Douglas PARTNERS

GROUNDED EXPERTISE

Report on Remediation Action Plan

Stage 1 Development Application

164-194 William St, Woolloomooloo

Prepared for William St Residential Pty Ltd

Project 208700.00

18 August 2025

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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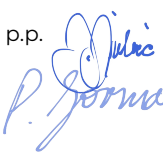
Author	p.p. 	18 August 2025
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Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Executive Summary

This remediation action plan (RAP) has been prepared by Douglas Partners Pty Ltd (DP) to accompany the proposed State Significant Development Application (SSDA) for a mixed-use infill affordable housing development at 164-172 and 174-194 William Street Woolloomooloo. The site is made up of two (2) lots. The legal description of the site is as follows:

- 164-172 William Street, Woolloomooloo (Lot 52 in DP1049805) and
- 174-194 William Street, Woolloomooloo (Lot 1 in DP816050).

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-80211463).

This RAP presents an overview of previous contamination investigations which have included site history assessment and intrusive soil sampling as a part of a due diligence contamination investigation and detailed site investigation. To date limited exceedances of adopted Tier 1 screening criteria for a Residential B land-use scenario have been identified for lead, total petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAH) as benzo(a)pyrene.

Observations of anthropogenic inclusions in fill soils such as gravel, concrete, wood, brick, terracotta, concrete etc were listed on borehole logs for BH3, BH4, BH6 and BH102. The observation of anthropogenic materials might suggest that asbestos may be present even though not observed in the bores (and noting that test pits and not bores are the best method of observing asbestos).

Therefore, the objectives of this RAP are to:

- Address potentially unacceptable risks to relevant environmental values from contamination; and
- Provide a plan to render the site suitable, from a contamination perspective, for the proposed development.

Given that the site redevelopment will involve the excavation of a multi-level basement and that therefore the majority of the fill is anticipated to be surplus to the development, the preferred remediation strategy will be the excavation and off-site disposal of contaminated soils to landfill. Further assessment beneath currently inaccessible parts of the site is also recommended following demolition as a means of potentially limiting cross contamination of unidentified contamination. This will include investigations to determine the depth and quality of groundwater and the need for a dewatering management plan (if required).

It is considered that the site can be made suitable for the proposed development subject to the proper implementation of this RAP.

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1. Introduction

Douglas Partners Pty Ltd (DP) was commissioned by William St Residential Pty Ltd to prepare a Remediation Action Plan (RAP) for a mixed-use infill affordable housing development at 164-194 William Street Woolloomooloo (the "site", as shown on Drawing 1, Appendix A).

William St Residential Pty Ltd has engaged NSW EPA accredited site auditor Rowena Salmon of Ramboll Australia Pty Ltd to complete a site audit under the Contaminated Land Management Act 1997 (NSW) which involves their review of this RAP and associated reports. Revisions to this report have been made since this appointment and with reference to a related email dated 12 December 2022.

The objective of the RAP is to support the SSDA, address the relevant SEARs (dated 21 February 2025) requirements, and to outline additional investigations and processes to render the site suitable for the proposed development. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

SEARs Item	Issue and Requirements	Section Addressed
13. Contamination and Remediation	In accordance with Chapter 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.	The whole of this Remediation Action Plan

The proposed development comprises the demolition of existing of existing structures on site, and construction of a mixed-use development consisting of four individual buildings ranging from 6 storeys to 18 storeys, and 4 levels of basement car parking. The buildings will be constructed over a shared basement and deliver a publicly accessible private open space at the centre of the development.

DP previously prepared a Detailed Site Contamination Investigation (DSI) for the site (report reference208700.00.R.001.Rev6 dated 14 August 2025), which stated that "*...the site can be made suitable for the proposed development, subject to implementation of a remediation action plan...*"

It is intended that following implementation of the RAP the site will be:

- Remediated to a condition which would prevent unacceptable risks to human health and/or the environment; and
- Suitable for the proposed development and land-use.

It should also be noted that this RAP does not form a detailed specification for the proposed site remediation works or provide the basis for any estimates of volumes, but rather represents a planning document which outlines the means by which site remediation can be achieved.

2. Methods and objectives

The remediation objectives, devised in accordance with CRC (2019a), are to:

- Address potentially unacceptable risks to relevant environmental values from contamination; and
- Render the site suitable, from a contamination perspective, for the proposed development.

The scope of work designed to achieve the RAP objectives stated above is described below:

- Provide an adequate description of the site, its history and available background information;
- Provide a summary of the results of the previous site investigations and assess the contamination status of the site;
- Identify remaining data gaps in regard to the site contamination status which will need to be incorporated into the remediation plan and be dealt with via an unexpected finds protocol (UFP);
- Develop site remediation criteria by identifying the chemicals of concern;
- Identify potential remediation options available for the site and nominate the preferred remediation strategy;
- Develop contingency plans for the various situations (i.e. groundwater for dewatering purpose) that may arise during the remediation programme;
- Highlight the Health and Safety requirements for the remediation works;
- Provision of a methodology for the validation of remediation work (if required); and
- Provision of waste classification protocol for soils to be removed from site.

The RAP outlines the remediation methods involved in the removal of the contaminated soil from the basement excavation zone and, where necessary, removal and replacement of contaminated soil from the zone outside the basement. Based on the proposed development it will be necessary to excavate the majority of material to form the basement and remove it from site, therefore, the basement excavation works will effectively remediate the majority of the site.

3. Review of site information

3.1 Site description

A summary of the site is included in Table 1 below and the site location is shown in Figure 1 below.

Table 1: Summary of Site Information

Site Address	164-194 William St, Woolloomooloo
Legal Description	Lot 52, Deposited Plan 1049805 (164-172 William Street); and Lot 1, Deposited Plan 816050 (174-194 William Street)
Approximate Area	6,398 m^2
Zoning	Zone B4 Mixed Use
Local Council Area	City of Sydney Council
Current Use	Multi-story office buildings (British American Tobacco) and Baywater Car Rentals and workshop
Surrounding Uses	North - Commercial offices/retail and residential with the Woolloomooloo historical viaduct underbridge approximately 50 m north of the site East - Commercial office / retail and residential with Kings Cross Train Station approximately 100 m east South - The site is bounded by William Street and the cross city tunnel and the area is mostly commercial / retail with some mixed commercial and residential land use West - Commercial offices and retail

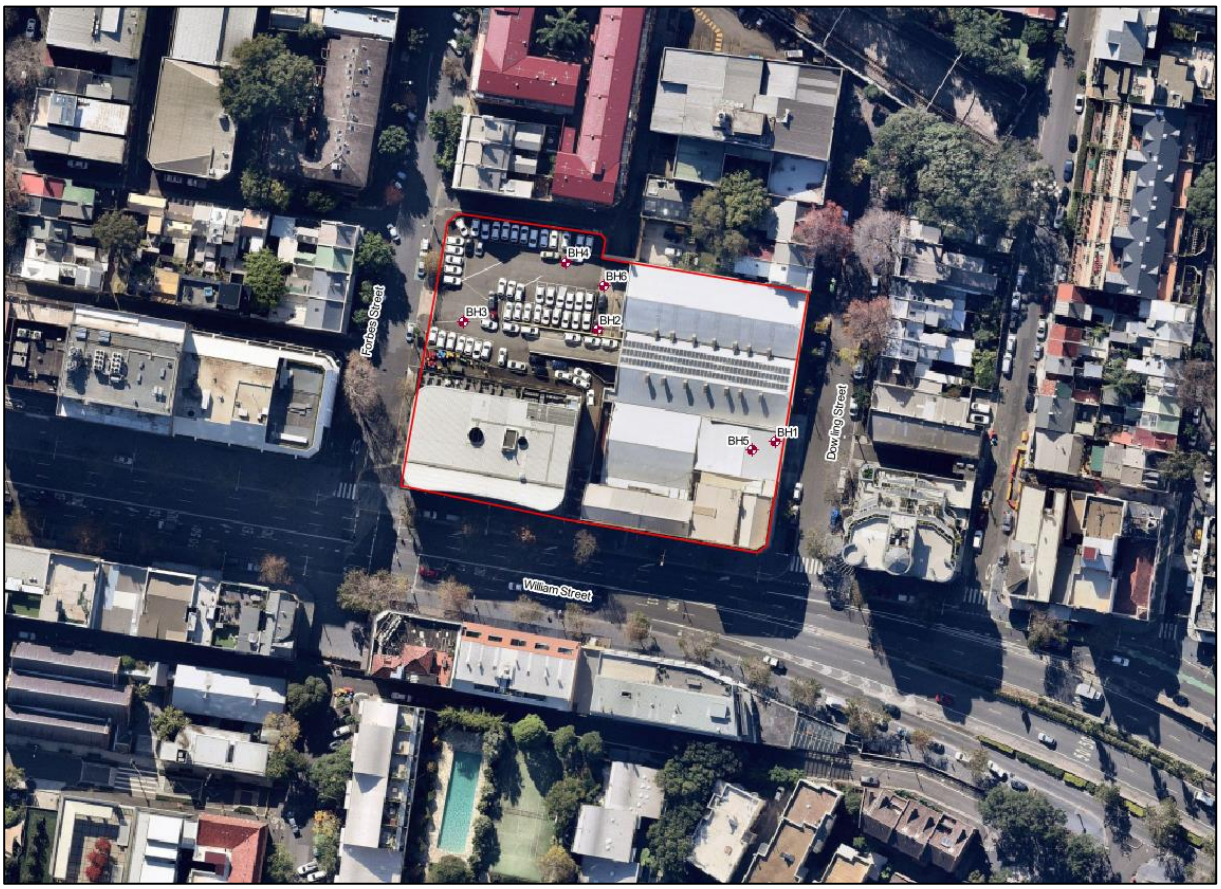


Figure 1: Site Location

3.2 Geology, topography and hydrogeology

Reference to the NSW Department of Finance, Services & Innovation 2020 1:100,000 Sydney Geology Sheet indicates that the site is underlain by Triassic age sandstone described as medium to coarse grained quartz sandstone with very minor shale and laminate lenses. It is noted that the north-eastern corner of the site is adjacent to mapped man-made fill which is described as dredged estuarine sand and mud, demolition rubble, industrial and household waste) overlying silty to peaty quartz sand, silt and clay with ferruginous and humic cementation in places and common shell layers.

Based on elevation contours provided by the NSW Department of Finance, Services & Innovations, the site slopes from approximately 24 m relative to the Australian Height Datum (AHD) in the south-east (corner of Dowling and William Streets) towards 13 m AHD in the north-west on Forbes Street.

The ground surface levels generally fall to the north-west at a grade of about 14% outside the site.

A single level of partial basement parking is present within the site at 164-172 William Street (RL is below William Street but is on grade at the Forbes Street entrance at 13 m AHD). Multiple levels of basement are present at 174-194 William Street (RL of 23-24 m AHD) however the level is on grade at the northwest corner (13 m AHD).

Reference to the Atlas of Australian Soils Map shows the site is underlain by Kandosol soils which are generally described as dissected sandstone plateau with sandstone pillars, ledges and slabs. Soils are generally acid yellow leached earths which sometimes contain ironstone gravel or siliceous sands.

Reference to the 1:100,000 Soil Landscapes Map shows the site is underlain by Hawkesbury colluvial soil but is adjacent to disturbed terrain and Gymea erosional soil.

Reference to the NSW Department of Finance, Services and Innovation's Acid Sulfate Soils Map the site is on Class 5 soil where works within 500 m of adjacent Class 1, 2, 3 or 4 land if below 5 m AHD and by which the water table is likely to be lowered below 1 m AHD on adjacent Class 1, 2, 3 or 4 land, presents an environmental risk.

The closest water body is Sydney Harbour approximately 600 m down gradient and to the north from the site.

Based on the regional topography and the inferred flow direction of nearby water courses, the anticipated flow direction of groundwater beneath the site is to the north, towards Sydney Harbour, the likely receiving surface water body for the groundwater flow path. Given the local geology (i.e. Hawkesbury Sandstone), the groundwater in the fractured rock aquifer beneath the site is anticipated to be relatively fresh.

Surface water is also likely to follow the regional topography and flow north towards Sydney Harbour, although it is also likely to be intercepted by man-made drainage north of the site.

3.3 **Site history**

Information based on historical aerial photographs and the historical business directory suggested the site has been used for motorcar related industries as early as the 1920s and has become a car rental site within the last 30 years following its use as a (most likely) a car dealership. The majority of the motor related activities were associated with the eastern half of the site, particularly the north-eastern sections of the site. The southern part of the site along the south boundary was likely used for other commercial and industrial uses not necessarily related to the motor industry although it was temporarily used for car parking roughly between 1955 and 1965. The building in the south-eastern corner of the site appeared to have been redeveloped between 1965 and 2015. The western half of the site was most likely residential until it was converted into a carpark in between 1970 and 1978. The laneway (Judge Street) which historically ran through the centre of the site was part of the site and used as an internal road and no significant changes to the road have appeared to have been made.

Historical records (Lotsearch Report provided in the DP DDCI) indicate the following site uses on surrounding sites:

- Welby (Hygienic) Laundry noted at 246-248 Dowling Street Kings Cross from 1962 - 1970 (20 m east of the site);

- Lanhams Dry Cleaner on corner of Dowling and William Street from 1966 - 1972 (18 m southeast of the site);
- Federal Dry cleaner at 198 William Street from 1950 - 1952) (20 m southeast of the site);
- Ferris Bros (motor garage) 252 Dowling and 3 McElhone Streets from 1948 - 1950 (20 m southeast of the site);
- William Auto Repairs 156A William Street East from 1959 to 1961 (21 m west of the site);
- Various additional auto repair sites on William Street (177 William Street, 177-185 William Street, 207-213 William Street, 171-175 William Street, 299 William Street, 169 William Street;
- Golden Dry Cleaners at 138 William Street from 1979-1982 (85 m west of the site); and
- Additional dry cleaners and motor garages and engineers (as listed on pages 59 to 92 of the LS Report).

3.4 Site condition

At the time of the investigation (2020) the site was occupied by Budget Car Rentals, an operational motor workshop and the British Tobacco offices (and carpark). Cars were parked in all parts of the site in close proximity and access to many areas was limited due to the operations.

Sealed surfaces covered the site however in parts the concrete appeared stained and cracked due to previous site use.

3.5 Proposed development

It is understood that the proposed development of the site includes the construction of a multi-storey, mixed-use building over four levels of basement. Excavations to achieve the Basement 04 Finished Floor Level (FFL) of RL 3.0 m will require excavation between around 12 m to 14.8 m below existing surface levels with localised deeper excavations for the lift cores.

Specifically, the SSDA seeks consent for:

- 227 apartments (167 market housing, 60 affordable housing units;
- Ground floor retail and commercial uses with 7 – 18 storeys of residential tower across four buildings being:
- FJC - William Street (West);
- FJC - William Street (East);
- Studio Bright – Forbes Street;
- Tribe Studio – Dowling Street;
- A publicly accessible central park;
- Public domain works and improved through-site links;
- Four basement levels for parking, services and storage;□□□d
- Vehicular and loading access from Forbes Street.

A deep soil zone (DSZ) will be retained along the northern boundary at RL 13.35 m AHD and 13.5 m AHD. There will also be a no dig zone on the laneway footprint. Fill may be retained along these parts of the site.

The remainder of the site will be excavated to finished floor level (FFL) of RL 3 m AHD. DP understands all fill within the basement excavation (over the rest of the site) will be removed.

The following architectural concept drawings are provided in Appendix A relating to the proposed development:

- Site Plan, Sheet No. 1200, Rev1;
- Basement 01 Plan, Sheet No. 2000, Rev1;
- Basement 04 Plan, Sheet No. 2021, Rev1;
- East Section, Sheet No. 4001, Rev1;
- West Section, Sheet No. 4002, Rev1;
- North Section, Sheet No. 4003, Rev1;
- South Section, Sheet No. 4004, Rev1;
- Plaza Level, Forbes Street, Sheet No. 2001;
- Retail Laneway, Dowling Street, Sheet No. 2002; and
- Upper Ground Floor, William Street, Sheet No. 2003.

4. Previous contamination investigations

Previous investigations reviewed as part of the RAP include:

- Douglas Partners Pty Ltd, *Report on Due Diligence Contamination Investigation (DDCI), Proposed Unit Development, 172 and 174-194 William Street, Woolloomooloo* prepared for HSN Property Group / Rebel Property Group / Phoenix Property Investors Reference 99734.00.R.001.Rev2 (DP 2020); and
- Douglas Partners Pty Ltd, *Report on Detailed Site Investigation (DSI), Stage 1 Development Application, 164-192 William St, Woolloomooloo*, dated 15 August 2025 (DP 2025).

4.1 DP (2020) DDCI

The DDCI included a site walkover, a review of historical information of the site, a review of historical land title deeds, and drilling of four boreholes (BH2, BH3, BH4and BH6) with a push tube rig in targeted areas of the site.

Two underground storage tanks (USTs) were previously in operation at the site. Records were provided by the (then) current site owner confirming that both had been decommissioned *in situ* in 1997.

All reported concentrations of contaminants in the tested soil samples were below the adopted SAC with the exception of the following:

- Benzo(a)pyrene toxicity equivalent in samples BH2/0.2-0.3 (9.4 mg/kg), BH2/0.4-0.5 (5 mg/kg) and BH6 0.8-0.9 (6.2 mg/kg) which exceeded the health investigation level of 4 mg/kg;
- Benzo(a)pyrene in samples BH2/0.2-0.3 (9.4 mg/kg), BH2/0.4-0.5 (5 mg/kg), BH4/0-0.1 (1.2 mg/kg) and BH6 0.8-0.9 (6.2 mg/kg) and which exceeded the ecological investigation level of 0.7 mg/kg; and
- TRH fraction C16-C34 in samples BH3/0.05-0.1 (980 mg/kg), BH4/0-0.1 (880 mg/k) and BH6/0.8-0.9 (440 mg/kg) which exceeded the ecological screening level of 300 mg/kg.

The elevated concentrations reported were likely to be associated with the nature of the fill. The hydrocarbon detections in BH2 and BH6 suggest possible residual impacts from the decommissioned UST.

Results in italics are not considered significant when compared against the CRC CARE (2017) high reliability guidelines for benzo(a)pyrene of 33 mg/kg (21-135 mg/kg 95% confidence limits) for urban residential and public open space land-use *(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).*

4.2 **DP (2025) DSI (updated August 2025)**

DP (2025) comprised a desktop review to assess the potential for contamination at the site. A site walkover, review of historical land title deeds, Council Section 10.7 and SafeWork NSW Records search, were undertaken.

The fill on the site was found to be relatively shallow (generally less than 1 m) but likely to be variably impacted by common contaminants such as PAH, lead, and other hydrocarbons, all of which will influence the waste classification and eventual disposal costs.

Fill containing elevated lead and PAH concentrations (exceeding the SAC) was encountered in some of the borehole locations. These materials and similarly contaminated fill will require remediation and/or specific waste classification if within an area of proposed bulk excavation.

Some legacy hydrocarbon contamination appears to be present in the tank pits of the decommissioned underground storage tanks (USTs), and is likely associated with the related infrastructure (now removed). Such contamination, requires to be chased out and appropriately remediated and validated prior to bulk excavation.

The DSI noted that additional (as yet undiscovered) tanks may remain on the site as indicated in SafeWork records documenting a previous license for tanks at the site.

Groundwater was not sampled as part of the DSI, as it was not encountered in the bores drilled during the investigation. Given the presence of USTs, and the historical activities previously undertaken at the site and nearby, further assessment of the potential for groundwater impact will be needed in the form of a data gap assessment (DGA) including:

- A requirement for a dewatering management plan (DWMP) based on the final basement design;

- Indications of deep contamination impact associated with the USTs; and/or;
- Unexpected finds of contamination considered to pose a risk of groundwater contamination.

The DSI concluded that the site can be made suitable for the proposed development subject to the following recommendations:

- Preparation of a remediation action plan (RAP) to outline the soil remediation and management protocols based on the outcomes of this DSI, and the details of the proposed (or likely) development.
- Further targeted assessment (the DGA) of the contamination status of soils following the demolition and removal of existing buildings, including (but not necessarily limited to):
  - The two known UST locations (and possibly additional USTs in 164-172 William Street);
  - The location of previous bowsers and UST infrastructure;
  - Sources of potential off-site contamination e.g. dry cleaners and motor garages etc.;
  - Areas of the site currently restricted in access (e.g. the central eastern portion, fronting Dowling Street); and
  - Areas with currently limited borehole coverage (e.g. north-western portion).
- Confirmation of the preliminary waste classifications through additional (in situ) soil investigations which are to be conducted prior to the disposal of any soil off-site;
- A hazardous building material survey prior to the demolition of any structures on site, following by the removal of hazardous building materials in accordance with current regulations; and
- Completion and validation of remediation works as stipulated in the RAP.

5. Conceptual site model (CSM)

The following CSM was developed following investigations (DDCI and DSI) as a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source - pathway - receptor linkages (complete pathways).

Table 2: Summary of Potentially Complete Exposure Pathways

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S1: Fill Heavy Metals, TRH, BTEX, PAH, OCP, and asbestos S2: USTs Lead, TRH, BTEX, PAH, and VOC	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours P3: Surface water run-off P4: Lateral migration of groundwater providing base flow to water bodies	R1: Current users (workers and customers); R2: Construction and maintenance workers; R3: End users (residents, workers and customers); and	Additional sampling is required following demolition and removal of USTs including testing of the soils and groundwater (if encountered). At this stage no requirement for vapour monitoring has been identified.

Source and COPC	Transport Pathway	Receptor	Risk Management Action
S3: Current and Past Site Uses Heavy metals, TRH, BTEX, PAH, OCP, OPP, PCB, VOC (MTBE), phenols, PFAS, and asbestos	P5: Leaching of contaminants and vertical migration into groundwater P6: Contact with terrestrial ecology	R4: Adjacent site users (residents, workers and customers). R5: Surface Water - Sydney Harbour R6: Groundwater	Access to the areas which are currently occupied will be enabled following demolition This is particularly true for locations hydraulically downgradient of AEC such as onsite USTs and off-site historical dry cleaners. Management of impacted materials (if identified) through remediation such as would be documented in a remediation action plan. Recommendation for an *in situ* waste classification using testpits following demolition for the waste classification of fill at the site. Management of impacted groundwater (if present and potentially negatively impacting the site) through building and basement design, which would be documented in a remediation action plan. If required, a Dewatering Management Plan will need to be prepared for the site. This requirement will need to be addressed following additional groundwater investigation. In this regard, a remediation action plan has been prepared for this site and will be submitted as part of the DA application.
S5: Adjacent Site Uses Heavy metals, TRH, BTEX, PAH, OCP, OPP, PCB, PFAS, VOC, phenols and asbestos	P2 - Inhalation of dust and/or vapours	R1 - Current and end users R2 - Construction and maintenance workers	
	P3 - Leaching of contaminants and vertical migration into groundwater P4 - Lateral migration of groundwater providing base flow to water bodies P5 - Surface runoff	R4 - Terrestrial ecology R6 - Surface water and groundwater	
S4: Existing and previous buildings	P1 - Ingestion and dermal contact	R1 - Current users and end users	A hazardous building materials assessment has

Source and COPC	Transport Pathway	Receptor	Risk Management Action
asbestos, SMF, lead (in paint) and PCB	P2 - Inhalation of dust and/or vapours	R2 - Construction and maintenance workers R3 - Adjacent site users	been recommended and listed in the RAP[1].

Metals - arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

6. Remediation extent

The extent of remediation comprises:

- Remediation Area 1: B(a)P impacted fill in the vicinity of BH2, BH4 and BH6; TRH impacted fill in the vicinity of BH3, BH4 and BH6 in the vicinity of the deep soil zone (DSZ);
- Remediation Area 2: heterogenous fill across the site i.e. the basement excavation area, which will be excavated as part of bulk excavation works. This area includes lead impacted fill in the vicinity of BH102 and anthropogenic inclusions;
- Remediation Area 3: former USTs, infrastructure and tank pits; DP notes one of the USTs is in the DSZ; and
- Remediation Area 4: Footprints of existing structures, considered to pose a high risk for undetected asbestos, or potential asbestos contamination generated during demolition.

The approximate extent of Remediation Areas 1 and 3 are shown on Drawing 2, Appendix A.

Depending on the outcome of the data gap assessment (DGA) outlined in Section 9 and presence of USTs, it may only be necessary to demarcate remediation areas in the DSZ noting all other fill will be removed. The intention at this stage is to only remediate (remove fill) and validate remaining excavations (fill or natural) in Remediation Area 1. If the outcome of the DGA indicates all fill in the DSZ and laneway is not suitable to remain on the site, this should be removed from the DSZ and laneway, and the area validated. If the outcome of the DGA and the results of statistical analysis of the entire dataset indicate the fill is suitable to remain on-site, the validation of the DSZ and laneway will likely involve retention of the fill in this part of the site and validation of this remaining fill.

It is generally noted that the majority of the site will be excavated to form the proposed basement and as such the soils within the identified remediation areas are understood to be surplus to the proposed development.

Validation requirements are outlined in Sections 9 and 12. Since the site will be bulk excavated to underlying natural soils, it is noted that validation samples can be taken in natural material once fill has been removed and legally disposed off-site following waste classification.

The following protocols will be addressed as part of this RAP:

- Waste classification protocols for soils to be removed from site;
- Management of anticipated (potential) contaminated soils in the vicinity of the former USTs;

[1] DP notes that a hazardous building materials assessment can be conducted as part of the construction work program.

- An unexpected finds protocol to manage unexpected contamination;
- Remediation options evaluation for contaminated soil as may be encountered around the former USTs and as an unexpected find;
- Provision of a methodology for groundwater investigation works to characterise groundwater including for VOCs from offsite sources to confirm remediation requirements.
- Nomination of the preferred remediation option(s);
- Provision of a methodology for the validation of remediation work; and
- Contingency measures for further assessment.

Groundwater investigation works may be required to address the data gaps with respect to the potential contamination risks to groundwater. Triggers for such assessment are also identified in this RAP.

The additional groundwater investigation (if required) is proposed to be undertaken as part of the data gap assessment (DGA)following building demolition and removal of the USTs. Installation of groundwater wells at this stage may lead to increased contamination by creating a pathway for perched water which may be contaminated from current site operations or USTs to deeper groundwater beneath the site.

7. Remediation options

7.1 Remediation hierarchy

The remediation hierarchy for the site is based on Section 4.3 of *Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd edition)*, NSW EPA, 2017 and National Environment Protection Council, *National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended 2013*. Options for consideration include:

- No action;
- On-site treatment of the soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level (such as landfarming); and
- Off-site treatment of excavated soil which, depending on the residual levels of contamination in the treated material is then returned to the site, removed to an approved waste disposal site or facility or used as fill or landfill.

The following key guidelines have also been consulted:

- NSW Department of Environment and Climate Change (DECC) *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008* (UPSS Regulation).
- ANZECC *Guidelines for the Assessment of On-Site Containment of Contaminated Soil, Australian and New Zealand Environment and Conservation Council*, Canberra (ANZECC, 1999);
- CRC CARE Technology Guide: Soil - Containment (CRC CARE, 2019c);

- CRC CARE *Risk Based Management and Remediation Guidance for Benzo(a)Pyrene. Technical Report No.39. CRC for Contamination Assessment and Remediation of the Environment* (CRC CARE, 2007);
- WA DoH *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA DoH, 2021); and
- WorkCover NSW Managing Asbestos in or on Soil (WorkCover NSW, 2014).

Based on the requirement to remove surplus soils for the construction of the basement no action is not considered applicable.

The option to conduct on-site treatment of soil impacted by hydrocarbons (land farming) is not considered a feasible option on this site, due to the required bulk excavation and space constraints.

Given the previous preliminary in situ waste classification it is considered that excavation and off-site disposal of the PAH/TRH/lead impacted soils as well as material to be removed from the UST excavations is the most practical means of remediation. However, apart from soil located within the DSZ all fill and surplus soil and rock (down to the basement finishing levels) will be removed from across the site. Accordingly, other than in the DSZ, remediation will essentially be achieved by bulk excavation, waste classification and disposal and validation of the natural materials below the fill horizon.

On-site management of excavated spoil may only be applicable where space is available for stockpiling and waste classification or retention on site. However, given the excavation will extend into bedrock any retained contamination would need to be contained further at depth below the current final excavation level and would also require further consideration to other impacts to the proposed development (i.e. geotechnical, structural). Accordingly, this remediation option appears to be largely impractical.

The rationale for the selection of the preferred remediation strategy is outlined above. The preferred remediation strategy is excavation and off-site disposal over the majority of the site whereas in the DSZ (soil retained on site) removal of any hotspots will take place followed by validation.

The validation sampling plan is provided in Section 12. Detailed information on the number of validation samples required in (i) defined hotspots (if any), (ii) areas of former UST tankpits (you will also need a procedure for removal of any remaining USTs), (iii) grid based validation of the soil in the DSZ to at least meet the minimum sampling density for the DSZ area as set out in the SDG (2022) will be added following the results of the DGA outlined in Section 9.2.

8. Assessment criteria

8.1 Remediation acceptance criteria

The overarching remediation acceptance criterion (RAC) to be adopted for the project is for 'no unacceptable risks posed by the relevant media (i.e. soils, groundwater or soil vapour) to human health or the environment'.

The remediation works are to be validated as meeting the RAC by the Environmental Consultant by means of visual inspection, field screening, recovery and analysis of samples and review of any available plans as set out in this report.

In the absence of derivation of Tier 2 site specific target levels (SSTL), the (RAC) for contaminants in soil are the same as the Tier 1 site assessment criteria (SAC) adopted for the DDCI (2020) and DSI (2023), protective of human health and ecology.

8.2 Site assessment criteria

Additional area(s) of contamination encountered beyond those outlined in Section 6, during the course of the remediation and site redevelopment will be subject to the contingency plan or unexpected find protocol (Section 13) and assessed using the RAC in Appendix B. The RAC are the same as the Tier 1 SAC adopted for DP (2020 and 2025). This is on the provision that other considerations such as risks to groundwater are also taken into account. The broader list of contaminants and their SAC are included in Appendix B.

The SAC should also be used as part of the assessment framework for imported soils (i.e. contaminant concentrations in imported soils must comply with the SAC).

The investigation and screening levels applied in the current investigation comprise levels applicable for a generic residential B (residential with limited soil access) land use scenario for the majority of the site. Health screening levels for vapour intrusion for commercial / industrial land use are also applicable beneath basement car parks.

In addition, the following criteria are considered relevant to this RAP:

- Open space land use criteria and ecological criteria in the DSZ; and
- Commercial / industrial criteria beneath the laneway.

The derivation of the SAC is included in Appendix B and the adopted SAC are listed on the summary analytical results tables in Appendix C.

The SAC are not RAC, and an exceedance of the SAC does not automatically trigger the need for remediation. Exceedances of the SAC will trigger the need for further assessment of risk by the Environmental Consultant to determine the need for remediation in accordance with NEPC (2013).

Validation framework and criteria for imported materials has been added to Section 11.3.

9. Proposed remediation strategy

DP proposed the following remediation strategy:

- Following demolition, demarcate the deep soil zone (DSZ) and laneway as shown on Drawing 1 in Appendix A;
- Install and sample groundwater wells around the site perimeter (this could be undertaken before or after demolition, or staged (perimeter could be assessed before demolition, on-site such as the USTs may need to occur after demolition). DP notes that if this is conducted prior

to demolition, some of the wells would be sacrificial if installed within the site and which are later excavated;

- Depending on the groundwater levels / water quality monitoring results prepare a DWMP;
- Undertake supplementary data gap assessment (DGA) testing as outlined in Section 9.2 in the DSZ, laneway and the remainder of the site preferably using test pits, with sufficient sampling density to allow statistical analysis of results for fill and waste classification (if off-site disposal is required) or validation (is fill is to be retained - DSZ and laneway);
- Determine whether further tanks are present and remove tanks according to the provisions of UPSS and relevant AS or classify spoil for waste disposal and then validate remaining substrate (UPSS Regulation) ((DECC), 2008);
- Classify remaining fill to site boundaries (excluding DSZ) for off-site disposal using test pits by either in situ testing or stockpile testing methods;
- Excavate fill across the site as part of bulk earthworks;
- Where necessary, segregate and handle waste of different classification accordingly to minimise cross-contamination of waste streams; and
- Validate remaining side walls and floor in natural soil or rock (or remaining fill down to ~1.0 m depth).

Sampling design for waste classification and for site validation are provided in Section 12. More information is provided in the following subsections:

9.1 Groundwater Data Gap Investigation (DGI)

Groundwater was not sampled as part of the DSI, due to the expectation that it would be present at depth below the site, in the sandstone aquifer. Given the presence of USTs, and the historical activities previously undertaken at the site and nearby, further assessment of the potential for groundwater impact may be needed under circumstances including:

- A requirement for dewatering based on the final basement design;
- Indications of deep contamination impact associated with the USTs;
- Potential for VOC impact and basement design to exclude vapour or groundwater and/or;
- Unexpected finds of contamination considered to pose a risk of groundwater contamination.

DP recommend the preparation of a Sampling and Analysis Plan (SAQP) for the groundwater DGA when the proposed development has been finalised so that the auditor is satisfied with the proposed groundwater investigation prior to commencement of works. The client has requested that the groundwater DGA is undertaken prior to demolition.

DP propose the following groundwater investigation:

- Drill five (5) boreholes to up to 10-13 m depth to determine the depth of groundwater at the site. The bores should be extended to the final depth of the basement excavation at each location (if groundwater is not encountered prior);
- Install groundwater wells along the perimeter of the site (in particular along the northern boundary of the site - hydraulically downgradient of the site);

- Drill of 3 additional boreholes to gain site coverage along the south-eastern part of the site to determine if groundwater contamination associated with historical motor vehicle or dry cleaning operations up-gradient of the site have impacted the groundwater beneath the site;
- Sample groundwater using low flow sampling equipment and analysis for the following analytes - One sample per location for 8 priority metals, TRH, BTEX, MTBE, PAH (low level), OCP (trace), OPP (trace), PCB (trace), phenols, VOC, PFAS;
- Appropriate QAQC sampling;
- If elevated concentrations are detected in groundwater, soil vapour sampling may be required; and
- Prepare a groundwater data gap investigation report.

Should significant volumes of water be encountered, or any signs of contamination identified due to any currently unknown variations in geological or hydrogeological conditions then the DWMP would need to address these considerations. Similarly, if any signs of gross contamination are identified in the extracted water (e.g. odours, discolouration, hydrocarbon sheens or presence of DNAPL) then consideration should be given in the DWMP to reporting the site under Section 60 of the Contaminated Land Management Act 1997.

If the groundwater DGI identifies groundwater impacted by chlorinated hydrocarbons from off-site dry cleaners (or other contaminants) and a potential risk to human health, such as via vapour intrusions, remediation may require adapting basement design to exclude groundwater or vapour (e.g. vapour membranes, venting, groundwater barriers, etc) or necessitate preparation of a Human Health Risk Assessment.

If this is the case, a revision to the RAP, addendum to the RAP; and/or a Remedial Work Plan may be required.

9.2 Post-demolition Supplementary Data Gap Assessment (DGA)

The DGA comprises the following sequence of steps:

- When the site is vacant or post demolition a ground penetrating radar scan (GPR) will be deployed to determine if any additional USTs are present at the site as per Section 9.4.
- Demarcate the deep soil zone (DSZ) and laneway as shown on Drawing 1 in Appendix A.
- Excavate test pits 0.5 into natural or 2-3 m into fill, with sufficient sampling density (both in the DSZ and for the remainder of the site) to allow statistical analysis of results for fill (where to be retained on site) and waste classification (if off-site disposal is required).
- Table A of the NSW EPA (1995) *Sampling Design Guidelines* recommends a minimum of 15 sampling points for a site of approximately 0.6 ha for the detection of circular hot spots using a systematic sampling pattern with no known contamination source. As 15 borehole locations have already been sampled in previous investigations, DP consider an additional 12-15 test pit locations across the site would be suitable to supplement the borehole data and with at least 1-2 samples per location to be sampled and analysed.
- The area covered by the DSZ and laneway is estimated to be approximately 1,132 m^2 and therefore 8 of the samples (from the total of 10-12 locations) should be positioned in this part of the site (DSZ and laneway); [NSW EPA (1995) *Sampling Design Guidelines* recommends a

minimum of 8 sampling points for a site of approximately 0.1 ha for the detection of circular hot spots using a systematic sampling pattern with no known contamination source].

- Analyse waste classification samples for priority heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEX, PAH, OCP/OPP, PCBs, phenols and asbestos (gravimetric).
- Determine whether further tanks are present and if so remove and then validate, or classify spoil for waste disposal (See Sections 9.2 and 9.3).
- Classify remaining fill to site boundaries (excluding DSZ) for off-site disposal using test pits by either in situ testing or stockpile testing methods.
- Preparation of an *in situ* waste classification report to consolidate new and existing data and delineate areas of anticipated higher waste classification.

9.3 On-site USTs

When the site is vacant or post demolition a ground penetrating radar scan (GPR) will be deployed over the DGA area and the rest of the site to determine if any additional USTs are present at the site as listed in Section 9.2.

Any remaining USTs and associated Underground Petroleum Storage System (UPSS) infrastructure (if present) will be removed in accordance with Australia Standard AS4976-2008 and validated in accordance with EPA- endorsed guidelines and above Section 8.2.

Where identified to be present, the UPSS will be carefully exposed to facilitate the following remediation works:

- Liquid waste tankers to remove liquid contents of USTs (if present);
- USTs to be de-gassed and confirmed as gas-free;
- Scrapping of USTs and associated infrastructure on site and removal as scrap metal;
- Waste classification of UST and associated infrastructure backfill and any obvious associated contaminated soils in proximity to the UPSS;
- Excavation and off-site disposal of unsuitable or surplus soils around the UPSS under the assigned waste classification;
- Validation of the remaining excavation walls and base, as per the requirements of this RAP; and
- Assessment (by the Environmental Consultant) of the potential for groundwater contamination at the location of each identified UPSS. If such a potential is identified the Environmental Consultant may require groundwater sampling and testing as part of the validation process.

UST removal will be undertaken in accordance with Australian Standard AS 4976-2008 entitled *The Removal and Disposal of Underground Petroleum Storage Tanks* and guidelines endorsed by the EPA and SafeWork NSW.

A Certificate of destruction is to be obtained from the Remediation Contractor for each UST removed from the site.

9.4 Former UST Tank Pits

The general methodology of remediation comprises the following sequence of steps:

- Excavate of soils in the former tank pit area, under the supervision of an experienced environmental consultant, to top of rock, terminating when no evidence of hydrocarbon staining is observed. The excavated spoil will be stockpiled into the following categories:
  - Fill soils impacted with hydrocarbons (through odour or staining);
  - Fill soils not obviously impacted with hydrocarbons; and
  - Natural soils impacted with hydrocarbons.
- The environmental consultant to conduct formal waste classification on the excavated and stockpiled soils;
- Dispose of excavated soils to be to a licensed landfill under the assigned waste classifications;
- Conduct validation sampling and testing of soils exposed in the excavation, as a means of validating complete removal of the hydrocarbons impacted soils. The test results will be used as part of the bulk soil waste classification process described below;
- Excavate (bulk excavation) of soil / fill from within the basement footprint and disposal of materials at a suitably licenced facility legally able to accept the waste under the assigned waste classification(s). The bulk excavation will be undertaken under the unexpected finds protocol outlined in Section 13 of this RAP;
- If required (i.e. if contamination is found) sample, test and validate soil below the bulk excavation level across the basement footprint, or below the fill where fill is removed; and
- Provide a Remediation and Validation Report for the site including a clear statement that the site is considered suitable for its intended land-use.

Note that if the excavation works proposed at the location of the former tanks identifies deep soil impacts, it may be an indication that groundwater is impacted. The environmental consultant will advise accordingly and propose a subsequent course of action, which might include one or a combination of the following:

- Deeper excavation (beyond the basement depth) of hydrocarbon impacted soils;
- Installation of groundwater monitoring wells in the vicinity of the excavation to permit sampling and testing of potentially impacted groundwater;
- If deep soils and/or groundwater is impacted, conduct a human health and ecological risk to assess whether management or remediation is required; and
- Active or passive remediation of contaminated groundwater (depending on contaminant source removal).

9.5 Off-site disposal of contaminated soils

- Reference will be made to the pending *in situ* waste classification report(s) undertaken according to in Section 9.2 to inform the disposal requirements; and
- Excavate impacted material under the supervision of the Environmental Consultant. The Environmental Consultant is to guide the excavation of the impacted material.

In the DSZ and Laneway, excavate (hotspot) areas and validate according to Section 12.1:

- Stockpile or segregate material with higher waste classification(s) (e.g. Restricted solid waste) separately from other material (e.g. General solid waste) so that cross-contamination of waste streams is minimised;
- Inspect visually (if possible) or collect check samples to confirm the remaining material meets the lower waste classification in accordance with Section11.1;
- If the validation assessment fails, further excavate soils failing the validation assessment (to be undertaken by the Contractor);
- Load, transport and dispose of waste to a licensed facility under a specified waste classification;
- Validate the resulting excavation in accordance with Section 12;
- Environmental Consultant to provide the results of the validation assessment to the Contractor. If the assessment passes, no further remedial excavation will be required;
- If the validation assessment fails, further excavation of the soils failing the validation assessment will be undertaken by the Contractor;
- Environmental Consultant to provide the written advice of the results of the validation assessment; and
- Include the results by the Environmental Consultant in the Validation Report.

For the remainder of the site:

- Material with higher waste classification(s) (as to be determined by the DGA as well as the current data set) is to be segregated separately from other material;
- Excavate fill across the site as part of bulk earthworks;
- Conduct a validation assessment by the Environmental Consultant of the resulting excavation or following removal of all fill across the site in accordance with Section 12;
- Environmental Consultant to provide the results of the validation assessment to the Contractor. If the assessment passes, no further remedial excavation will be required;
- If the validation assessment fails, further excavate of the soils failing the validation assessment will be undertaken by the Contractor;
- Environmental Consultant to provide written advice of the results of the validation assessment; and
- Include results by the Environmental Consultant in the Validation Report.

9.6 **Validation report**

Following the completion of the above works and the receipt of any related analytical results from the validation sampling, a Remediation and Validation Report will be prepared in general accordance with the requirements of the NSW EPA *Consultants Reporting on Contaminated Land* (2020).

This report will include:

- Details of the implementation of this RAP and any variations to the remediation strategy including unexpected finds;
- A rationale and justification for the validation strategy adopted;
- Results of any additional sampling, including validation sampling, undertaken during the remediation works;
- Validation of imported materials including documentation of the inspection process upon delivery to site confirming materials are consistent with expectations based on the source and reviewed documentation and free from unexpected anthropogenic impacts, odour or staining;
- Evaluation of the data against the Remediation Action Criteria (RAC) (where appropriate);
- Verification of regulatory compliance;
- Confirmation of waste classification and review waste tracking records including off-site disposal records / dockets;
- A clear statement on whether the site is considered suitable for its intended land-use; and
- Any limitations, assumptions and uncertainties relevant to the conclusions of the report.

10. Key legislative requirements

The following key legislative requirements affect the management of the site:

- NSW Contaminated Lands Management Act 1997 (CLM Act);
- Protection of the Environment Operations Act 1997 (POEO Act);
- Environmental Planning & Assessment Act 1979;
- Occupational Health and Safety Act 2000; and
- State Environmental Planning Policy – Resilience and Hazards.

11. General site management considerations during remediation

A site management plan for the operational phase of site remediation is included in Appendix D. The management plan includes roles and responsibilities, soil, noise, dust, work health safety (WHS), remediation schedule, hours of operation and incident response. The Remediation Contractor is to implement the site management plan for the duration of remedial works by incorporating the plan into their over-arching construction environmental management plan (CEMP).

This section provides additional information which is to be considered during the remedial works.

11.1 Stockpiling of soils

While material may be loaded directly into trucks for off-site disposal, if stockpiles are required, they must be managed to minimise the risk of dust generation and erosion given the likely presence of contaminants in some of the stockpiled materials.

The following additional control measures will be adopted for the management of spoil generated by excavation and piling works at the site. The requirement for an *in situ* waste classification assessment prior to excavation is outlined in Section 9.2 above:

- Where possible, segregate different material types for assessment purposes;
- All stockpiles must be placed in areas that do not allow material to spill onto the road pavement or drainage lines / watercourses;
- Restrict the height of stockpiles to reduce dust generation (less than 2 m);
- Place stockpiles of fill within the areas to be remediated (i.e. excavated);
- Construct stockpiles, preferably with no slope greater than 2:1 (horizontal to vertical) to manage dust generation and erosion. A less steep slope may be required once the surrounding area is flattened to reduce dust emission;
- Apply periodic dampening, where necessary, to suppress dust from being released;
- Stockpiled materials must have a sediment control fence;
- Known contaminated material (i.e. or identified as a contamination find such as BH102 and BH105) is to be stockpiled separately, and should be placed on plastic sheeting to prevent leaching of contaminants into surrounding soils; and
- Areas where contaminated material has been stockpiled will be required to be validated accordingly as specified after the stockpiles have been removed.

11.2 Waste disposal

Disposal of waste must be to an appropriately licensed waste facility, as per *Protection of the Environment Operations Act 1997* NSW (POEO Act) and the *Protection of the Environment (Waste) Regulation 2014* NSW.

Any waste disposed off-site must be initially classified by the Environmental Consultant in accordance with:

- NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (NSW EPA, 2014a);
- NSW EPA Waste Classification Guidelines, Part 2: Immobilisation of Waste (NSW EPA, 2014b);
- NSW EPA Waste Classification Guidelines, Part 4: Acid Sulfate Soils (NSW EPA, 2014c); and
- NSW EPA Addendum to the Waste Classification Guidelines (2014) - Part 1: Classifying Waste (NSW EPA, 2016) [addendum for per- and poly-fluoroalkyl substances (PFAS)].

Samples will be collected from stockpiles / *in situ* fill at various depths to characterise the full depth of the material. The frequency is to be determined by the Environmental Consultant based on the risk of contamination and heterogeneity of the material.

For stockpiles comprising similar materials and a:

- Volume up to 200 m3: a recommended minimum frequency of one sample per 25 m^3, with a minimum of three per stockpile (NSW EPA, 2022); or
- Volume greater than 200 m^3: a recommended minimum frequency of one sample per 250 m^3, with a minimum of 10 and calculation of the 95% upper confidence limit of the arithmetic mean for all applicable analytes (NSW EPA, 2022). Note that this does not apply

to stockpiles impacted, or potentially impacted, by asbestos. For stockpiles greater than 200 m^3 which are impacted, or potentially impacted, by asbestos the Environmental Consultant shall provide guidance in accordance with NSW EPA (2022).

It may be possible to classify excavated soil / fill for reuse on another site under a relevant NSW EPA resource recovery order (RRO) so that it can be used on other sites under the requirements of the corresponding NSW EPA resource recovery exemption (RRE). For this option, the frequency and scope of sampling should be in accordance with the relevant RRO and the contaminants to be analysed will be compliant with the RRO with additional potential contaminants such as asbestos to be determined by the Environmental Consultant (see Section 11.3). The Environmental Consult will provide a report confirming the suitability of the spoil for reuse under a RRO, or otherwise.

All waste must be tracked by the Remediation Contractor from 'cradle to grave'. Copies of all consignment notes / disposal dockets (or similar) and Environment Protection Licences for receipt and disposal of the materials must be maintained by the Remediation Contractor as part of the site log and must be provided to the Environmental Consultant for inclusion in the validation report.

11.3 Importation of soil (if required)

Any soil, aggregate etc imported for the remediation works must have contaminant concentrations that meet the relevant criteria outlined in Section 11. Imported materials will only be accepted for use at the site if:

It can legally be accepted onto the site (e.g. classified / defined as virgin excavated natural material (VENM), accompanied by a report / certificate to that effect prepared by a qualified environmental consultant):

- Visual inspection of the imported soil confirms that the soil has no signs of environmental concern and is consistent with those described in the supporting classification documentation;
- Have no aesthetic issues of concern, and
- The materials are validated (by inspection / sampling) by the Environmental Consultant as being suitable for use at the site.

For VENM, it would be anticipated that organics would be expected to be low or close to the LOR and metals low and consistent with typical background levels. Asbestos and deleterious anthropogenic inclusions, odour or staining should be absent.

The classification report / certificate for all material proposed for import must be reviewed and approved in writing by the Environmental Consultant prior to import. Materials to be imported may need to meet geotechnical requirements which are to be assessed by others, as required.

If permitted by the development consent and approved by the site owner, Remediation Contractor and Environmental Consultant and Site Auditor, material classified under an NSW EPA RRO may also be accepted, provided the material can be used on site in accordance with the corresponding RRE. This could include excavated natural material (ENM), classified under NSW EPA *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment*

Operations (Waste) Regulation 2014, The excavated natural material order 2014 (NSW EPA, 2014d).

The need for check-sampling of RRO material is to be determined by the Environmental Consultant depending on the source of the material, adequacy of the supporting documentation provided and inspection(s) of material. Quarried material / VENM may need little or no check sampling. As a general guide the rates specified in Section 13 are recommended to supplement test data supplied with the materials.

Higher risk materials such as imported recycled aggregates and blended landscaping and garden soils must be sampled at a higher frequency, to be determined by the Environmental Consultant based on the documentation provided, with a minimum of three check samples per product per source. Sampling will be undertaken with reference to any relevant RRO, and also include analysis for the COPC set out in Section 5 (S1 - fill) and include PCB and asbestos analysis (in addition to RRO specifications).

Recycled aggregate will not be permitted to be used on site until the results of the inspection and laboratory analysis have been approved in writing by the Environmental Consultant. Given the potential contamination risks associate with certain RRO materials it is recommended that natural products are used where practicable. Further consideration and approval to use RRO material may require consultation with the Environmental Consultant, the landowner and Site Auditor prior to importation and application to site.

11.4 Non-complying materials

Any material not complying with the requirements set out in Section 11.3 must not applied to the land as a part of the proposed development. Should materials be imported to site prior to validation by the Environmental consultant (e.g. temporarily stockpiled) then the material shall be removed from the site (e.g., returned to the supplier). Depending on the nature of the non-compliance then validation testing of any stockpile footprints may be required as advised by the Environmental Consultant, generally as per Section 12.

12. Site validation plan

12.1 Validation sample collection and analysis

It is proposed that any validation, waste classification or additional site characterisation samples be collected and analysed at the following frequency:

- STOCKPILED MATERIAL ≤250 m^3: one sample per 25 m^3 or a minimum of three samples for waste classification purposes;
- STOCKPILED MATERIAL >250 m^3: one sample per 100-250 m^3 and a minimum of three samples for waste classification purposes;
- SAMPLES FROM EXCAVATIONS (such as TANKPITS) - one sample per 25 m^2 on the excavation base and one sample per 15 linear metres along the excavation side walls. Sample depths and materials to be logged in each case; This sample density is to increase to one sample per 10 linear metre in areas where TRH contamination is likely to remain (if required);

- FUEL LINES/DISPENSERS, PIPEWORK – one sample per dispenser and one sample per 5 m of line for fuel lines and pipework;
- GRID BASED VALIDATION SAMPLES - validation of final excavation levels samples will be collected from a regular 22.5 m grid-based pattern. Sample materials to be logged and described in each case; Validation will be required through the full depth of any fill remaining onsite. Where validation is proposed in natural soil a surface sample would be adequate;
- IMPORTED VENM (if required) - one sample per 100 m^3 of imported fill plus certification that the material comprises VENM including details of the source site;
- IMPORTED ENM (Materials approved under a Resource Recovery Order (RRO)) – 3 samples for stockpiles <500 tonnes, 4 samples for stockpiles between 500 and 1000 tonnes, and 5 samples between 1000 and 2000 tonnes. Materials meeting an appropriate RRO, or multiple RROs must also meet the RAC as discussed in Section 8; and
- Higher risk materials such as imported recycled aggregates - one sample per 25 m^3, with a minimum of three samples per load. Sampling will be undertaken with reference to any relevant RRO, and also include analysis for the COPC set out in Section 5.

For validation purposes samples will be analysed for a range of contaminants as identified in conceptual site model in Section 5 with all samples analysed for primary COPC and 20-30% samples analysed for secondary COPC, as follows:

Soil: -

- Waste classification – (primary) 8 priority heavy metals, TRH, BTEX, PAH, asbestos (secondary) OCP/OPP, PCB, phenols, PFAS[2];
- Former UST tankpits and on-site UST excavations including fuel lines and pipework - (primary) 8 priority heavy metals, TRH, BTEX and phenols (secondary) PAH, VOC (MTBE), PFAS, and asbestos;
- Grid based Validation samples (may be taken across DSZ and the remainder of the site): lead, TRH, BTEX and PAH (possibly asbestos); Grid based samples for fill to remain in the DSZ and laneway to include asbestos (500mL and 10L samples);
- Imported Fill (RRO- ENM) - 8 priority metals, electrical conductivity, pH, PAH, BTEX, TPH, PCBs, OCPs, OPPs and asbestos (500 mL) rubber, plastic, paper, cloth, paint, wood and other vegetable matter;
- Imported Fill (RRO- recovered aggregate), 8 priority metals, PAHs, asbestos (500 mL) electrical conductivity, metal, plaster, rubber, plastic, paper, cloth, paint, wood and other vegetable matter; and
- Imported Fill (VENM) - 8 priority heavy metals, TRH, BTEX, PAH, OCP/OPP, phenols and asbestos (500 mL).

[2] Laboratory PQL of 5 µg/kg PFAS to be adopted for waste classification purposes.

Groundwater: -

- Groundwater samples (data gap investigation) - 8 priority heavy metals, TRH, BTEX, PFAS[3] (low level), PAH (low level), OCP (trace), OPP (trace), PCB (trace), phenols and VOC (MTBE);
- Imported Fill (VENM) - 8 priority heavy metals, TRH, BTEX, PAH, OCP/OPP, phenols and asbestos.

Contingency for validation failure:

- In the case of validation failure of samples taken for the purposes of excavations (tank pits), fill excavations and grid-based validation samples, further excavation and validation of any remnant contamination in the soils using the above process as required (to be advised by the EC, following the receipt of laboratory data); and
- In the case of failure of samples taken for the purpose of characterising imported fill, imported fill from this source is to be rejected and not accepted onto the site.

12.2 Sample collection and handling

Sampling will be, in the case of stockpiles, from at least 0.5 m within the stockpile. Sampling data shall be recorded to comply with routine Chain-of-Custody requirements.

The general sampling, handling, transport and tracking procedures comprises:

- Use PFAS free detergent (plain soap) and rinse with tap water before using a new pair of disposable gloves;
- Preparing records of samples, including sample date, location, description, signs of concern, and any field results;
- The use of stainless steel sampling equipment;
- Washing of all sampling equipment in a 3% solution of phosphate-free detergent (Decon 90) then rinsing with distilled water prior to each sample being collected; transfer of the sample into new glass jars, sealed with a lid to eliminate cross-contamination during transportation to the laboratory;
- Transfer samples in laboratory-prepared container (specific for PFAS) by hand, capping immediately and minimising headspace within the sample jar;
- Transferring samples into a sealable plastic bag, and then placement in a second plastic bag / sealed container (such as an esky) (i.e., double bagging) (for asbestos analysis);
- Transferring samples into laboratory-prepared glass jars with Teflon-lined lid, and capping immediately (for chemical analytes);
- Labelling sample containers with individual and unique identification details, including project number and sample number;
- Placing the samples in plastic bags for asbestos analysis into a sealed container for transport to the laboratory;

[3] Laboratory PQL of 0.0002 mg/L PFAS for Perfluorooctanesulfonic acid PFOS so allow for comparison to the PFAS NEMP 2020 Freshwater 99% guideline of 0.00023 µg/L

- Minimise exposure of sample to sunlight;
- Placing the glass jars for chemical analysis into a cooled, insulated and sealed container for transport to the laboratory;
- Avoid use of or minimise the use of chemical or gel-based coolant products to maintain samples at 4 degrees Celsius following collection; and
- Using chain-of-custody documentation so that sample tracking and custody can be cross-checked at any point in the transfer of samples from the field to hand-over at the laboratory.

Reference was made to HEPA (2025) for requirements specific to PFAS.

12.3 Quality assurance plan

12.3.1 Field QA / QC

Quality Assurance (QA) and Quality Control (QC) procedures should be adopted throughout the field sampling programme to assess sampling precision and accuracy and prevent cross contamination.

This should include confirmation of sampling accuracy and precision through the analysis of 10% field duplicate / replicate samples as well as the collection of (field) rinsate samples of sampling equipment at a rate of one sample per day of sampling operations. Appropriate sampling procedures should be undertaken to prevent cross-contamination. These should include:

- Following standard operating procedures developed for such testing;
- Site safety plans are developed prior to commencement of works;
- Duplicate field samples are collected and analysed;
- Equipment rinsate samples are analysed as part of the QA / QC programme;
- Samples are stored under secure, temperature controlled conditions;
- Chain-of-custody documentation is employed for the handling, transport and delivery of samples to the selected laboratory; and
- Proper disposal of contaminated soil, fill or groundwater originating from the site area is completed.

12.3.2 Laboratory QA / QC

The laboratory engaged for the testing should undertake in-house QA / QC procedures involving the routine testing of:

- Reagent blanks;
- Spike recovery analysis;
- Laboratory duplicate analysis;
- Analysis of control standards;
- Calibration standards and blanks; and
- Statistical analysis of QC data including control standards and recovery plots.

12.4 Achievement of data quality objectives

The scope of remediation works has been devised broadly in accordance with the seven step data quality objective process, as defined in Australian Standard *Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and semi-volatile compounds* (AS 4482.1 - 1997). The DQO process is outlined as follows:

(a) State the Problem

The site will require to be rendered suitable for the proposed multi-level mixed use residential / retail development (with basement carparking) with deep soil zone and laneway.

(b) Identify the Decision

Soil that exceeds the adopted RAC will need to be removed from the site and disposed of at an appropriately licensed landfill / treatment facility. Depending on the cut and fill plan this may involve all fill being removed from the site during excavation to form final basement levels. If fill is to remain on-site it will need to be validated as suitable for the proposed use, i.e. in the DSZ.

The decision will also need to consider whether based on the findings of the DGA groundwater poses a risk to human health and the environment under the proposed land use as listed in Section 9.1 of this RAP.

(c) Identify Inputs to the Decision

Findings of the previous assessments have been used to characterise the site with regard to the likely nature and extent of the contamination. These will be supplemented with additional results of investigations and validation outlined in this report.

(d) Define the Boundary of the Assessment

The boundary of the assessment is defined by the boundary of the site, as summarised in Section 3.

(e) Develop a Decision Rule

The progress and completeness of the site remediation works should be verified on the basis of the validation analyses. Remediation is deemed to be complete when confirmation that the soil and groundwater to be disposed of off-site has been disposed of appropriately and the soils remaining on the site are validated as being within the adopted assessment criteria.

Based on the analysis of quality control samples i.e., duplicates / replicates, equipment rinsates and in-house laboratory QA / QC procedures, the following data quality objectives will be required to be achieved:

- Conformance with specified holding times;
- Accuracy of spiked samples within the laboratory's acceptable range (typically 70-130% for inorganic contaminants and greater for some organic contaminants);

- Field and laboratory duplicates and replicates samples will have a precision average of +/- 30% relative percent difference (RPD) for inorganic analytes and +/- 50% RPD for organic analytes;
- Field duplicates / replicates will be collected at a frequency of 10% of all samples, and rinsate samples of field equipment will be collected at one per day of sampling; and
- Rinsate samples will show that the sampling equipment is free of introduced contaminants, i.e. the analytes show that the rinsate is within the normal range for deionised water.

Based on a fulfilment of the data quality objectives an assessment of the overall data quality will be presented in the final validation report.

12.5 Inspections

The Environmental Consultant (EC) is to conduct periodic site inspections and compile photographic records during the civil and construction works. As a minimum, these periodic inspections would be undertaken at the following times:

- During the groundwater DGA;
- Checking of disposal documentation for disposed quantities against volume excavated and random checking of supplied disposal documentation with the licensee;
- Following demolition and removal of hardstand;
- During In Ground (In Situ) test pitting for waste classification works;
- During any stockpiling and removal of fill;
- Following removal of fill from the site to validate the remaining substrate;
- Systematic inspection of loads of imported materials to ensure consent with expectations based on source site and to confirm absence of deleterious materials such as anthropogenic inclusions, odour and staining;
- During placement of imported materials;
- To attend to unexpected finds; and
- To assess the final design finished and level.

If the auditor considers full-time supervision is required by the Environmental Consultant during bulk earthworks and remediation of the DSZ / laneway, the RAP can be suitably amended. In additional full-time supervision may be required by the auditor during importation and placement of imported material.

A record of the inspections and observations is to be kept by the Environmental Consultant and provided as part of the Validation Assessment Report. This is to include a photographic record.

12.6 Documentation requirements

The following documents will be produced and reviewed as part of the validation assessment by the EC:

- Any Licences and Approvals required for the works;
- Waste classification reports (if required for off-site disposal);

- Records of the imported fill inspection process and verification of imported material;
- Transportation Records: comprising a record of all truck-loads of soil (including aggregate) entering the site, including truck identification (e.g. registration number), date, time, source site, load characteristics (i.e. type of material (e.g. ripped sandstone, quarried aggregate, etc.), approximate volume, use (e.g. general site raising, service trenches, etc.);
- Tracking Records: The contractor will produce tracking records for any soils relocated within the site (either temporarily or permanently) or removed from the site, including source, destination, depths of placement, etc). Similarly, tracking reports will be produced in relation to imported materials, including destination and depth;
- Disposal dockets: for any soil and/or leachate disposed off-site. The contractor will supply records of: transportation records, spoil source, spoil disposal location, receipt provided by the receiving waste facility (where available), a record of receipt from the receiving site will be supplied (i.e., the receiving sites transportation records). Note: A record of the building (demolition) materials disposed off-site is also be kept and provided to the Principal on request;
- Imported materials records: records for any soil imported onto the site, including source site, classification reports, inspection records of soil upon receipt at site and transportation records; and
- Records relating to any unexpected finds and contingency plans implemented.

13. Unexpected finds and contingency plans

If unexpected conditions with respect to contamination are encountered by the Contractor during the earthworks (such as fragments of suspected ACM, buried structures or unexpected contaminated soil or other contaminants), the following general approach will be adopted:

- Upon discovery of a unexpected find protocol (UFP), works will cease in that area, the Contractor's Site Manager is to be notified and the affected area closed off by the use of barrier tape;
- The Site Manager is to notify an appropriately qualified EC;
- The EC will inspect the area and make an assessment of the significance of the find in terms of the potential impact to human health and the environment with reference to NSW EPA endorsed guidelines including NEPM (NEPC 2013);
- Provision of advice from the EC to the Contractor's Site Manager regarding the recommended course of action;
- The EC will prepare a report detailing their assessment including the extent and methods of remediation, as required; and
- The agreed management / remedial strategy shall be implemented and documented in the site validation report.

In the event that the UFP relates to the identification of USTs impact, the following protocols will also apply:

- Upon discovery of suspected contaminated soil around the former tank pits, additional groundwater monitoring wells may need to be installed to assess the potential contamination risks in groundwater; and

- The agreed management / remedial strategy shall be implemented and documented in the validation report.

If suspected asbestos materials are encountered during works:

- Immediately stop work and notify Site Supervisor;
- Move away (minimum 10 m) from the suspicious materials, and leave all tools;
- Site supervisor to create exclusion zone around the suspicious materials and erect signage "Danger Asbestos -Do not Enter",
- Occupational Hygienist (OH) / Environmental Consultant to inspect / sample the material to confirm if asbestos or not;
- If asbestos, the Asbestos Contractor will remove the ACM (once all hazards & risks assessed), decontaminate area, obtain clearance certificate from an OH and dispose of material to a licensed landfill facility;
- OH/EC to inspect area and / or revie documentation to assess if additional targeted delineation and validation is required; and
- Following issue of a clearance certificate and the recommendations of the EC, workers can resume work under normal conditions.

14. Conclusion

It is considered that the site can be rendered compatible with the proposed development subject to implementation of this RAP, including the Unexpected Finds Protocol, as applicable.

DP notes that if additional risk to human health is identified following the groundwater DGI, additional provisions for remediation may be required (including adapting basement design to exclude groundwater or vapour (e.g. vapour membranes, venting, groundwater barriers, etc) or preparation of a Human Health Risk Assessment. If this is the case, a revision to the RAP, addendum to the RAP; and/or a Remedial Work Plan may be required.

15. Limitations

This report is provided for the exclusive use of William St Residential Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

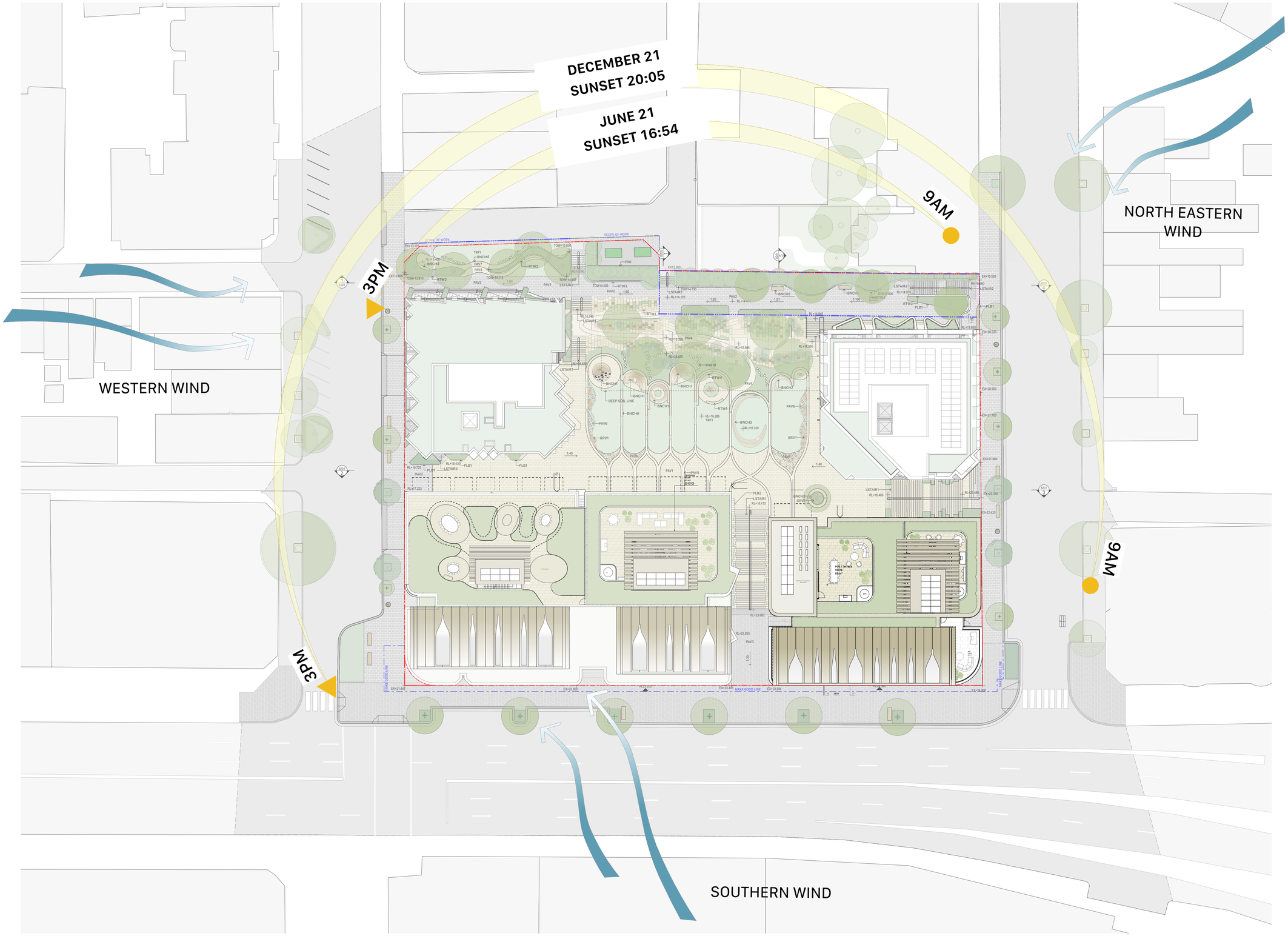
This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Appendix A

Drawings

About this Report



Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Rev	Date	Description	By	Chk
1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

Site Plan
Site Plan

Scale
No Scale @ A1

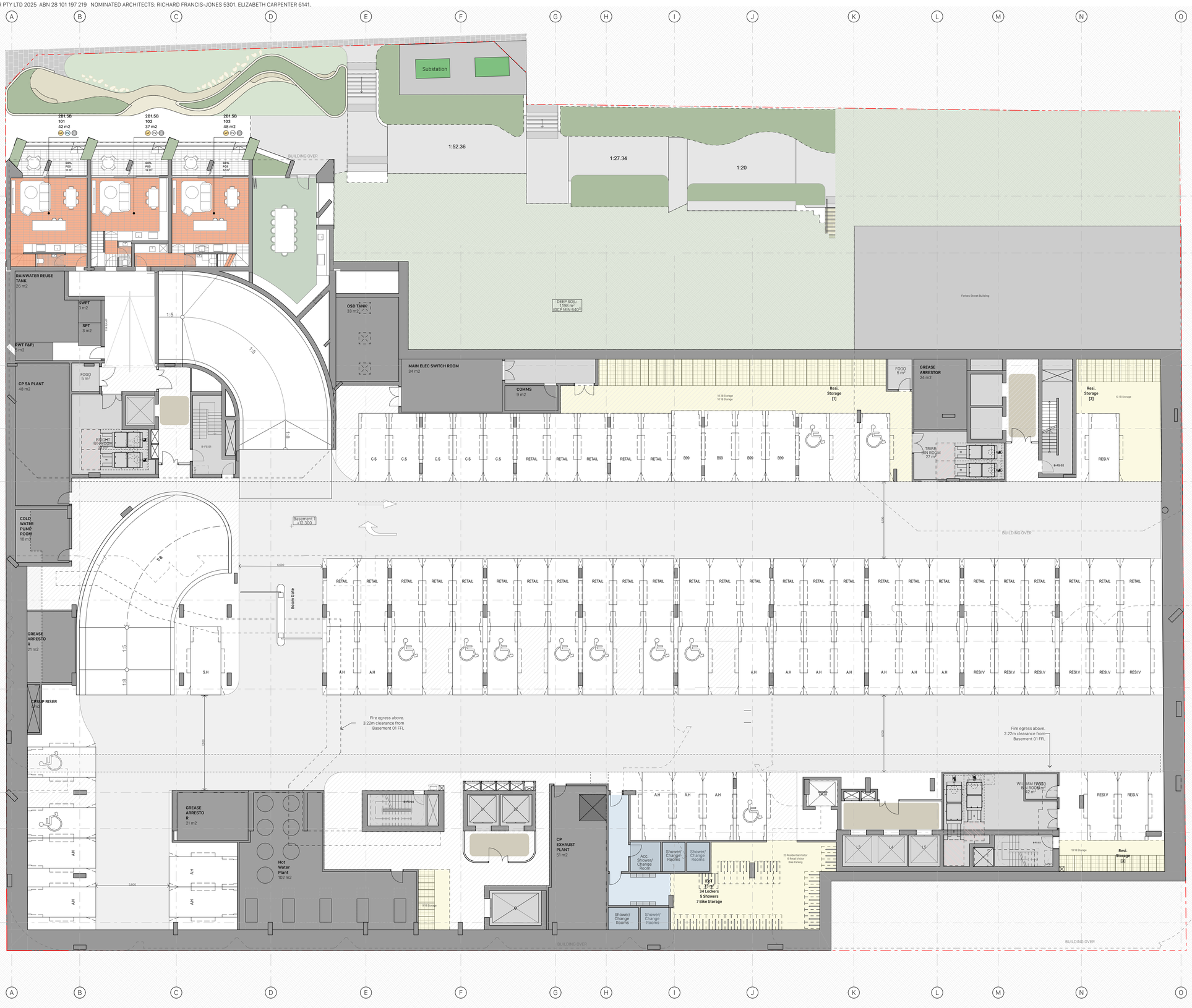
Project Code
H180W

First Issued
<DD/MM/YYYY>

Sheet No.
1200

Rev
1

For SSDA Approval



Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

General notes

- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

CARPARKING SCHEDULE

Number required for Compliance in basement

Total Car Spaces = 238(HSEPP Rates)
Affordable = 26 (incl. 10 Accessible)
Standard = 212 (incl. 26 Accessible)

Bicycle Parking = 225(DCP Rate)
Motorbike Parking = 25 (DCP Rate)

B99 Service Vehicle (+ Loading Dock #) = 8
Car Share = 5

Current Overall Number shown as per drawing

Total Car Spaces = 340
Affordable = 26 (incl. 10 Accessible)
Standard = 263 (incl. 26 Accessible)
Retail = 32
Residential Visitor = 10
B99 Service Vehicle (+ Loading Dock #) = 8
Car Share = 5

Bicycle Parking = 273
Motorbike Parking = 25

Overall Basement Efficiency = 34.4%

BASEMENT 01 METRICS

Residential Car Spaces = 40
26 Affordable Housing (incl. 10 Accessible)
1 Standard Housing
10 Residential Visitor (incl. 1 Aceesible)

Retail Car Spaces = 32 (incl. 1 Accessible)

Car Share = 5
B99 = 4

Bike Storage = 49
7 Retail
19 Retail Visitor
23 Residential Visitor

Total = 79
Efficiency = 39.5%

SITE BOUNDARY
ENVELOPE OUTLINE

Room No.
B
m2
Q CV A

APP. NUMBER OF THE FLOOR
BEDROOM NUMBER INSIDE APARTMENT
APARTMENT INTERNAL AREA
A- ADAPTABLE UNIT
CV- CROSS VENTILATION
SOLAR COMPLIANCE

ACOUSTIC PLENUM

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1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

General Arrangement Plans
Basement 01

Scale
No Scale @ A1

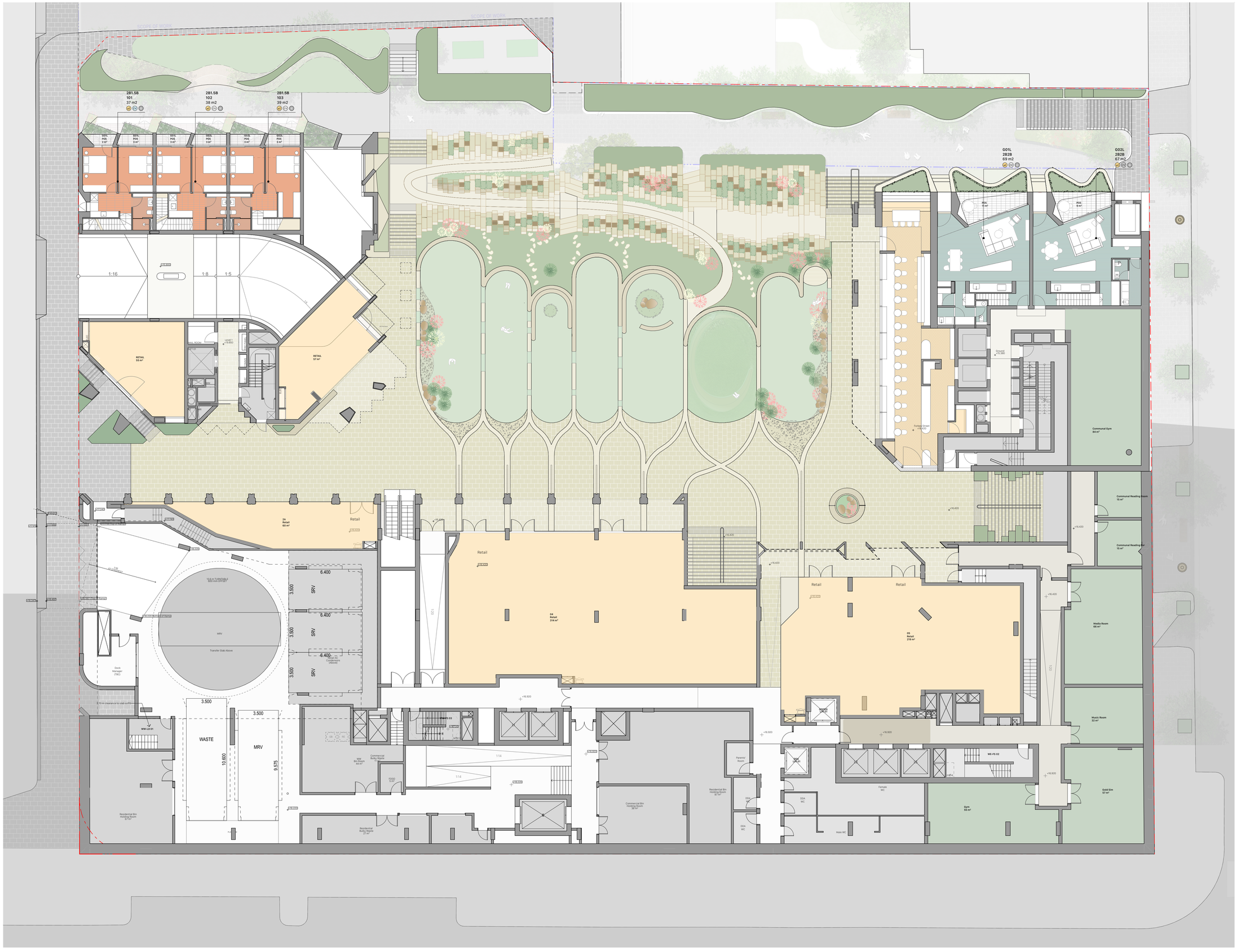
Project Code
H180W

First Issued
<DD/MM/YYYY>

Sheet No.
2000

Rev
1

For SSDA Approval



Tribe Studio Architects
STUDIO BRIGHT

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formerly fjmtstudio

General notes

- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Unit Type - Affordable Housing

- 1 Bedroom
- 2 Bedroom

Unit Type - BTS

- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation

- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar

- SZ Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit

- A Adaptable Units
- A Non-adaptable Units

Window Types

- W Operable Window
- FW Fixed Window

SITE BOUNDARY

ENVELOPE OUTLINE

Room No.
B
m2
Q CV A

- APP. NUMBER OF THE FLOOR
- BEDROOM NUMBER INSIDE APARTMENT
- APARTMENT INTERNAL AREA
- A- ADAPTABLE UNIT
- CV- CROSS VENTILATION
- SOLAR COMPLIANCE

ACOUSTIC PLENUM

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1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

General Arrangement Plans
Plaza Level - Forbes Street

Scale
150 @ A1

Project Code
H180W

First Issued
<DD/MM/YYYY>

Sheet No.
2001

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1

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General notes

- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Unit Type - Affordable Housing

- 1 Bedroom
- 2 Bedroom

Unit Type - BTS

- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation

- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar

- ☼Z Compliant
- <Z Non-Compliant
- 0 0 Hours

Adaptable Unit

- A Adaptable Units
- A Non-adaptable Units

Window Types

- W Operable Window
- FW Fixed Window

- SITE BOUNDARY
- ENVELOPE OUTLINE

Room No.
B
m2
APP. NUMBER OF THE FLOOR
BEDROOM NUMBER INSIDE APARTMENT
APARTMENT INTERNAL AREA
A- ADAPTABLE UNIT
CV- CROSS VENTILATION
SOLAR COMPLIANCE

- ACOUSTIC PLENUM

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164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

General Arrangement Plans
Retail Laneway - Dowling Street

Scale
150 @ A1

Project Code
H180W

First Issued
<DD/MM/YYYY>

Sheet No.
2002

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1

For SSDA Approval

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Unit Type - Affordable Housing
- 1 Bedroom
- 2 Bedroom

Unit Type - BTS
- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation
- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar
- SZ Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit
- A Adaptable Units
- A Non-adaptable Units

Window Types
- W Operable Window
- FW Fixed Window

- SITE BOUNDARY
- ENVELOPE OUTLINE

Room No.
B
m2
Q EX A
- APP. NUMBER OF THE FLOOR
- BEDROOM NUMBER INSIDE APARTMENT
- APARTMENT INTERNAL AREA
- A- ADAPTABLE UNIT
- CV- CROSS VENTILATION
- SOLAR COMPLIANCE

- ACOUSTIC PLENUM

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164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

General Arrangement Plans
Upper Ground Floor - William Street

Scale
150 @ A1

Project Code
H180W

First Issued
<DD/MM/YYYY>

Sheet No.
2003

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1

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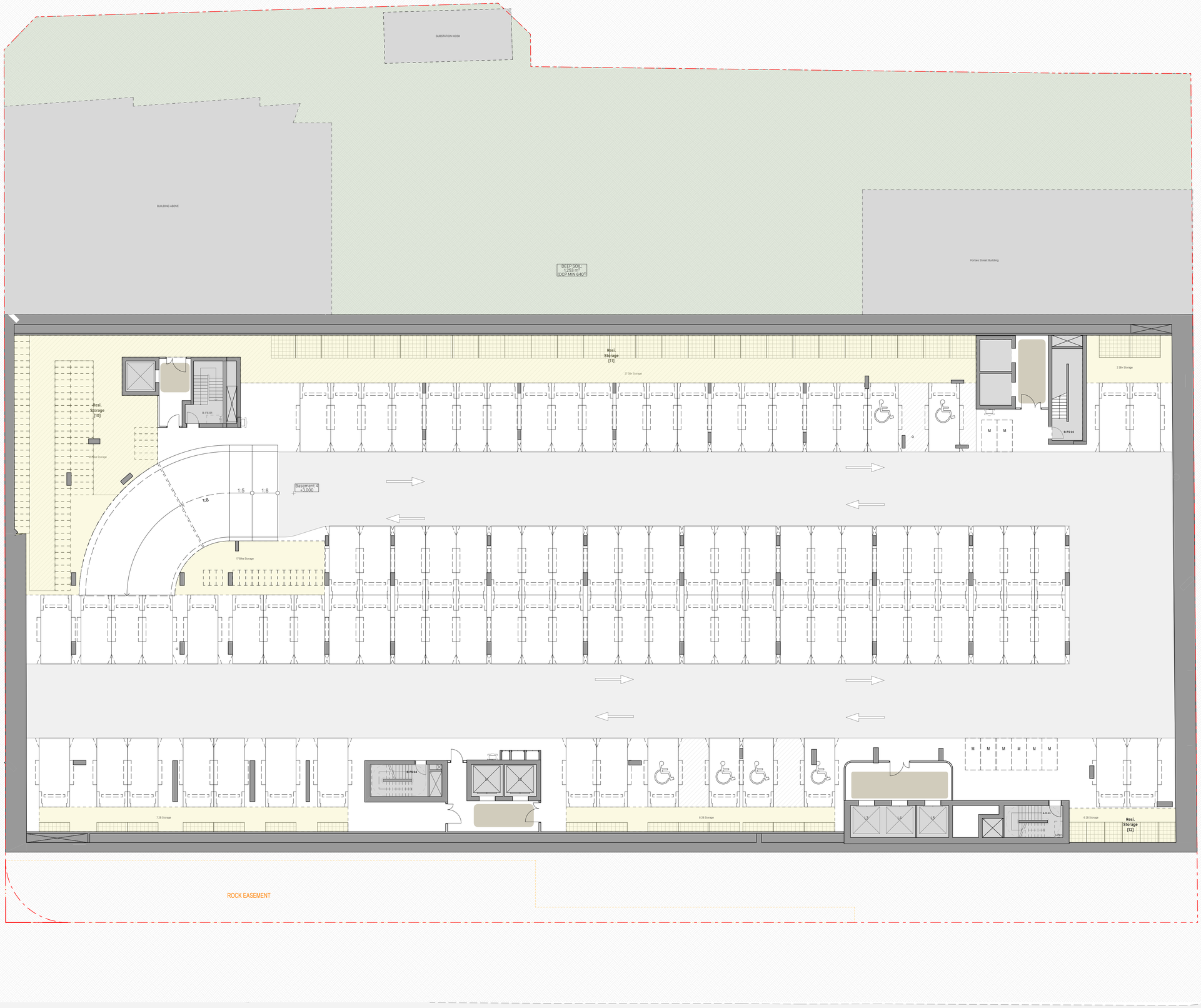

Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

CARPARKING SCHEDULE

Number required for Compliance in basement

Total Car Spaces = 238(HSEPP Rates)
Affordable = 26 (incl. 10 Accessible)
Standard = 212 (incl. 26 Accessible)

Bicycle Parking = 225(DCP Rate)
Motorbike Parking = 25 (DCP Rate)

B99 Service Vehicle (+ Loading Dock #) = 9
Car Share = 5

Current Overall Number shown as per drawing

Total Car Spaces = 340
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Standard = 263 (incl. 26 Accessible)
Retail = 32
Residential Visitor = 10
B99 Service Vehicle (+ Loading Dock #) = 9
Car Share = 5

Bicycle Parking = 273
Motorbike Parking = 25

Overall Basement Efficiency = 34.4%

BASEMENT 03

Residential Car Park = 91
91 Standard Housing (incl. 6 Accessible)

Motor Bikes = 8

Bike Parking = 112
112 Residential

Efficiency = 30.9%

SITE BOUNDARY

ENVELOPE OUTLINE

Room No.
B
m2
0 CV A
APP. NUMBER OF THE FLOOR
BEDROOM NUMBER INSIDE APARTMENT
APARTMENT INTERNAL AREA
A- ADAPTABLE UNIT
CV- CROSS VENTILATION
SOLAR COMPLIANCE

ACOUSTIC PLENUM

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1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

General Arrangement Plans
Basement 04

Scale
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Project Code
H180W

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<DD/MM/YYYY>

Sheet No.
2021

Rev
1

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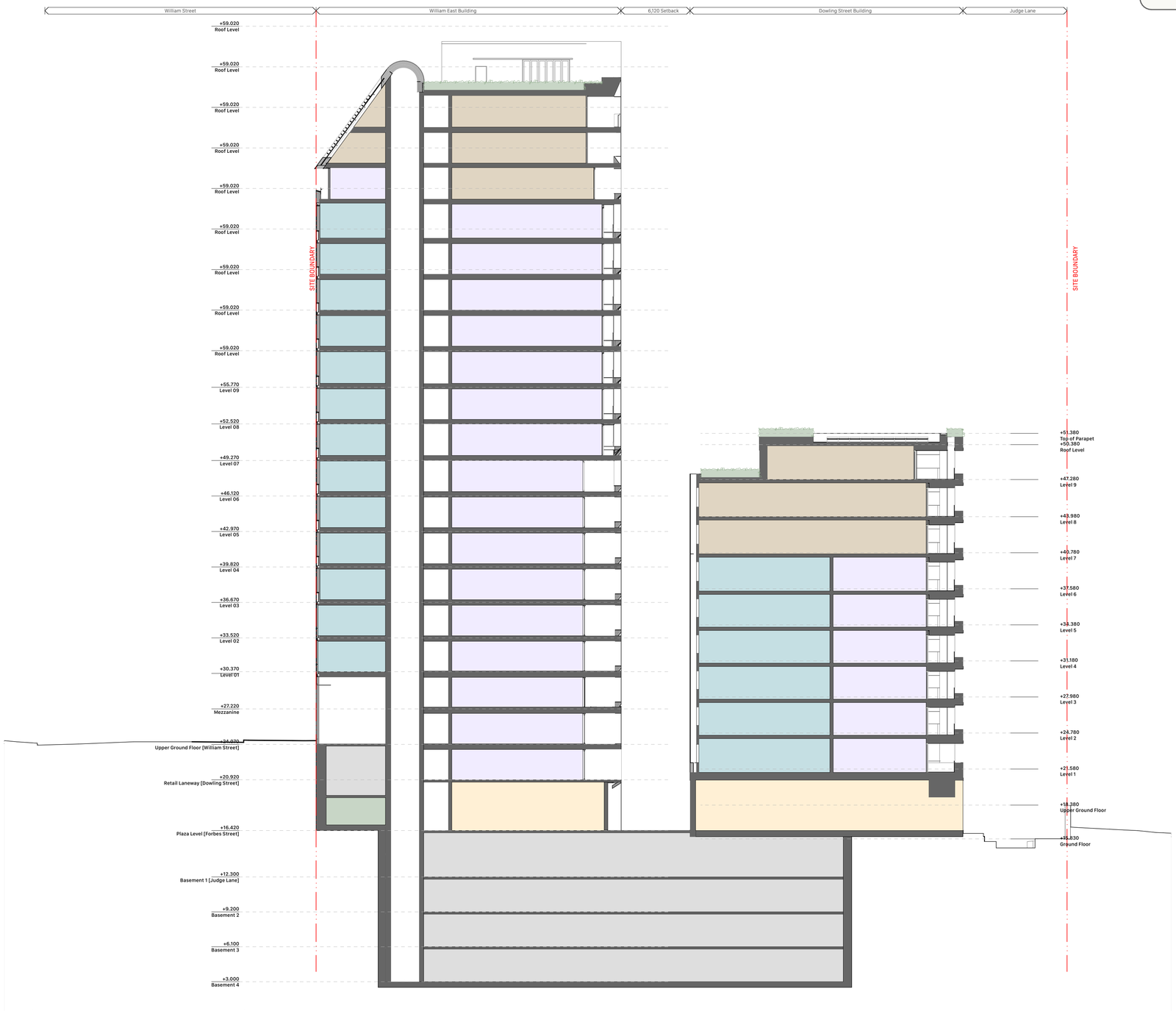

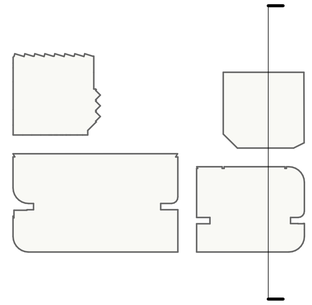

Tribe Studio Architects
STUDIO BRIGHT

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formerly fjmtstudio

0 2 5 10m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Unit Type - Affordable Housing
- 1 Bedroom
- 2 Bedroom

Unit Type - BTS
- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation
- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar
- ≥2 Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit
- A Adaptable Units
- A Non-adaptable Units

Window Types
- W Operable Window
- FW Fixed Window

- SITE BOUNDARY
- ENVELOPE OUTLINE

Room No.
B
m2
0 CV A

- APP. NUMBER OF THE FLOOR
- BEDROOM NUMBER INSIDE APARTMENT
- APARTMENT INTERNAL AREA
- A- ADAPTABLE UNIT
- CV- CROSS VENTILATION
- SOLAR COMPLIANCE

- ACOUSTIC PLENUM

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1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

1:200 Sections
East Section

Scale
1:200 @ A1

Project Code
H180W

First Issued
<04/08/2025>

Sheet No.
4001

Rev
1

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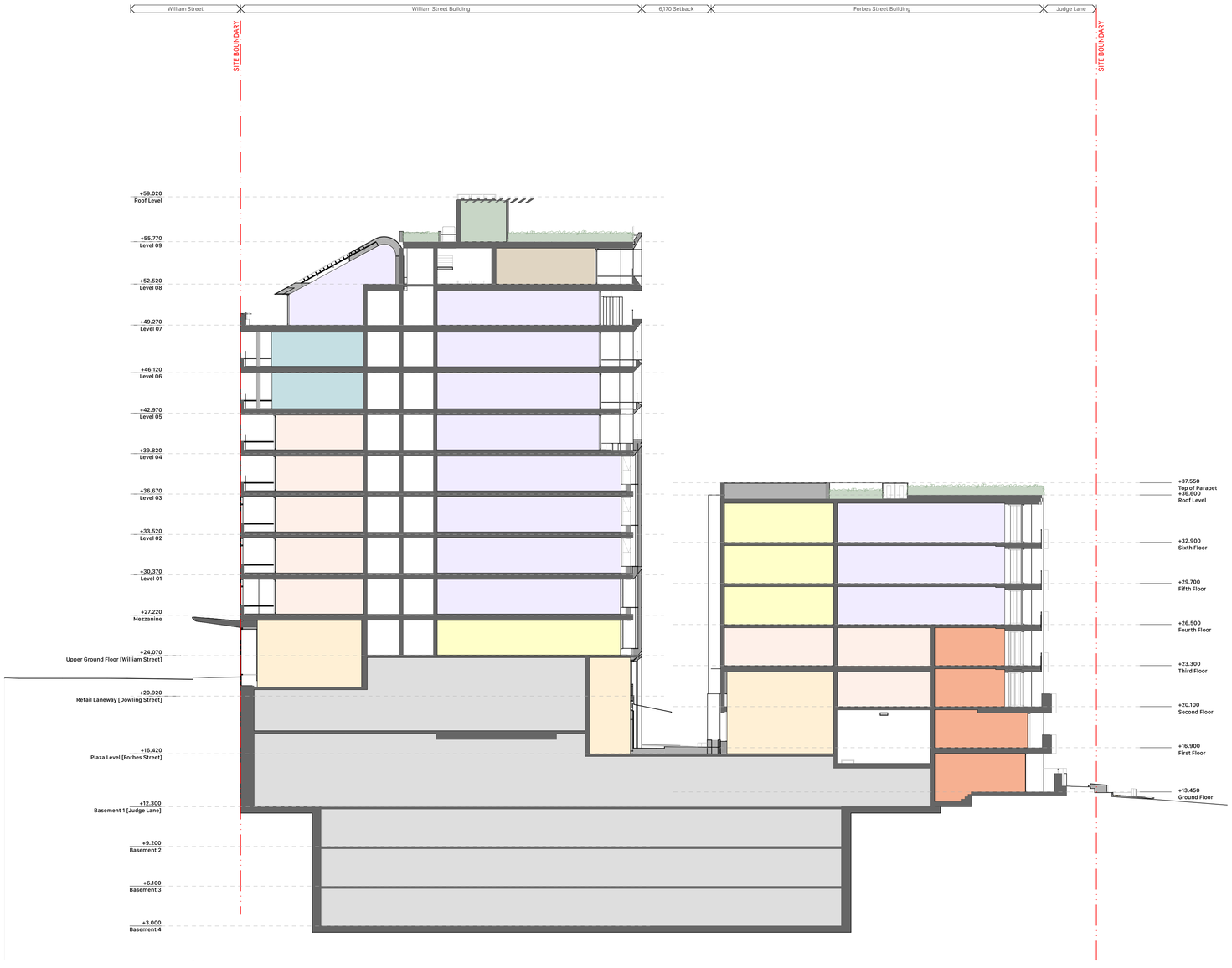

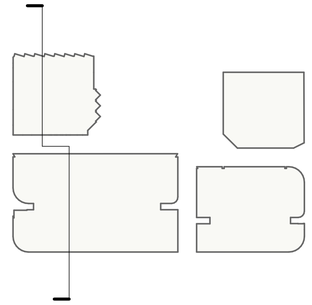

Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

0 2 5 10m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

Unit Type - Affordable Housing
- 1 Bedroom
- 2 Bedroom

Unit Type - BTS
- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal

- Retail

Cross Ventilation
- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar
- ≥2 Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit
- A Adaptable Units
- A Non-adaptable Units

Window Types
- W Operable Window
- FW Fixed Window

- SITE BOUNDARY
- ENVELOPE OUTLINE

Room No.
B
m2
APP. NUMBER OF THE FLOOR
BEDROOM NUMBER INSIDE APARTMENT
APARTMENT INTERNAL AREA
A- ADAPTABLE UNIT
CV- CROSS VENTILATION
SOLAR COMPLIANCE

- ACOUSTIC PLENUM

Rev	Date	Description	By	Chk
1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

1:200 Sections
West Section

Scale
1:200 @ A1

Project Code
H180W

First Issued
<04/08/2025>

Sheet No.
4002

Rev
1

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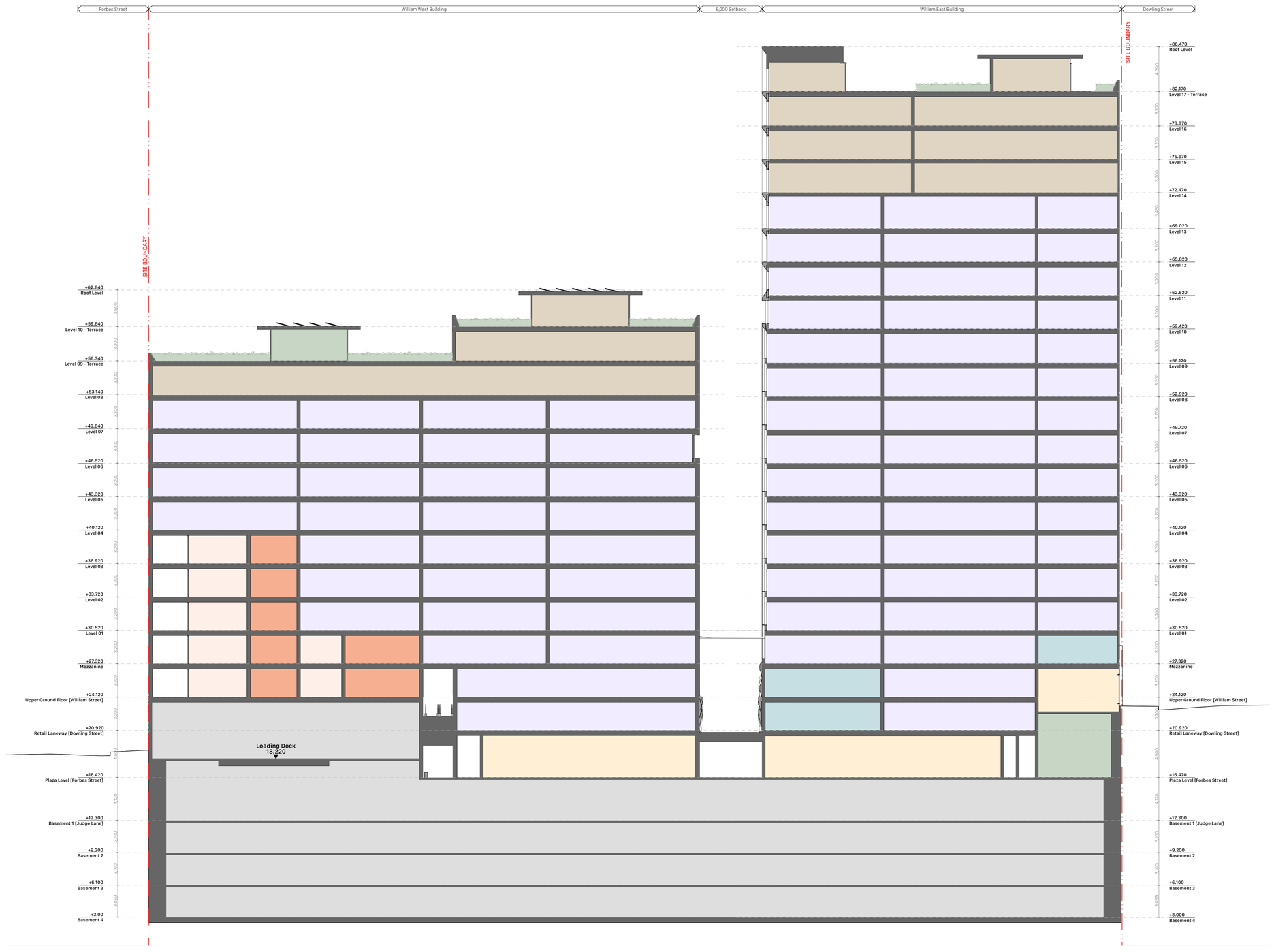

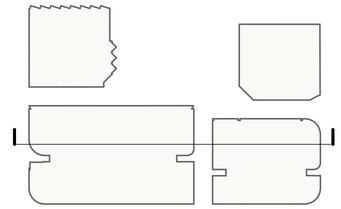

Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

0 2 5 10m

General notes
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- All levels relative to 'Australian Height Datum'.
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Legend

Unit Type - Affordable Housing
- 1 Bedroom
- 2 Bedroom

Unit Type - BTS
- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation
- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar
- ≥2 Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit
- A Adaptable Units
- A Non-adaptable Units

Window Types
- W Operable Window
- FW Fixed Window

- SITE BOUNDARY
- ENVELOPE OUTLINE

Room No.
B
m2
Q CV A
- APP. NUMBER OF THE FLOOR
- BEDROOM NUMBER INSIDE APARTMENT
- APARTMENT INTERNAL AREA
- A- ADAPTABLE UNIT
- CV- CROSS VENTILATION
- SOLAR COMPLIANCE

- ACOUSTIC PLENUM

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164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

1:200 Sections
North Section

Scale
1:200 @ A1

Project Code
H180W

First Issued
<04/08/2025>

Sheet No.
4003

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1

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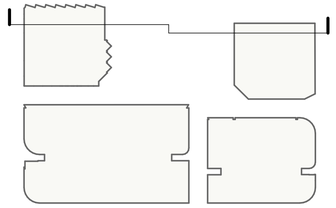

Tribe Studio Architects
STUDIO BRIGHT

fjcstudio
formerly fjmtstudio

0 2 5 10m

General notes
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- All levels relative to 'Australian Height Datum'.
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- Use figured dimensions only.

Legend

Unit Type - Affordable Housing
- 1 Bedroom
- 2 Bedroom

Unit Type - BTS
- 1 Bedroom
- 2 Bedroom
- 3 Bedroom
- Penthouse
- Communal
- Retail

Cross Ventilation
- CV Compliant
- CV Non-Compliant
- CV Not Counted

Solar
- ≥2 Compliant
- <2 Non-Compliant
- 0 0 Hours

Adaptable Unit
- A Adaptable Units
- A Non-adaptable Units

Window Types
- W Operable Window
- FW Fixed Window

SITE BOUNDARY
ENVELOPE OUTLINE

Room No.
B
m2
S EX A
- APP. NUMBER OF THE FLOOR
- BEDROOM NUMBER INSIDE APARTMENT
- APARTMENT INTERNAL AREA
- A- ADAPTABLE UNIT
- CV- CROSS VENTILATION
- SOLAR COMPLIANCE

ACOUSTIC PLENUM

Rev	Date	Description	By	Chk
1	15/8/2025	For SSDA Approval	KY	

164-172 and 174-194 William St
Australia
164-172 and 174-194 William St
Woolloomooloo NSW 2011

1:200 Sections
South Section

Scale
1:200 @ A1

Project Code
H180W

First Issued
<04/08/2025>

Sheet No.
4004

Rev
1

<drawing status>

About this Report

November 2023

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix B

Remediation Acceptance Criteria (RAC)

1. Introduction

1.1 Guidelines

[illegible]

- [illegible] *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [illegible]
- [illegible] *Health screening levels for petroleum hydrocarbons in soil and groundwater* [illegible]
- [illegible] *National Environmental Management Plan (NEMP)* [illegible]

1.2 General

[illegible]

[illegible]

[illegible]

- [illegible]
  - Corresponding to land use category 'B', residential with minimal opportunities for soil access [illegible]
  - Corresponding to land use category 'C', public open space for the deep soil zone;
  - Corresponding to land use category 'D', commercial [illegible]
- [illegible]

[illegible] *National Environment Protection (Assessment of Site Contamination) Measure* [illegible] *Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report no.10 Health screening levels for petroleum hydrocarbons in soil and groundwater* [illegible]

B1.1 Soils

B1.1.1 Health Investigation and Screening Levels

- **HIL/HSL- B**
- **HIL – C** –
- **HIL – D**
- **HSL-D** –

Table B1: Inputs to the Derivation of HSLs

Variable	Input	Rationale

** Developed by CRC CARE (2011)*

Table B2: Health Investigation Levels (mg/kg)

Contaminant	HIL-B	HIL-C	HIL-D
Metals			
PAH			
Phenols			
OCP			

Contaminant	HIL-B	HIL-C	HIL-D
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
OPP			
[illegible]	[illegible]	[illegible]	[illegible]
PCB			
[illegible]	[illegible]	[illegible]	[illegible]

Table B3: Health Screening Levels (mg/kg)

Contaminant	HSL-A&B	HSL-C	HSL-D
SAND	**0 m to <1 m**	**0 m to <1 m**	**0 m to <1 m**
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]
HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'

[illegible]

Table B4: Health Screening Levels for Direct Contact (mg/kg)

Contaminant	DC HSL-B	DC HSL-C	DC HSL-D	DC HSL-IMW
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Table B5: Health Investigation and Screening Levels (HIL and HSL) in mg/kg Unless Otherwise Indicated

Contaminants		HSL- B Vapour Intrusion	HSL-D Vapour Intrusion
PAH	Benzo(a)pyrene TEQ[1]	[illegible]	[illegible]
	Naphthalene	[illegible]	[illegible]
	Total PAH	[illegible]	[illegible]
TRH	C6 – C10 (less BTEX) [F1]	[illegible]	[illegible]
	>C10-C16 (less Naphthalene) [F2][3]	[illegible]	[illegible]
	>C16-C34 [F3]	[illegible]	[illegible]
	>C34-C40 [F4]	[illegible]	[illegible]
BTEX	Benzene	[illegible]	[illegible]
	Toluene	[illegible]	[illegible]
	Ethylbenzene	[illegible]	[illegible]
	Xylenes	[illegible]	[illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]

B1.1.2 Ecological Investigation Levels

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] *Trace element concentrations in soils from rural and urban areas of Australia* [illegible] *Geochemical indices allow estimation of heavy metal background concentrations in soils* [illegible]

[illegible] *Interactive (Excel) Calculation Spreadsheet* [illegible]

[illegible] *Interactive (Excel) Calculation Spreadsheet* [illegible]

- [illegible]
- [illegible]
- [illegible] considered as “aged” (>2 years[illegible]
- [illegible] *Interactive (Excel) Calculation Spreadsheet* [illegible]
- [illegible] *Interactive (Excel) Calculation Spreadsheet* [illegible]

Table B6: Ecological Investigation Levels (EIL) in mg/kg

Analyte		EIL[2]	Comments
Metals	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]

Analyte		EIL[2]	Comments
PAH	[illegible]	[illegible]	[illegible]
OCP	DD[illegible]	[illegible]	[illegible]

[illegible]

B1.1.3 Ecological Screening Levels - Petroleum Hydrocarbons

[illegible]

[illegible]

Table B7: Inputs to the Derivation of ESL

Variable	Input	Rationale
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Table B8: Ecological Screening Levels (ESL) in mg/kg

Analyte		ESL	Comments
TRH	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
BTEX	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
PAH	[illegible]	[illegible]	

B1.1.4 Management Limits - Petroleum Hydrocarbons

[illegible]

- [illegible]
- [illegible]
- [illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]

Table B9: Management Limits in mg/kg

Analyte		Management Limit
TRH	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

[illegible]

B1.1.5 Asbestos in Soil

[illegible]

- [illegible]
- [illegible]
- [illegible]

[illegible]

[illegible]

[illegible]

[illegible] [illegible]

[illegible] [illegible]

[illegible] [illegible]

[illegible] *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia 2009* [illegible]

[illegible]

Table B10: Health Screening Levels for Asbestos Contamination in Soil (% w/w)

Form of Asbestos	HSL-B	HSL-C	HSL-D
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

B2.1 Groundwater

[illegible]

[illegible]

Table B11: Groundwater Investigation Level Rationale

Risk / Beneficial Use	GIL Type	Source	Comments / Rationale
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

Table B12: ANZG Groundwater Investigation Levels (mg/L)

Group	Analyte	ANZG (2018) Marine (unknown reliability) toxicant DGVs	ANZG (2018) Marine 95% toxicant DGVs
[illegible]	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]	

Group	Analyte	ANZG (2018) Marine (unknown reliability) toxicant DGVs	ANZG (2018) Marine 95% toxicant DGVs
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
[illegible]	[illegible]		
	[illegible]		[illegible]
	[illegible]		
	[illegible]		
	[illegible]		
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]	[illegible]	
	[illegible]		[illegible]
	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	
[illegible]		[illegible]	

Group	Analyte	ANZG (2018) Marine (unknown reliability) toxicant DGVs	ANZG (2018) Marine 95% toxicant DGVs
[illegible]		[illegible]	

[illegible]

[illegible]

Table B13: Comparative Groundwater Health Screening Levels for Vapour Intrusion (µg/L)

Contaminant	HSL-D	HSL-D	HSL-D
SAND	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Appendix C

Previous Results

Table C1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, Asbestos

			Metals								TRH						BTEX				PAH				Phenol			
			Arsenic	Cadmium	Total Chromium	Copper	Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C10	TRH >C10-C16	F1 ((C6-C10)-BTEX)	F2 (>C10-C16 less Naphthalene)	F3 (>C16-C34)	F4 (>C34-C40)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene b	Benzo(a)pyrene (BaP)	Benzo(a)pyrene TEQ	Total PAHs	Phenol	DDD	DDT+DDE+DDD c	DDE
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	20	430	0.2	4	140	[illegible]	[illegible]	[illegible]	[illegible]	290	140	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.9	9.4	59	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	11	170	0.2	2	95	[illegible]	[illegible]	[illegible]	[illegible]	150	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.7	5	33	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28	26	120	0.5	30	66	[illegible]	[illegible]	[illegible]	[illegible]	980	1100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.5	0.7	5.7	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	4	300	0.2	2	64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38	32	75	[illegible]	46	58	[illegible]	[illegible]	[illegible]	[illegible]	880	1200	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2	1.7	14	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9	6	45	0.2	3	88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	9	15	[illegible]	1	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	1	5	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	8	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12	7	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	6	2	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	1.6	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	5	0.4	16	34	370	0.6	11	330	[illegible]	[illegible]	[illegible]	[illegible]	440	320	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.5	6.2	52	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	4	[illegible]	9	15	49	[illegible]	5	52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.5	0.7	5	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	5	99	[illegible]	1	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Notes:

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Site Assessment Criteria (SAC):

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Table C1: Summary of Laboratory Results – Metals, TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, Asbestos

			OCP								OPP	PCB								Asbestos		
			DDT	Aldrin & Dieldrin	Total Chlordane	Endrin	Total Endosulfan	Heptachlor	Hexachlorobenzene	Methoxychlor	Chlorpyriphos	Arochlor 1016	Total PCB	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Asbestos ID in soil >0.1g/kg	FA and AF Estimation	Asbestos (500 mL)
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible] **Blue** [illegible]

Bold [illegible]

[illegible]

Notes:

[illegible]

Site Assessment Criteria (SAC):

[illegible]

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Table C2 : Summary of Laboratory Results – Metals, TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, Asbestos

			Metals									TRH					BTEX											
			Arsenic	Cadmium	Total Chromium	Copper	Lead	TCLP Lead	Mercury (inorganic)	Nickel	Zinc	TRH C6 - C9	TRH C10 - C14	TRH C15 - C28	TRH C29 - C36	C10-C36 recoverable hydrocarbons	Benzene	Benzene	Toluene	Toluene	Ethylbenzene	Ethylbenzene	m+p-Xylene	m+p-Xylene	o-Xylene	o-Xylene	Xylenes (total)	Benzo(a)pyrene (BaP)
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	20	430	0.36	0.2	4	140	[illegible]	[illegible]	160	170	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	11	170	[illegible]	0.2	2	95	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3.7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	28	26	120	[illegible]	0.5	30	66	[illegible]	[illegible]	370	970	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	4	300	[illegible]	0.2	2	64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	38	32	75	[illegible]	[illegible]	46	58	[illegible]	[illegible]	280	960	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9	6	45	[illegible]	0.2	3	88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	9	15	[illegible]	[illegible]	1	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	1	5	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	8	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12	7	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	6	2	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2
[illegible]	[illegible]	[illegible]	5	0.4	16	34	370	0.3	0.6	11	330	[illegible]	[illegible]	240	280	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.5
[illegible]	[illegible]	[illegible]	4	[illegible]	9	15	49	[illegible]	[illegible]	5	52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.5
[illegible]	[illegible]	[illegible]	5	[illegible]	7	10	23	[illegible]	[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8	12	960	[illegible]	0.2	2	100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	10	2300	[illegible]	0.2	2	290	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	9	12	[illegible]	[illegible]	2	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16	5	99	[illegible]	[illegible]	1	18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	13	19	780	[illegible]	0.3	2	180	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	2	5	[illegible]	[illegible]	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	2	7	[illegible]	[illegible]	1	9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	28	25	[illegible]	[illegible]	5	87	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	17	58	[illegible]	[illegible]	4	42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	3	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	9	8	[illegible]	[illegible]	1	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	2	4	[illegible]	[illegible]	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	2	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	1	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4	7	45	[illegible]	[illegible]	2	47	[illegible]	[illegible]	120	250	370	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Notes:

[illegible]

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Table C2 : Summary of Laboratory Results – Metals, TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, Asbestos

			PAH																									
			TCLP Benzo(a)pyrene (BaP)	Acenaphthene	TCLP Acenaphthene	Acenaphthylene	TCLP Acenaphthylene	Anthracene	TCLP Anthracene	Benzo(a)anthracene	TCLP Benzo(a)anthracene	Benzo(b,j+k)fluoranthene	Benzo(g,h,i)perylene	TCLP Benzo(g,h,i)perylene	Chrysene	TCLP Chrysene	Dibenzo(a,h)anthracene	TCLP Dibenzo(a,h)anthracene	Fluoranthene	TCLP Fluoranthene	Fluorene	TCLP Fluorene	Indeno(1,2,3-c,d)pyrene	TCLP Indeno(1,2,3-c,d)pyrene	Naphthalene	TCLP Naphthalene	Phenanthrene	TCLP Phenanthrene
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	0.8	[illegible]	1.2	[illegible]	5.1	[illegible]	9	3.9	[illegible]	5	[illegible]	0.7	[illegible]	9.2	[illegible]	0.4	[illegible]	3	[illegible]	[illegible]	[illegible]	4.2	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	0.1	[illegible]	0.4	[illegible]	0.7	[illegible]	3	[illegible]	4.9	1.8	[illegible]	2.7	[illegible]	0.4	[illegible]	5.1	[illegible]	0.3	[illegible]	1.4	[illegible]	[illegible]	[illegible]	2.6	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.2	[illegible]	0.1	[illegible]	0.4	[illegible]	0.8	0.6	[illegible]	0.5	[illegible]	[illegible]	[illegible]	0.6	[illegible]	[illegible]	[illegible]	0.3	[illegible]	[illegible]	[illegible]	0.5	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.3	[illegible]	0.2	[illegible]	1.6	[illegible]	2	0.8	[illegible]	1.3	[illegible]	0.1	[illegible]	1.7	[illegible]	[illegible]	[illegible]	0.5	[illegible]	[illegible]	[illegible]	0.8	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Douglas Partners
Geotechnics / Environment / Groundwater

Table C2 : Summary of Laboratory Results – Metals, TRH, BTEX, PAH, Phenol, OCP, OPP, PCB, Asbestos

						Phenol	OCP		OPP	PCB								Asbestos				
			Pyrene	TCLP Pyrene	Total PAHs	Phenol	Total Endosulfan	Total Analysed OCP	Total Analysed OPP	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCB	Asbestos ID in soil >0.1g/kg	Trace Analysis	Total Asbestos	FA and AF Estimation	Asbestos ID in materials
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[illegible]

Notes:

[illegible]

Appendix D

Site Management Plan (SMP)

Douglas Partners
Geotechnics / Environment / Groundwater

Appendix D
Site Management Plan
164-192 William St,, Woolloomooloo

D1.0 Introduction

[illegible]

[illegible] Remediation Contractor's CEMP and contains general details for aspects of the wor[illegible] *Guidelines for Consultants Reporting on Contaminated Land* [illegible]

[illegible]

- *Contaminated Land Management Act 1997* [illegible]
- *Protection of the Environment Operations Act 1997* [illegible]
- *Protection of the Environment Legislation Amendment Act 2011* [illegible]
- *Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation 2008* [illegible]
- *Environmentally Hazardous Chemicals Act 1985* [illegible]
- *Environmental Offences and Penalties Act 1989* [illegible]
- *Pesticide Act 1999* [illegible] *Pesticides Regulation 2017* [illegible]
- *Work Health and Safety Act 2017 NSW* [illegible] *Work Health and Safety Regulations 2017* [illegible]

D2.0 Roles and Responsibilities

D2.1 Principal

[illegible] to nominate a representative (the Principal's Representative), who is responsible for overseeing the [illegible]

D2.2 Remediation Contractor

The Remediation Contractor (‘the Contractor’) will be the party responsible for daily implementation of the Remediation Works and will be responsible for the management of the Contractor’s subcontractors and suppliers. The Contractor will be responsible for the implementation of the Remediation Works in accordance with the Remediation Action Plan and the Project Management Plan.

The Contractor will be required to undertake the Remediation Works in accordance with the following:

- The Contractor’s Environmental Management Plan (EMP) which will be prepared by the Contractor and will address all environmental issues relevant to the Remediation Works, including but not limited to those issues identified in the Remediation Action Plan.
- Development of a Construction Quality Plan (CQP) for the Remediation Works.
- Preparation of a Health and Safety Plan (HSP) for the Remediation Works in accordance with the Remediation Action Plan.
- Management of all subcontractors and suppliers engaged in the Remediation Works.
- Preparation of a Validation Report for the Remediation Works in accordance with the Remediation Action Plan.
- Preparation of a Site Audit Statement (SAS) and Site Audit Report (SAR) by a NSW EPA Accredited Site Auditor certifying that the Remediation Works have been undertaken in accordance with the Remediation Action Plan and that the site is suitable for the proposed land use.
- Preparation of a Long Term Environmental Management Plan (LTEMP) for the Remediation Works.
- Preparation of a Section 88B Instrument for the Remediation Works.

D2.3 Asbestos Contractor

Where asbestos is identified as being present in soil, the Remediation Action Plan requires that the asbestos contaminated soil be excavated and disposed of to a licensed landfill facility. Where asbestos is identified as being present in soil, the Remediation Action Plan requires that the asbestos contaminated soil be excavated and disposed of to a licensed landfill facility.

Where asbestos is identified as being present in soil, the Remediation Action Plan requires that the asbestos

D2.4 Sub-contractors

[illegible]

D2.5 Environmental Consultant

[illegible]

- [illegible]
- [illegible]
- [illegible]

D2.6 Licenced Asbestos Assessor

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- [illegible]
- [illegible]
- [illegible]
- [illegible]

D2.7 Site Workers

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- [illegible]
- [illegible]
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D3.0 Water Management

D3.1 Stormwater

[illegible]

- [illegible]
- [illegible]
- [illegible]

D3.2 Dewatering of Excavations

[illegible]

- [illegible] *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* [illegible]
- [illegible]
- [illegible]

[illegible]

D4.0 Soil Management Plan

[illegible]

D4.1 Excavation and Stockpiling of Contaminated Material

[illegible]

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- [illegible]

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D4.2 Loading and Transport of Contaminated Material

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D5.0 Noise and Vibration Control Plan

[illegible]

D6.0 Dust Control Plan

[illegible]

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D7.0 Odour Control Plan

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D8.0 Work Health and Safety Plan

D8.1 General

[illegible] *Remediation Action Plan: Implementation - Guideline on Health and Safety* [illegible] Remediation Contractor's SWMS.

[illegible]

[illegible]

[illegible]

[illegible]

D8.2 Site Access

[illegible]

D8.3 Personnel and Responsibilities

[illegible] of this WHSP and Remediation Contractor's SWMS.

D8.4 Chemical Contamination Hazards

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D8.5 Physical Hazards

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D8.6 Safe Work Practices

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[illegible]

- [illegible] *Code of Practice, How to Manage and Control Asbestos in the Workplace* [illegible]
- [illegible] *Code of Practice, How to Safely Remove Asbestos* [illegible]
- [illegible] *Managing Asbestos in or on Soil* [illegible]
- [illegible] *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Ed* [illegible]

D9.0 Community Consultation

[illegible]

[illegible]

D10.0 Remediation Schedule and Hours of Operation

[illegible]

D11.0 Response to Incidents

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]

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[illegible]

are 'to be confirmed' and should be completed prior to works commencing when all entities are

Table 1: Summary of Roles and Contact Details

Role	Personnel / Contact	Phone Contact Details
Principal's		

D12.0 References

Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

Remediation Action Plan: Implementation - Guideline on Health and Safety.

Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Ed.

Guidelines for Consultants Reporting on Contaminated Land.

Code of Practice, How to Manage and Control Asbestos in the Workplace.

Code of Practice, How to Safely Remove Asbestos.

Managing Asbestos in or on Soil.

Douglas Partners Pty Ltd