NA	NA	Friable: 0.001 Bonded: 0.01
NEPM Sch B1 (2013) HSL A & B (Table 1A(3))	NA	NA	NA	NA	NA	NA	NA	NA	0.5	160	55	40	3	NA	NA	NA	45	110	NA	NA	
NEPM Sch B1 (2013) EIL (Urban residential)[5]	100	NA	203	158	1263	NA	36	363	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NEPM Sch B1 (2013) ESL (Table 1B(5-6))	NA	NA	NA	NA	NA	NA	NA	NA	50	85	70	105	170	NA	NA	0.7	180	120	300	2800	NA
Laboratory Analysis																					
Limit of reporting (LOR)	4	0.4	1	1	1	0.1	1	1	0.2	0.5	1	3	1	0.05	0.5	0.05	25	50	100	100	
SAMPLE ID																					
BH1 0.15m	11	BDL	16	17	17	BDL	5	32	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH2 0.15m	11	BDL	15	10	9	BDL	7	20	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH3 0.1m	6	BDL	8	13	7	BDL	2	18	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4 0.1m	7	BDL	14	22	13	BDL	4	37	-	-	-	-	-	BDL	BDL	BDL	-	-	-	-	-
BH5 0.1m	7	BDL	8	14	9	BDL	3	18	-	-	-	-	-	BDL	BDL	BDL	-	-	-	-	-
BH6 0.1m	10	BDL	9	24	10	BDL	3	26	-	-	-	-	-	BDL	BDL	BDL	-	-	-	-	-
BH7 0.2m	10	BDL	10	21	9	BDL	4	28	-	-	-	-	-	BDL	BDL	BDL	-	-	-	-	-
BH8 0.1m	7	BDL	11	20	10	BDL	3	25	-	-	-	-	-	BDL	BDL	BDL	-	-	-	-	-
D1	5	BDL	11	17	9	BDL	3	30	-	-	-	-	-	-	-	-	-	-	-	-	-
AS1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Present
Key	**Red Cells** indicate values that exceed relevant Human Health Threshold Level **Green shaded** cells indicate an exceedance of an environmental or ecological threshold level BDL – Below Detection Limit (refer to laboratory reports for details) NA – Not applicable '-' - indicates not tested																				
Footnote	1- For metals Cr6+, the assessment criteria are based on Chromium hexavalent (Cr6+) and results are based on total Chromium (Cr) 2- HIL is based on the toxicity equivalent quotient (TEQ) of 8 carcinogenic PAHs and their potency relative to B(a)P) adopted by CCME 2008 (see Schedule B 1 Guidelines on Investigation Levels for Soil and Groundwater (NEPM 2013) 3- F1 is the subtraction of the sum of BTEX concentrations from C6-C10 4- F2 is the subtraction of naphthalene from >C10-C16 5 - Background levels using the 50th percentile in old suburbs with high traffic were used as per Olszowy et al (1995) and added to the ACL provided in NEPM 2013																				

Table 16: Summary table - OC/OP Pesticides, PCB results

	OCPs								OPPs	PCBs
Analyte	**DDD+DDE+DDT**	**Aldrin +Dieldrin[1]**	**Total Chlordane[2]**	**Total Endosulfans[3]**	**Endrin**	**Heptachlor**	**Hexachlorobenzene (HCB)**	**Methoxychlor**	**Chlorpyrifos**	**Total PCBs[4]**
Unit of measurement	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Assessment criteria										
NEPM Sch B1 (2013) HIL-A (Residential A)	240	6	50	270	10	6	10	300	160	1
NEPM Sch B1 (2013) EIL (Table 1B(5))	180 (DDT only)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Limit of reporting (LOR)	0.1	<0.2	<0.2	<0.3	0.1	0.1	0.1	0.1	0.1	0.1
SAMPLE ID	**Laboratory results**									
BH1 0.15m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BH2 0.15m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BH3 0.1m	-	-	-	-	-	-	-	-	-	-
BH4 0.1m	-	-	-	-	-	-	-	-	-	-
BH5 0.1m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BH6 0.1m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BH7 0.2m	-	-	-	-	-	-	-	-	-	-
BH8 0.1m	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
D1	-	-	-	-	-	-	-	-	-	-
AS1	-	-	-	-	-	-	-	-	-	-
Key	Yellow cells indicate values that exceed relevant levels. BDL – Below Detection Limit (refer to laboratory reports for details) NA – Not applicable '-' - indicates not tested									
Footnotes	1- Laboratory does not analyse Aldrin + Dieldrin, but Aldrin and Dieldrin separately. 2- Laboratory does not analyse Total Chlordane, but gamma-Chlordane and alpha-Chlordane separately. 3- Laboratory does not analyse Total Endosulfans, but Endosulfan I, Endosulfan II, and Endosulfan Sulphate separately. 4- Positive values shown only.									

9.3 Waste Classification - Guidance

We refer to the results table below. Based on available information to date contained in the Report herein, it is considered likely that both the natural soils remaining on the Site and the shale material stockpiled elsewhere on the Site will be classified as General Solid Waste (non-putrescible). This includes the natural material in the northern portion of the Site, the stockpile located in the excavated portion and the access ramp into the excavated section.

We emphasise that the ramp on the excavated section of the Site consists of several hundred cubic metres of soil. This Waste Classification Guidance is based on only three near surface samples having been obtained from the material only and as such, the results are to be interpreted cautiously.

We also note that as outlined in Section 7.2.7, due to the spotty nature of asbestos contamination in soils, the results of investigation using boreholes with regard to the possible presence of asbestos in soils are to be interpreted cautiously, especially when the results of the investigation were negative.

A table summarising all analysis results is presented below.

Table 17: Summary Table of Results Compared to the Waste Classification Guidelines

		Priority Heavy Metals						BTEX				Other organics				OC/OP Pesticides					
Analyte		**As**	**Cadmium**	**Cr(6+)**	**Pb**	**Hg**	**Ni**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes**	**TRH C6-C9**	**TRH C10-C36**	**B(a)P**	**Total PAHs**	**Total Endosulfans**	**Chlor-pyrifos**	**Total Moderately Harmful[4]**	**Total Scheduled[5]**	**Total PCB**	**Asbestos Fibres**
EPA Reference Criteria																					
General Solid Waste CT11 [mg/kg]		100	20	100	100	4	40	10	288	600	1000	650	10,000	0.8	200	60	4	250	<50	<50	NA
General Solid Waste TCLP1/SCC12 [mg/L] / [mg/kg]		5 / 500	1 / 100	5 / 1900	5 / 1500	0.2 / 50	2 / 1050	0.5 / 18	14.4 / 518	30 / 1080	50 / 1800	650[3]	10,000[3]	0.04 / 10	200[3]	3 / 108	0.2 / 7.5	250[3]	<50[3]	<50[3]	NA
SAMPLE ID	**Depth (m)**																				
BH1-0.15	21/03/2024	11	BDL	16	17	BDL	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH2-0.15	21/03/2024	11	BDL	15	9	BDL	7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH3-0.1	21/03/2024	6	BDL	8	7	BDL	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4-0.1	21/03/2024	7	BDL	14	13	BDL	4	-	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-
BH5-0.1	21/03/2024	7	BDL	8	9	BDL	3	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH6-0.1	21/03/2024	10	BDL	9	10	BDL	3	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
BH7-0.2	21/03/2024	10	BDL	10	9	BDL	4	-	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-
BH8-0.1	21/03/2024	7	BDL	11	10	BDL	3	-	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
D1	21/03/2024	5	BDL	11	9	BDL	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AS1	21/03/2024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Detected[(8)]
P1	21/03/2024	8	BDL	21	15	BDL	26	BDL	BDL	BDL	BDL	BDL	120	0.06	0.2	BDL	BDL	BDL	BDL	BDL	-
P2	21/03/2024	6	BDL	9	15	0.1	20	BDL	BDL	BDL	BDL	BDL	100	0.1	0.4	BDL	BDL	BDL	BDL	BDL	-
P3	21/03/2024	12	BDL	7	15	BDL	31	BDL	BDL	BDL	BDL	BDL	BDL	0.1	0.4	BDL	BDL	BDL	BDL	BDL	-
R1	21/03/2024	6	BDL	5	13	BDL	15	BDL	BDL	BDL	BDL	BDL	BDL	0.1	0.3	BDL	BDL	BDL	BDL	BDL	-
R2	21/03/2024	6	BDL	6	13	BDL	15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.2	BDL	BDL	BDL	BDL	BDL	-
R3	21/03/2024	8	BDL	6	14	BDL	19	BDL	BDL	BDL	BDL	BDL	BDL	0.08	0.2	BDL	BDL	BDL	BDL	BDL	-
95% UCL[6] (if CT1 exceeded in at least one sample)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Key

Yellow cells indicate values that are outside of CT1 criteria for General Solid Waste.
Red cells indicate value exceeds TCLP1 [mg]L] or SCC1 [mg/kg] values and hence cannot be classified as General Solid Waste
BDL – Below Detection Limit (refer to laboratory reports for details)
NA – Not applicable
'-' - indicates not tested

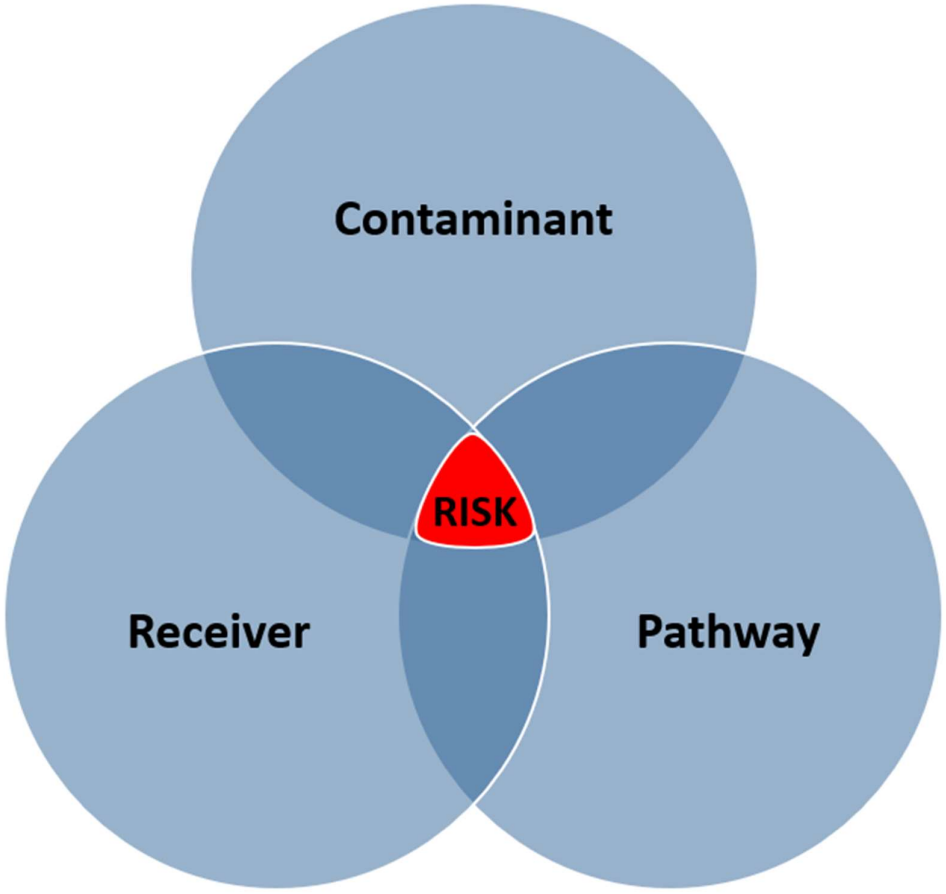
Footnotes

1 – If CT1 levels are not exceeded, no further analysis is required for General Solid Waste classification
2 – TCLP1 [mg]L] and SCC1 [mg/kg] values can be used for General Solid Waste Classification if sample concentrations fall below both (TCLP1 and SCC1) levels
3 – Moderately harmful pesticides, petroleum hydrocarbons, polychlorinated biphenyls, polycyclic aromatic hydrocarbons and scheduled chemicals are assessed using SCC1 only
4 – Total Moderately Harmful pesticides included: Dichlorovos, Dimethoate, Ethion, Fenitrothion, Malathion, Chlorpyrifos-methyl. Only positive results reported
5 – Total Scheduled Chemicals included: Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Heptachlor, Heptachlor Epoxide, HCB, Chlordane (alpha-Chlordane & gamma-Chlordane), DDE, DDD, DDT, Dieldrin, Endrin, and Endrin Aldehyde.
6 – Calculated using ProUCL V5.1.002 software (USEPA)
7 – For BDL refer to laboratory reports
8 – Visible asbestos has been removed from the Site's surface during a clearance inspection (see 7.2.6)

10 Tier 1 Risk Assessment

The below diagram shows the three key conditions that need to be met for a contamination risk to exist. There needs to be a contaminant present, a receiver (i.e. human, animal, plant) who can reasonably be impacted by that contaminant and a pathway between the two. If one of the components if missing, the potential for adverse risk is low.

Risk may vary over time, as the contributing conditions change. Understanding this model is central to the development of the CSM, the assessment of results and formation of conclusions in this Report.



10.1 Contaminants of Potential Concern

All analytes were found to be below the adopted site criteria (provided in Section 7.4). The Site is hence considered to pose a low risk to receptors.

10.2 Asbestos

Refer to Section 7.2.6 for a detailed discussion regarding the surface ACM observed at the northern portion of the Site.

10.3 Groundwater Conditions

The Site is underlain by Bringelly Shale of the Wianamatta Group. Wianamatta Shales were at one time inundated with seawater and have an elevated salt content. Groundwater occurrence in Bringelly Shale environments typically occurs as ephemeral groundwater at the intersection of residual soils and competent bedrock (2-5 m depth), and as permanent groundwater within secondary porosity features (cracks, joints and bedding planes) at greater depth (5 m and greater).

The Wianamatta Shales, including Bringelly Shale, are typically low yielding, low storage and low hydraulic conductivity environments. Groundwater is commonly saline and mildly acidic. These conditions combine to make groundwater in these shales unsuitable as a resource for potable water. Where a groundwater supply is required, deeper aquifers within the underlying Hawkesbury Sandstone are commonly tapped as a more abundant source of potable water[16].

Groundwater at the Site is unlikely to be impacted by on-site activities and considering the lack of nearby sources of contamination to groundwater and the low permeability of the underlying bedrock, it is unlikely that groundwater sourced from off-site would contribute to on-site impact.

10.4 Remaining Data Gaps

It is considered that this investigation has effectively assessed all Areas of Environmental Concern (AEC) (see Section 5.1). No discernible impact was encountered and in Canopy's opinion, no further investigation is required.

[16] Phreatic Consulting (2022), Hydrogeological Advice: Groundwater Assessment (contamination) Report for [address withheld]. Reference: 22017 Hydrogeological Advice, dated 7/9/22

11 Findings and Conclusions

Based on the results of the investigation and subject to the Limitations in Section 14, the following findings and conclusions are made:

1. The Site is located in a predominantly mixed high density residential and commercial precinct with a size of approximately 2,285 m^2.
2. The Site's history can reasonably be summarised as several blocks of land that were most likely utilised for agricultural purposes including possibly for market gardens, until the late 1950's. The eastern portion of the Site (formerly 180-186 Terminus Street) was converted to a works yard by the Commissioner of Main Roads circa 1958-1967 and then a car dealership from 1967 to 1976, with 190 Terminus Street remaining as a residential property till 1976. The properties then became commercial in nature from 1976 to around 2016, and including a Motel located at 180-186 Terminus Street (eastern portion of the Site). 2017 saw the demolition of all on-site structures at 190 Terminus Street, with further demolition of all on-site structures at 180-186 Terminus Street in 2019; the overall Site has remained substantially unchanged since then.
3. The Site is not located in an Acid Sulfate prone area and no further investigation into potential ASS is considered necessary.
4. No stress was observed in the vegetation and no surface staining or olfactory evidence of contamination was encountered.
5. Fragments of ACM on the surface of the former motel site (or upper or northern part of the Site) were collected and removed from site and the surface cleared using the Transect Method.
6. No groundwater was encountered as part of the investigation (maximum depth reached was 5.0 m bgl).
7. Groundwater is considered to be unlikely to be impacted by contamination present at the Site's subsurface.
8. Eight boreholes were drilled across the Site as part of the investigation's sampling program, with a total of nine soil samples submitted to the laboratory and analysed for a broad range of contaminants.
9. A fill layer was present to a depth of approximately 0.1 m below ground level (bgl) in the shallow subsurface in two of the eight soil borings. This fill layer was underlain by dark brown to orange silty clays.
10. Analytical results of all soil samples showed concentrations of analytes below the adopted site criteria.
11. The natural clays remaining on the eastern portion of the Site were assessed. Preliminary indications are that this material will be classified as General Solid Waste (non-putrescible).
12. The stockpiled material at the bottom of the approximately 12 m deep excavation on the southern portion of the Site and the material forming the access ramp were assessed. Preliminary indications are that this material will be classified as General Solid Waste (non-putrescible).

13.	All soils including the stockpiles and the ramp must be classified in accordance with the NSW EPA Waste Guidelines prior to disposal.
14.	No further environmental works or assessment are required, specifically with reference to the intent and purpose of s 4.6 (3) of the RH SEPP.
15.	Based on the findings of this assessment, Canopy considers the Site is suitable for the proposed land use (see Section 7.4) being residential with minimal opportunities for soil access which includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.

12 List of Key Guidelines and Regulations

- National Environment Protection Council (NEPC). National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended. [Amendment Measure. 2013 (No 1)] [NEPM (2013)]
- State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP).
- NSW EPA Contaminated Sites, *Guidelines for Consultants Reporting on Contaminated Sites*, April 2020.
- NSW EPA Contaminated Land Guidelines, *Sampling Design Part 1 – Application*, August 2022.
- NSW EPA Contaminated Land Guidelines, *Sampling Design Part 2 – Interpretation*, August 2022.
- NSW EPA, *Waste Guidelines Part 1: Classifying Waste*, 2014.
- CRC CARE 2017, *Risk-based management and remediation guidance for benzo(a)pyrene*, CRC CARE Technical Report no. 39, CRC for Contamination Assessment and Remediation of the Environment, Newcastle, Australia.
- Olszowy, H, Torr, P, Imray, P 1995, *Trace element concentrations in soils from rural and urban areas of Australia*, Contaminated Sites monograph no. 4, South Australian Health Commission.
- WA DoH 2021, *Guidelines for the assessment, remediation and management of asbestos contaminated sites in Western Australia*, Western Australian Department of Health and Western Australian Department of Environment and Conservation, Perth, Australia

13 List of Abbreviations

A list of the common abbreviations that may be used throughout this Report is provided below.

ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AHD	Australian Height Datum
As	Arsenic
ASS	Acid Sulfate Soils
B(a)P	Benzo(a)pyrene
bgl	Below Ground Level
BTEX	Benzene, toluene, ethylbenzene and xylenes
Cd	Cadmium
Cr	Chromium
CoPC	Contaminates of Potential Concern
CoC	Chain of Custody
CSM	Conceptual Site Model
Cu	Copper
DA	Development Application
DQOs	Data Quality Objectives
DSI	Detailed Site Investigation
EMP	Environmental Management Plan
EPA	NSW Environment Protection Authority
ha	Hectare
Hg	Mercury
HIL	Health based investigation level
HSL	Health screening levels
LOR	Limit of Reporting
NEPM	National Environment Protection Measures
Ni	Nickel
OC	Organochlorine Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PFAS	Per and Poly-Fluoroalkyl Substances
PCB	Polychlorinated Biphenyl
PQL	Practical Quantification Limit
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
PACM	Potential Asbestos Containing Material
PSI	Preliminary Site Investigation
TCLP	Toxic Characteristic Leaching Procedure
VOC	Volatile Organic Compounds
TRH	Total Recoverable Hydrocarbons
Zn	Zinc

14 Limitations

The findings of this Report are based on the Scope of Work as defined herein noting the investigation is limited to the site soils (notwithstanding limited observations of structures if relevant due to the potential for the presence of ACMs). Canopy Enterprises Pty Ltd (Canopy) performed services in a manner consistent with industry standards for the undertaking similar works. The assessment was undertaken with regard to the proposed development and land use.

It is not possible to identify all hazardous or toxic materials which may be present on the Site and this assessment should not be interpreted as a guarantee that hazardous or toxic materials (including any hazardous or toxic materials not referred to) do not exist across the Site or between sampling points of the identified Areas of Environmental Concern (AEC). The DSI Report reflects the conditions of the Site in the context of the scope of works at the date of the field works and Canopy assumes no responsibility or liability for subsequent events which may alter the contamination profile at the Site.

All conclusions and considerations regarding this Site represent the professional opinions of Canopy's personnel involved with the project and should not be considered a strictly legal interpretation of existing environmental guidelines or regulations.

Canopy accepts no liability for use by any person or entity other than the Client, its representatives and directly relevant stakeholders noting a requirement for applicability as per the Scope and reasonableness in interpreting the Report and the limitations herein. Any other third party may not use or rely on any of the content of the Report.

This Report may only be used for the specific purposes for which it was commissioned and in accordance with the terms of engagement, which includes full payment prior to being utilised for the intended purposes. Canopy retains unfettered ownership of the Report, and its contents, to the extent the law permits, until all payment obligations have been fulfilled. In the unlikely event that any outstanding debts are referred to a third- party debt collector all additional costs associated with the collection of the debt will be borne by the Client, including any commission payable by Canopy or any unawarded legal expenses.

In the unlikely event that is asserted or proven that Canopy is in error, a review in the first instance must be undertaken by an independent and suitably qualified person, selected in mutual agreement and cost, who would be required to consider the present context in which the Report had been issued and the full set of circumstances. It is noted that given the nature, scale and cost of the assessment in comparison to the costs of the underlying works, Canopy's liability for consequential damages, to the extent the law permits, is limited to the value of Canopy's engagement.

The Report should not be reproduced in part or full without joint authorisation from the Client and Canopy unless related unambiguously to its intended purposes, in which case all relevant acknowledgements should be included.

APPENDIX A
ARCHITECTURALS

Proposed Mixed Used Development, incl. Apartments, Hotel + Retail

Drawing Schedule

Front Matter

DA-001 D	Cover Sheet + Drawing Schedule
DA-002 D	Site Context + Project Summary

Design Analysis

DA-010 B	Design Analysis

Site Plan

DA-100 C	Plan-Site

Building Envelope

DA-110 A	Proposed Building Envelope

Demolition Plan

DA-120 B	Demolition Plan

GA Plans - Indicative Basement Levels

DA-200 D	GA Plan-Indicative Basement Level 6
DA-201 D	GA Plan-Indicative Basement Level 5
DA-202 D	GA Plan-Indicative Basement Level 4
DA-203 D	GA Plan-Indicative Basement Level 3
DA-204 D	GA Plan-Indicative Basement Level 2
DA-205 D	GA Plan-Indicative Basement Level 1

Podium Levels

DA-210 E	GA Plan-Indicative Level 0 (Ground)
DA-211 E	GA Plan-Indicative Level 1
DA-212 E	GA Plan-Indicative Levels 2-7 (Hotel Rooms)
DA-213 E	GA Plan-Indicative Level 8 (Podium)

Tower Levels

DA-220 D	GA Plan-Indicative Levels 9-29 (Apartments)
DA-221 D	GA Plan-Indicative Level 30 (Roof Terrace)
DA-222 D	GA Plan-Indicative Level (Roof)

Elevations

DA-300 A	Elevation- Macquarie Street
DA-310 C	Elevations-North, West
DA-311 C	Elevations-South, East

Sections

DA-400 A	Sections: AA-BB

Material Palette

DA-500 D	Material Palette: Podium
DA-501 D	Material Palette: Tower
DA-502 D	Design Precedents

Details

DA-600 A	Rear Boundary Condition

Photo Montages

DA-700 B	Photo Montage: View 1
DA-701 B	Photo Montage: Views 2 - 5

Gross Floor Area (GFA) Summary Calculation

DA-800 D	Gross Floor Area Summary
DA-801 D	Gross Floor Area Summary

Solar Access: Apartments

DA-810 B	Solar Access: 9am – 9.30am
DA-811 B	Solar Access: 10am – 11.30am
DA-812 B	Solar Access: 12pm – 1.30pm
DA-813 B	Solar Access: 2pm – 3pm

Overshadow Diagrams

DA-820 A	Shadow Diagrams

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre-DA Issue
B	18/7/22	Pre DA Update Issue
C	14/11/22	For Coordination
D	28/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

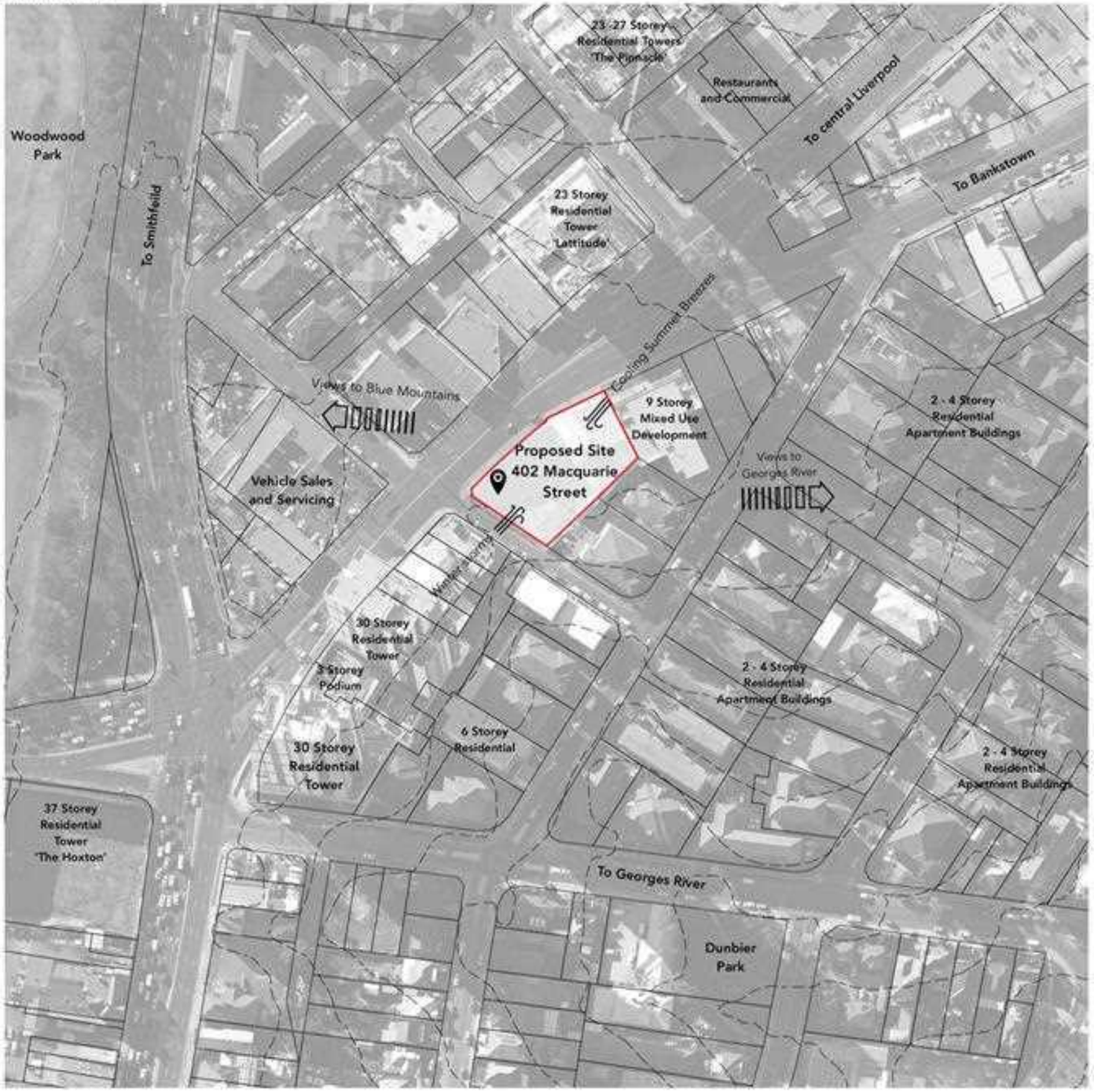
CLIENT
Australasian Property Group Pte Ltd

TITLE
Cover Sheet

SCALE	DRAWN	CHECKED BY
NTS	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	28/11/2022	DA 1
DWG NO.		REVISION
DA-001		D

Plan – Site Context

Scale: 1:2000



Project Summary

Site Area: 2,292m²

Proposed FSR: 10:1 (10:1 Allowable)
Proposed GFA: 22,918m² (22,920m² Allowable)

Hotel Accommodation Level 2 - Level 7: 198 Hotel Rooms

Residential Level 9 - 29: 168 Residential Apartments
Mid-Winter Solar Access: 126/168 Apartments (75.0%)
Min. 15 Minute Solar: 146/168 Apartments (87.5%)
Cross Ventilation. Note the Lowerst apartment level is the 10th Storey

Ground Floor Retail: 106.8 m²
Publicly Accessible Gym (Level 1) : 146.3 m² excl. Change Facilities
Residential Communal Open Space: 1056.5 m² (46%)
Deep Soil Area: 86.6 m² (3.7%)

Vehicle Spaces: 244 Spaces in 6 Basement Levels.

Residential Calculations

	Number	Beds	Floor Area (Internal)	External Area	Adaptable	Storage (Unit)	Storage (Ext)	Total Storage (Min)	2 Hours Solar to Living	15 Minutes Solar
Typical Residential Levels 09-29	Unit 01	2 Bed	77.3 sqm	10.1 sqm	N	4 cub m	4.5 cub m	8.5 cub m	Y	Y
	Unit 02	1 Bed	53.5 sqm	8.1 sqm	Y	5-8 cub m	4.1 cub m	9.9 cub m	Y	Y
	Unit 03	1 Bed	52.2 sqm	8.2 sqm	N	3.1 cub m	4.2 cub m	7.2 cub m	Y	Y
(21 levels Total)	Unit 04	1 Bed	53.1 sqm	8.5 sqm	N	3.7 cub m	3.6 cub m	7.3 cub m	Y	Y
	Unit 05	2 Bed	76.2 sqm	10.0 sqm	N	4.2 cub m	4.5 cub m	8.7 cub m	Y	Y
	Unit 06	2 Bed	84.5 sqm	10.3 sqm	N	4 cub m	4.5 cub m	8.5 cub m	Y	Y
	Unit 07	3 bed	98.5 sqm	13.8 sqm	N	8.4 cub m	5.3 cub m	13.7 cub m	N	Y
	Unit 08	1 Bed	54.2sqm	9.5 sqm	N	3.5 cub m	4.2 cub m	7.5 cub m	N	N
Sub Total	168				21				126	147

Total	168				21				126	147
Percentage					12.5%				75.00%	87.50%
Complies Y/N									Y	Y

Apartment Mix

Beds Type	1 Bed	2 Bed	3 Bed		Units
Total	84	63	21		168
Mix	50.0%	37.5%	12.5%		100.0%

Residential Communal Open Space

Level 8 Podium (Sqm)	594.9	
Level 30 Rooftop (Sqm)	461.6	
Total (Sqm)/ Percentage	1056.5	46.10%

Parking Schedule

Level	Hotel Park	Retail	Residential	R. Visitors	Gym	Sub-Total	Accessible	Motorbikes	Bicycles
Porte Cochere						0			
Basement 1 - B		1			1	2			
Basement 2 - A	27					27	3		
Basement 2 - B	6					6		1	18
Basement 3 - A	17			3		20	1	6	27
Basement 3 - B				21		21	2	4	36
Basement 4 - A			32			32			
Basement 4 - B			22			22	4	1	18
Basement 5 - A			32			32			
Basement 5 - B			24			24	4		8
Basement 6 - A			32			32			
Basement 6 - B			26			26			8
Total	50	1	168	24	1	244	14	12	115
Required							12.2 5%	12.2 1/20 Parks	115 1/200 sqm

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NOTES

REV	DATE	DESCRIPTION
A	04/07/22	Pre-DA
B	28/10/22	Consultant Coordination
C	11/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

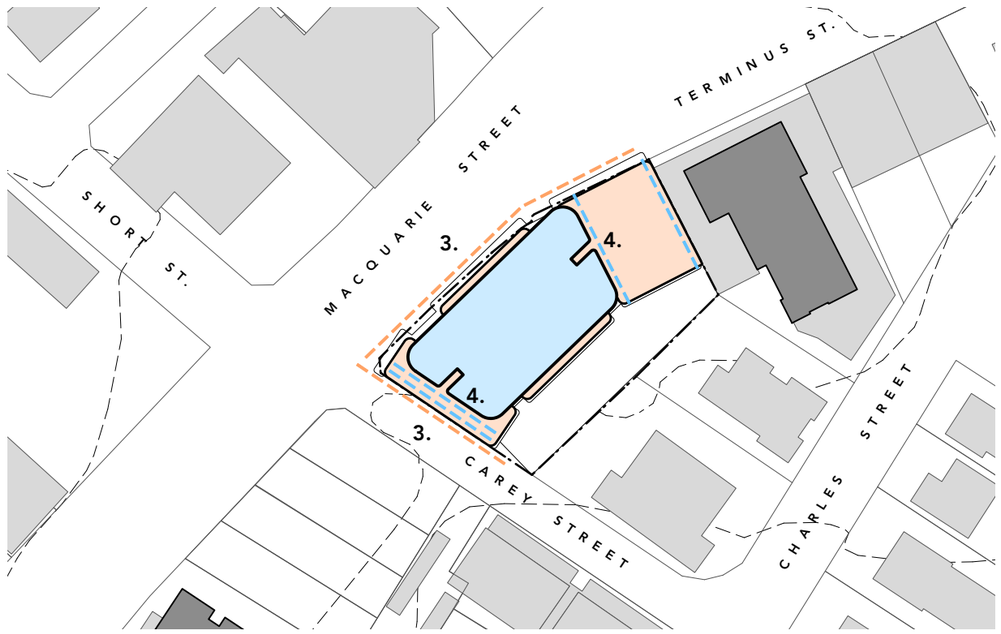
TITLE
Context + Summary

SCALE	DRAWN	CHECKED BY
1:2000	TC, TD	LT, RO
PROJECT NO	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO		REVISION
DA-002		D

Design Analysis

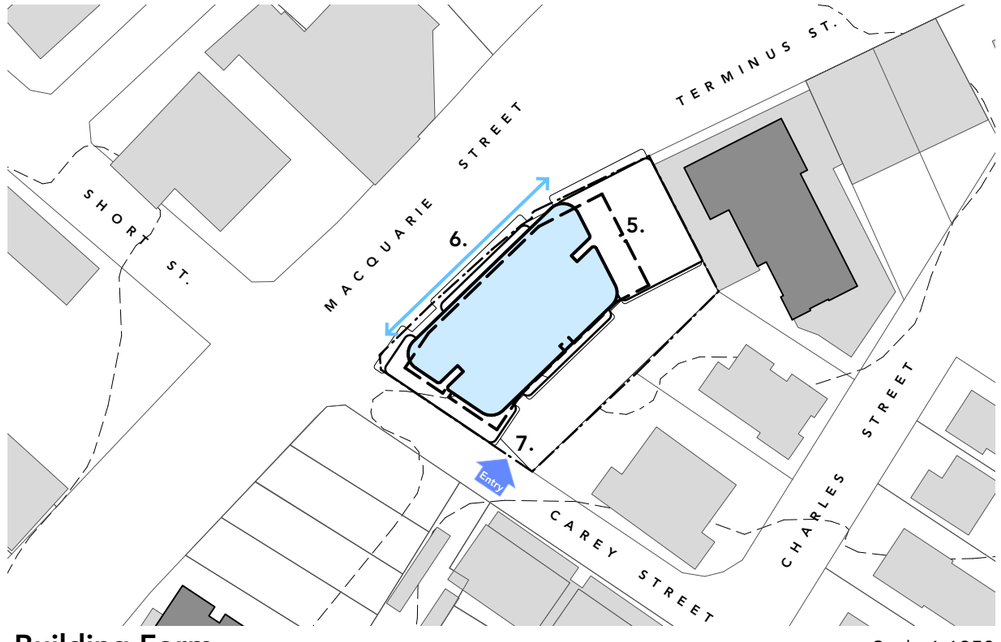
Urban Context

Scale 1:3000



Building Setbacks

Scale 1:1250



Building Form

Scale 1:1250

Landscaping

Scale 1:1250

Urban Context

1. Prominent corner address visible from Hume Highway and Short Street.
2. Podium continues adjoining built form of 170 Terminus Street.

Building Setbacks

3. Hotel podium aligns with Macquarie and Carey Streets.
4. Tower setbacks parallel to NE side boundary and Carey Street.

Building Form

5. Reduced tower footprint compared to previous design. Previous tower outline shown dotted.
6. Proposed tower 44.8m length.
7. Single vehicle crossover to access basement levels from Carey Street. (Previous design had two vehicle crossovers).

Landscaping

8. Permeability and activation of Macquarie Street interface by landscape at ground and high levels.
9. Landscape as architecture – street tree planting to reinforce colonnade column layout.
10. Visual and acoustic screening to rear boundary to provide neighbour privacy.
11. Terraced planting to Carey St.

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PROJECT
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PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
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TITLE
Design Analysis

SCALE	DRAWN	CHECKED BY
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PROJECT NO.	DATE	STAGE
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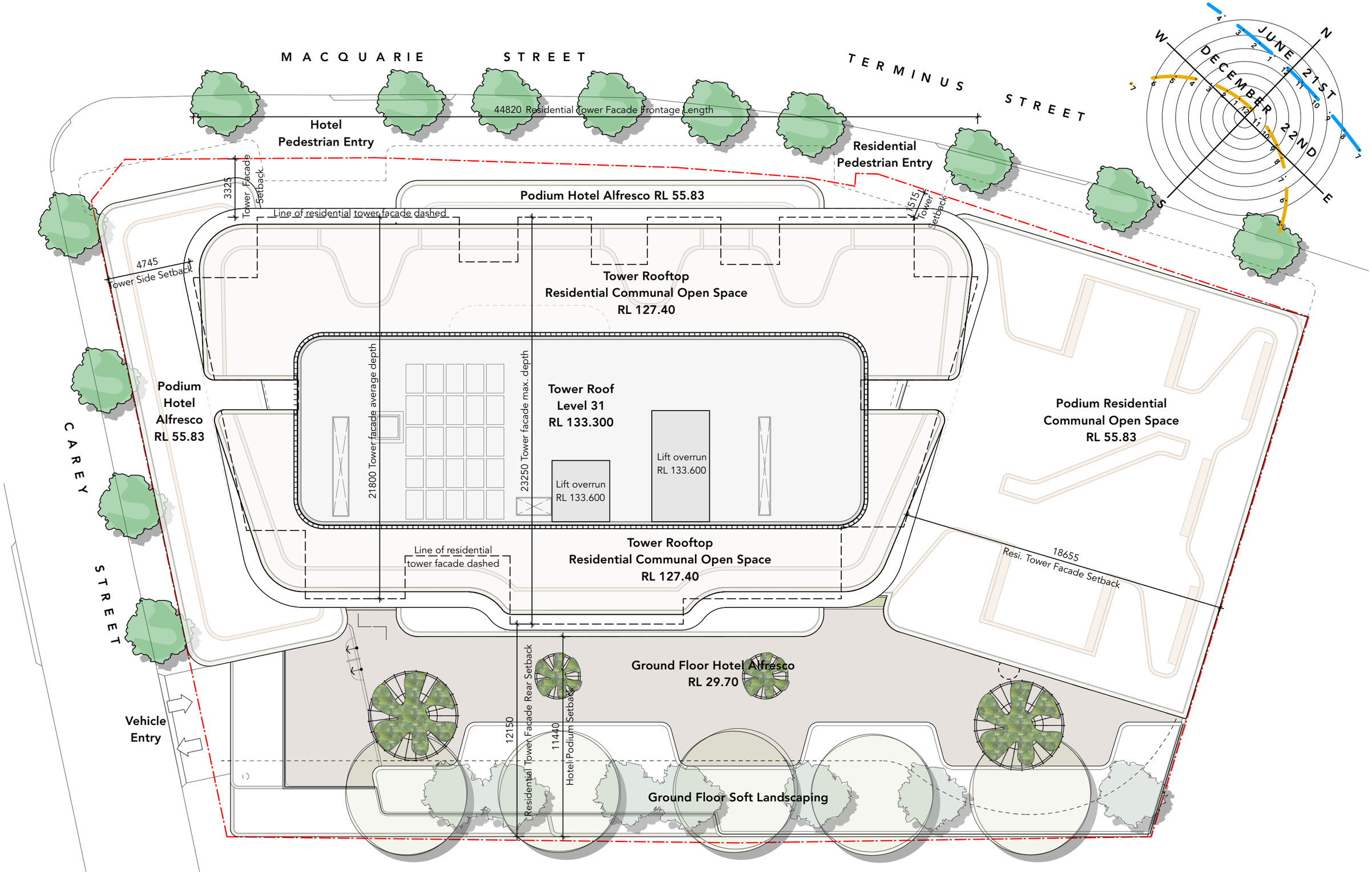
DWG NO.		REVISION
DA-010		B



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TITLE
Plan-Site

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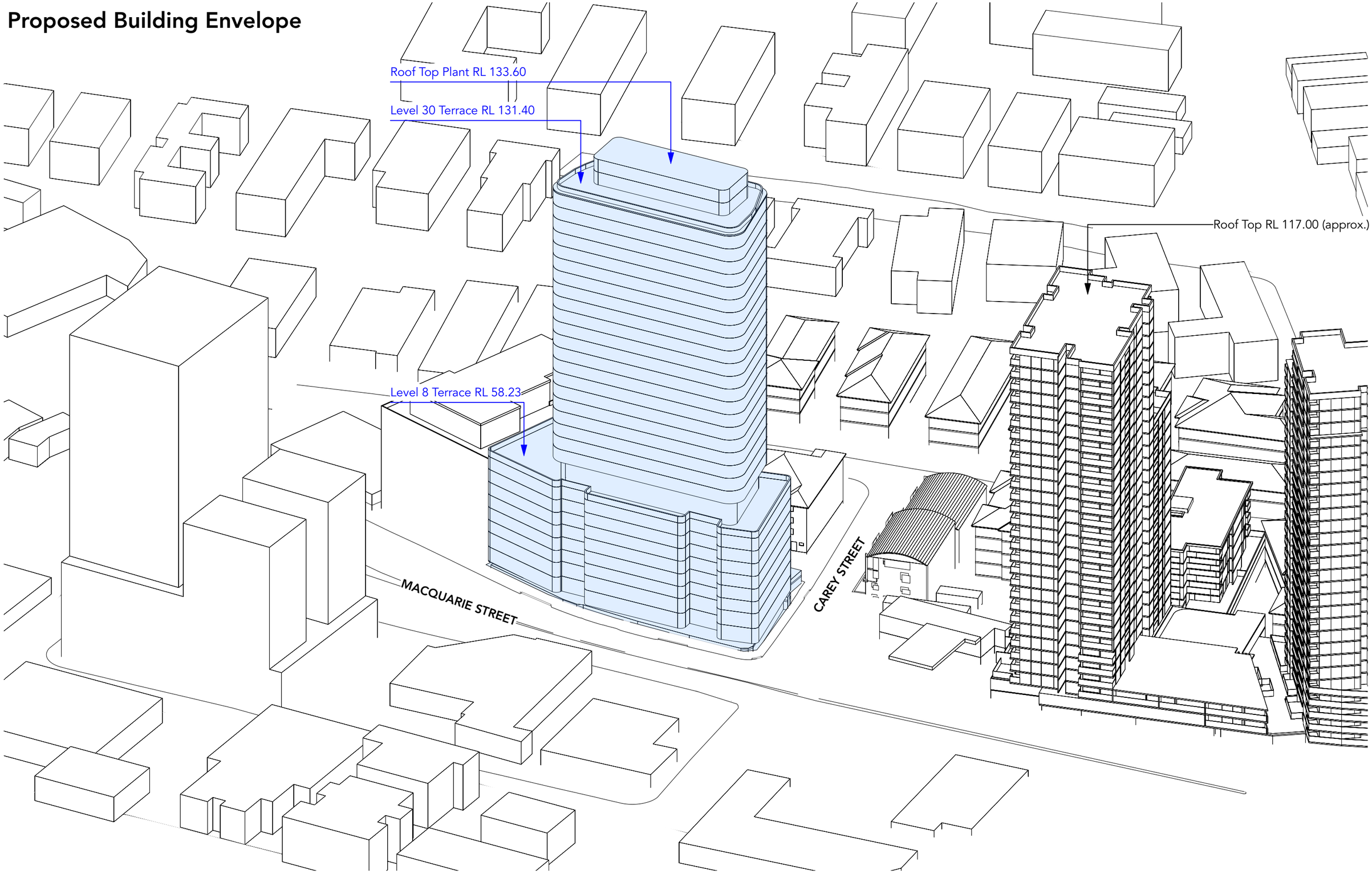
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-100		C

Proposed Building Envelope



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TITLE
Proposed Building Envelope

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NTS	EF	TC
PROJECT NO.	DATE	STAGE
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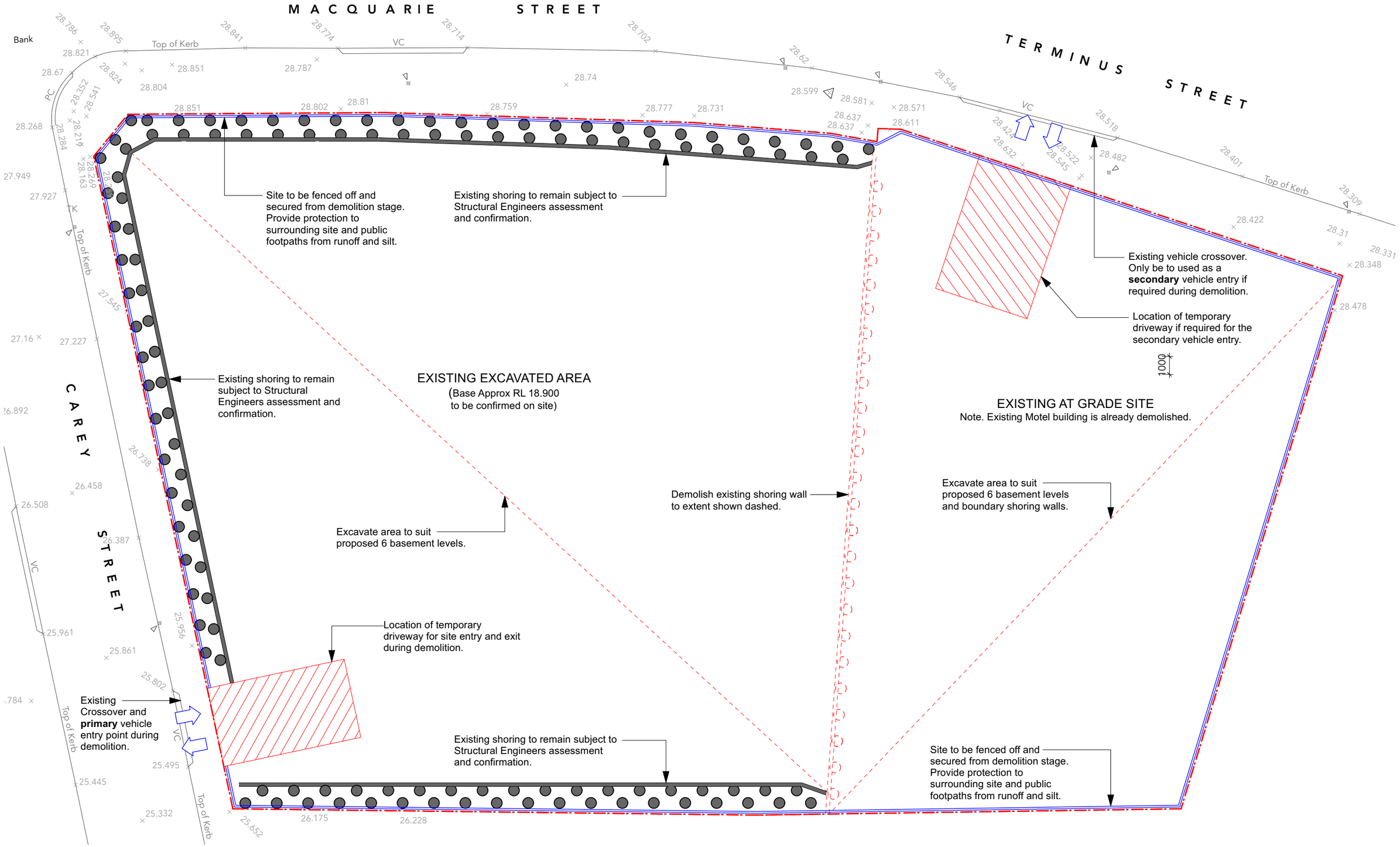
DWG NO.		REVISION
DA-110		A



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Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
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TITLE
Demolition Plan

SCALE	DRAWN	CHECKED BY
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PROJECT NO.	DATE	STAGE
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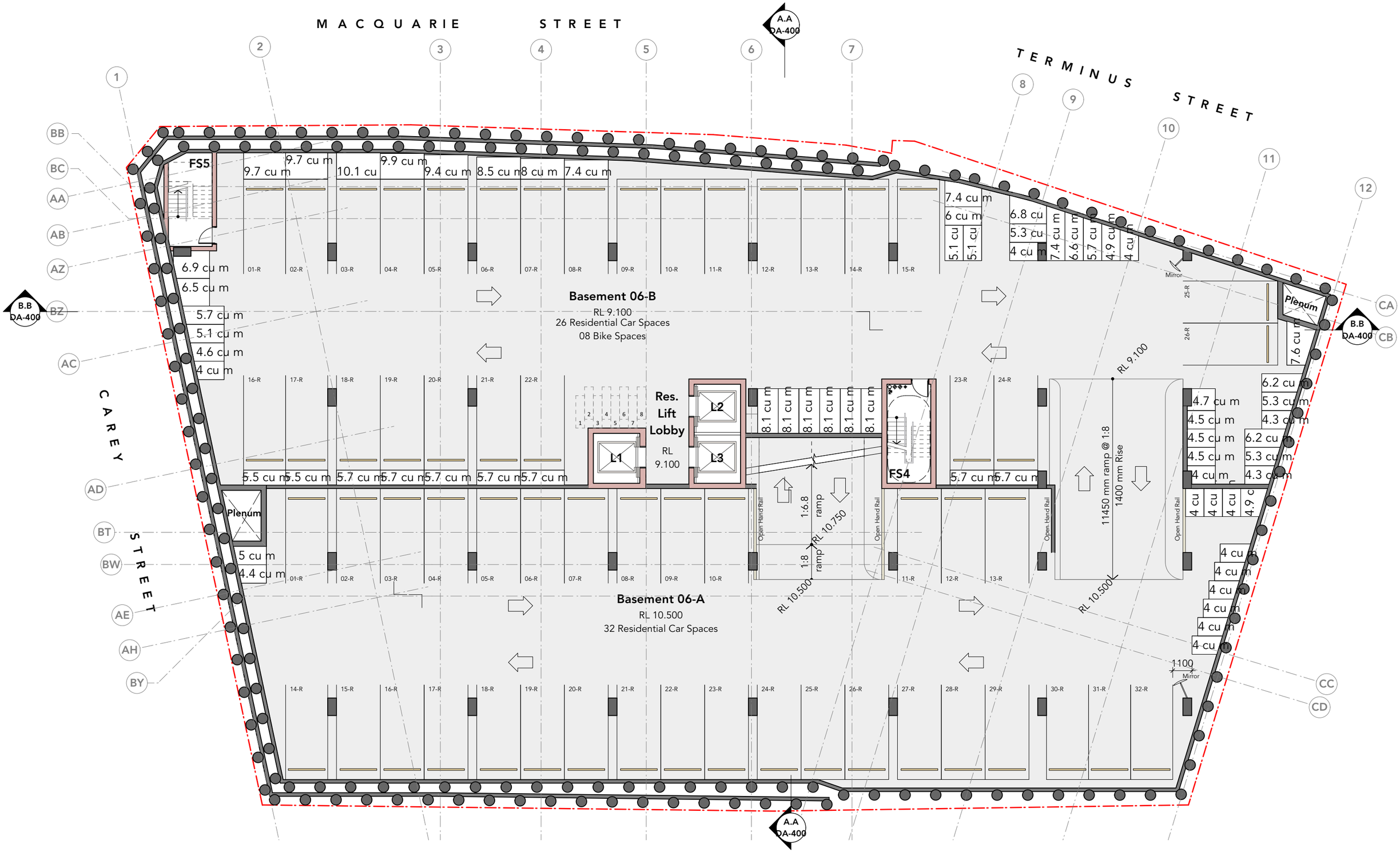
DWG NO.		REVISION
DA-120		B



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PROJECT
Macquaire Street Hotel + Apartment Development

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402 Macquarie Street, LIVERPOOL

CLIENT
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TITLE
GA Plan-Indicative Basement L6

SCALE	DRAWN	CHECKED BY
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PROJECT NO.	DATE	STAGE
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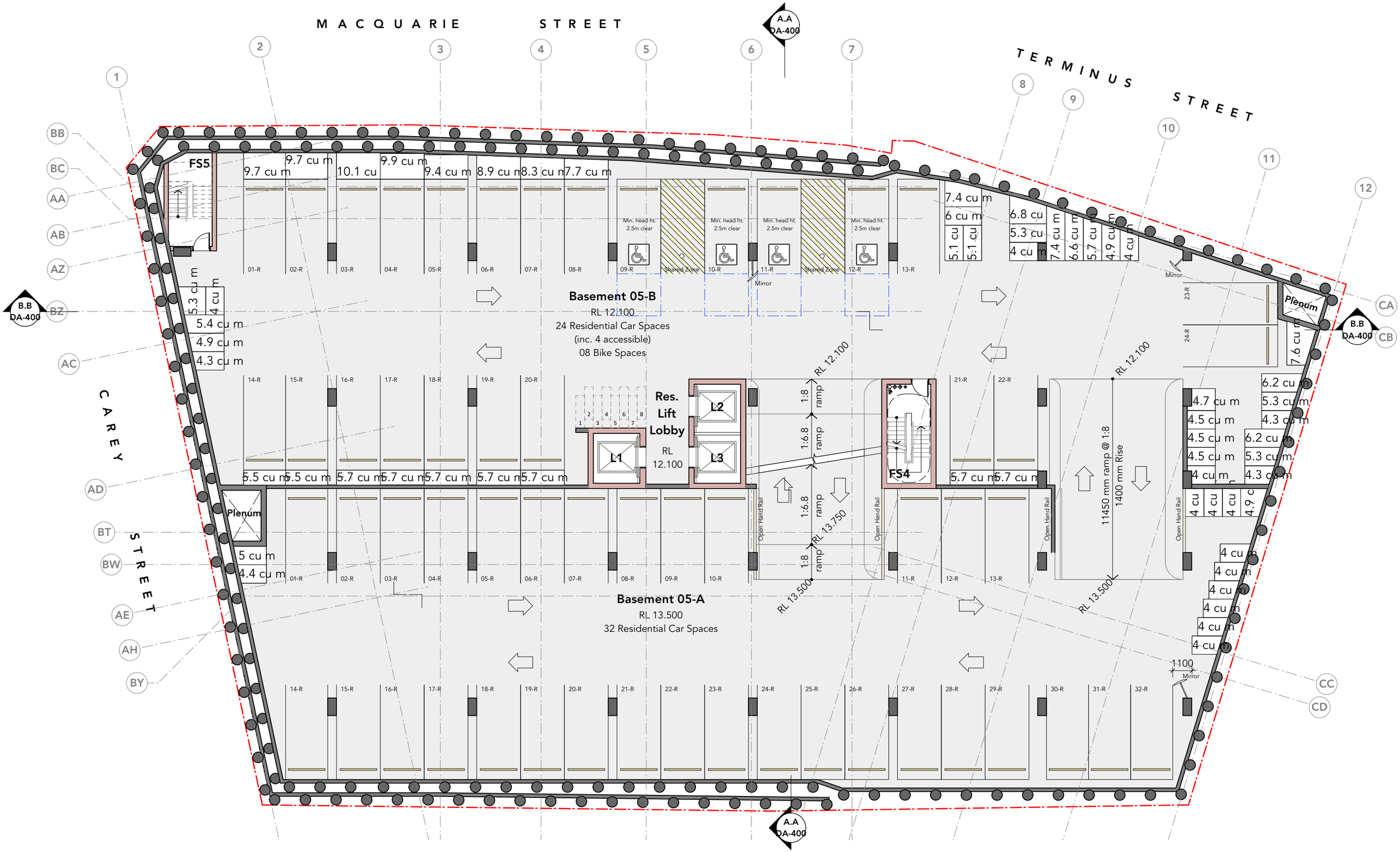
DWG NO.		REVISION
DA-200		D



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PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Basement L5

SCALE	DRAWN	CHECKED BY
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PROJECT NO.	DATE	STAGE
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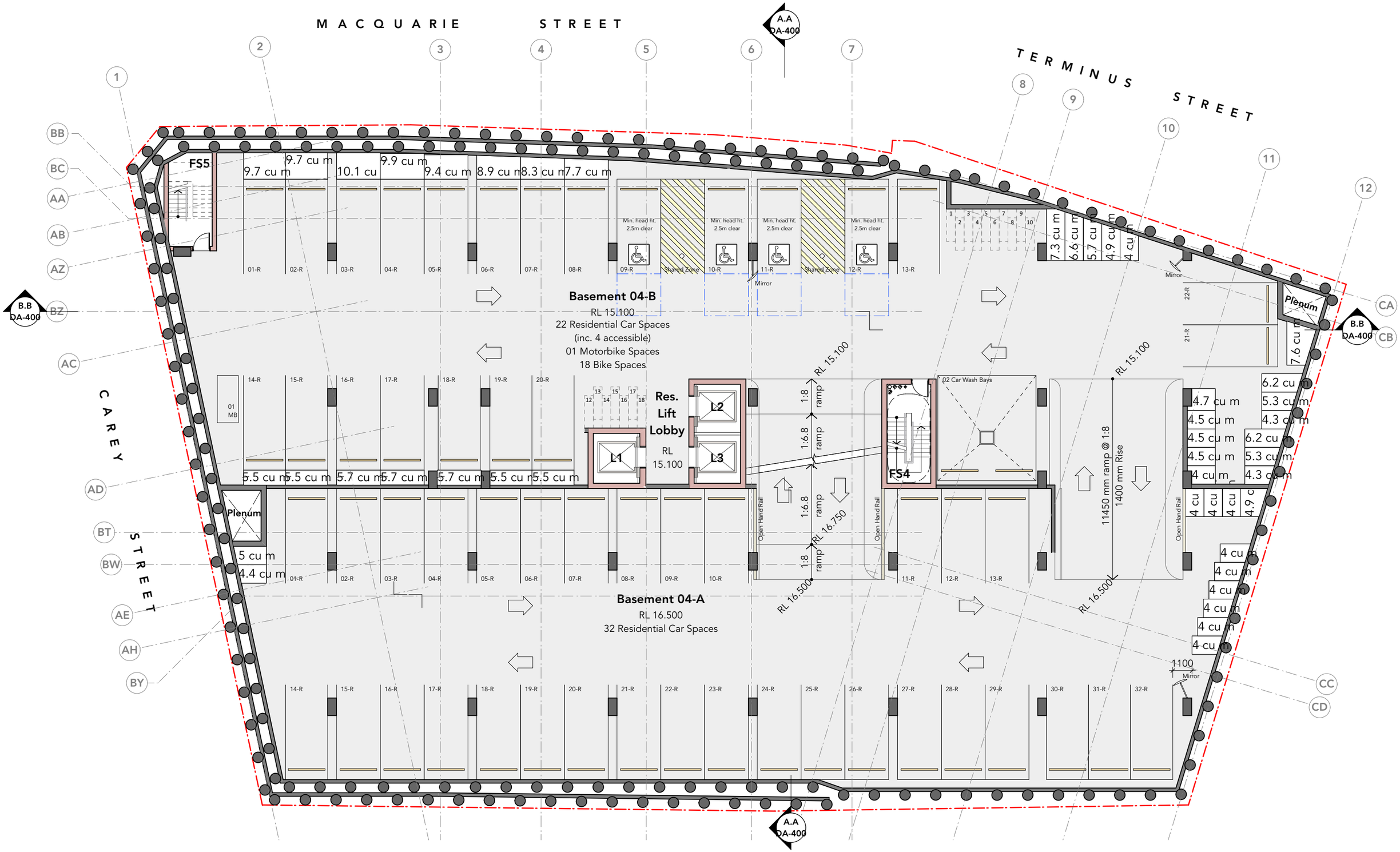
DWG NO.		REVISION
DA-201		D



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D	21/11/22	Concept DA 1 Issue

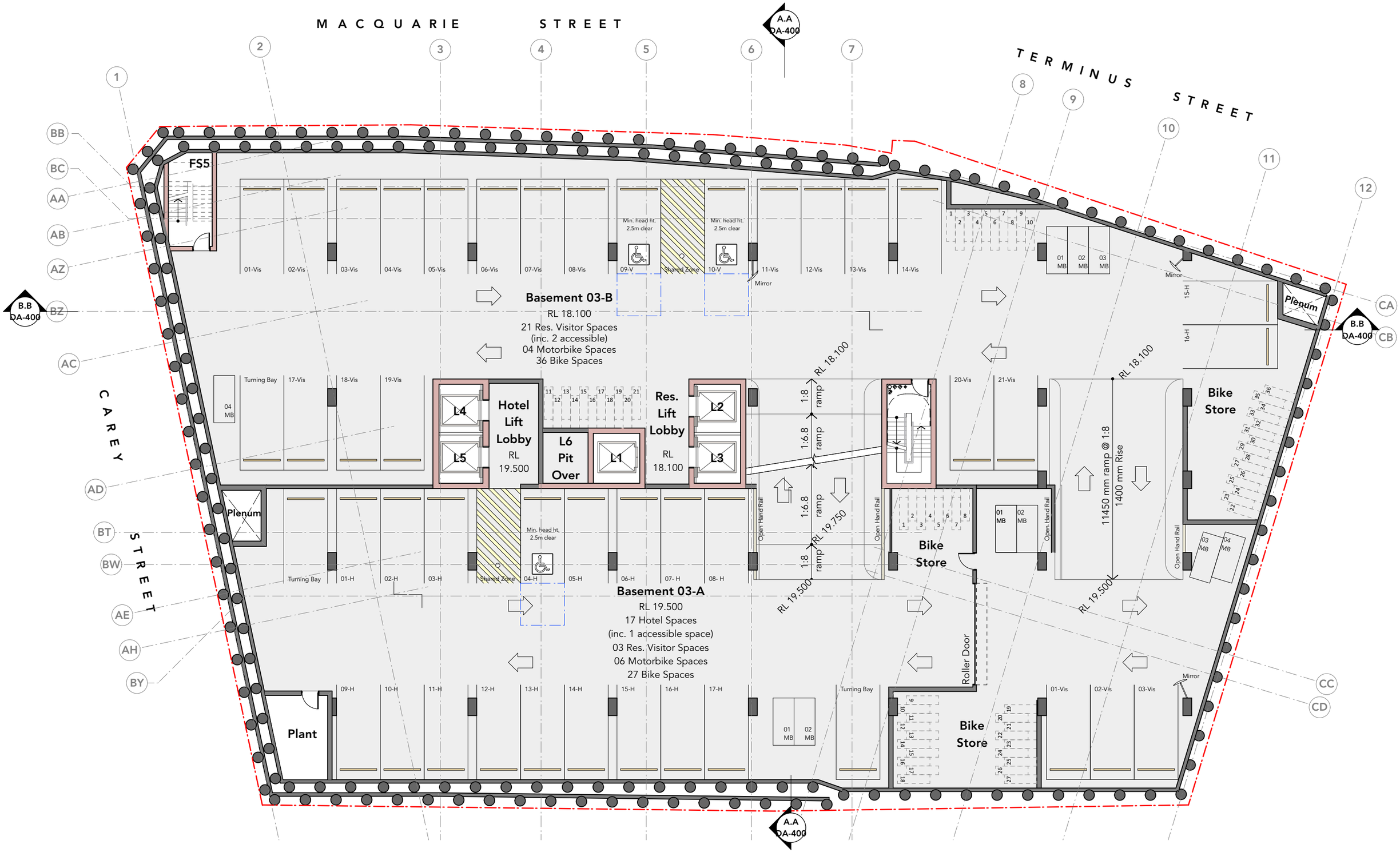
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Basement L4

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-202		D



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	08/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

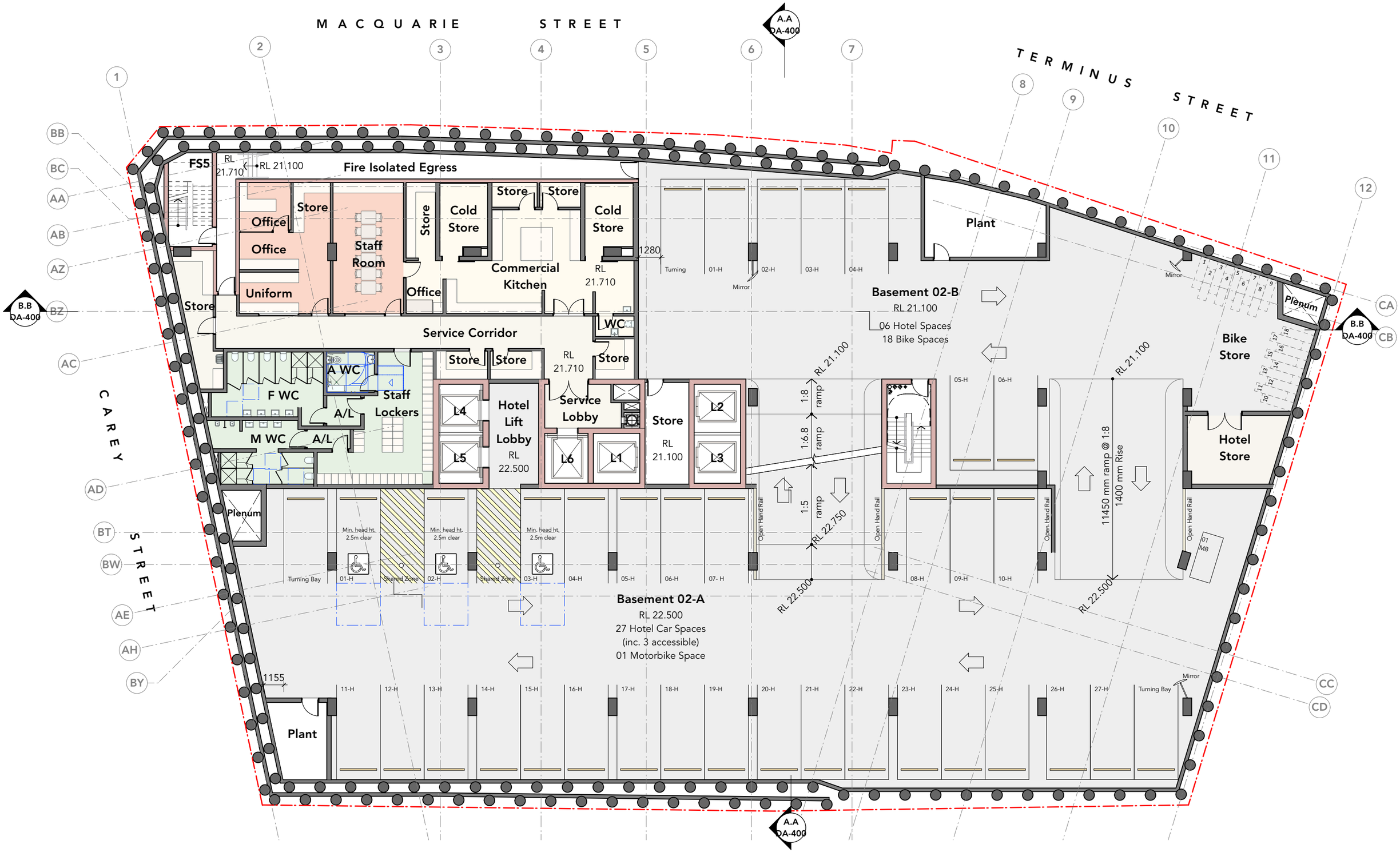
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Basement L3

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-203		D



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	08/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

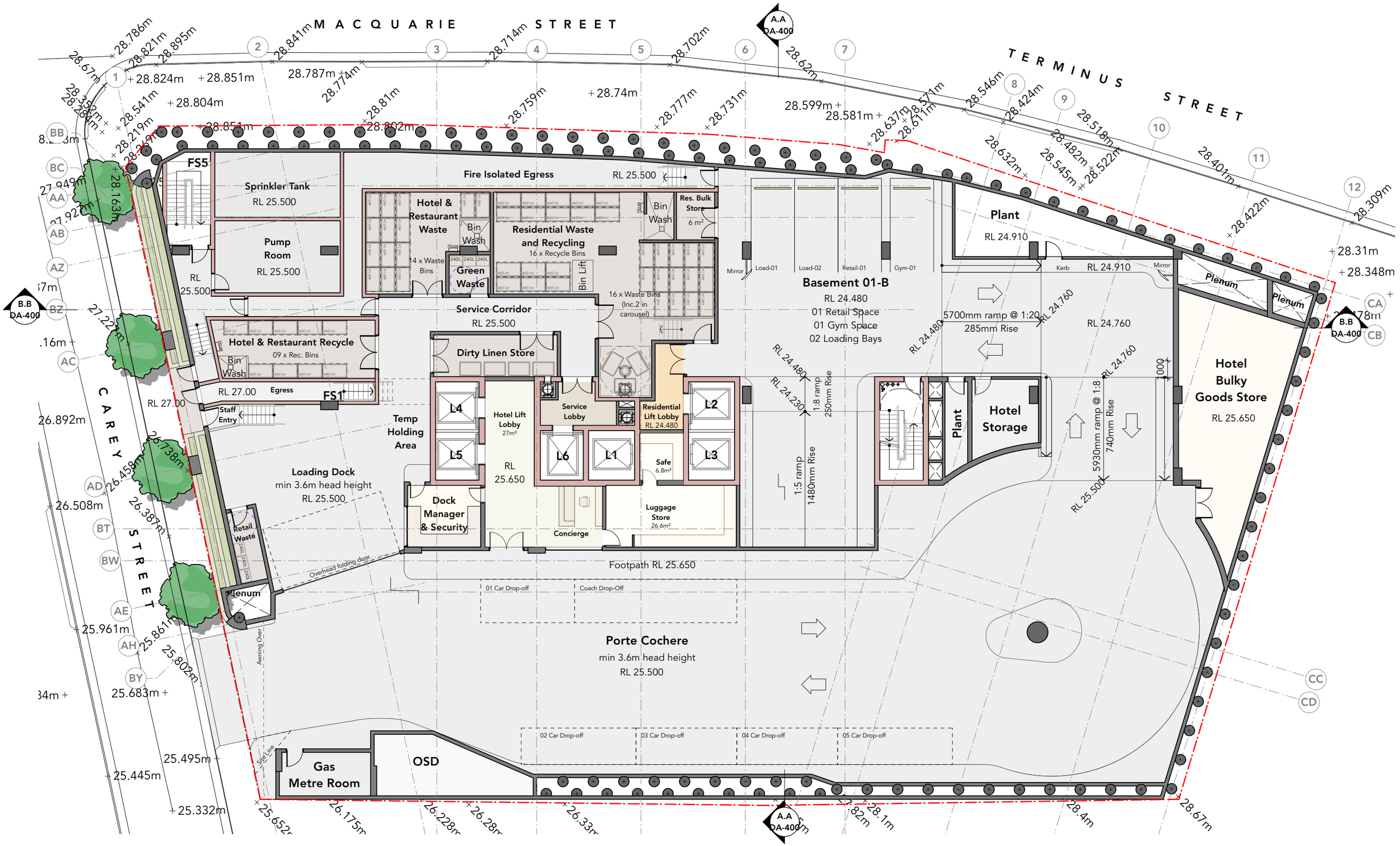
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Basement L2

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-204		D



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NOTES

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A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	08/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

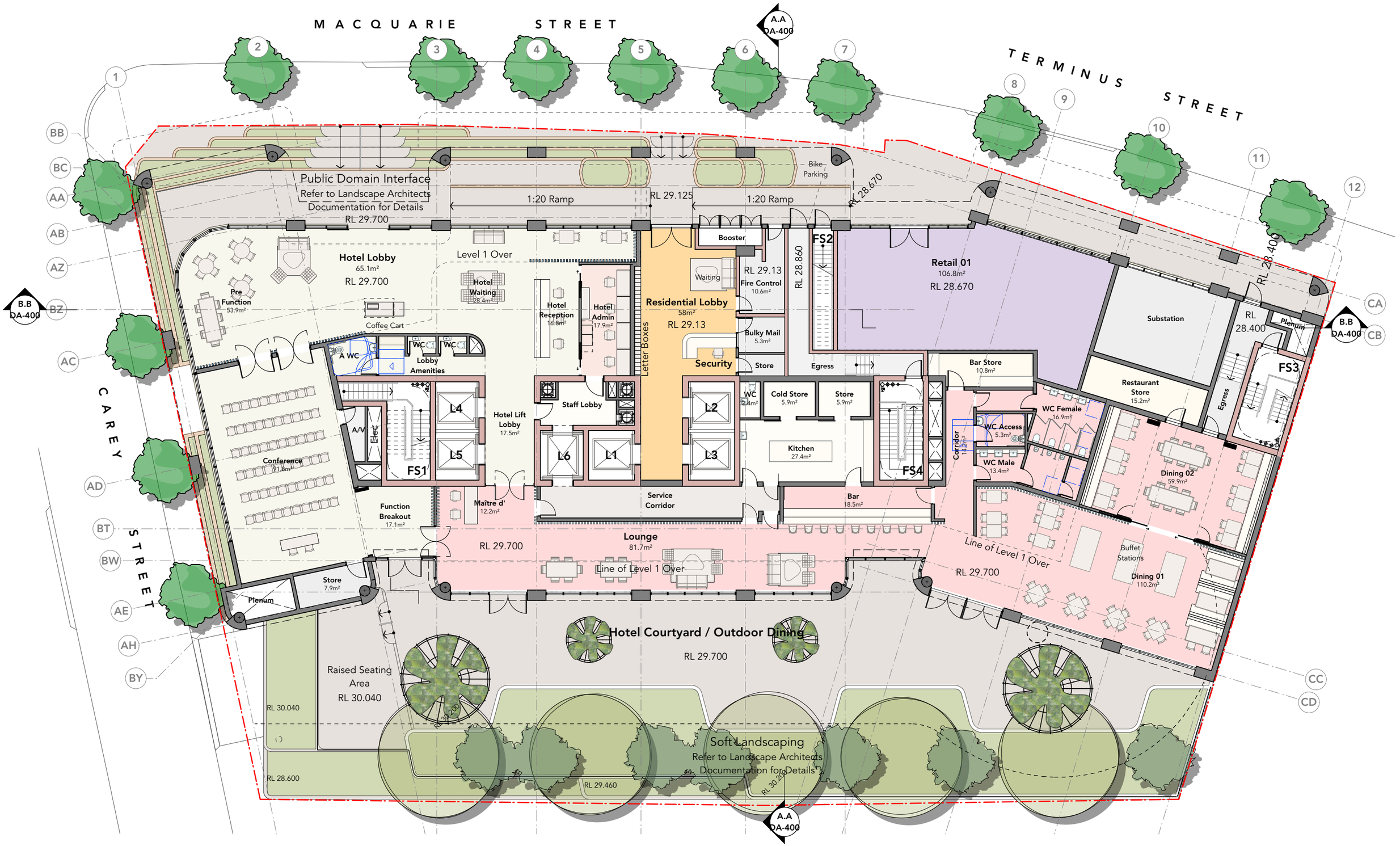
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Basement L1

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-205		D



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NOTES

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A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	20/7/22	Pre DA Staywell Issue
D	28/10/22	Consultant Coordination
E	21/11/22	Concept DA 1 Issue

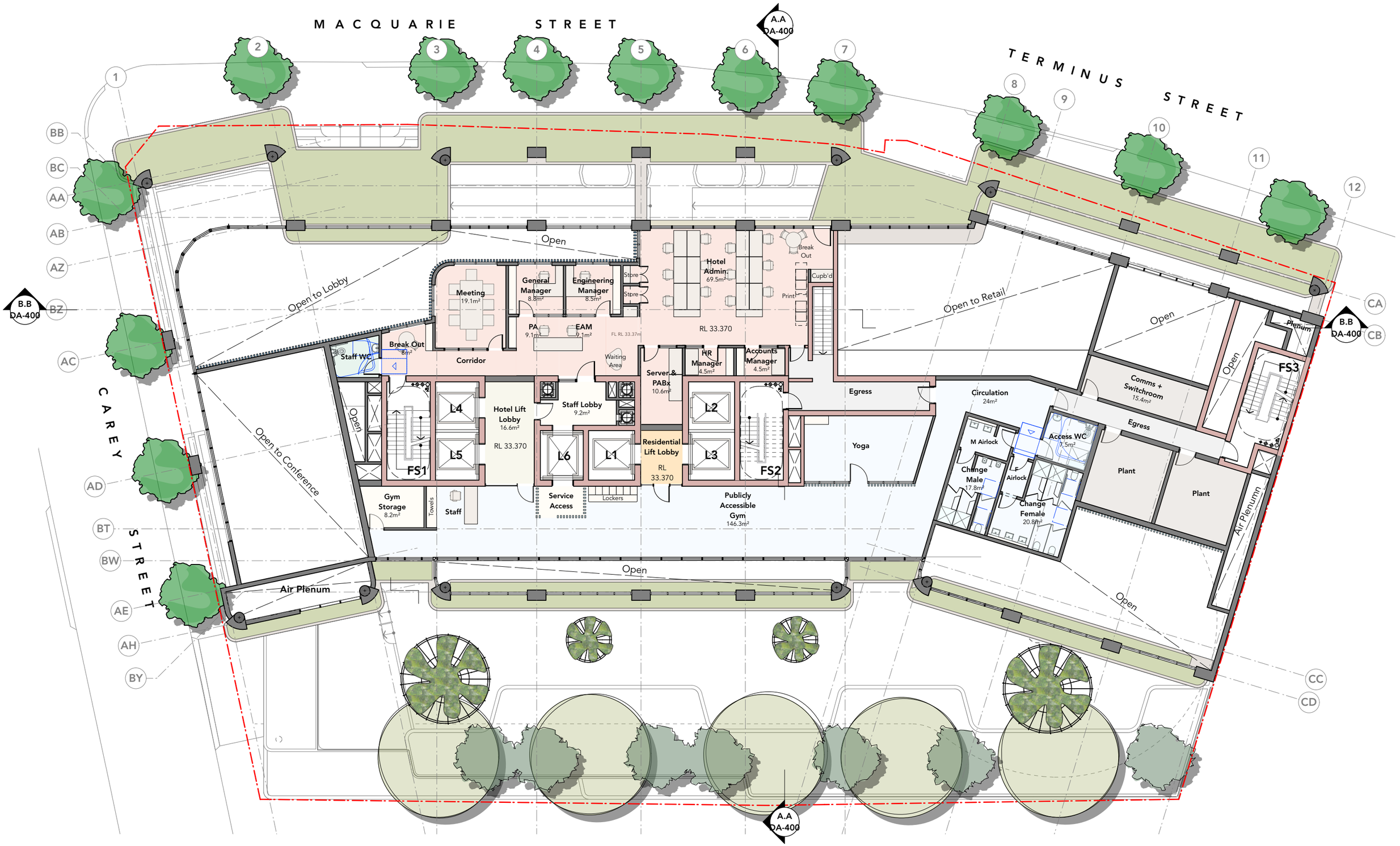
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Level 0 GF

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	TD
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-210		E



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NOTES

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A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	20/7/22	Pre DA Staywell Issue
D	28/10/22	Consultant Coordination
E	21/11/22	Concept DA 1 Issue

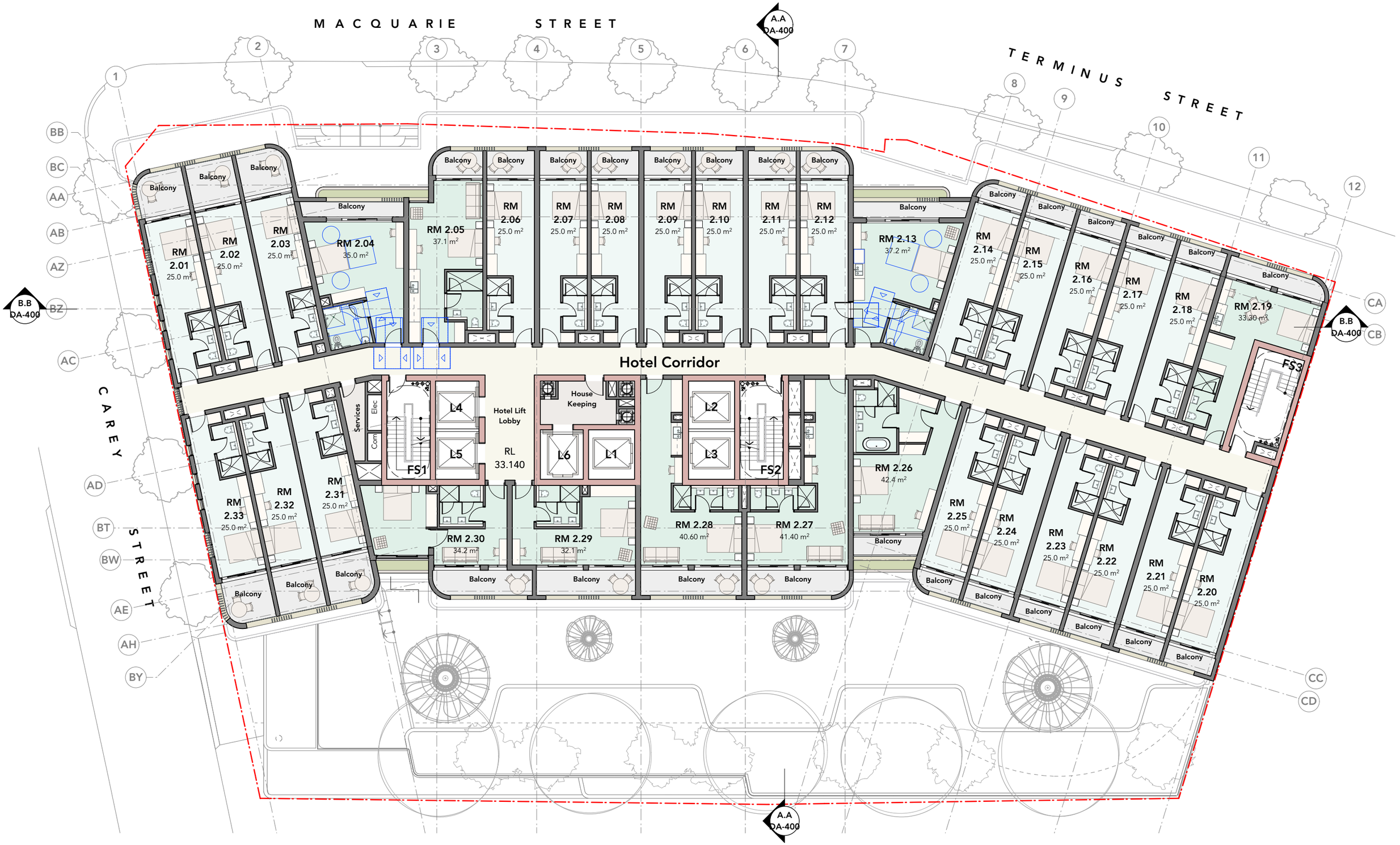
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Level 1

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-211		E



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NOTES

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A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	20/7/22	Pre DA Staywell Issue
D	28/10/22	Consultant Coordination
E	21/11/22	Concept DA 1 Issue

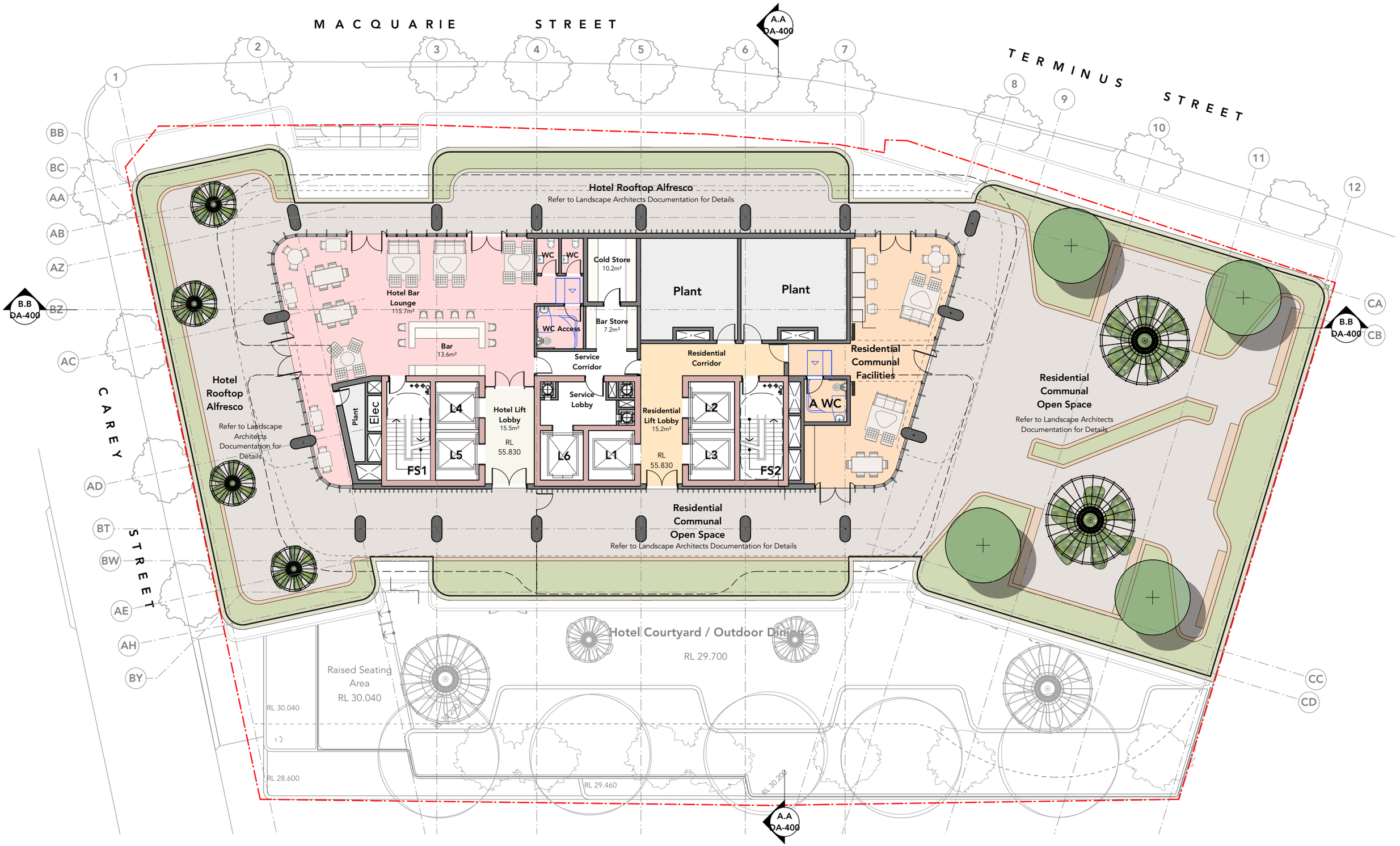
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Levels 2-7

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-212		E



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NOTES

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A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	20/7/22	Pre DA Staywell Issue
D	28/10/22	Consultant Coordination
E	21/11/22	Concept DA 1 Issue

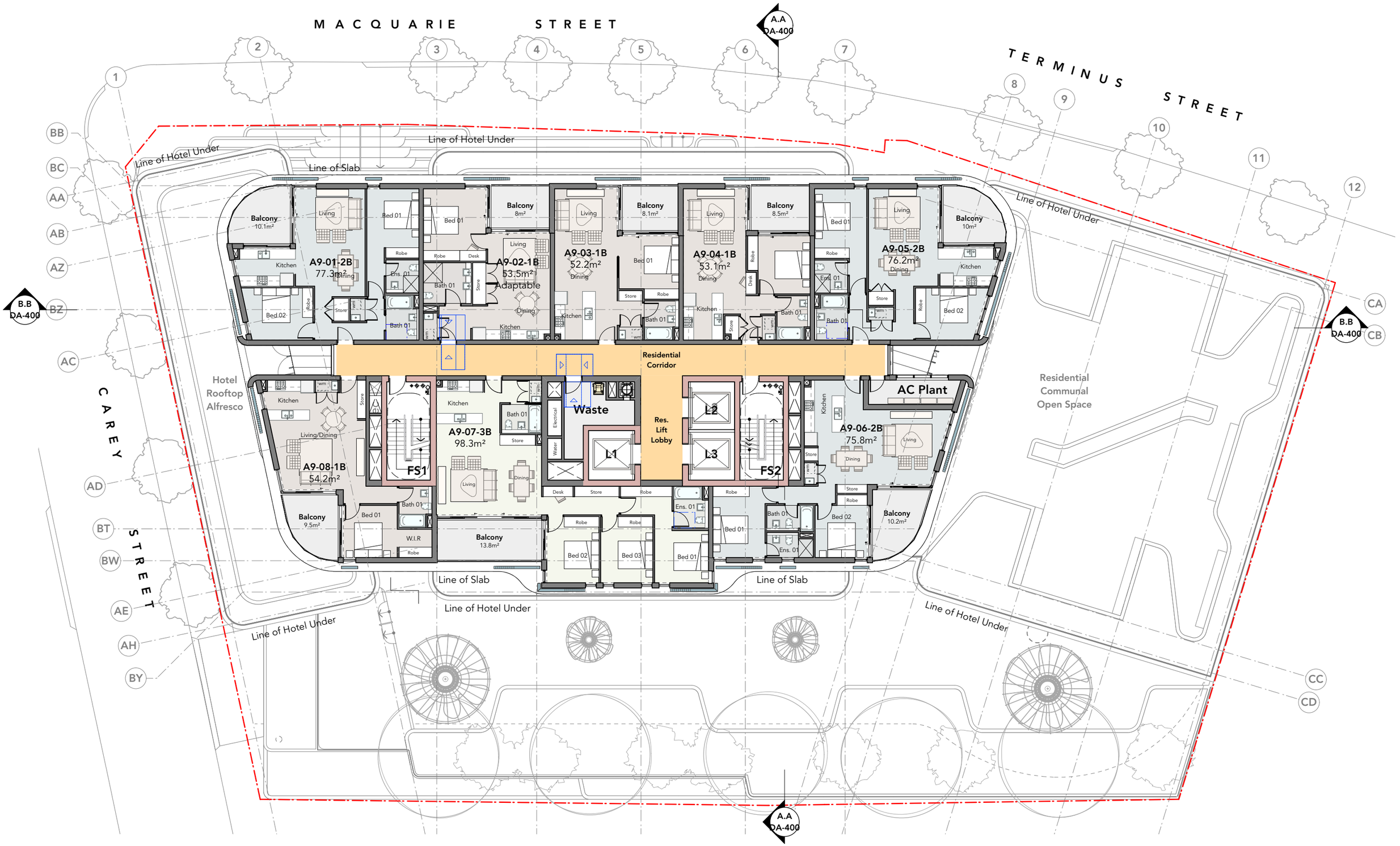
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Level 8

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-213		E



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D	21/11/22	Concept DA 1 Issue

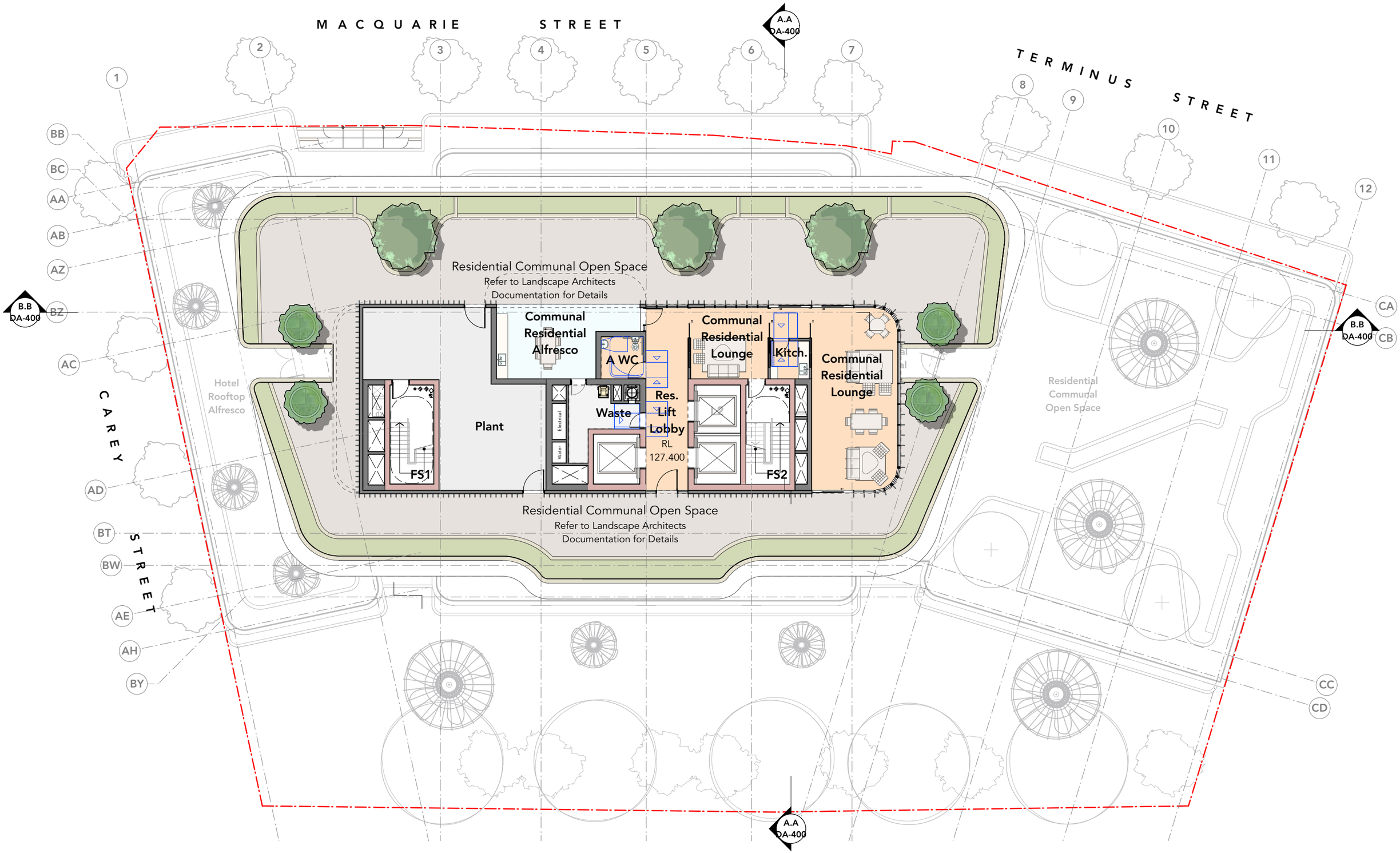
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Levels 9-29

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-220		D



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	28/10/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

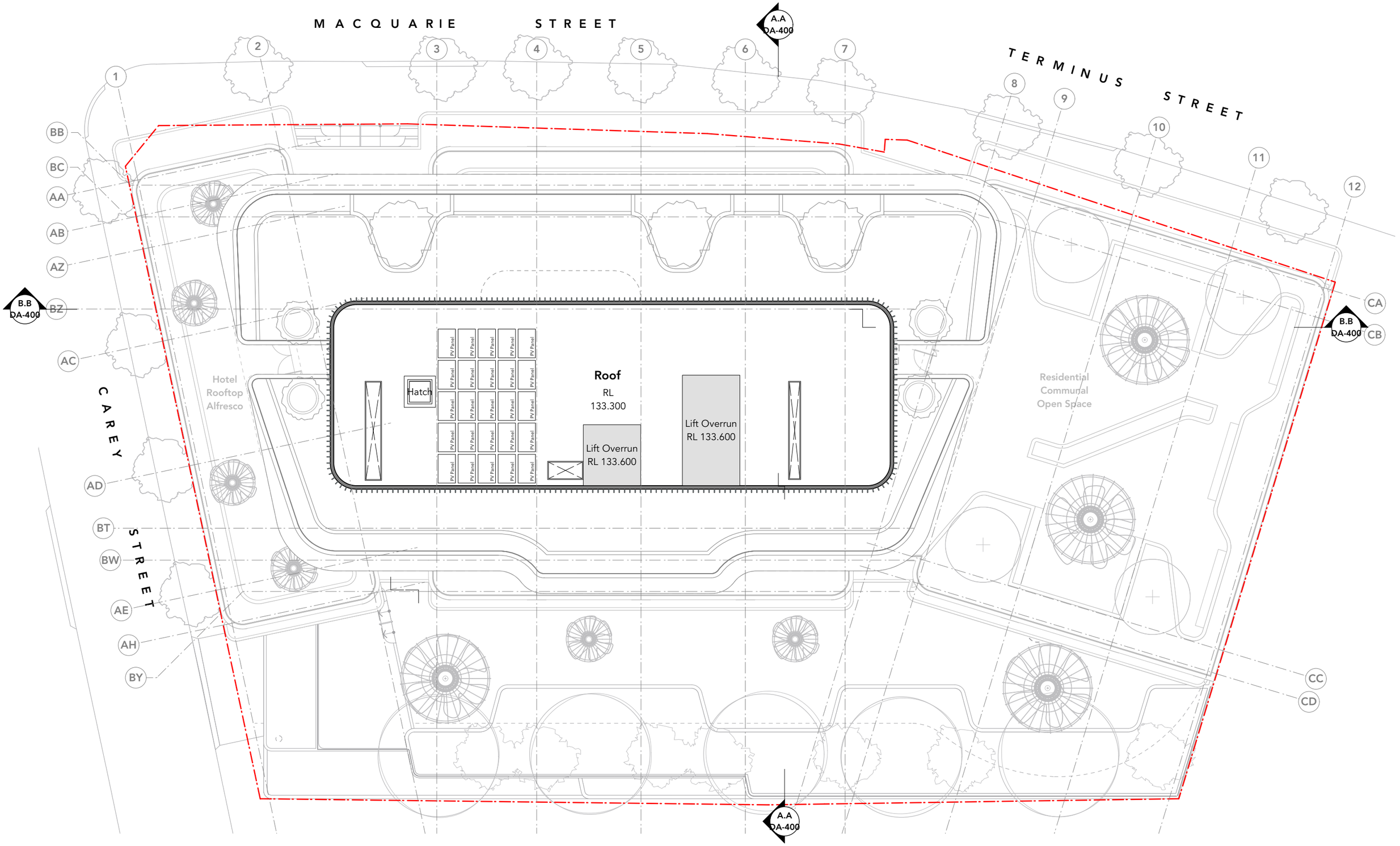
PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
GA Plan-Indicative Level 30

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-221		D



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	18/7/22	Pre DA Update Issue
C	28/10/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

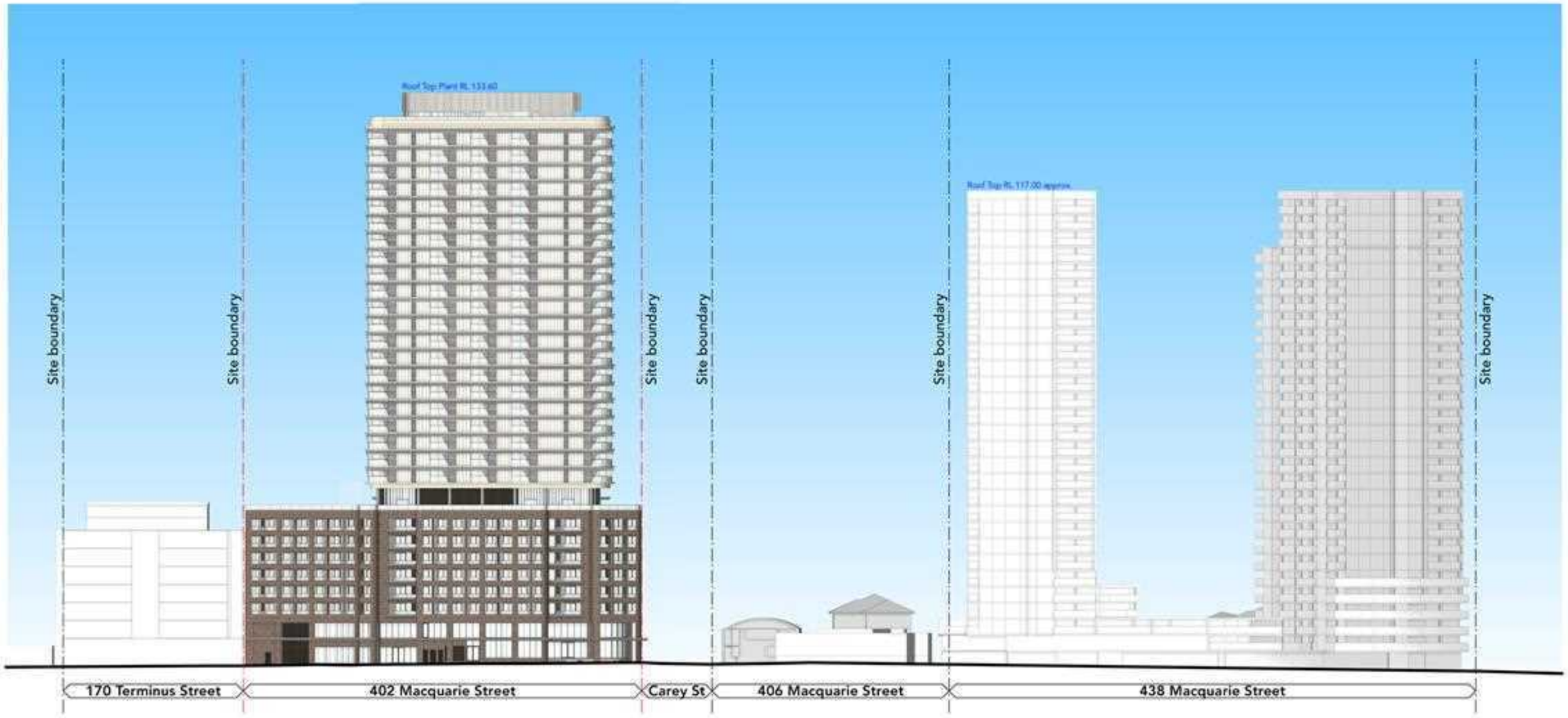
TITLE
GA Plan- Indicative Level Roof

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-222		D

Elevations-Street

Scale 1:750

Context Plan - Street Elevation



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NOTES

REV	DATE	DESCRIPTION
A	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street
Hotel + Apartment
Development

PROJECT ADRESS
402 Macquarie Street,
LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Elevations-Street

SCALE	DRAWN	CHECKED BY
1:750	EF, TC	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/22	DA 1
DWG NO.		REVISION
DA-300		A

Elevation-North

Scale: 1:500

Elevation-West

Scale: 1:500

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ARCHITECTURE | URBAN PROJECTS

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Elevations-North, West

SCALE	DRAWN	CHECKED BY
1:500	TC, TD	LT, RO

PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1

DWG NO.	REVISION
DA-310	C

Elevation-North

Scale: 1:500

Elevation-West

Scale: 1:500

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

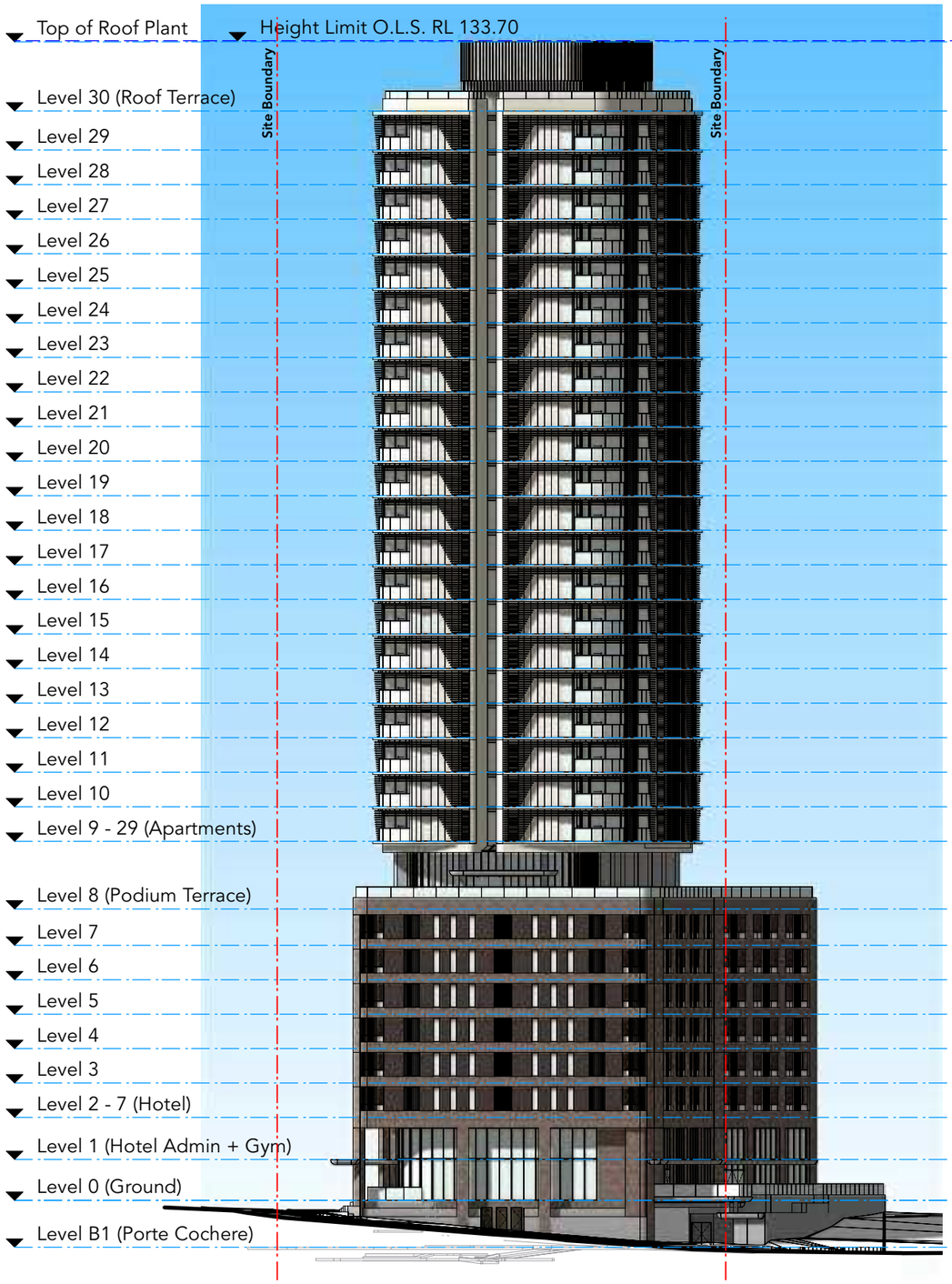
CLIENT
Australasian Property Group Pte Ltd

TITLE
Elevations-North, West

SCALE	DRAWN	CHECKED BY
1:500	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-310		C

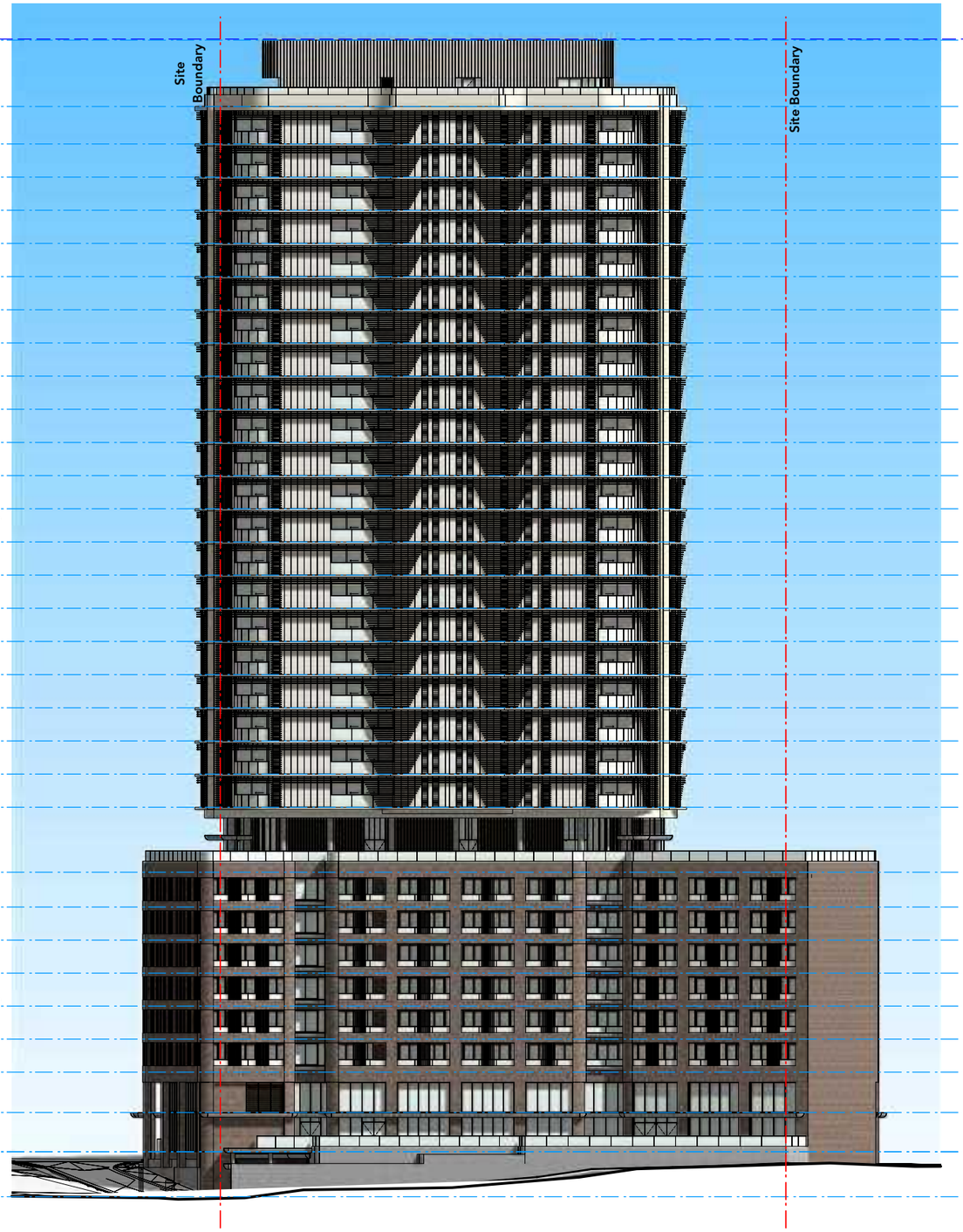
Elevation-South

Scale: 1:500



Elevation-East

Scale: 1:500



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coodination
C	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

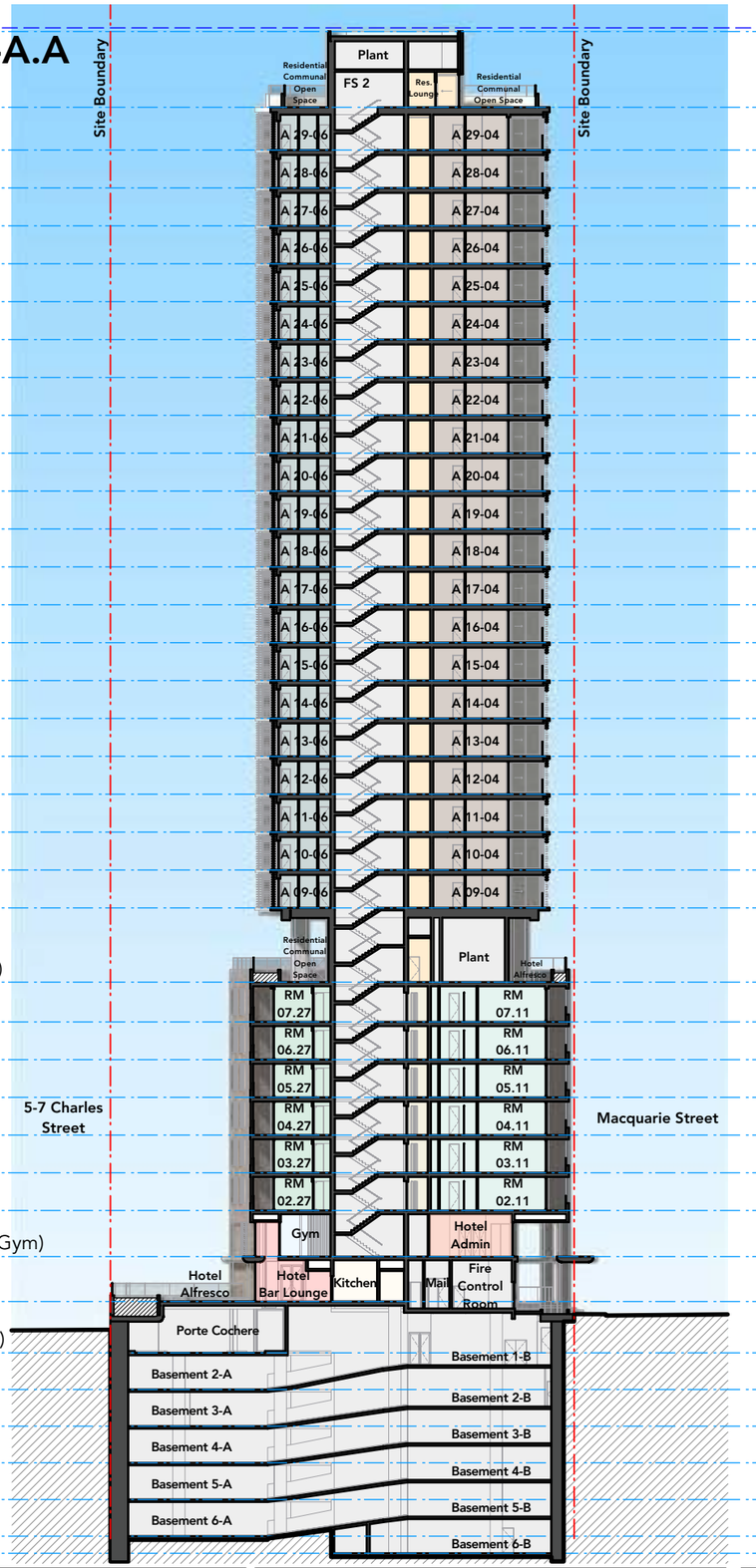
CLIENT
Australasian Property Group Pte Ltd

TITLE
Elevations-South, East

SCALE	DRAWN	CHECKED BY
1:500	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-311		C

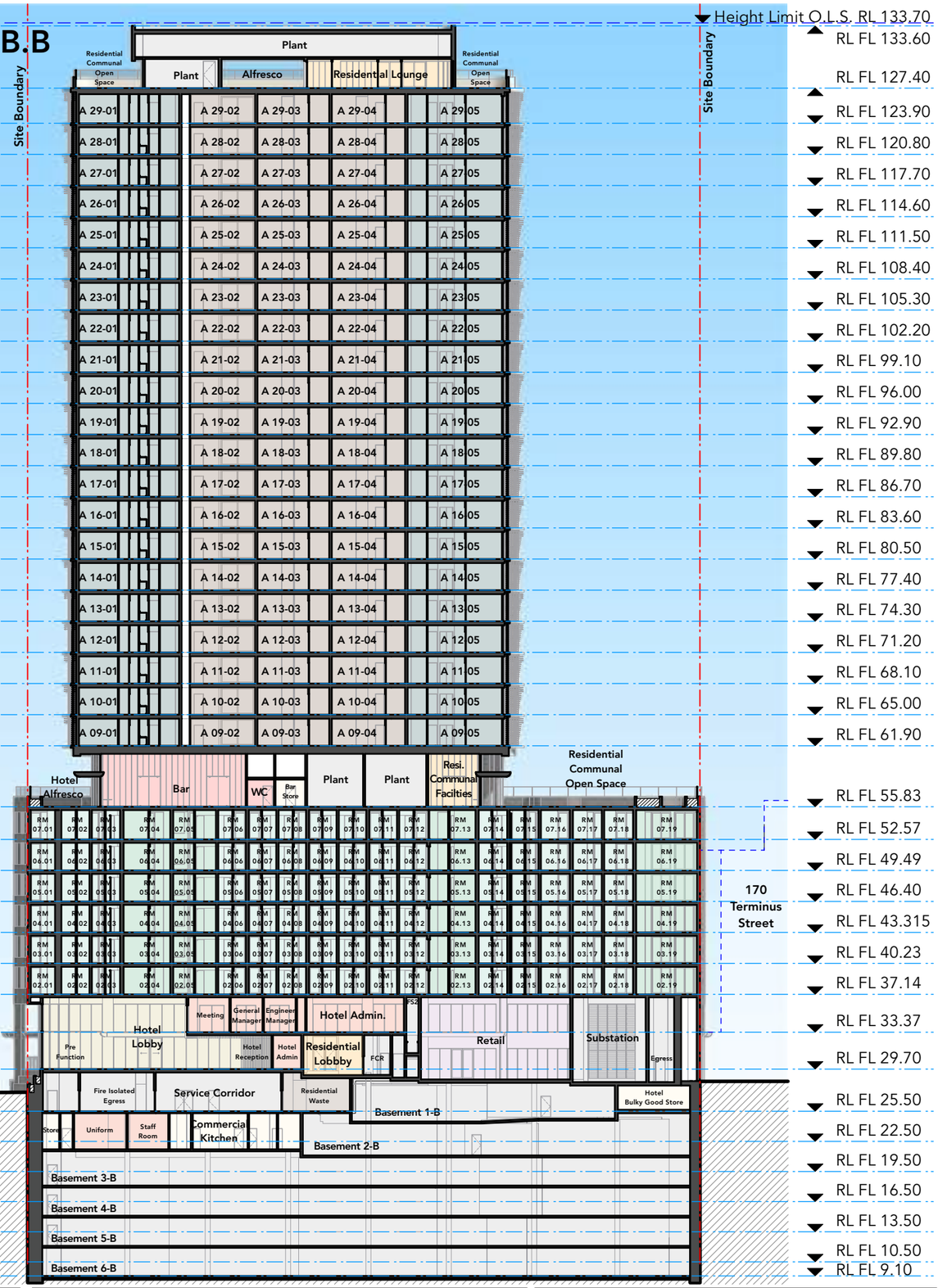
Section-A.A

Scale: 1:500



Section-B.B

Scale: 1:500



NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	21/11/22	Concept DA 1 Issue

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PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Sections-AA, BB

SCALE	DRAWN	CHECKED BY
1:500	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-400		B

Material Palette: Podium

Exterior Building Fabric: Podium Hotel + Retail

Hotel Podium

Walls, Soffit (Colonnade)

Columns, Awnings, Planters

Glazing Framing, Battens

Battens

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ARCHITECTURE | URBAN PROJECTS

NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre-DA Issue
B	18/7/22	Pre-DA Update Issue
C	28/10/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Material Palette: Podium

SCALE	DRAWN	CHECKED BY
NTS	TC, TD	LT, RO

PROJECT NO	DATE	STAGE
2215	21/11/2022	DA 1

DWG NO
DA-500

REVISION
D

Material Palette: Tower

Exterior Building Fabric: Residential Tower

Residential Tower

Walls

Horizontal Louvres

Battens, Glazing Framing, Tower Slots and Parapet.

Exposed slab & slab edges

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NOTES

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A	4/7/22	Pre-DA Issue
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C	28/10/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Material Palette: Tower

SCALE	DRAWN	CHECKED BY
NTS	TC, TD	LT, RO

PROJECT NO	DATE	STAGE
2215	21/11/2022	DA 1

DWG NO
DA-501

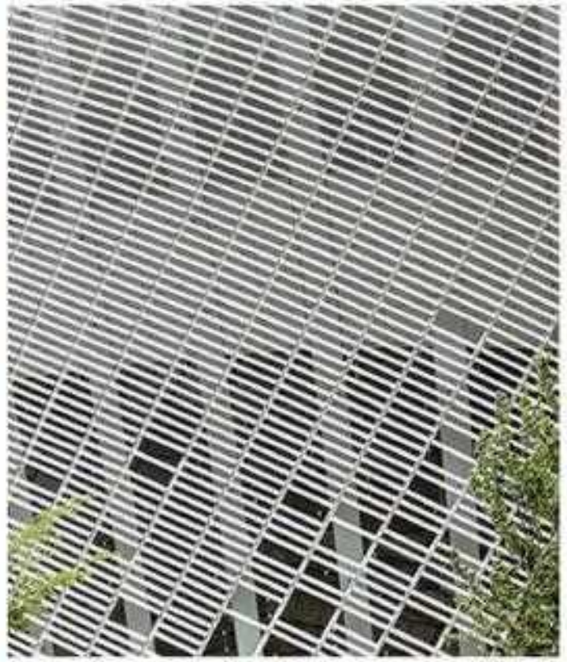
REVISION
D

Material Palette: Approach

Exterior Building Fabric: Residential Tower







Exterior Building Fabric: Hotel Podium



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NOTES

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A	4/7/22	Pre-DA Issue
B	28/10/22	Consultant Coordination
C	11/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

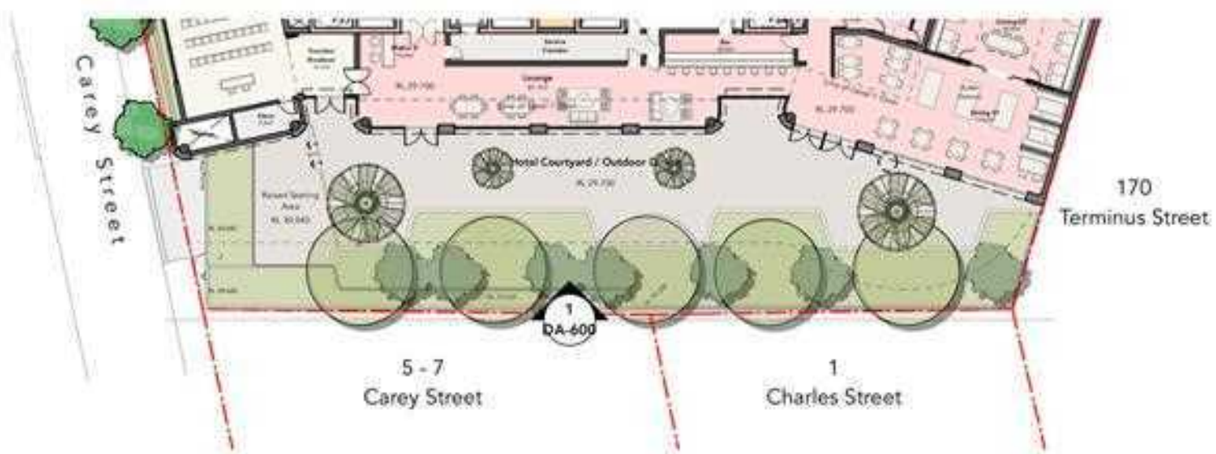
CLIENT
Australasian Property Group Pte Ltd

TITLE
Design Precedents

SCALE	DRAWN	CHECKED BY
NTS	TD	LT, RO
PROJECT NO	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO		REVISION
DA-502		D

Rear Boundary Elevation

Scale: 1:150



Elevation Location Plan

Scale 1:400

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NOTES

REV	DATE	DESCRIPTION
A	28/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

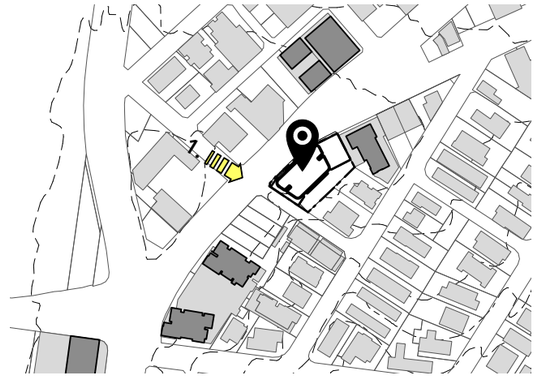
CLIENT
Australasian Property Group Pte Ltd

TITLE
Rear Boundary Condition

SCALE	DRAWN	CHECKED BY
1:150	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	28/11/2022	DA 1
DWG NO.		REVISION
DA-600		A

Photo Montage: View 1 from the West

Key Plan



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PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Photo Montage: View 1

SCALE	DRAWN	CHECKED BY
NTS	TC	LT, RO

PROJECT NO.	DATE	STAGE
2215	28/11/2022	DA 1

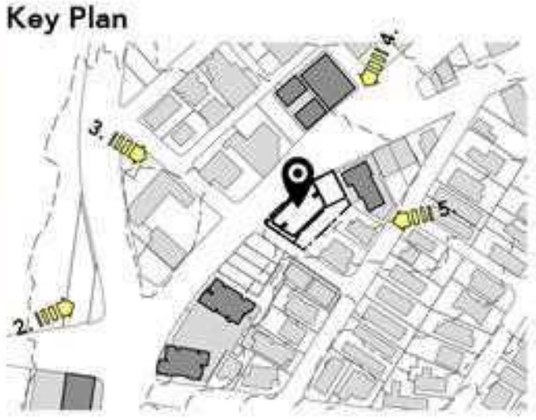
DWG NO.	REVISION
DA-700	B

Photo Montage: Views 2 to 5

Above: View 2
View from West

Above: View 3
View from
North-West

Key Plan



Right: View 4
View from North

Left: View 5
View from East

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Russell Olsson Registered Architect 7079

NOTES

REV	DATE	DESCRIPTION
A	18/7/22	Pre DA Update Issue
B	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street
Hotel + Apartment
Development

PROJECT ADRESS
402 Macquarie Street,
LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Photo Montage: Views 2-5

SCALE	DRAWN	CHECKED BY
NTS	TD	RO

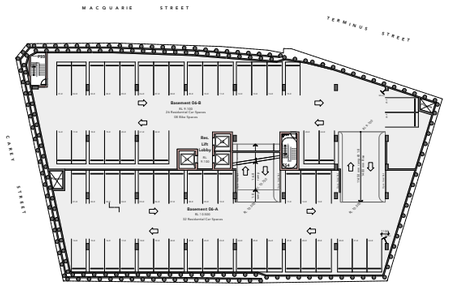
PROJECT NO	DATE	STAGE
2215	21/11/2022	DA 1

DWG NO	REVISION
DA-701	B

Gross Floor Area (GFA) Measurement Summary

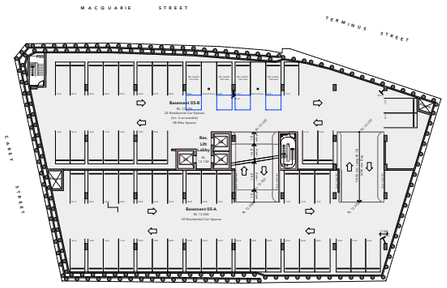
Basement Level 6 - Level 1

Basement Level 6



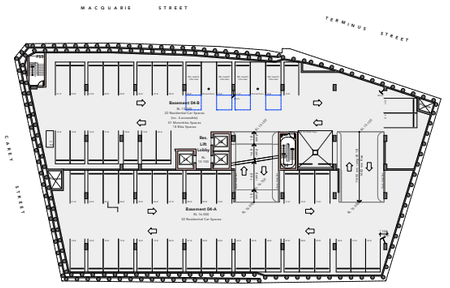
Gross Floor Area **0.0 m²**

Basement Level 5



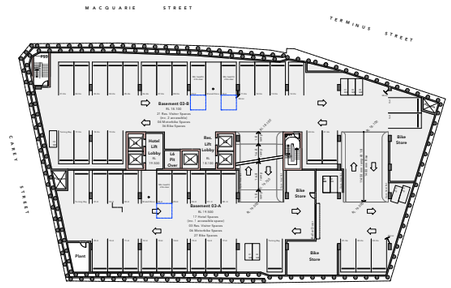
Gross Floor Area **0.0 m²**

Basement Level 4



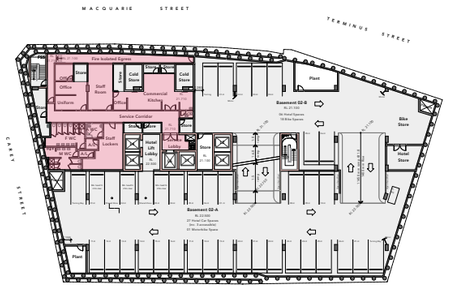
Gross Floor Area **0.0 m²**

Basement Level 3



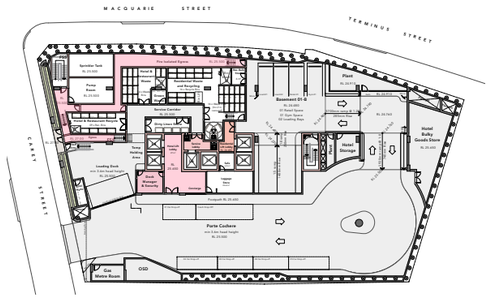
Gross Floor Area **0.0 m²**

Basement Level 2



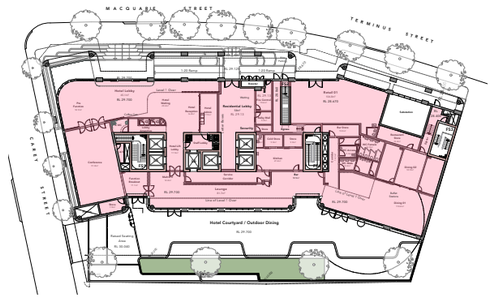
Gross Floor Area **317.9 m²**

Basement Level 1 (Porte Cochere)



Gross Floor Area **152.0 m²**

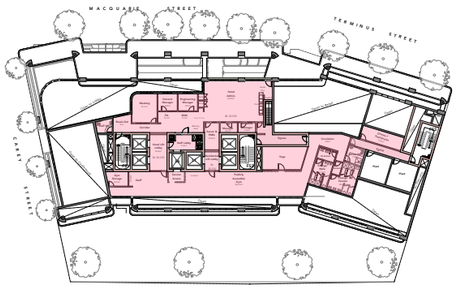
Level 0 (Ground)



Gross Floor Area **1,060.6 m²**

Deep Soil Area **85.6 m²**
Soil Depth 1.2 - 1.5 m

Level 1 (Hotel Admin. + Gym)



Gross Floor Area **503.0 m²**

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	28/10/22	Consultant Coordination
C	11/11/22	Consultant Coordination
D	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Gross Floor Area Summary

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-800		D

Gross Floor Area (GFA) Measurement Summary

Basement Level 2 - Level 31

Area Summary

Site Area: 2,292m^2

Proposed FSR: 10:1
Proposed GFA: 22,918m^2

Max Allowable FSR: 10:1
Max Allowable GFA: 22,920 m^2

Communal Open Space
Level 8: 594.9m^2
Level 30: 461.6m^2
Total C.O.S: 1056.5 m^2 (46%)

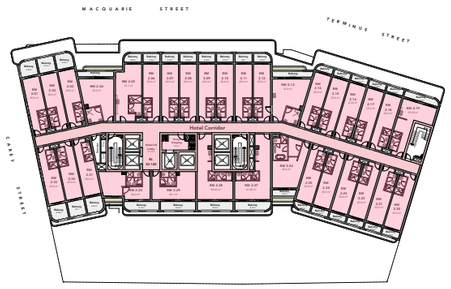
Deep Soil Area
(Soil depth 1.2m - 1.5m)
Level 0 Deep Soil: 85.6m^2 (3.7%)

Area Summary

GFA Per Floor

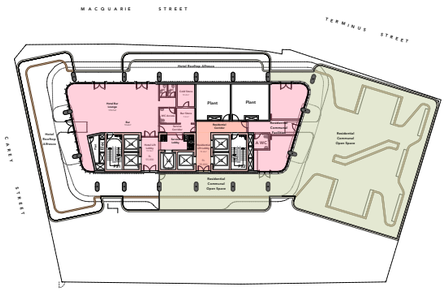
Basement 2:	317.9m^2
Basement 1:	152.0 m^2
Level 0/GF:	1,060.6m^2
Level 01:	503.0m^2
Level 02:	1,152.7m^2
Level 03:	1,152.7m^2
Level 04:	1,152.7m^2
Level 05:	1,152.7m^2
Level 06:	1,152.7m^2
Level 07:	1,152.7m^2
Level 08:	318.8m^2
Level 09:	644.2m^2
Level 10:	644.2m^2
Level 11:	644.2m^2
Level 12:	644.2m^2
Level 13:	644.2m^2
Level 14:	644.2m^2
Level 15:	644.2m^2
Level 16:	644.2m^2
Level 17:	644.2m^2
Level 18:	644.2m^2
Level 19:	644.2m^2
Level 20:	644.2m^2
Level 21:	644.2m^2
Level 22:	644.2m^2
Level 23:	644.2m^2
Level 24:	644.2m^2
Level 25:	644.2m^2
Level 26:	644.2m^2
Level 27:	644.2m^2
Level 28:	644.2m^2
Level 29:	644.2m^2
Level 30:	121.3m^2
Total:	**22,918.0m^2**

Level 2-7: Hotel Rooms



Gross Floor Area **1152.7 m^2**

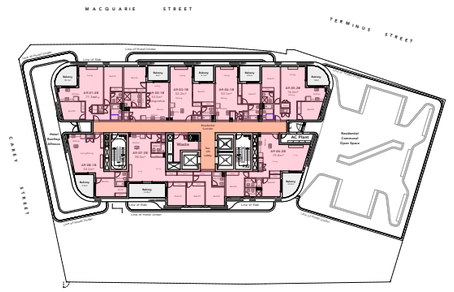
Level 8: Amienities



Gross Floor Area **318.8 m^2**

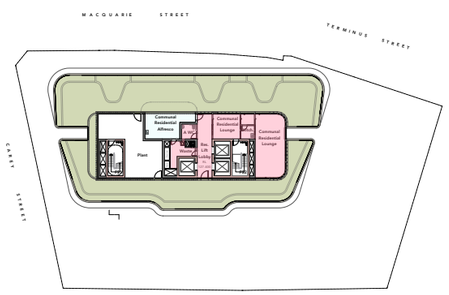
Residential Communal Open Space **594.9m^2**

Levels 9-19: Residential



Gross Floor Area **644.2 m^2**

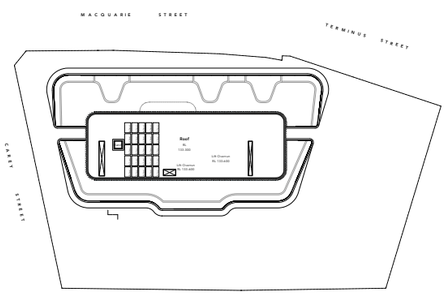
Level 30: Terrace / Plant



Gross Floor Area **121.2 m^2**

Residential Communal Open Space **461.6 m^2**

Level 31: Roof / Plant



Gross Floor Area **0.0 m^2**

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PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

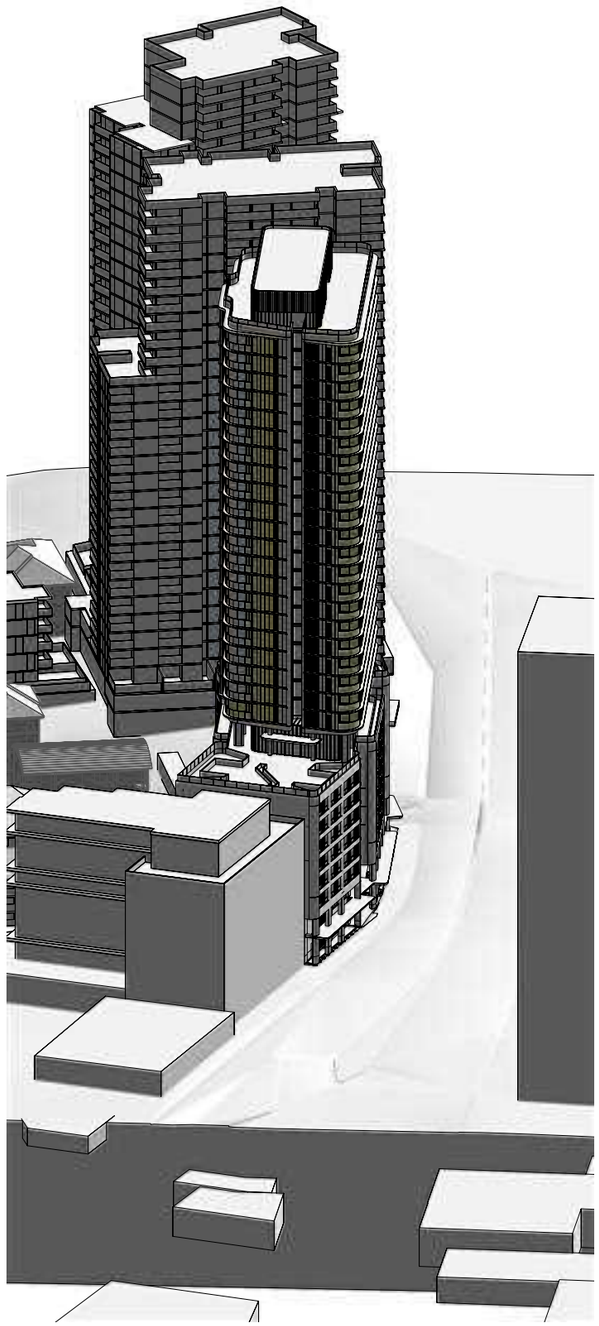
TITLE
Gross Floor Area Summary

SCALE	DRAWN	CHECKED BY
1:200	TC, TD	LT, RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-801		D

Solar Analysis

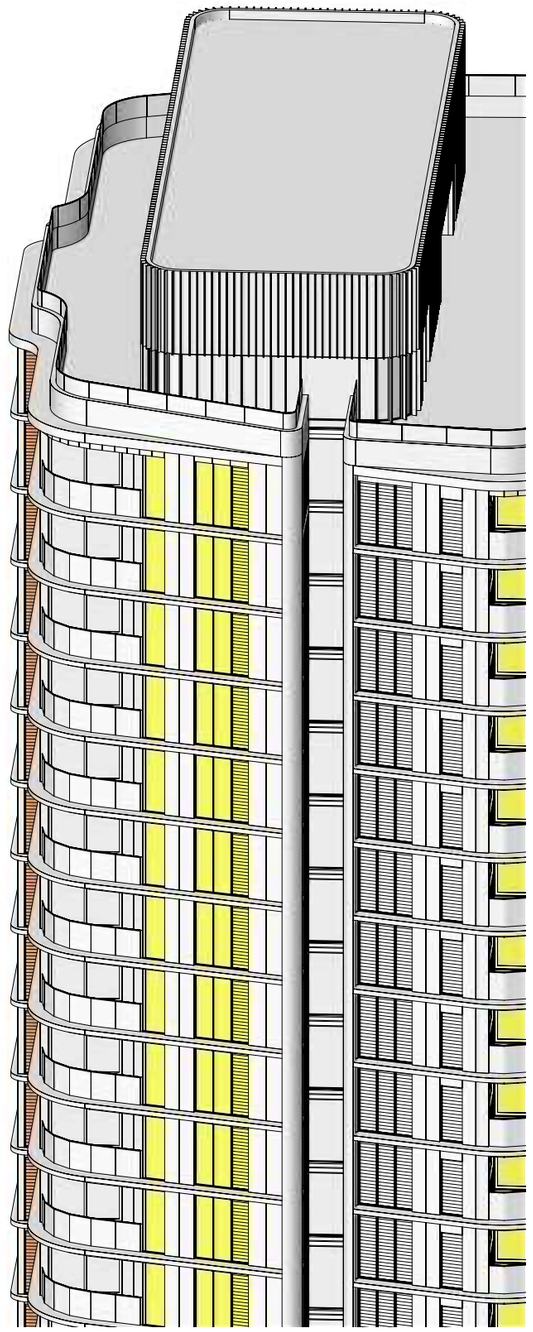
21 June 9am – 9.30am

9am

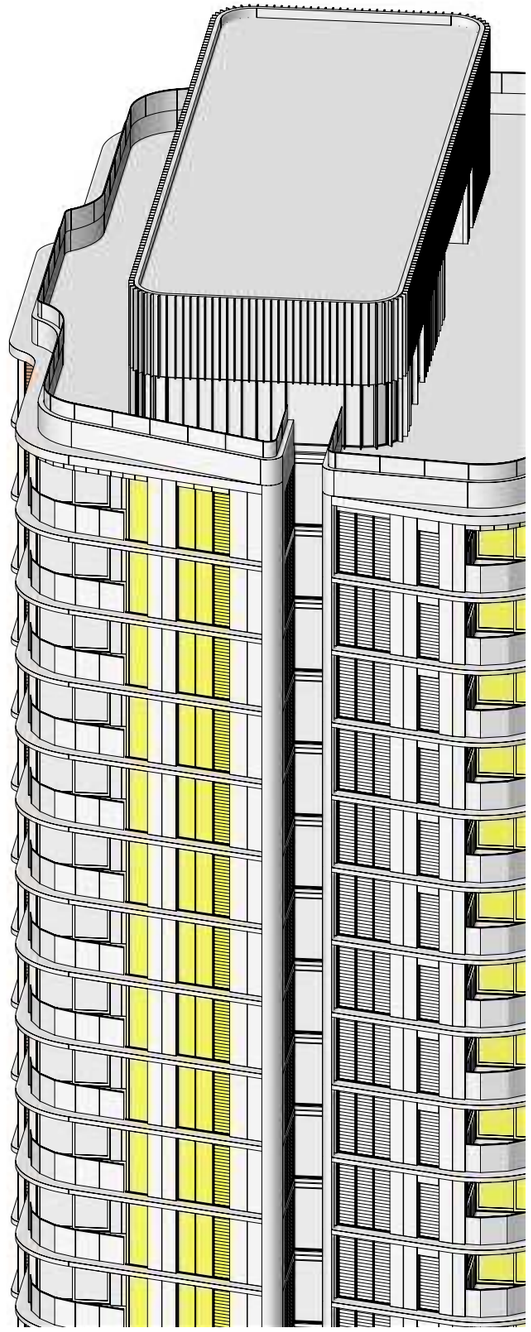


9.30am

9am: Bedroom Solar Access



9.15am: Bedroom Solar Access



ADG Solar Access

Living Room Window
Bedroom Window
(Louvres not shown for legibility)

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	21/11/22	For Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Solar Access 9am - 9:30am

SCALE	DRAWN	CHECKED BY
NTS	TD, TC	RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-810		B

Solar Analysis

21 June 10am – 11.30am

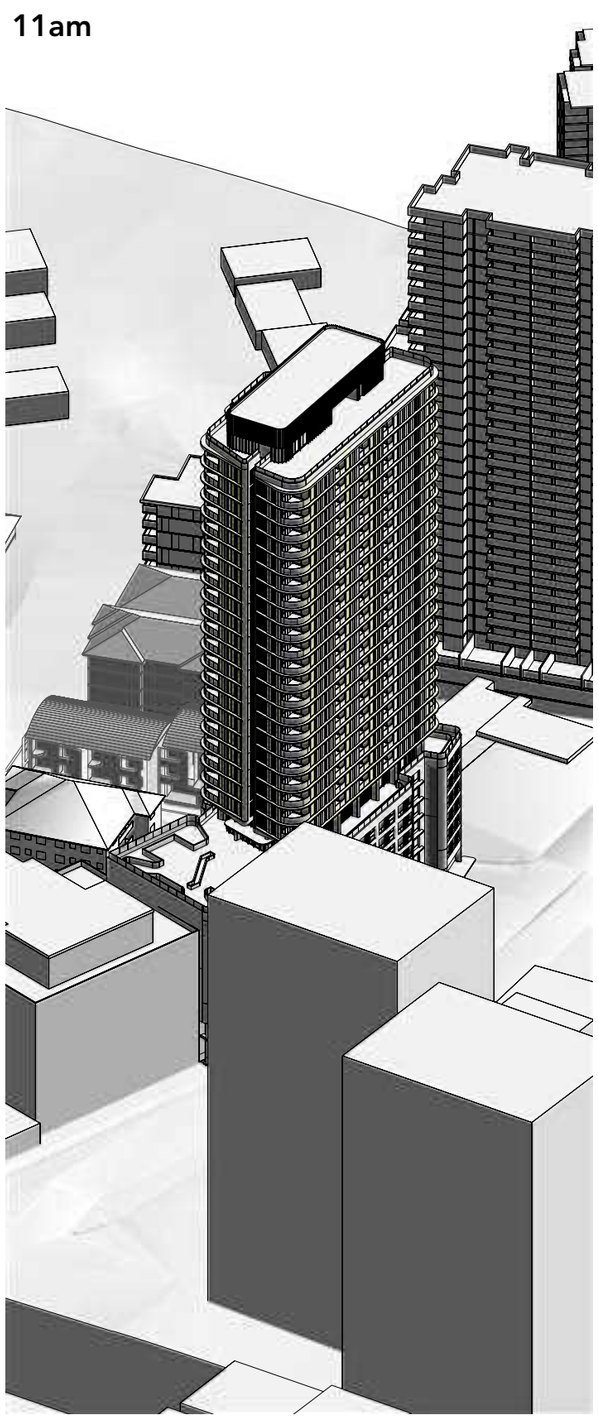
ADG Solar Access

Living Room Window
(Louvres not shown for legibility)

10am

10.30am

11am



11.30am

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	21/11/22	For Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Solar Access 10am - 11:30am

SCALE	DRAWN	CHECKED BY
NTS	TD, TC	RO

PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1

DWG NO. **DA-811**

REVISION **B**

Solar Analysis

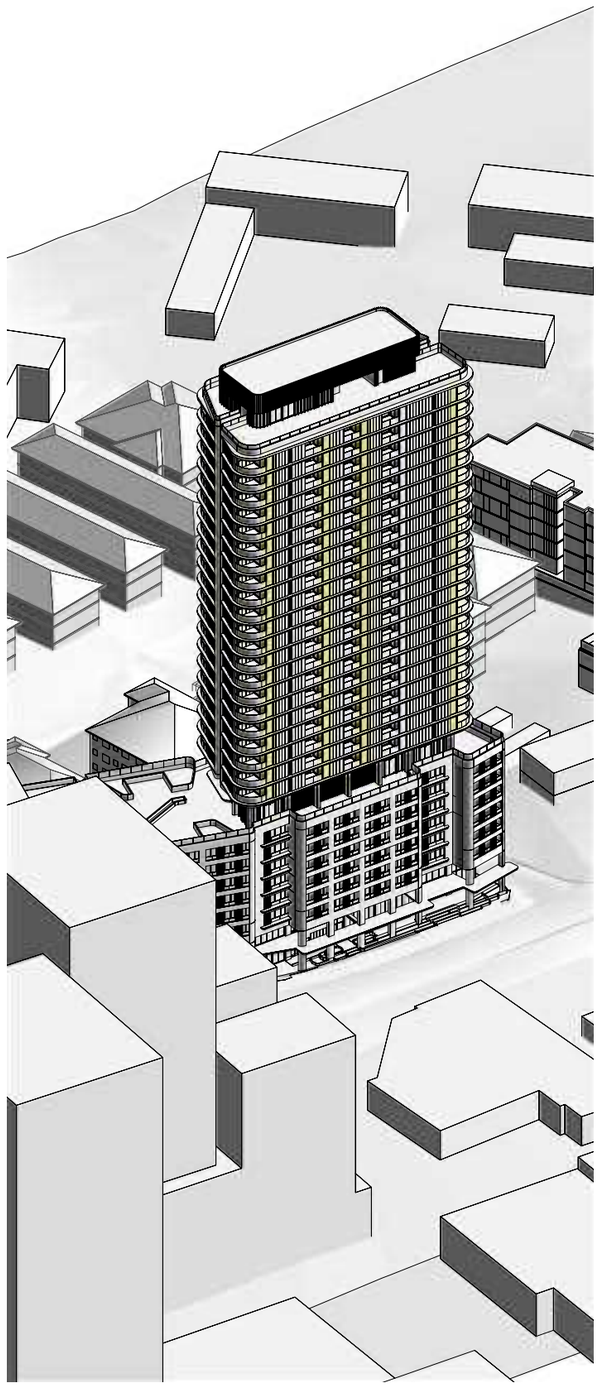
21 June 12pm – 1:30pm

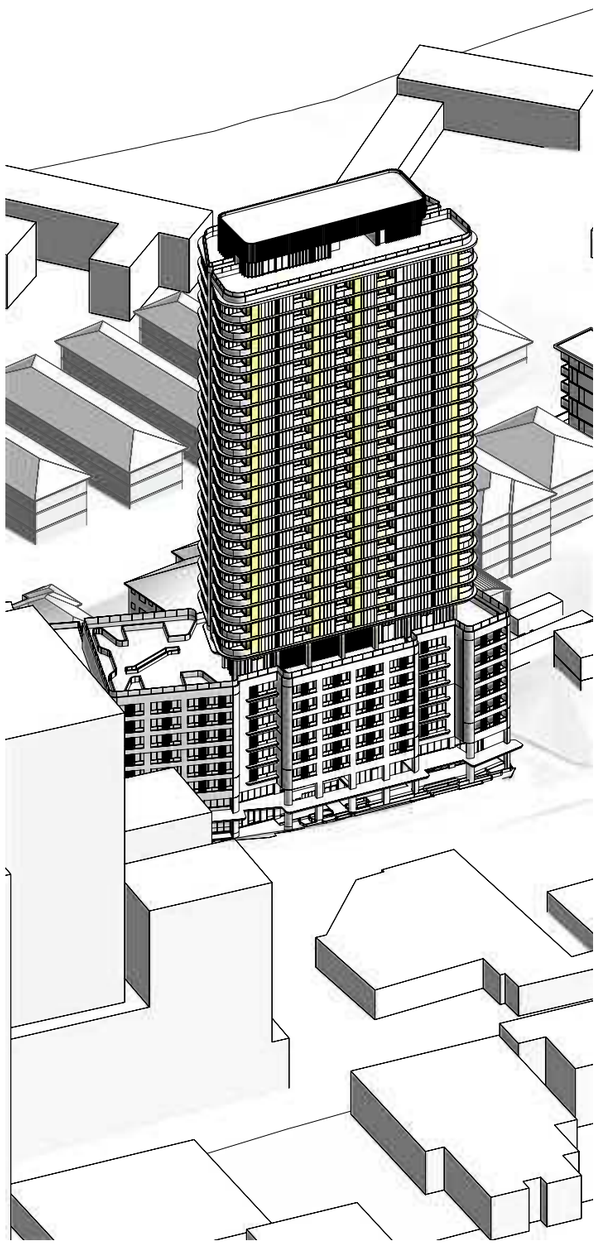
ADG Solar Access

Living Room Window
(Louvres not shown for legibility)

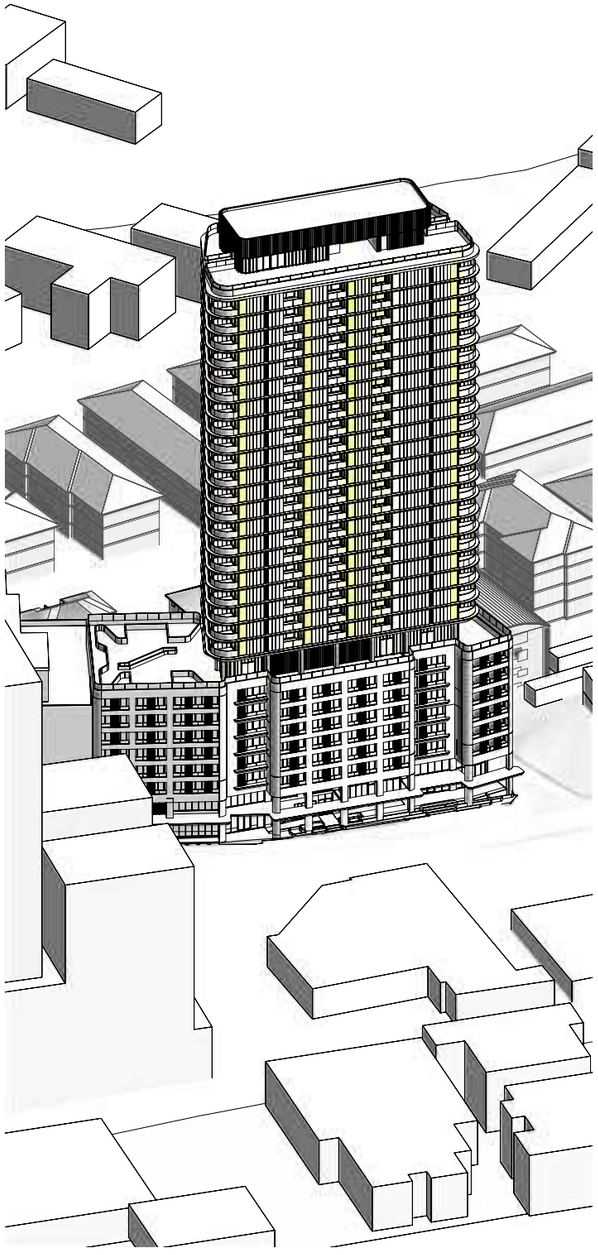
12pm

1pm





1.30pm



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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
B	21/11/22	For Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

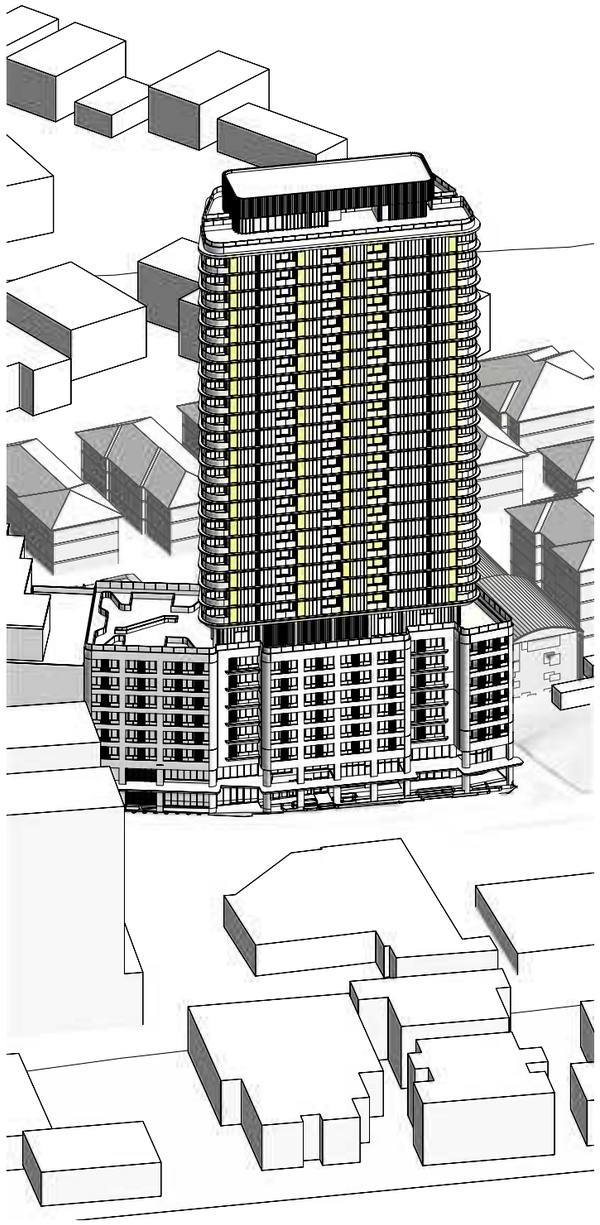
TITLE
Solar Access 12pm - 1:30pm

SCALE	DRAWN	CHECKED BY
NTS	TD, TC	RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-812		B

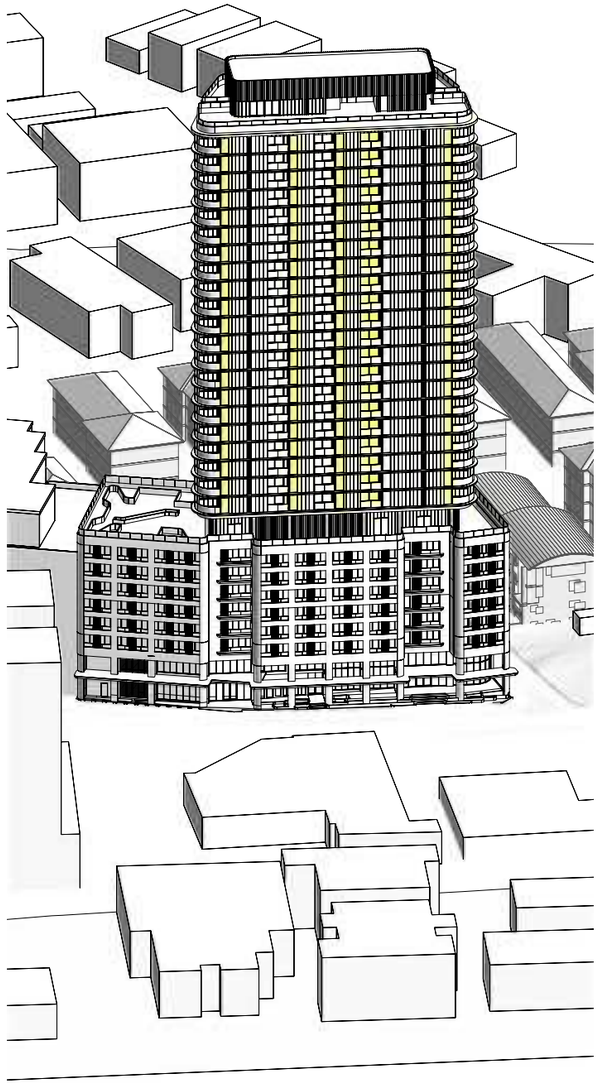
Solar Analysis

21 June 2pm – 3pm

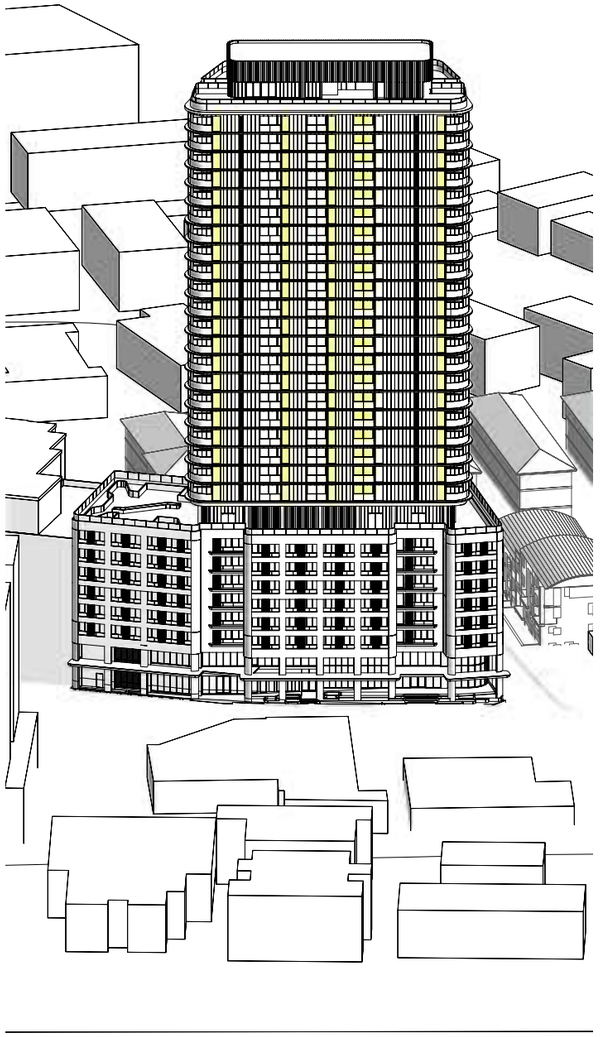
2pm



2.30pm



3pm



ADG Solar Access

Living Room Window
(Louvres not shown for legibility)

Solar Access Schedule

Unit Number (Levels 09-29)	Sun to Living + Balc. Start	Sun to Living + Balc. Finish	Total Hours Sun to Living	Complies Y/N
Unit 01	9:30 am	3:00 pm	5.5	Y
Unit 02	1:00 pm	3:00 pm	2	Y
Unit 03	9:30 am	3:00 pm	5.5	Y
Unit 04	9:30 am	3:00 pm	5.5	Y
Unit 05	9:00 am	3:00 pm	6	Y
Unit 06	9:00 am	12:30 pm	3.5	Y
Unit 07	N/A	N/A	0	N
Unit 08	N/A	N/A	0	N

Total Units with Min. 2 Hours Solar to Living Room and Balcony	126
Percentage	75.00%
Complies ADG Solar Objective 4A-1.1	Yes

Unit Number (Levels 09-29)	Solar to Window Start	Solar to Window	Total Hours Sun	Min.15 Mins. Solar Y/N
Unit 01	9:30 am	3:00 pm	5.5	Y
Unit 02	9:30 am	3:00 pm	5.5	Y
Unit 03	9:30 am	3:00 pm	5.5	Y
Unit 04	9:30 am	3:00 pm	5.5	Y
Unit 05	9:00 am	3:00 pm	6	Y
Unit 06	9:00 am	12:30 pm	3.5	Y
Unit 07	9:00 am	9:15 am	0.25	Y
Unit 08	N/A	N/A	0	N

Total Units with Min. 15 minutes of sunlight	147
Percentage	87.50%
Complies ADG Solar Objective 4A-1.3	Yes

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NOTES

REV	DATE	DESCRIPTION
A	4/7/22	Pre DA Issue
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PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

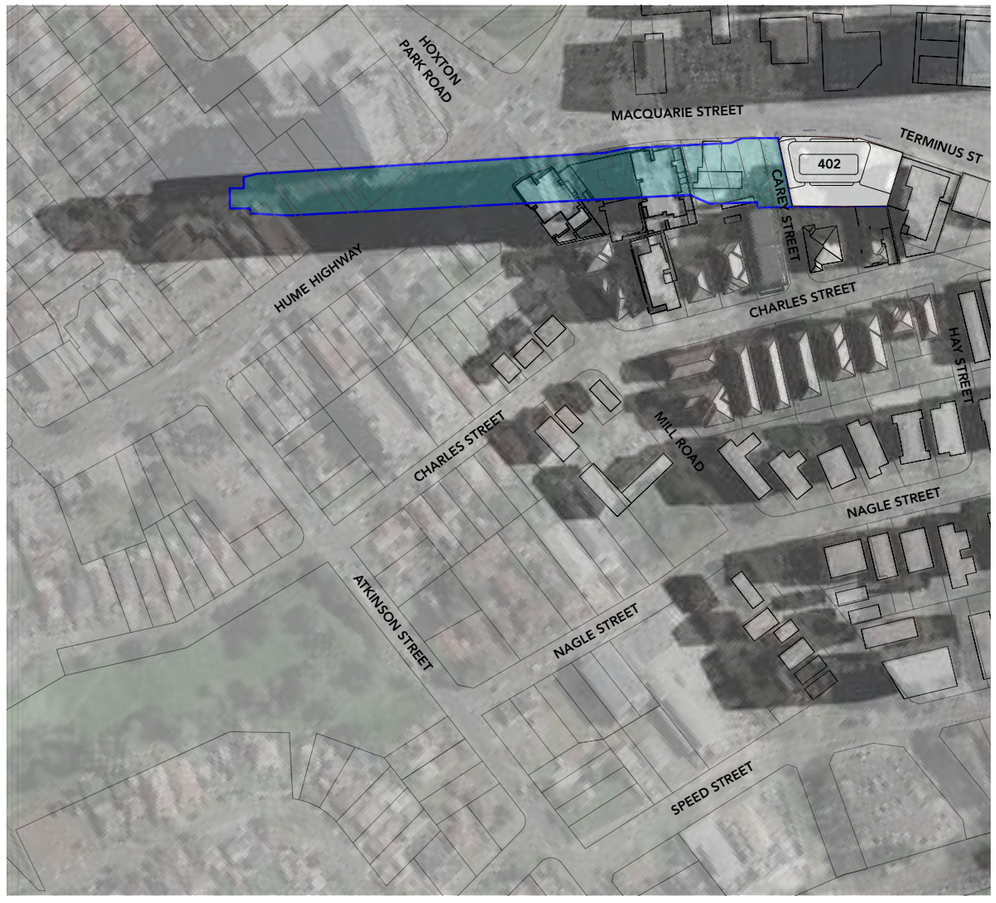
TITLE
Solar Access 2pm - 3pm

SCALE	DRAWN	CHECKED BY
NTS	TD, TC	RO
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-813		B

Shadow Diagrams

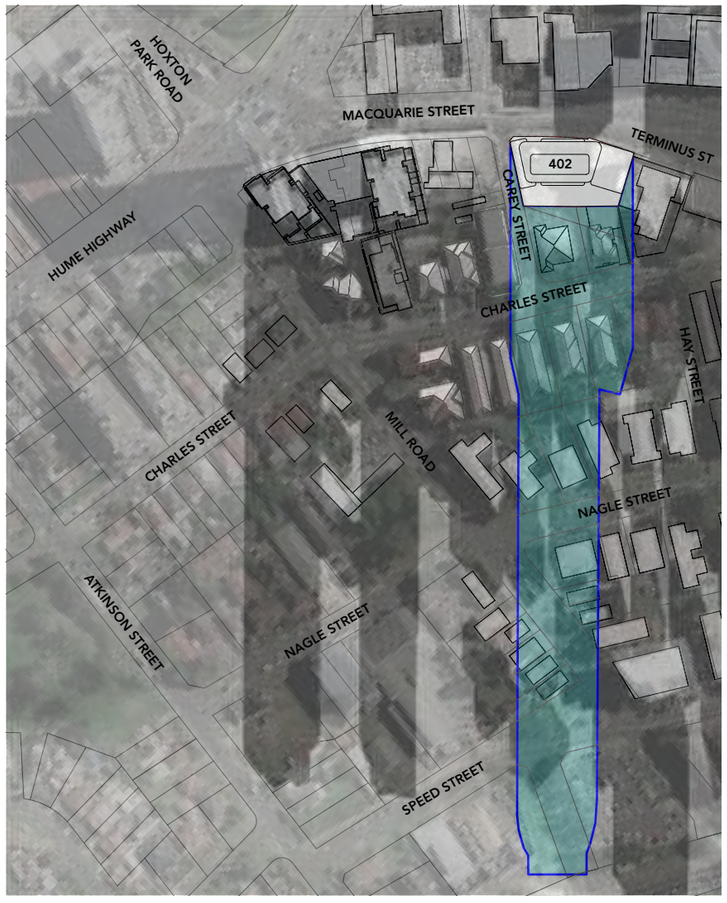
9am, 12pm & 3pm at Winter Solstice

Extent of Shadow from Proposal



Shadows - 9am

Shadows - 12pm



Shadows - 3pm

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NOTES

REV	DATE	DESCRIPTION
A	21/11/22	Concept DA 1 Issue

PROJECT
Macquaire Street Hotel + Apartment Development

PROJECT ADRESS
402 Macquarie Street, LIVERPOOL

CLIENT
Australasian Property Group Pte Ltd

TITLE
Shadow Diagrams

SCALE	DRAWN	CHECKED BY
1:1250	EF	TC
PROJECT NO.	DATE	STAGE
2215	21/11/2022	DA 1
DWG NO.		REVISION
DA-820		A

APPENDIX B
LOCATION MAP &
SITE PHOTOGRAPHS


Maquarie Street
Terminus Street
Maquarie Street
Maquarie Street
BH3
BH4
BH5
BH6
BH2
P1
BH8
P2
P3
BH7
BH1
Lot 100/DP1250893
402 Macquarie Street,
Liverpool, NSW, 2170
R3
R2
SITE
R1
Carey Street
N
Job Name:Liverpool-MA
Aerial Image Source: NearMap
Lat-33.927782_Lon150.91962
Date: 21 March 2024
Legend:
Site Boundary
Borehole Locations
Pile Sample Locations
Ramp Sample Locations
Title:
Site Map including Borehole and Sampling Locations
Location:
402 Macquarie Street, Liverpool, NSW, 2170
Report Ref:
Liverpool-MA_Rev0
Scale:
0 2.5 5 7.5 10 12.5 m
This plan should be read in conjunction with the Canopy Enterprises Report.
All sampling locations are an approximation of ground truth data.
canopy
ENTERPRISES

Job Name:Liverpool-MA
Aerial Image Source: NearMap
Lat-33.927782_Lon150.91962
Date: 21 May 2024

Title: **Site Map including Emu Pick Zone**

Location: 402 Macquarie Street, Liverpool, NSW, 2170

Legend:
- Site Boundary
- Emu Pick zone

Report Ref: Liverpool-MA_Rev0

Scale: 0 2.5 5 7.5 10 12.5 m

This plan should be read in conjunction with the Canopy Enterprises Report.
All sampling locations are an approximation of ground truth data.

canopy ENTERPRISES

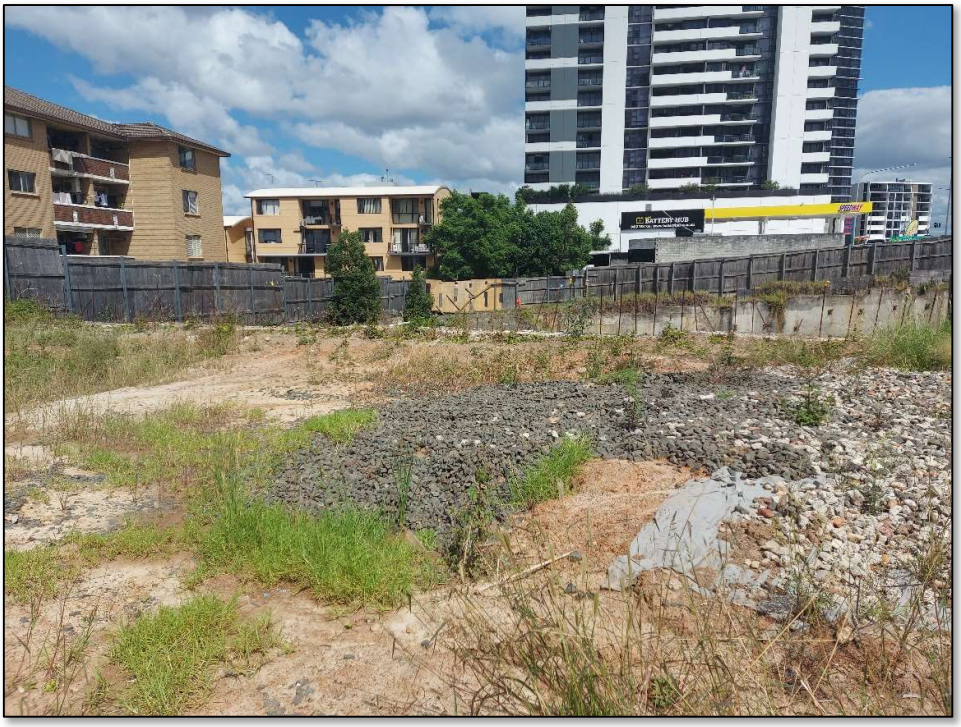


Photo 1:

View of the Site from the northern corner looking south.

Photo 2

Access ramp to the northern portion of the Site. Note the imported railway ballast type material.

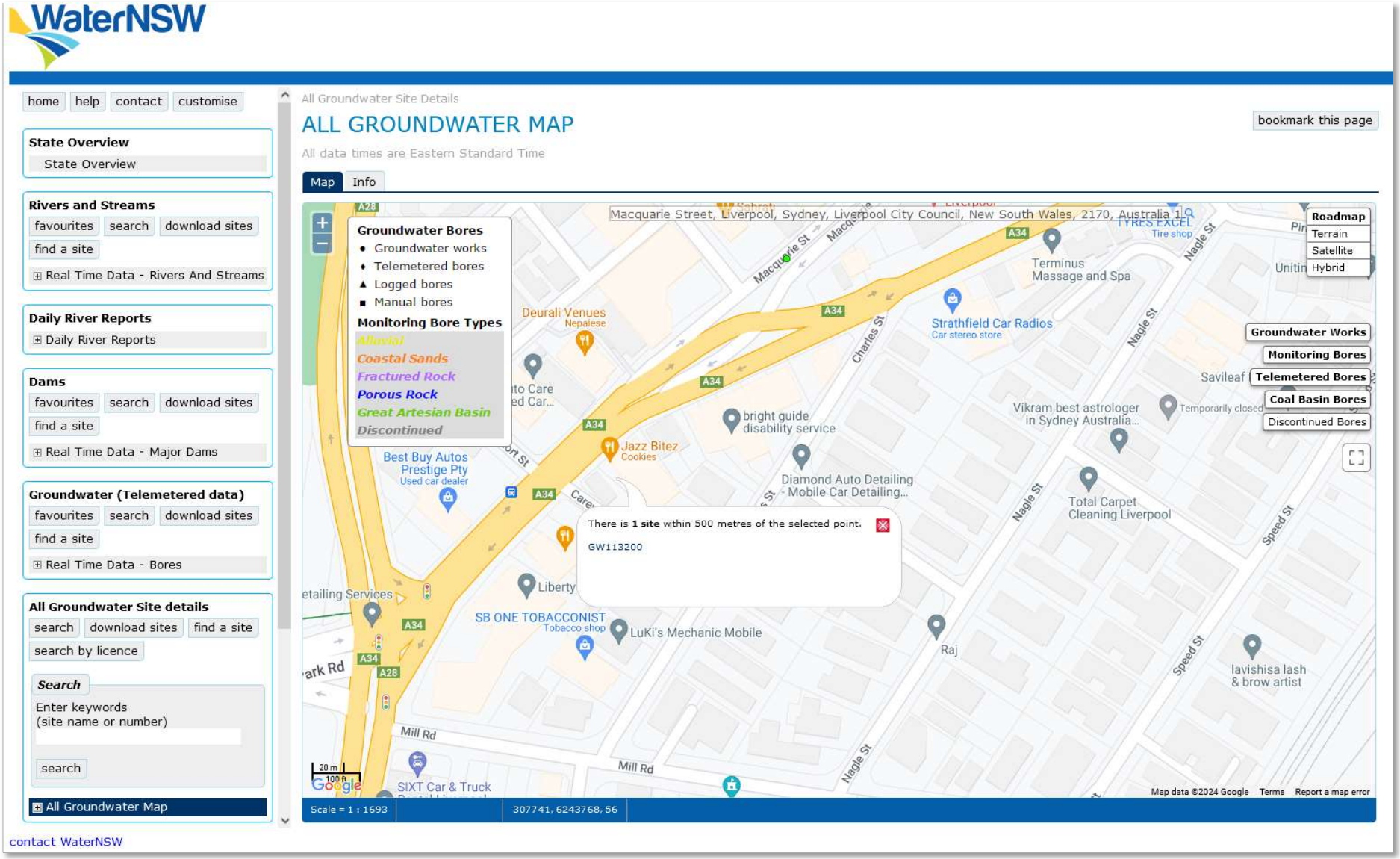
Photo 3

View of the southern portion of the Site that has been subject to extensive excavation and concrete shoring of walls and the base in the past.

Photo 4

Stockpiled material located on the southern portion of the Site

APPENDIX C
GROUNDWATER BOREHOLE SEARCH RESULTS


WaterNSW
home help contact customise
State Overview
State Overview
Rivers and Streams
favourites search download sites
find a site
Real Time Data - Rivers And Streams
Daily River Reports
Daily River Reports
Dams
favourites search download sites
find a site
Real Time Data - Major Dams
Groundwater (Telemetered data)
favourites search download sites
find a site
Real Time Data - Bores
All Groundwater Site details
search download sites find a site
search by licence
Search
Enter keywords
(site name or number)
search
All Groundwater Map
contact WaterNSW
All Groundwater Site Details
ALL GROUNDWATER MAP
bookmark this page
All data times are Eastern Standard Time
Map Info
Groundwater Bores
Groundwater works
Telemetered bores
Logged bores
Manual bores
Monitoring Bore Types
Alluvial
Coastal Sands
Fractured Rock
Porous Rock
Great Artesian Basin
Discontinued
Macquarie Street, Liverpool, Sydney, Liverpool City Council, New South Wales, 2170, Australia
Roadmap
Terrain
Satellite
Hybrid
Groundwater Works
Monitoring Bores
Telemetered Bores
Coal Basin Bores
Discontinued Bores
There is 1 site within 500 metres of the selected point.
GW113200
Scale = 1 : 1693
307741, 6243768, 56
Map data ©2024 Google Terms Report a map error

APPENDIX D
HERITAGE REGISTER
SEARCH RESULTS

NSW legislation

Liverpool Local Environmental Plan 2008

Current version for 22 March 2024 to date (accessed 7 May 2024 at 11:36)

Schedule 5 > Part 1

Part 1 Heritage items

Division 1 Outside Liverpool City Centre

Suburb	Item name	Address	Property description	Significance	Item No
Ashcroft	Memorial gates, Ashcroft High School (former Ashcroft Homestead, St Luke's Rectory gates)	108–130 Maxwells Avenue	Lot 904, DP 225306	Local	1
Austral	Brown Memorial and water trough	380 Bringelly Road	Lots 6–8, DP 1203671	Local	40
Bringelly	Bringelly Public School Group, including schoolhouse and former headmaster's residence	1205 The Northern Road	Lot 50, DP 746911	Local	7
Cartwright	Bridge (former Pitt Street Road Bridge)	Hoxton Park Road	Lot 16, DP 1036695	Local	55
Casula	Federation timber weatherboard bungalow, including interiors	28 Canberra Avenue	Lot 4, Sec C, DP 7633	Local	9
Casula	Casula Powerhouse Arts Centre (former power station)	Casula Road	Lots 21–24 DP 1132574; Lot 1, DP 1115187	Local	10
Casula	Railway Viaduct	300m south of Casula Powerhouse, Main Southern Railway Line		Local	11
Casula	Two railway viaducts	Woodbrook Road, Main Southern Railway Line		Local	12
Casula	Dwelling ("Dockra")	8 Dunmore Crescent	Lot 1, DP 530893	Local	13

Casula	Post-war brick dwelling	443 Hume Highway	Lot 9, DP 4158	Local	13A
Casula	Glenfield Farm Group, including homestead, barn and interiors (former dairy and stables)	Leacocks Lane	Lots 1 and 2, DP 1126484	State	14
Cecil Hills	Cecil Hills Farm Group, including site landscaping, homestead, shearing shed, archaeological sites, garage, stables, cow bails, outbuildings, sheep dip, gallows and stockyards (former kitchen and dairy)	7 Sandringham Drive	Lot 163, DP 880335	State	16
Chipping Norton	Chipping Norton Public School, including weatherboard classrooms, administration buildings and classroom and building interiors	4 Central Avenue	Lot 1, DP 194411; Lot 1, DP 601876; Lot 299, DP 752034	Local	18
Chipping Norton	The Homestead Group, including main house, interiors, remnant landscape features and cistern	18 Charlton Avenue and 1 Homestead Avenue	Part Lot 354, DP 752034; Lot 1, DP 644571	State	19
Chipping Norton	Inter-war brick bungalow (“Cooloola”), including interiors	2 and 4 Epsom Road	Cnr Lot 2000, DP 1140651	Local	20
Chipping Norton	Palm trees (*Phoenix canariensis*)	Corner of Governor Macquarie Drive and Epsom Road	Adjacent to Lot 3, DP 602936	Local	21
Chipping Norton	Avenue of trees	Riverside Park, fronting Riverside Road	Lots 62 and 63, Sec 2, DP 2411; Lot 7017, DP 1028106; Lot 17, DP 662900	Local	22
Denham Court	St Mary the Virgin Church and Cemetery Group, including church and churchyard	30 Church Road	Lot 19, DP 725739	Local	23
Greendale	Shadforth Monument (former pioneer’s monument)	Greendale Road	Western side of Greendale Road, adjacent to the common boundary of Lot 1, DP 520904 and Part Lot 1, DP 236562	Local	24

Greendale	Greendale Roman Catholic Cemetery	986 Greendale Road	Lot 1, DP 195955	Local	26
Greendale	Former St Mark's Anglican Church Group, including cottage, church cemetery and interiors	1120 Greendale Road	Lot 1, DP 742417	Local	25
Greendale	Bents Basin Inn site	Wolstenholme Avenue	Lots 203 and 204, DP 249320; Lots 84 and 85, DP 751294	Local	28
Hammondville	Hammondville Home for Senior Citizens	68–82 Stewart Avenue	Cnr Lot 152, DP 717956	Local	29
Hammondville	St Anne's Anglican Church and hall, including interiors	60–66 Walder Road	Lot 4, DP 238694	Local	30
Holsworthy	Holsworthy pedestrian bridge (former railway bridge)	Harris Creek and Heathcote Road		Local	31
Holsworthy	Holsworthy Group, including powder magazine and former officers' mess, corporals' club, internment camp, Holsworthy railway station lock-up/gaol, German concentration camp	Heathcote Road (off)	Lot 1, DP 825745	Local	32
Holsworthy	Remount Park	Heathcote Road	Lot 258, DP 854592; Lot 1, DP 825745	Local	33
Holsworthy	Cubbitch Barta National Estate	Old Illawarra Road	Lot 1, DP 825745	Local	34
Horningsea Park	Horningsea Park Group, including site, main house, interiors and archaeological features	Horningsea Park Drive	Lots 1 and 2, DP 1018964	State	35
Ingleburn	Ingleburn Military Heritage Precinct	Campbelltown Road	Part Lot 2, DP 831152	State	37
Leppington	Edmondson Cottage and rural lot, including interiors	1720 Camden Valley Way	Lot 6, DP 205472	Local	41
Liverpool	Discovery Park and Milestone, including Collingwood Heritage Precinct and Aboriginal Place	40 Atkinson Street	Lot 77, DP 27242	Local	42
Liverpool	Federation timber weatherboard cottage, including interiors	122 Atkinson Street	Lot 52, DP 1090837	Local	49

Liverpool	Collingwood Heritage Precinct Group, including homestead, service wing, interiors, horse trough, cistern, gardens and grounds	Birkdale Crescent (off)	Lot 803, DP 244820; Lot 77, DP 27242; Lots 100 and 101, DP 788434; Lot 2, DP 730829; Lot 781, DP 244820; Lot 184, DP 241158	State	43
Liverpool	2 railway viaducts	Adjacent to 71 and 79A Congressional Drive		Local	44
Liverpool	Mainsbridge School (former “Maryvale”)	118 Flowerdale Road	Lot 1, DP 441857	Local	45
Liverpool	Liverpool General Cemetery	Moore and McLean Streets and Flowerdale Road	Lots 6, 7 and 13, Ms 652 Sy; Lots 3 and 10 and Part Lots 4 and 5, Ms 10005 Sy; Lot 14, Ms 22433 Sy; Lot 11, Ms 20611 Sy; Lots 16 and 17, DP 40453; Lots 425 and 426, DP 48284; Lots 443–445, DP 822281; Lot 7030, DP 1059048; Lot 7044, DP 1045353; Lots 7047 and 7048, DP 1059854	Local	47
Liverpool	Federation timber weatherboard cottage, including interiors	10 Passefield Street	Lot 1, DP 129637	Local	48
Lurnea	Federation timber weatherboard cottage, including interiors	147 Reilly Street	Lot 7, DP 26166	Local	54
Lurnea	Corrugated iron cottage	20 Webster Road	Lot 2, DP 519683	Local	54A
Moorebank	Liverpool Fire Station (former Australian Army Engineers Group)	Anzac Road	Lot 3003, DP 1125930	Local	57
Moorebank	Clinch’s Pond	Heathcote and Church Roads	Lot 1, DP 664816	Local	56
Moorebank	Kitchener House (formerly “Arpafeelie”), including interiors	162 Moorebank Avenue	Lot 1001, DP 1050177	Local	58
Rossmore	Bellfield Farm Group, including homestead, slab kitchen, slab cottage, smoke house and interiors	33 Rossmore Avenue	Lot 1, DP 580979	Local	61

APPENDIX E

EPA REGISTER

SEARCH RESULTS

EPA Search of POEO Public Register for; Licences, Applications and Notices Licenced activities

Number	Name	Location	Type	Status	Issued date
1594663		3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	5-Aug-20
1628969		1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	19-Jul-23
3096	AMOCO CHEMICALS PTY. LIMITED	28-34 ORANGE GROVE ROAD, LIVERPOOL, NSW 2170	POEO licence	Surrendered	14-Oct-99
1003064	AMOCO CHEMICALS PTY. LIMITED	28-34 ORANGE GROVE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	6-Dec-00
1003989	AMOCO CHEMICALS PTY. LIMITED	28-34 ORANGE GROVE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	20-Mar-01
1030958	AMOCO CHEMICALS PTY. LIMITED	28-34 ORANGE GROVE ROAD, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	16-Sep-03
12233	BAE SYSTEMS AUSTRALIA LOGISTICS PTY LTD	Moorebank Road, LIVERPOOL, NSW 2170	POEO licence	Surrendered	11-Apr-05
1521063	BAE SYSTEMS AUSTRALIA LOGISTICS PTY LTD	Moorebank Road, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	6-May-14
20966	CPB CONTRACTORS PTY LIMITED	3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	POEO licence	Surrendered	18-Aug-17
1567038	CPB CONTRACTORS PTY LIMITED	3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	26-Sep-18

Number	Name	Location	Type	Status	Issued date
1570510	CPB CONTRACTORS PTY LIMITED	3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	28-Sep-18
1572821	CPB CONTRACTORS PTY LIMITED	3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	12-Dec-18
1573971	CPB CONTRACTORS PTY LIMITED	3 km Rail Link Between SSFL and the Proposed Import-Export Terminal, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	25-Feb-19
12839	HEALTHSCOPE OPERATIONS PTY LTD	40 Bigge St, LIVERPOOL, NSW 2170	POEO licence	No longer in force	15-Jan-08
13316	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	POEO licence	Surrendered	1-Nov-10
1500492	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	28-Jul-11
1501970	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	5-Oct-11
1503030	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	15-Dec-11
1504299	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	16-Feb-12
1505102	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	13-Apr-12
1505808	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	11-May-12
1506687	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	14-Jun-12
1507029	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	3-Jul-12
1508500	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	30-Aug-12
1509362	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	12-Oct-12
1510955	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	18-Dec-12
1513271	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	5-Apr-13
1514031	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	23-May-13
1518713	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	12-Dec-13
1520999	JOHN HOLLAND PTY LTD	Bigge Street, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	28-Apr-14
5176	LIVERPOOL CITY COUNCIL	-, LIVERPOOL, NSW 2170	POEO licence	Surrendered	17-Apr-01

Number	Name	Location	Type	Status	Issued date
1014698	LIVERPOOL CITY COUNCIL	-, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	22-Feb-02
1021621	LIVERPOOL CITY COUNCIL	-, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	28-Nov-02
1507162	LIVERPOOL CITY COUNCIL	-, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	24-Jul-12
818	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	POEO licence	Issued	4-Aug-00
1046598	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	22-Jun-05
1057336	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	7-Apr-06
1072072	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	10-Apr-07
1076668	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	9-Aug-07
1096521	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	16-Jan-09
1511943	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	29-Aug-14
1538225	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	2-May-16
3173525677	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	Penalty Notice	Issued	28-May-18
1597501	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	9-Sep-20
1608040	PRYSMIAN AUSTRALIA PTY LTD	1 HEATHCOTE ROAD, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	26-Apr-21
7393	SOLECTRON TELECOMMUNICATIONS PTY LTD	1 MOOREBANK AVE, LIVERPOOL, NSW 2170	POEO licence	Surrendered	26-Jun-00
1014826	SOLECTRON TELECOMMUNICATIONS PTY LTD	1 MOOREBANK AVE, LIVERPOOL, NSW 2170	s.80 Surrender of a Licence	Issued	7-Feb-02

Number	Name	Location	Type	Status	Issued date
1015007	SOLECTRON TELECOMMUNICATIONS PTY LTD	1 MOOREBANK AVE, LIVERPOOL, NSW 2170	s.81 Variation of a Surrender Condition	Issued	12-Feb-02
11355	SYDNEY SOUTH WEST AREA HEALTH SERVICE	ELIZABETH STREET, LIVERPOOL, NSW 2170	POEO licence	No longer in force	19-Mar-01
1026048	SYDNEY SOUTH WEST AREA HEALTH SERVICE	ELIZABETH STREET, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	31-Mar-03
1034388	SYDNEY SOUTH WEST AREA HEALTH SERVICE	ELIZABETH STREET, LIVERPOOL, NSW 2170	s.58 Licence Variation	Issued	4-Feb-04

EPA List of Notified Contaminated Sites

Suburb	Site Name	Address	Contamination Activity Type	Management Class	Latitude	Longitude
LIVERPOOL	AC McGrath (Wholesale) Pty Ltd	20 Shepherd Street and 6A & 6B Atkinson STREET	Other Industry	Regulation under CLM Act not required	-33.9320192	150.9236862
LIVERPOOL	Former Car Park	4 - 6 Rose STREET	Unclassified	Regulation under CLM Act not required	-33.93258955	150.9157936
LIVERPOOL	Woolworths Service Station	59-67 Orange Grove ROAD	Service Station	Regulation under CLM Act not required	-33.90711248	150.9178855
LIVERPOOL	68 Speed Street (former gasworks)	2A Mill ROAD	Gasworks	Regulation under CLM Act not required	-33.92992649	150.9224472
LIVERPOOL	Woodward Park	84 Memorial AVENUE	Other Industry	Regulation under CLM Act not required	-33.92477836	150.9169229

Unlicenced Premises Licences Regulated by the EPA

Licence No.	Accountable Party Name	A/P Street	A/P Suburb	A/P State	A/P Postcode	Common Name of Premise	Prem Street	Prem Suburb	Prem State	Prem Postcode	Fee-Based Activity	Low Scale	>	High Scale
11355	SYDNEY SOUTH WEST AREA HEALTH SERVICE	LOCKED BAG 7103	LIVERPOOL	NSW	1871	LIVERPOOL HEALTH SERVICE	ELIZABETH STREET	LIVERPOOL	NSW	2170	Hazardous, Industrial or Group A Waste Generation or Storage	100	>	500
12839	HEALTHSCOPE LIMITED	40 BIGGE STREET	LIVERPOOL	NSW	2170	Sydney Southwest Private Hospital	40 Bigge St	LIVERPOOL	NSW	2170	Hazardous, Industrial or Group A Waste Generation or Storage	0		10

Search results

Your search for:LGA: LIVERPOOL CITY COUNCIL

Matched 17 notices relating to 3 sites.

Date from: 01 Jan 1955
Date to: 01 May 2024

Suburb	Address	Site Name	Notices related to this site
CHIPPING NORTON	85-107 Alfred STREET	Former ACR	3 current and 1 former
DENHAM COURT	505 Campbelltown ROAD	Denham Court Caravan Park and Service Station	4 current
MOOREBANK	(a) 1 Bapaume ROAD	ABB Australia Pty Ltd	1 current and 8 former

APPENDIX F
LAND TITLE
SEARCH RESULTS

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
7/5/2024 11:07AM

FOLIO: 100/1250893

First Title(s): OLD SYSTEM
Prior Title(s): 10/589509 1-2/741869
1/798853

Recorded	Number	Type of Instrument	C.T. Issue
28/9/2020	DP1250893	DEPOSITED PLAN	FOLIO CREATED EDITION 1
6/11/2020	AQ519229	CAVEAT	
17/12/2020	AQ658519	DEPARTMENTAL DEALING	EDITION 2
20/4/2021	AQ973734	WITHDRAWAL OF CAVEAT	
28/4/2021	AR1845	WITHDRAWAL OF CAVEAT	
28/4/2021	AR1846	WITHDRAWAL OF CAVEAT	
28/4/2021	AR1847	DISCHARGE OF MORTGAGE	
28/4/2021	AR1848	MORTGAGE	
28/4/2021	AR1849	MORTGAGE	EDITION 3
30/4/2021	AR6057	CAVEAT	
2/6/2021	AR106033	WITHDRAWAL OF CAVEAT	
22/4/2024	AU367	DISCHARGE OF MORTGAGE	
22/4/2024	AU368	DISCHARGE OF MORTGAGE	
22/4/2024	AU370	CHANGE OF NAME	
22/4/2024	AU369	MORTGAGE	EDITION 4

*** END OF SEARCH ***

Liverpool-MA PRINTED ON 7/5/2024

Search Date/Time: **07/05/2024 11:07AM**

DIAGRAM 1
NOT TO SCALE

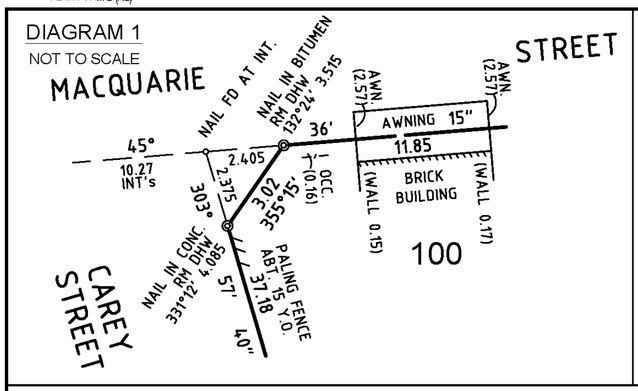
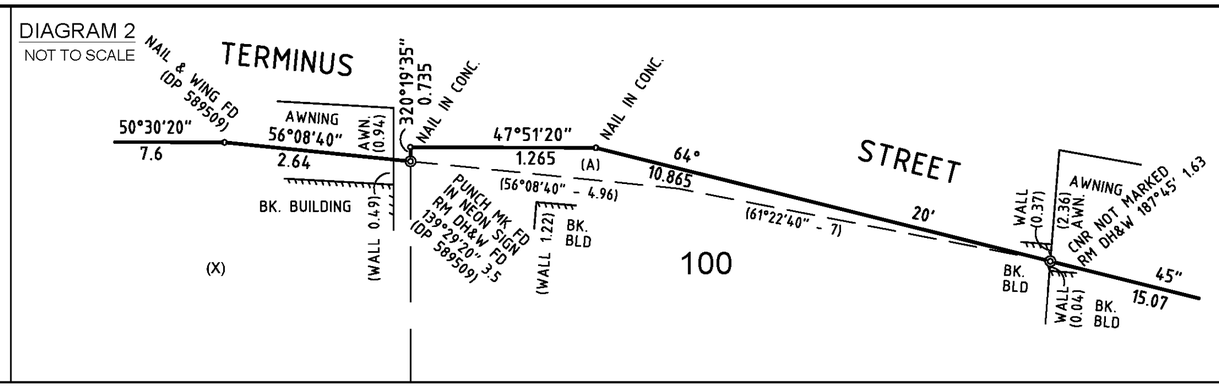
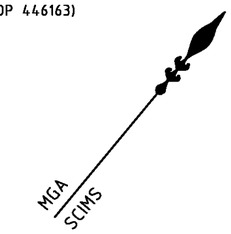


DIAGRAM 2
NOT TO SCALE

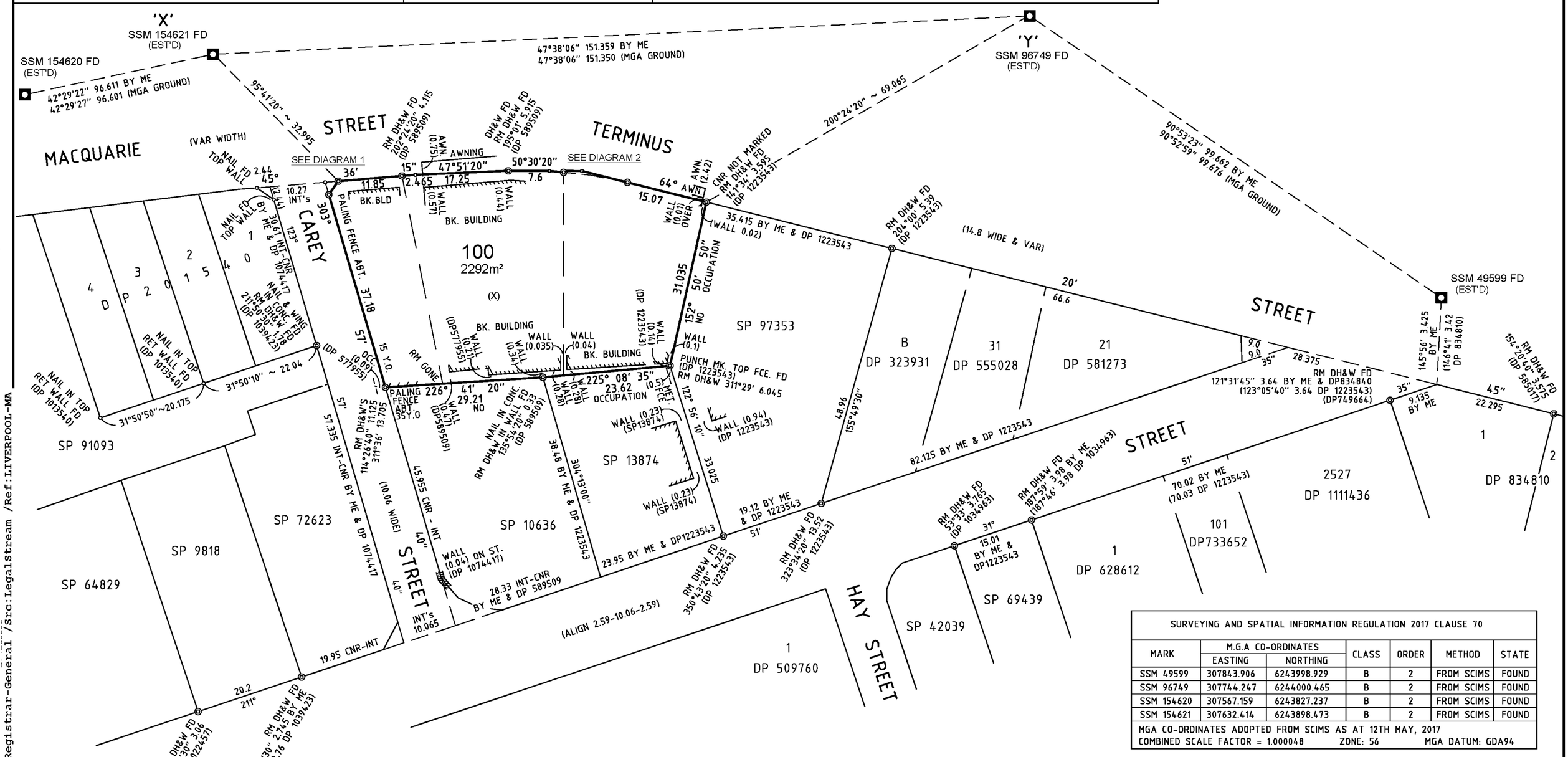


(A) RESTRICTION ON USER VAR. WIDTH (DP 446163) GOV. GAZETTE 5-2-1960 FOL. 353

SSM CONNECTIONS
SSM 49599 – SSM 154621
244°35'40" 234.126 (BY SURVEY)
244°35'34" 234.126 (MGA GROUND)
SSM 49599 – SSM 154620
238°11'04" 325.671 (BY SURVEY)
238°11'05" 325.679 (MGA GROUND)



(X) BENEFITED BY EASEMENT TO DRAIN WATER 1.8 WIDE



SURVEYING AND SPATIAL INFORMATION REGULATION 2017 CLAUSE 70						
MARK	M.G.A CO-ORDINATES		CLASS	ORDER	METHOD	STATE
	EASTING	NORTHING				
SSM 49599	307843.906	6243998.929	B	2	FROM SCIMS	FOUND
SSM 96749	307744.247	6244000.465	B	2	FROM SCIMS	FOUND
SSM 154620	307567.159	6243827.237	B	2	FROM SCIMS	FOUND
SSM 154621	307632.414	6243898.473	B	2	FROM SCIMS	FOUND
MGA CO-ORDINATES ADOPTED FROM SCIMS AS AT 12TH MAY, 2017						
COMBINED SCALE FACTOR = 1.000048 ZONE: 56 MGA DATUM: GDA94						

Surveyor : BLAKE TRUDGEON Date of Survey : 08/03/2017 Surveyor's Ref : S2811/76283_DP	PLAN OF CONSOLIDATION OF LOT 1 DP 798853, LOT 10 DP 589509 AND LOTS 1 & 2 DP 741869	LGA: LIVERPOOL Locality : LIVERPOOL Subdivision No: – Lengths are in metres. Reduction Ratio 1: 500	Registered 28.09.2020

DP1250893

0 10 20 30 40 50 Table of mm 90 100 110 120 130 140

ePlan

PLAN FORM 6 (2018)	DEPOSITED PLAN ADMINISTRATION SHEET	Sheet 1 of 3 sheet(s)

Office Use Only

Registered: 28.09.2020

Title System: TORRENS

Office Use Only

DP1250893

PLAN OF CONSOLIDATION OF LOT 1 DP 798853, LOT 10 DP 589509 AND LOTS 1 & 2 DP 741869

LGA: LIVERPOOL

Locality: LIVERPOOL

Parish: ST LUKE

County: CUMBERLAND

Survey Certificate

I, BLAKE TRUDGEON

of BURTON & FIELD PTY LTD P.O. BOX 242 LIVERPOOL NSW 1871

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

*(a) The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, is accurate and the survey was completed on 8-03-2017.

~~*(b) The part of the land shown in the plan (*being/*excluding ** .....~~
~~.....) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, the part surveyed is accurate and the survey was completed on, ... the part not surveyed was compiled in accordance with that Regulation, or~~

~~*(c) The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2017*.~~

Datum Line: 'X' – 'Y'

Type: *Urban/*Rural

The terrain is *Level-Undulating / *Steep-Mountainous.

Signature: B. Trudgeon Dated: 5-12-18

Surveyor Identification No: 8612
Surveyor registered under
the *Surveying and Spatial Information Act 2002*

*Strike out inappropriate words.

**Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: .....

Date: .....

File Number: .....

Office: .....

Subdivision Certificate

I, ...

*Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of Section 6.15 of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: .....

Accreditation number: .....

Consent Authority: .....

Date of endorsement: .....

Subdivision Certificate number: .....

File number: .....

*Strike through if inapplicable.

Plans used in the preparation of survey/compilation.

DP 166772, DP 173751, DP 446163, DP 577955, DP 589509, DP 741869, DP 798853, DP 834810, DP 1013540, DP 1034963, DP 1039423, DP 1074417, DP 1205804, DP 1223543, SP13874.

Statements of Intention to dedicate public roads, create public reserves and drainage reserves, acquire/resume land.

Surveyor's Reference: S2811/76283_DP

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

ePlan

PLAN FORM 6A (2017) DEPOSITED PLAN ADMINISTRATION SHEET Sheet 2 of 3 sheet(s)

Office Use Only

Registered: 28.09.2020

Office Use Only

DP1250893

PLAN OF CONSOLIDATION OF
LOT 1 DP 798853, LOT 10 DP 589509 AND
LOTS 1 & 2 DP 741869

Subdivision Certificate number: .....

Date of Endorsement: .....

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2017*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

LOT	STREET NUMBER	STREET NAME	STREET TYPE	LOCALITY
100	402	MACQUARIE	STREET	LIVERPOOL

EXECUTED BY KINGDOM TOWERS 1 PTY LTD (ABN: 23 614 374 355)
UNDER SECTION 127(1) OF THE CORPORATIONS ACT 2001:

SIGNATURE OF AUTHORISED PERSON: ..... DATE: 27-3-2019
NAME OF AUTHORISED PERSON: ANDREW BODNAR
POSITION: SOLE DIRECTOR / SECRETARY

EXECUTED BY GEM1 106 PTY LIMITED (ABN 55 634 154 251)
UNDER SECTION 127(1) OF THE CORPORATIONS ACT 2001:

SIGNATURE: .....
PRINT NAME: MICHAEL JAMES COOPER
DIRECTOR

SIGNATURE: .....
PRINT NAME: JUSTIN KURT EPSTEIN
SECRETARY / DIRECTOR

If space is insufficient use additional annexure sheet

Surveyor's Reference: S2811/76283_DP

ePlan

PLAN FORM 6A (2017) DEPOSITED PLAN ADMINISTRATION SHEET Sheet 3 of 3 sheet(s)

Office Use Only

Registered: 28.09.2020

Office Use Only

DP1250893

PLAN OF CONSOLIDATION OF
LOT 1 DP 798853, LOT 10 DP 589509 AND
LOTS 1 & 2 DP 741869

Subdivision Certificate number: .....

Date of Endorsement: .....

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses - See 60(c) *SSI Regulation 2017*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

~~MORTGAGE TO MERRICKS CAPITAL INVESTMENTS PTY LIMITED UNDER MORTGAGES:~~

~~AN604844 & AN605193~~

Consent of Mortgagee

EXECUTED by
Merricks Capital Investments Pty Ltd
ACN 626 500 856
in accordance with s127 of the Corporations Act 2001

.....
(Signature)

.....
Adrian Redlich
Director

.....
(Signature)

.....
Andrew Torrington
Director/Secretary

If space is insufficient use additional annexure sheet

Surveyor's Reference: S2811/76283_DP

This document records departmental actions affecting the specified folios

AU370

NATIONAL MORTGAGE WITH CHANGE OF NAME

Land Title Reference

100/1250893

Affected National Mortgage Number

AU369

Mortgagor Old Name

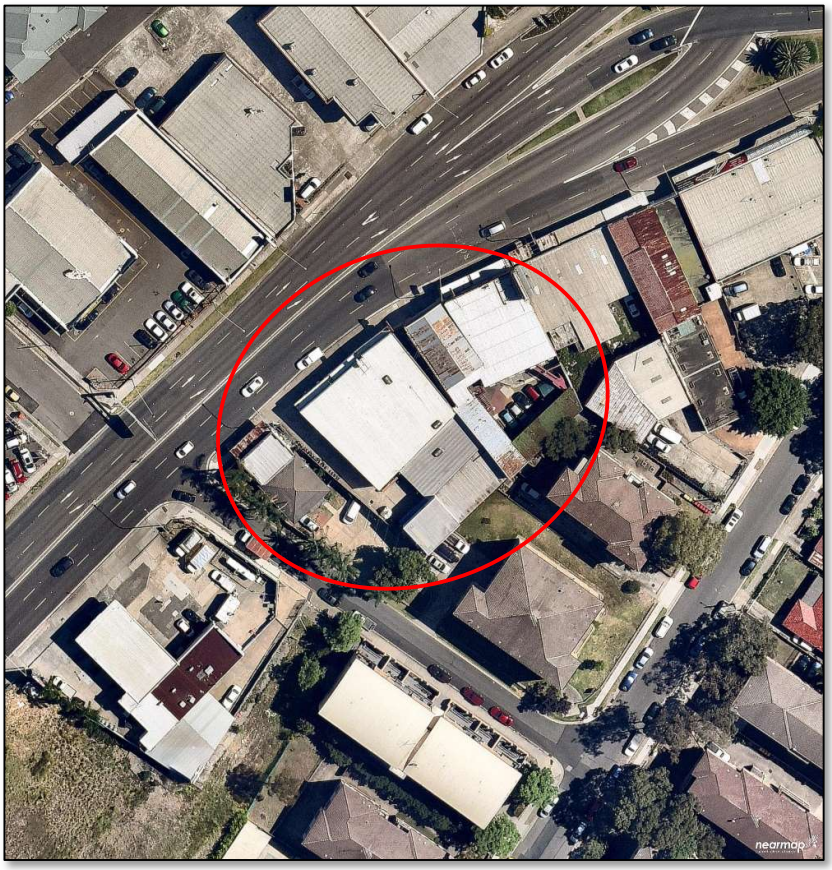
Full Name KINGDOM TOWERS 1 PTY LTD

Mortgagor New Name

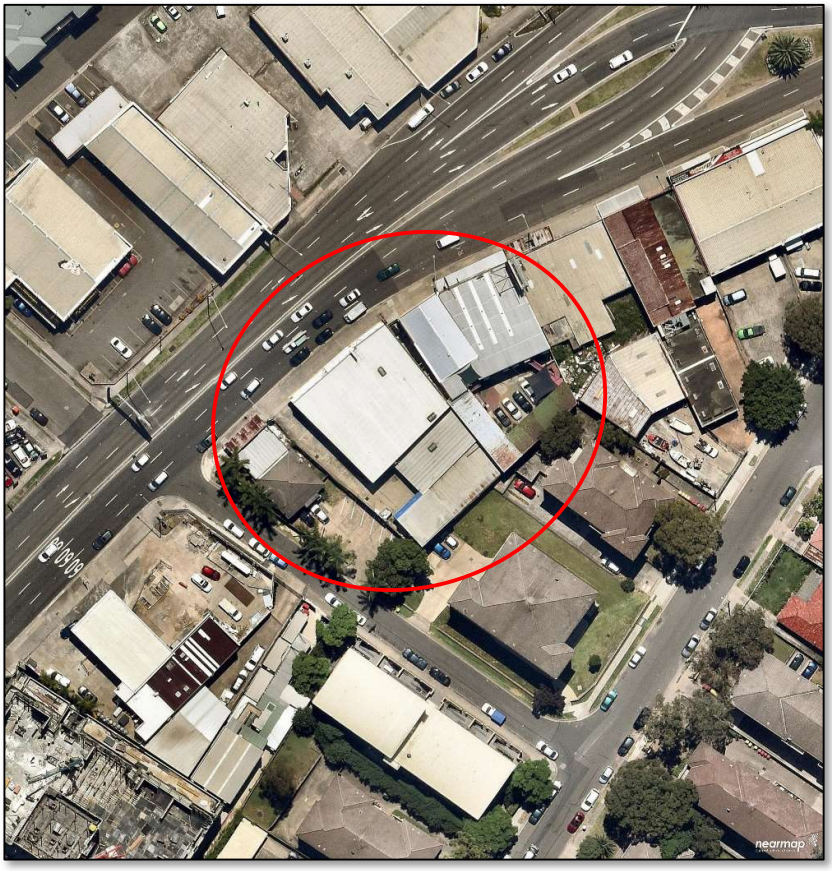
Full Name THE GRAND LIVERPOOL PTY LTD

Reason for Difference Incorporated Name Change

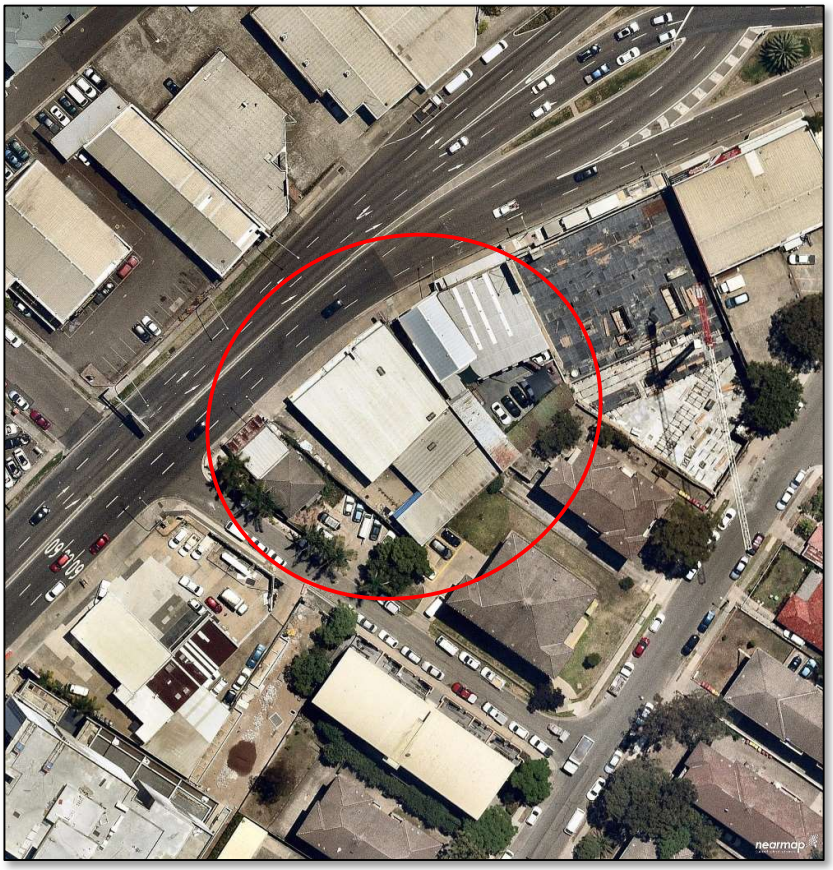
APPENDIX G
HISTORICAL AERIALS



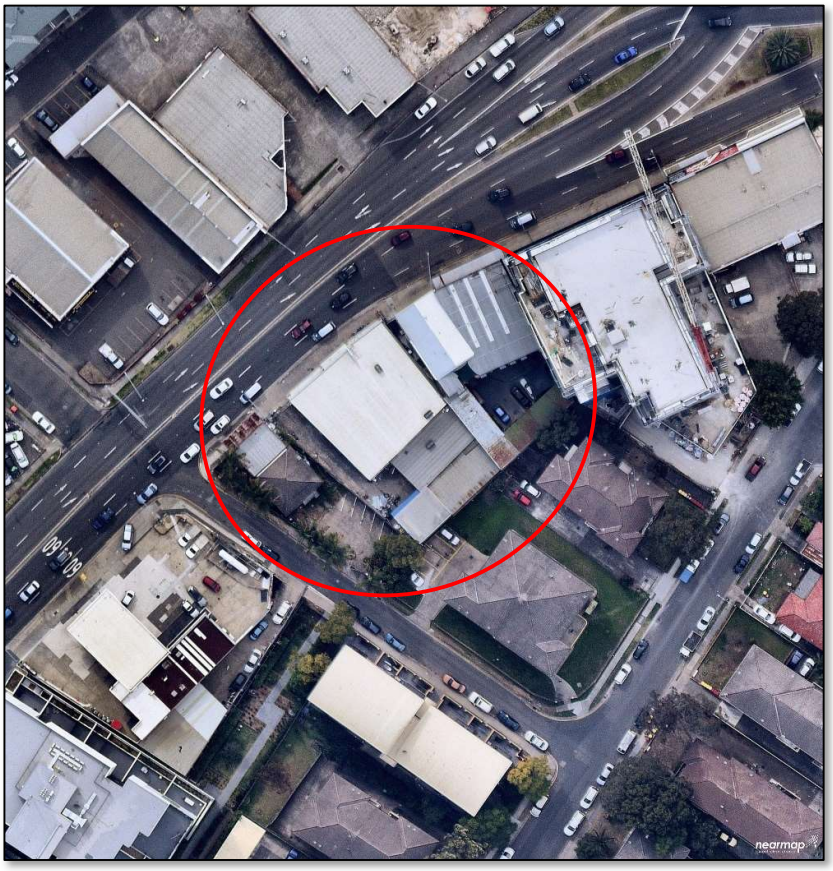
Nearmap 08.01.2015



Nearmap 13.02.2016



Nearmap 17.01.2017



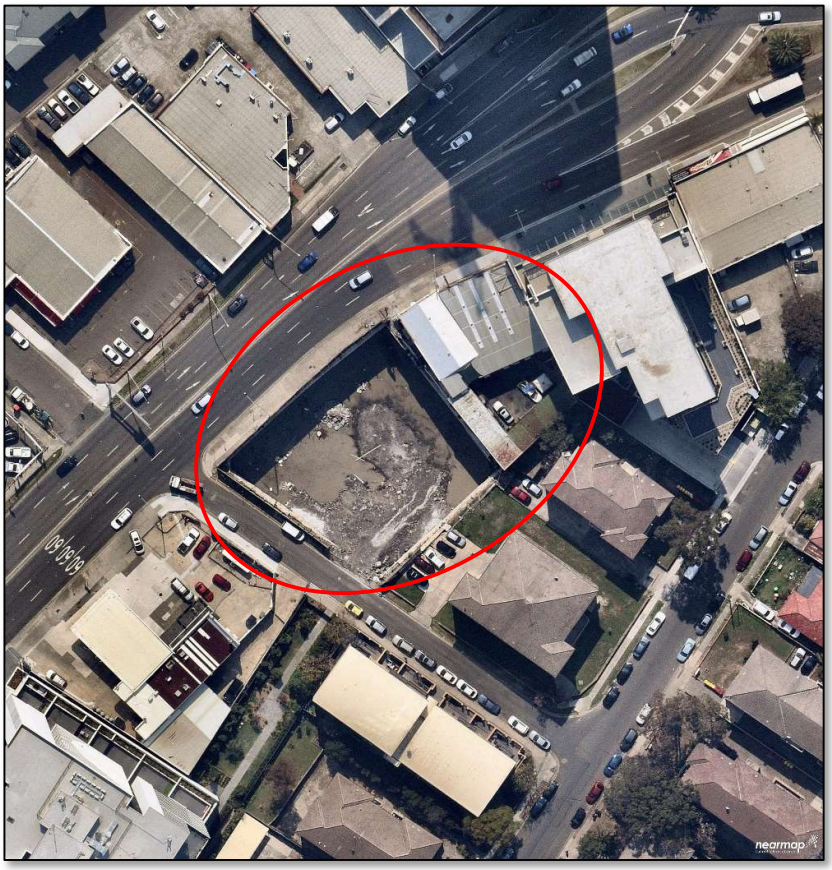
Nearmap 09.08.2017

Nearmap 12.12.2017

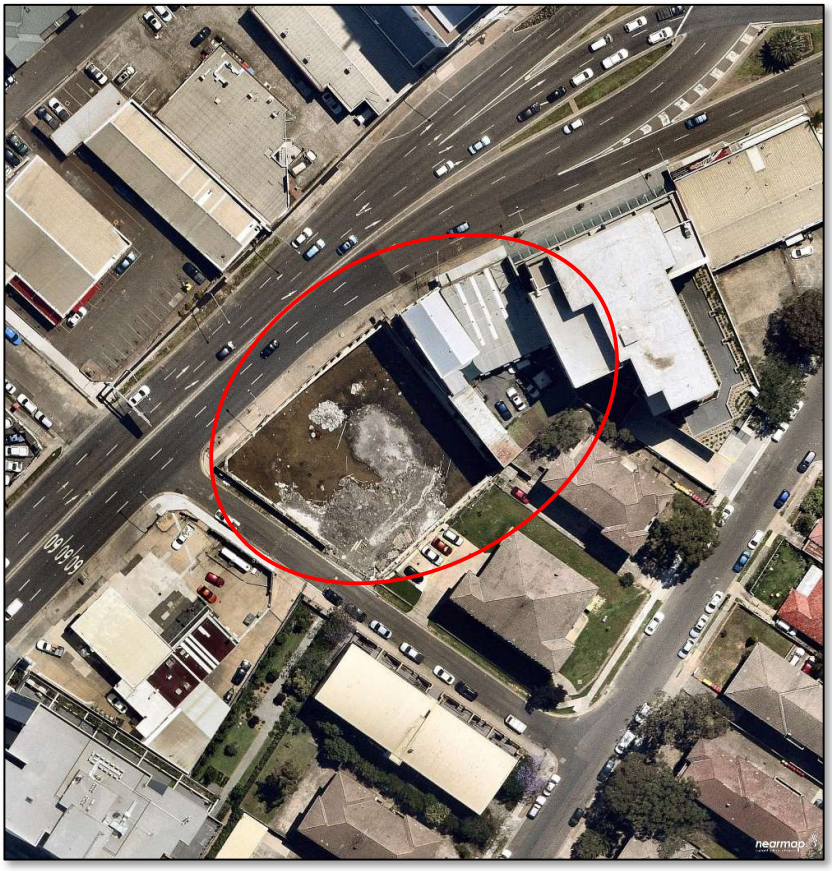
Nearmap 21.01.2018

Nearmap 06.05.2018

Nearmap 17.07.2018



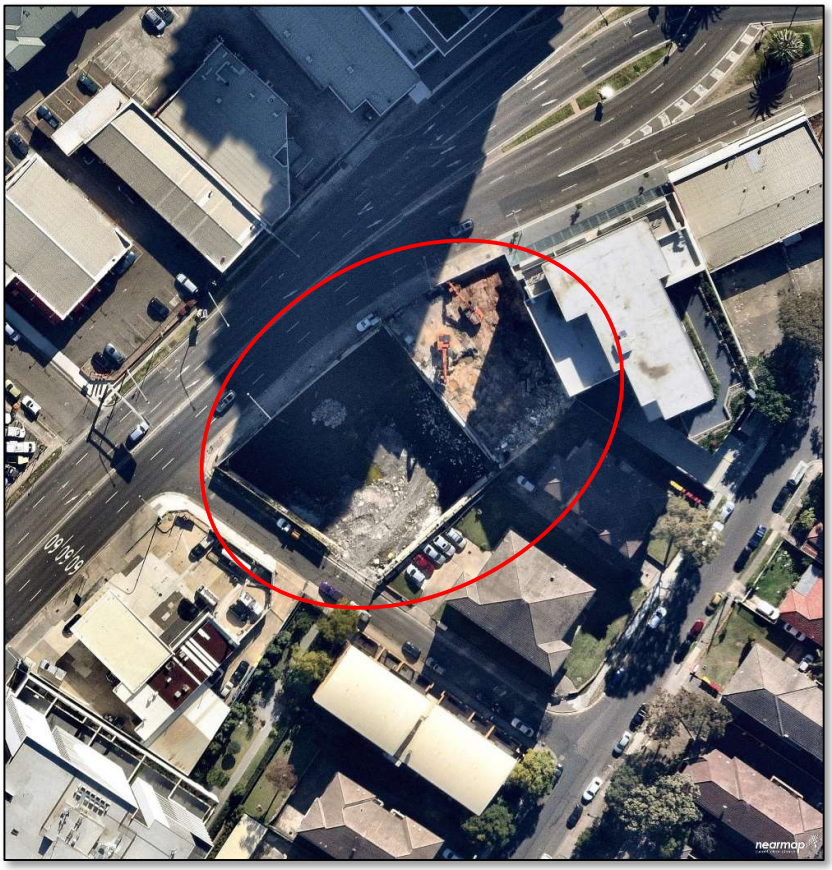
Nearmap 11.09.2018



Nearmap 02.11.2018

Nearmap 28.12.2018

Nearmap 31.03.2019



Nearmap 19.07.2019

Nearmap 23.01.2020

Nearmap 22.02.2021

Nearmap 17.04.2022

Nearmap 18.03.2023

Nearmap 24.10.2023

Nearmap 25.03.2024

APPENDIX H
LABORATORY REPORTS

CHAIN OF CUSTODY

Canopy Enterprises - 0412 987 456

Client: Canopy Enterprises

Sampler / Contact number: Gunnar Haid / 0402 411 177

Please Email
Reports to results@canopyenterprises.com and admin@canopyenterprises.com
Invoices to: admin@canopyenterprises.com and accounts@canopyenterprises.com
Statements to: accounts@canopyenterprises.com

Canopy Reference: Liverpool-MA – WC

Date results required:

Or choose: standard / same day / 1 day / 2 day / 3 day

CANOPY ENTERPRISES

Sample information					Tests Required																						
Laboratory Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Asbestos ID (Soil / Material)	NEPM Asbestos	BTEX/TRH	Comb 1 (TRH/BTEX/Pb)	Comb 3 (TRH/BTEX/PAH/8 Metals)	Comb 6 (TRH/BTEX/PAH/OCP/OPP/PCB /8 Metals)	Comb 6a (TRH/BTEX/PAH/OCP/OPP/PCB /8 Metals/Asbestos)	Comb 11 (TRH/BTEX/PAH/OCP/8 Metals)	Comb 12 (TRH/BTEX/PAH/OCP/PCB/8	E09550 + E02710 (PAH/OC/OP/PCB+Metals)	Cr Suite	Metals (8)	OC/OP	PFAS (short)	PAH				Hold	Additional Information
1	P1		21.3.24	SOIL						✓														
2	P2		"	"						✓														
3	P3		"	"						✓														
4	R1		"	"						✓														
5	R2		"	"						✓														
6	R3		"	"						✓														

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 347117
Date Received: 21/3/24
Time Received: 1710
Received By: OW
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Relinquished by (Company): Canopy Enterprises	Received by (Company): ES NYD	Lab use only:
Print Name: G. HAID	Print Name: OLIVIA WILLIAK	Samples Received: Cool or Ambient (circle one)
Date & Time: 21.3.24. 12:00	Date & Time: 21/3/24 1710	Temperature Received at: 20 (if applicable)
Signature:	Signature: OW	Transported by: Hand delivered / courier

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Canopy Enterprises Pty Ltd
Attention	Results -, Gunnar Haid, Fenn Hinchcliffe

Sample Login Details

Your reference	Liverpool-MA-WC
Envirolab Reference	347117
Date Sample Received	21/03/2024
Date Instructions Received	21/03/2024
Date Results Expected to be Reported	28/03/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	20
Cooling Method	
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil
P1	✓	✓	✓	✓	✓	✓	✓
P2	✓	✓	✓	✓	✓	✓	✓
P3	✓	✓	✓	✓	✓	✓	✓
R1	✓	✓	✓	✓	✓	✓	✓
R2	✓	✓	✓	✓	✓	✓	✓
R3	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347117

Client Details

Client	Canopy Enterprises Pty Ltd
Attention	Results -, Gunnar Haid, Fenn Hinchcliffe
Address	11 Tintaldra Court, BUDERIM, QLD, 4556

Sample Details

Your Reference	**Liverpool-MA-WC**
Number of Samples	6 Soil
Date samples received	21/03/2024
Date completed instructions received	21/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	28/03/2024	28/03/2024	28/03/2024	28/03/2024	28/03/2024
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	95	99	96	95	99

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	28/03/2024
TRH C_6 - C_9	mg/kg	<25
TRH C_6 - C_{10}	mg/kg	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
Naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	96

svTRH (C10-C40) in Soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	120	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	120	100	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	170	150	130	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	170	150	130	<50	<50
Surrogate o-Terphenyl	%	87	86	84	85	88

svTRH (C10-C40) in Soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	26/03/2024
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	88

PAHs in Soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.2	0.3	0.2	0.2	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	0.1	0.1	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.2	0.4	0.4	0.3	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	83	85	90	89

PAHs in Soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	26/03/2024
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	0.2
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.5
Chrysene	mg/kg	<0.5
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	0.08
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	0.2
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	89

Organochlorine Pesticides in soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	80	80	85	84	81

Organochlorine Pesticides in soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	26/03/2024
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Mirex	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	82

Organophosphorus Pesticides in Soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	80	80	85	84	81

Organophosphorus Pesticides in Soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	26/03/2024
Dichlorvos	mg/kg	<0.1
Mevinphos	mg/kg	<0.1
Phorate	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Disulfoton	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Parathion-Methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Fenthion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Methidathion	mg/kg	<0.1
Fenamiphos	mg/kg	<0.1
Ethion	mg/kg	<0.1
Phosalone	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Coumaphos	mg/kg	<0.1
Surrogate 4-Chloro-3-NBTF	%	82

PCBs in Soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	93	101	101	100	106

PCBs in Soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date extracted	-	25/03/2024
Date analysed	-	26/03/2024
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate 2-Fluorobiphenyl	%	101

Acid Extractable metals in soil						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Arsenic	mg/kg	8	6	12	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	21	9	7	5	6
Copper	mg/kg	32	33	32	30	37
Lead	mg/kg	15	15	15	13	13
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	26	20	31	15	15
Zinc	mg/kg	160	140	140	69	65

Acid Extractable metals in soil		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date prepared	-	25/03/2024
Date analysed	-	26/03/2024
Arsenic	mg/kg	8
Cadmium	mg/kg	<0.4
Chromium	mg/kg	6
Copper	mg/kg	34
Lead	mg/kg	14
Mercury	mg/kg	<0.1
Nickel	mg/kg	19
Zinc	mg/kg	75

Moisture						
Our Reference		347117-1	347117-2	347117-3	347117-4	347117-5
Your Reference	UNITS	P1	P2	P3	R1	R2
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Moisture	%	7.8	7.6	7.6	5.5	4.9

Moisture		
Our Reference		347117-6
Your Reference	UNITS	R3
Date Sampled		21/03/2024
Type of sample		Soil
Date prepared	-	25/03/2024
Date analysed	-	26/03/2024
Moisture	%	5.7

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			28/03/2024	1	28/03/2024	28/03/2024		28/03/2024	28/03/2024
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	110	106
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	110	106
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	108	105
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	105	103
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	113	107
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	113	107
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	116	109
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	100	1	95	95	0	100	97

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	91	99
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	93	107
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	120	<100	18	129	107
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	91	99
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	170	<100	52	93	107
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	129	107
Surrogate o-Terphenyl	%		Org-020	87	1	87	85	2	97	86

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	96
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	77
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	108
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	0.2	0.2	0	106	111
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	100
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.5	<0.5	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.5	<0.5	0	78	85
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.06	0.08	29	96	85
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	92	1	88	87	1	89	85

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	136
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	138
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	126	132
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	126
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	140	133
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	134	136
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	140	138
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	134
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	134
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	114
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	1	80	77	4	82	80

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	120	91
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	94
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	118
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	94
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	96
Fenthion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	103
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	105
Phosalone	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	1	80	77	4	82	80

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date extracted	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	101	100
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	96	1	93	97	4	92	102

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	347117-2
Date prepared	-			25/03/2024	1	25/03/2024	25/03/2024		25/03/2024	25/03/2024
Date analysed	-			26/03/2024	1	26/03/2024	26/03/2024		26/03/2024	26/03/2024
Arsenic	mg/kg	4	Metals-020	<4	1	8	8	0	100	106
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	98	91
Chromium	mg/kg	1	Metals-020	<1	1	21	20	5	101	108
Copper	mg/kg	1	Metals-020	<1	1	32	33	3	93	108
Lead	mg/kg	1	Metals-020	<1	1	15	16	6	103	96
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	98	114
Nickel	mg/kg	1	Metals-020	<1	1	26	29	11	98	100
Zinc	mg/kg	1	Metals-020	<1	1	160	190	17	102	#

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

PAHs in Soil - The PQL has been raised due to interferences from analytes (other than those being tested) in sample/s 347117-1,2,3,4,5,6.

8 metals in soil - # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

CHAIN OF CUSTODY

Canopy Enterprises - 0412 987 456

Client: Canopy Enterprises

Canopy Reference: Liverpool-MA

Sampler / Contact number: Gunnar Haid / 0402 411 177

Date results required:

Please Email
Reports to results@canopyenterprises.com and admin@canopyenterprises.com
Invoices to: admin@canopyenterprises.com and accounts@canopyenterprises.com
Statements to: accounts@canopyenterprises.com

Or choose: standard / same day / 1 day / 2 day / 3 day

CANOPY ENTERPRISES

Sample information | Tests Required

Laboratory Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Asbestos ID (Soil / Material)	NEPM Asbestos	BTEX/TRH	Comb 1 (TRH/BTEX/Pb)	Comb 3 (TRH/BTEX/PAH/8 Metals)	Comb 6 (TRH/BTEX/PAH/OCP/OPP/PCB /8 Metals)	Comb 6a (TRH/BTEX/PAH/OCP/OPP/PCB /8 Metals/Asbestos)	Comb 11 (TRH/BTEX/PAH/OCP/8 Metals)	Comb 12 (TRH/BTEX/PAH/OCP/PCB/8	E09550 + E02710 (PAH/OC/OP/PCB+Metals)	Cr Suite	Metals (8)	OC/OP	PFAS (short)	PAH				Hold	Additional Information
1	BH1-0.15	0.15	21.3.24	SOIL						✓														
2	BH2-0.15	0.15	"	"						✓														
3	BH3-0.1	0.10	"	"												✓								
4	BH4-0.1	0.10	"	"												✓			✓					
5	BH5-0.1	0.10	"	"										✓										
6	BH6-0.1	0.1	"	"										✓										
7	BH7-0.2	0.2	"	"											-	✓			✓					
8	BH8-0.1	0.1	"	"										✓										
9	D1	0.1	"	"												✓								
10	AS1	-	"	Soil	✓																			

Envirolab Services
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 347118
Date Received: 21/3/24
Time Received: 1710
Received by: ST
Temp: Cooling: Ice/Ice
Security: Intact / Broken / None

Relinquished by (Company): Canopy Enterprises	Received by (Company): ELS SYD	Lab use only:
Print Name: G. HAID	Print Name: Shann Tok	Samples Received: Cool or Ambient (circle one)
Date & Time: 17:00 21.3.24	Date & Time: 21/3/24 1710	Temperature Received at: 20 (if applicable)
Signature:	Signature: ST	Transported by: Hand delivered / courier

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Canopy Enterprises Pty Ltd
Attention	Gunnar Haid

Sample Login Details

Your reference	Liverpool-MA
Envirolab Reference	347118
Date Sample Received	21/03/2024
Date Instructions Received	21/03/2024
Date Results Expected to be Reported	28/03/2024

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	9 Soil, 1 Material
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	20
Cooling Method	None
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - materials
BH1-0.15	✓	✓	✓	✓	✓	✓	✓	
BH2-0.15	✓	✓	✓	✓	✓	✓	✓	
BH3-0.1							✓	
BH4-0.1			✓				✓	
BH5-0.1			✓	✓	✓	✓	✓	
BH6-0.1			✓	✓	✓	✓	✓	
BH7-0.2			✓				✓	
BH8-0.1			✓	✓	✓	✓	✓	
D1							✓	
AS1								✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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www.envirolab.com.au

CERTIFICATE OF ANALYSIS 347118

Client Details

Client	Canopy Enterprises Pty Ltd
Attention	Gunnar Haid
Address	11 Tintaldra Court, BUDERIM, QLD, 4556

Sample Details

Your Reference	**Liverpool-MA**
Number of Samples	9 Soil, 1 Material
Date samples received	21/03/2024
Date completed instructions received	21/03/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	28/03/2024
Date of Issue	28/03/2024

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Asbestos Approved By
Analysed by Asbestos Approved Analyst: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Lucy Zhu, Asbestos Supervisor
Timothy Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		347118-1	347118-2
Your Reference	UNITS	BH1-0.15	BH2-0.15
Date Sampled		21/03/2024	21/03/2024
Type of sample		Soil	Soil
Date extracted	-	25/03/2024	25/03/2024
Date analysed	-	28/03/2024	28/03/2024
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
Naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	94

svTRH (C10-C40) in Soil			
Our Reference		347118-1	347118-2
Your Reference	UNITS	BH1-0.15	BH2-0.15
Date Sampled		21/03/2024	21/03/2024
Type of sample		Soil	Soil
Date extracted	-	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} -C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	85	85

PAHs in Soil						
Our Reference		347118-1	347118-2	347118-4	347118-5	347118-6
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH4-0.1	BH5-0.1	BH6-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	85	83	82	87	89

PAHs in Soil			
Our Reference		347118-7	347118-8
Your Reference	UNITS	BH7-0.2	BH8-0.1
Date Sampled		21/03/2024	21/03/2024
Type of sample		Soil	Soil
Date extracted	-	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	83	82

Organochlorine Pesticides in soil						
Our Reference		347118-1	347118-2	347118-5	347118-6	347118-8
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH5-0.1	BH6-0.1	BH8-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	74	74	70	75	77

Organophosphorus Pesticides in Soil						
Our Reference		347118-1	347118-2	347118-5	347118-6	347118-8
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH5-0.1	BH6-0.1	BH8-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Mevinphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phorate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Disulfoton	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion-Methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenthion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methidathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenamiphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phosalone	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coumaphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 4-Chloro-3-NBTF	%	74	74	70	75	77

PCBs in Soil						
Our Reference		347118-1	347118-2	347118-5	347118-6	347118-8
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH5-0.1	BH6-0.1	BH8-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate 2-Fluorobiphenyl	%	99	96	93	93	95

Acid Extractable metals in soil						
Our Reference		347118-1	347118-2	347118-3	347118-4	347118-5
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH3-0.1	BH4-0.1	BH5-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Arsenic	mg/kg	11	11	6	7	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	15	8	14	8
Copper	mg/kg	17	10	13	22	14
Lead	mg/kg	17	9	7	13	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	5	7	2	4	3
Zinc	mg/kg	32	20	18	37	18

Acid Extractable metals in soil					
Our Reference		347118-6	347118-7	347118-8	347118-9
Your Reference	UNITS	BH6-0.1	BH7-0.2	BH8-0.1	D1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Arsenic	mg/kg	10	10	7	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	10	11	11
Copper	mg/kg	24	21	20	17
Lead	mg/kg	10	9	10	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	4	3	3
Zinc	mg/kg	26	28	25	30

Moisture						
Our Reference		347118-1	347118-2	347118-3	347118-4	347118-5
Your Reference	UNITS	BH1-0.15	BH2-0.15	BH3-0.1	BH4-0.1	BH5-0.1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Moisture	%	12	15	17	16	15

Moisture					
Our Reference		347118-6	347118-7	347118-8	347118-9
Your Reference	UNITS	BH6-0.1	BH7-0.2	BH8-0.1	D1
Date Sampled		21/03/2024	21/03/2024	21/03/2024	21/03/2024
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	25/03/2024	25/03/2024	25/03/2024	25/03/2024
Date analysed	-	26/03/2024	26/03/2024	26/03/2024	26/03/2024
Moisture	%	12	14	11	15

Asbestos ID - materials		
Our Reference		347118-10
Your Reference	UNITS	AS1
Date Sampled		21/03/2024
Type of sample		Material
Date analysed	-	26/03/2024
Mass / Dimension of Sample	-	74x32x5mm
Sample Description	-	Grey fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected
Trace Analysis	-	[NT]

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	[NT]	[NT]	[NT]	[NT]	25/03/2024	[NT]
Date analysed	-			28/03/2024	[NT]	[NT]	[NT]	[NT]	28/03/2024	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	[NT]	[NT]	[NT]	[NT]	108	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	113	[NT]
o-Xylene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Naphthalene	mg/kg	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	[NT]	[NT]	[NT]	[NT]	25/03/2024	[NT]
Date analysed	-			26/03/2024	[NT]	[NT]	[NT]	[NT]	26/03/2024	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	93	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	129	[NT]
Surrogate o-Terphenyl	%		Org-020	87	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	6	25/03/2024	25/03/2024		25/03/2024	[NT]
Date analysed	-			26/03/2024	6	26/03/2024	26/03/2024		26/03/2024	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	90	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	88	[NT]
Fluorene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	96	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	106	[NT]
Anthracene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	94	[NT]
Pyrene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	94	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	78	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	6	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	6	<0.05	<0.05	0	96	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	92	6	89	80	11	89	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	6	25/03/2024	25/03/2024		25/03/2024	[NT]
Date analysed	-			26/03/2024	6	26/03/2024	26/03/2024		26/03/2024	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	128	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	130	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	126	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	128	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	140	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	134	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	140	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	128	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	128	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	112	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Mirex	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	6	75	77	3	82	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	6	25/03/2024	25/03/2024		25/03/2024	[NT]
Date analysed	-			26/03/2024	6	26/03/2024	26/03/2024		26/03/2024	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	120	[NT]
Mevinphos	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Phorate	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Disulfoton	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Parathion-Methyl	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	90	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	90	[NT]
Malathion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	84	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	88	[NT]
Fenthion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	84	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Methidathion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Fenamiphos	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	94	[NT]
Phosalone	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Coumaphos	mg/kg	0.1	Org-022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	6	75	77	3	82	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date extracted	-			25/03/2024	6	25/03/2024	25/03/2024		25/03/2024	[NT]
Date analysed	-			26/03/2024	6	26/03/2024	26/03/2024		26/03/2024	[NT]
Aroclor 1016	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	101	[NT]
Aroclor 1260	mg/kg	0.1	Org-021/022/025	<0.1	6	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	96	6	93	94	1	92	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	[NT]
Date prepared	-			25/03/2024	6	25/03/2024	25/03/2024		25/03/2024	[NT]
Date analysed	-			26/03/2024	6	26/03/2024	26/03/2024		26/03/2024	[NT]
Arsenic	mg/kg	4	Metals-020	<4	6	10	10	0	100	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	6	<0.4	<0.4	0	98	[NT]
Chromium	mg/kg	1	Metals-020	<1	6	9	7	25	101	[NT]
Copper	mg/kg	1	Metals-020	<1	6	24	21	13	93	[NT]
Lead	mg/kg	1	Metals-020	<1	6	10	7	35	103	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	6	<0.1	<0.1	0	98	[NT]
Nickel	mg/kg	1	Metals-020	<1	6	3	3	0	98	[NT]
Zinc	mg/kg	1	Metals-020	<1	6	26	24	8	102	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

APPENDIX I

BORE LOGS

Borehole LOG BH1

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1		FILL (TOPSOIL): silty CLAY, dark brown - orange brown, traces of gravel, dry, no odour	No odours
0.2		SILTY CLAY: grey to orange grey, fine to medium grained, medium to high plasticity	
0.3		EOH at 0.3m in natural soil	
0.4			
0.5			
0.6			
0.7			
0.8			
0.9			
1			
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			

Note This bore log is intended for environmental not geotechnical purposes.
produced by ESlog.ESdat.net on 04 Jun 2024

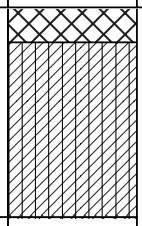
Borehole LOG BH2

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1		SILTY CLAY: orange brown mottled light grey, fine to medium grained, medium to high plasticity	No odours
0.2			
0.3		EOH at 0.3m in natural soil	
0.4			
0.5			
0.6			
0.7			
0.8			
0.9			
1			
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			

Note This bore log is intended for environmental not geotechnical purposes.

produced by ESlog.ESdat.net on 04 Jun 2024

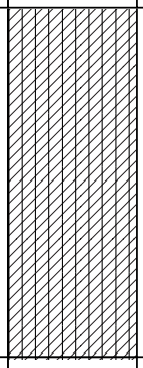
Borehole LOG BH3

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1 0.2 0.3 0.4 0.5		SILTY CLAY: grey to orange grey, fine to medium grained, medium to high plasticity	No odours
0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9		EOH at 0.3m in natural soil	

Note This bore log is intended for environmental not geotechnical purposes.

Borehole LOG BH4

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1 0.2 0.3 0.4 0.5		SILTY CLAY: orange brown mottled light grey, fine to medium grained, medium to high plasticity	No odours
0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9		EOH at 0.3m in natural soil	

Note This bore log is intended for environmental not geotechnical purposes.

Borehole LOG BH5

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1 0.2 0.3 0.4 0.5		SILTY CLAY: orange brown mottled light grey, fine to medium grained, medium to high plasticity	No odours
0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9		EOH at 0.3m in natural soil	

produced by ESlog.ESdat.net on 04 Jun 2024

Borehole LOG BH6

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1 0.2 0.3 0.4 0.5		SILTY CLAY: light grey mottled orange brown, medium to high plasticity	No odours
0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9		EOH at 0.3m in natural soil	

Borehole LOG BH7

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1		FILL (TOPSOIL): silty CLAY, dark brown - orange brown, traces of gravel, dry, no odour	No odours
0.2		SILTY CLAY: grey to orange grey, fine to medium grained, medium to high plasticity	
0.3		EOH at 0.3m in natural soil	
0.4			
0.5			
0.6			
0.7			
0.8			
0.9			
1			
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			
1.8			
1.9			

Borehole LOG BH8

PROJECT NAME Liverpool-MA_Rev0
ADDRESS Liverpool
ADDRESS 402 Macquarie Street

Drilling Date 21 March 2024
Diameter 100 mm
Method ute mounted hydraulic drill rig

COMMENTS

LOGGED BY WL

Depth (m)	Graphic Log	Material Description	Additional Observations
0.1 0.2 0.3		SILTY CLAY: grey to orange grey, fine to medium grained, medium to high plasticity	No odours
0.4 0.5 0.6 0.7 0.8 0.9 1 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9		EOH at 0.3m in natural soil	