

ANPRISA PTY LTD



Remediation Action Plan

40-76 William St, Leichhardt NSW

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Executive Summary

Anprisa Pty Ltd ('the client') engaged EI Australia (EI) to complete a Remediation Action Plan (RAP) for 40-76 William St, Leichhardt NSW ('the site').

The site is currently occupied by large storage warehouses and car parking. The site is identified as Lot 2 in DP 789576 and is situated within the Local Government Area of Inner West Council. The site covers a total area of approximately 6,930 m².

Previous investigation had identified fill soils impacted by asbestos, lead, TRH and PAH at multiple locations of the site.

The purpose of this RAP is to establish a sequential process for remediation and validation works for the site, to enable the land to be redeveloped for residential use. The RAP has been completed as part of the corresponding development, in support of a rezoning and planning proposal to NSW Department of Planning, Housing and Infrastructure. The RAP enables the developer to meet obligations under the *State Environmental Planning Policy* (Resilience and Hazards) (2021) (formerly SEPP 55 – Remediation of Land).

Remediation Strategy

The preferred approach involves excavation and offsite disposal of impacted soils. Additional sampling of soil and groundwater is required to assess the quality of soil beneath buildings and the groundwater quality onsite. It is envisaged that the remediation works will be implemented in stages, as follows:

- **Stage 1** – Site Establishment and Preliminaries;
- **Stage 2** – Additional Site Investigation and Waste Classification;
- **Stage 3** – Excavation Preparation;
- **Stage 4** – Waste Management;
- **Stage 5** – UST Excavation (if required); and
- **Stage 6** – Site Validation

Material management procedures are provided to characterise soil for offsite disposal, and contingency measures are provided for any unexpected finds. In summary, EI considers that the site can be made suitable for the proposed residential use through the implementation of the works described in this RAP.

1. Introduction

1.1 Background

Anprisa Pty Ltd ('the client') engaged EI Australia (EI) to develop a Remediation Action Plan (RAP) for the land at 40-76 William St, Leichhardt NSW (the site). A plan showing the locality of the site is presented as **Figure A.1**.

- Previous investigation had identified fill soils impacted by asbestos, lead, TRH and PAH at multiple locations of the site. Concentrations of aluminium, nickel, zinc, total recoverable hydrocarbons (TRH) and benzo(a)pyrene in groundwater above adopted criteria. Dissolved hydrocarbons were not detected in 2021.

EI was engaged to develop a remedial strategy that would enable appropriate remediation of the land in order to make the site suitable for the proposed land use.

The RAP enables the developer to meet obligations under the *State Environmental Planning Policy* (Resilience and Hazards) (2021) (formerly SEPP 55 – Remediation of Land),

This RAP accompanies a Rezoning Report and addresses the Secretary's Environmental Assessment Requirements (SEARs), in support of a State Significant Development Application (SSDA) for the construction and operation of proposed development, reference SSD-119545240.

This report addresses the SEARs issued for the project, notably:

Secretary's Environmental Assessment Requirements

SEARs Requirement	Section of Report where response is provided
13. Contamination and Remediation	
• <i>In accordance with Chapter 4 of SEPP (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.</i>	Section 5, 6 and 7

1.2 Proposed Development

Based on the supplied plans (**Appendix C**), the proposed development involves the demolition of all existing structures and the construction of four multi-storey residential buildings (Building A to Building E), overlying a two-level basement.

According to the proposed plan, the basement has been designed to a Finished Floor Level (FFL) of RL 3.5 metres Australian Height Datum (mAHD). Deeper excavations will be required to allow for basement construction, including footings, service trenches, crane pads, and lift overrun pits. The development will also include deep soil zones proposed for landscaping along the south-western and southern boundary of the site, as shown in **Figure 2**.

1.3 Regulatory Framework and Requirements

The regulatory framework and guidelines were considered during the preparation of this RAP are shown in table below:

Table 1-1 Regulatory Framework

NSW Legislation and Regulatory Instruments	Requirements
Environmental Planning and Assessment Act 1979 (EP&A Act)	The EP&A Act stipulates the regulations and gives rise to state environmental planning policy (SEPP) to assist regulators with the protection of human and environmental health.
Protection of the Environment Operations Act 1997 (POEO Act)	The objective of the POEO Act is to achieve the protection, restoration and enhancement of the quality of the environment.
Work Health and Safety Act 2011 (WHS Act)	Primary legislation for management and regulation of work health and safety, including the management of hazardous building materials. Gives rise to the NSW Government Work Health and Safety Regulation 2017.
State Environmental Protection Policies (SEPPs)	Determines the category of property development, and gives rise to state environmental planning policies (SEPPs). The SEPP relevant to this site was <i>SEPP (Resilience and Hazards) 2021</i> .
National Protection (Assessment of Site Contamination) Measures, 1999, Amendment 2013 (NEPM)	Outlines methodology for contaminated land assessment and provides risk-based criteria for ecological and human health receptors of site contamination.
Inner West LEP and DCP 2022	Provides controls and guidelines for development in the area.
Relevant Guidelines (but not limited to)	- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality; - NSW EPA (2014a) Waste Classification Guidelines; - EPA (2020) Consultants reporting on contaminated land; - WA DoH (2009) Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia. - See <i>References</i> for more.

1.4 Remedial Objective

The overall objective of this RAP was to assist the client in making the land suitable for the proposed use in accordance with the guidelines in force under the Contaminated Land Management Act 1997 and to enable the developer to meet obligations under the *State Environmental Planning Policy (Resilience and Hazards) (2021)* (formerly SEPP 55 – Remediation of Land), in support of a State Significant Development Application (SSDA) for the construction and operation of proposed development, reference SSD-119545240.

This will be achieved by:

- Determining the extent of remediation required;
- Detailing the remedial procedures and sampling methods that best suit the site and future development to manage the identified contamination while considering the potential exposure of the contaminant to the general public;
- Provision of mitigation measures for the management of any adverse environmental effects and any unexpected finds, should they be required; and
- Detail the validation strategy to be implemented, that will evaluate the effectiveness of the remedial works and provide conclusions on the suitability of the site for the proposed use.

1.5 Scope of Works

The scope of works was developed using information obtained from historic reports, site observations and design of the proposed development. The scope of work includes:

- A summary of the setting and contamination status of the site using previous investigations;
- Defining the known areas that require remediation, including details of any regulatory approvals and/or licences required to complete the work;
- Identification of the stakeholders and responsibilities for implementation of the RAP;
- An assessment of remediation technologies/options available to manage the contamination, and details of the selected strategy for the site;
- An outline of the remediation methodology, including procedures for the management of waste and environmental controls required to minimise any impacts to the surrounding environment;
- A validation programme, including site acceptance criteria to evaluate the success of the remediation; and
- Procedures to manage any further unexpected finds throughout construction of the development.

1.6 Key Stakeholders

Key stakeholders involved with the remediation works are presented in the table below.

Table 1-2 Key Stakeholders

Role	Key stakeholder
Client Representative: Management of the development on behalf of the site owner. The superintendent / Project Manager.	Anprisa Pty Ltd (applicant of DA)
Principal Contractor: Responsible for earthworks, construction and site preparation works including waste disposal and the establishment of mitigation / control measures required during remediation works, being the Site Foreman.	TBC
Environmental Consultant: Responsible for preparation of the RAP and assistance with implementation. Also for the collection of validation samples to evaluate the success of the remediation and provide clear conclusions regarding the suitability of the land for use.	EI Australia
Regulating Authority: Responsible for award of consent and regulator of consent conditions	NSW Department of Planning, Housing and Infrastructure

2. Site Setting

2.1 Site Details

Relevant details for the site were obtained from previous reports, as presented in **Table 2-1**.

Table 2-1 Site Details

Attribute	Description
Street Address	40-76 William St, Leichhardt NSW
Site Area	6,930 m ²
Lot and DP	Lots 2 in DP789576
Current Zoning	R1 – General Residential (Inner West Local Environmental Plan 2022)
Location Description / Surrounding Use	The site is bound by: ▪ NORTH – William Street ▪ EAST – 38 William Street, a three-storey brick residential building ▪ SOUTH – Two residential apartment buildings (previously part of William Street factory) ▪ WEST – Mixed commercial and residential properties
Site Description	At the time of the inspection, the site is currently occupied by large storage warehouses and car parking. The internal parts of the warehouse were occupied by a series of metal framed and clad private storage units which covered a large percentage of the floor space and were not accessible.
Hydrology	Hawthorne Canal is located approximately 500m west to 650 m north of the site and forms the nearest surface water body in relation to the site. Hawthorne Canal flows into Iron Cove. Groundwater flow direction in the vicinity of the site is inferred to be towards the north-west toward Hawthorne Canal and Iron Cove.
Regional Geology / Soil Landscape	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies the Gynea (gy) Erosional Landscape, which typically includes Hawkesbury Sandstone. With reference to the Botany Bay Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the subject land lies within the map class description of <i>No Known Occurrence</i> . In such cases, acid sulfate soils (ASS) are not known or expected to occur and “land management activities are not likely to be affected by ASS materials”. The Inner West Local Environmental Plan 2022- Acid Sulfate Soils Risk Class 1:10,000 scale Map indicates that the site lies within a Class 5 area. The need for further acid sulfate soil assessment and management has not been considered.

2.2 Site History

Based on the EI (2026) Detailed Site Investigation (DSI) the site history can be summarised as follows:

- The majority of the lot was occupied by John Heine & Son Limited as a foundry and machine shop from the beginning of records (1914) until the 1950s. The brand Cyclops was registered in 1915 by John Heine Sheet Metal who officially change names to Cyclops Pty Ltd in 1946 but was taken over by a British company after World War II.
- From the 1950/60s to the 1980s the site was used for commercial purposes, mostly toy manufacture. In the late 1980s many of the toys were manufactured offsite and Cyclops Pty Ltd was purchased by Hunter Toyline Pty Ltd.
- In the 1980s the site was redeveloped to the current layout (i.e. commercial/retail use).

2.3 Summary of Previous Site Characterisation

The EI (2026) Detailed Site Investigation (DSI) identified the following exceedances (**Figure A.2**):

- Concentration of lead (2,500 mg/kg) in sample BH15_0.4-0.5 exceeded the HIL B for residential exposure settings;
- Asbestos was identified in sample BH9a_0.5-0.7;
- Concentration of TRH (F2) (240mg/kg) in sample BH1M_0.8-0.9 exceeded HSL A & B for low to high density residential exposure
- Concentration of PAH as Carcinogenic PAHs (5.8 mg/kg) in sample BH14_0.4-0.5 exceeded HIL B for residential exposure settings;
- Heavy metals (Aluminium, nickel and zinc) were detected above the adopted criteria, however concentrations were considered to be representative of background groundwater quality entering the site from the south;
- Monitoring well BH1M reported concentrations of F2 (910µg/L), and monitoring well BH4M reported concentrations of F2 (330 µg/L), F3 (4,600 µg/L), and F4 (2,000 µg/L), BH9M reported concentrations of F2 (57,000 µg/L), F3 (4,800 µg/L), and F4 (1,800 µg/L) exceeding the ANZG (2018) criteria;
- Monitoring well BH4M reported concentrations of benzo(a)pyrene (56 µg/L) exceeding the ANZG (2018) criteria; and
- Additional groundwater sampling in 2021 did not detect and dissolved hydrocarbons in the groundwater.

3. Conceptual Site Model

Using the details presented in **Section 2**, EI developed a conceptual site model (CSM) to identify if any “source – receptor – pathway” linkages exist at the site, and quantify any residual risk to the human and ecological receptors. The CSM is presented in **Table 3-1**.

3.1 Data Gaps

The following data gaps are considered to exist and will require further investigation as part of the remedial program:

- Confirmation of the source of TRH (on and/or offsite) in groundwater identified during the investigation;
- The groundwater quality immediately hydraulically down-gradient to the previous large factory building (69 Allen Street, Leichhardt which was previously part of John Heine & Sons Pty Ltd); and
- The quality of soil beneath buildings – large percentage of floor space not accessible during this investigation.

Table 3-1 Conceptual Site Model (Pre-Remediation)

Potential Sources	Impacted Media	Chemicals of Potential Concern	Transport mechanism	Exposure pathway	Potential receptor
- Fill of unknown origin and quality placed at the site; - Weathering of building; - Spills and leaks from parked vehicles; - Potential contamination of site soils from previous industrial/commercial use (including machine tool manufacturing) - Hazardous materials, including ACM from previously demolished building structure. - Hazardous building materials within existing site structures; - Migration of contamination onto the site from adjoining lands.	Soil	HM, TRH, PAH, OCP/OPP, PCB, BTEXN, and asbestos	Disturbance of surface and subsurface soils during site redevelopment, future site maintenance and future use of the site post redevelopment	Ingestion Dermal contact Inhalation of dust particulates	Construction and maintenance workers End users of the site post redevelopment
			Atmospheric dispersion from soil to outdoor and indoor air spaces	Inhalation dust particulates	
		F1 and F2 TRH, BTEXN and VOCs	Volatilisation of contamination from soil and diffusion to indoor air spaces	Inhalation of vapours from impacted soil	
		HM, TRH, PAH, OCP, BTEXN	Plant uptake of contamination present in root zone	Plant uptake	Future ecological receptors (e.g. site vegetation in landscaped areas post redevelopment)
Hazardous building materials (e.g. ACM, lead paint) within existing site structures.	Building Fabrics	Lead, PCB and asbestos	Release of hazardous materials during uncontrolled demolition of building fabrics	Ingestion; Dermal contact; Inhalation of airborne contaminants	Construction and maintenance workers
- Spills and leaks from parked vehicles; - Potential contamination of site soils from previous industrial/commercial use (including machine tool manufacturing) - Migration of contamination onto the site from adjoining lands.	Groundwater	HMs, TRH, BTEX, phenols, and VOC.	Volatilisation of contamination from groundwater to indoor or outdoor air spaces (onsite and offsite)	Inhalation of vapours	End users of the site post-development Construction and maintenance workers
			Migration of dissolved phase impacts in groundwater	Biota uptake, Ingestion Dermal contact	Aquatic ecosystems

4. Remediation Strategy

4.1 Remediation Objective

Based on the CSM, the objectives for remediation were to:

- Remove/reduce the unacceptable risks identified as a result of site contamination in a sustainable manner that does not pose an even greater risk than if the contamination was to remain;
- Guide the remediation works required in a manner that mitigates risks to users of the site and the surrounding environment, and in accordance with the relevant regulatory provisions and guidance; and
- Detail the validation strategy to be implemented to measure the success of the remedial works and provide data to make valid conclusions regarding the suitability of the site for the proposed use.

4.2 Review of Remedial Options

The National Environment Protection (Assessment of Site Contamination) Measure (2013) provides an order of preference for soil remediation and management. According to this document, the order for preferred remediation technologies for soil is:

- a) Onsite treatment to either destroy or reduce the contaminant to an acceptable level;
- b) Offsite treatment of excavated soil to either destroy or reduce the contaminant to an acceptable level then return the material to site;
- c) Consolidation and isolation of the soil on site by containment with a properly designed barrier.
- d) Removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material; and
- e) Where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

Schedule B1 of NEPM 2013 further reiterates that for sites where asbestos contamination is identified, remediation options which minimise the disturbance of soil are preferred.

EI reviewed the available remediation methods as summarised in **Table 4-1**.

Table 4-1 Remedial Options Review - Soil

Remedial Option	Positives	Negatives	Suitable for use on site?
On-site Treatment	- Cost effective if treated soils are re-used on site - Lower disposal costs - Retains material on-site - Lowers truck movements associated with the development	- Not applicable to the type of contamination encountered at the site - Potential for odour problems - Requires detailed design and pilot trials to confirm efficacy	NO – not suitable for asbestos contamination. Furthermore, this would have a significant negative effect on project timeframes.
Off-site Treatment	- Fast – impacted material can be excavated and removed immediately - No issues associated with on-site storage and treatment	Not applicable to the type of contamination encountered at the site	NO – not suitable for asbestos contamination.
On-site Containment	- Removed the risk associated with the materials by eliminating pathways - Reduces quantity of soil being removed to landfill & associated truck movements (i.e. a sustainable remediation option)	- Potential for interaction with groundwater - Requires an Environmental Management Plan	YES - can be used as part of a remedial strategy for the site.
Excavation and Off-site Disposal	- Fast – impacted material can be excavated and removed immediately - No issues associated with on-site storage and treatment - Minimal design and management costs	- Transfer of waste to another location – sustainability issues - High costs associated with disposal - Requires waste classification (including high frequency sampling)	YES – can be used as part of a remedial strategy for the site.
Ongoing Management of Contamination	- Reduces disturbance of contaminated soils where no net environmental benefit would arise from other management strategies - Preferred remedial option of soil contaminated with asbestos	- Contaminants remain on site - Requires an Environmental Management Plan	YES – can be used as part of a remedial strategy for the site.

4.3 Preferred Remedial Strategy

Based on the assessment of remedial technologies, the potential risks to human health and the environment and considering the cost effectiveness of each remedial technique, the preferred remedial strategy for the site is a combination of excavation and removal of the impacted fill material for offsite disposal or reusing the material on-site in less sensitive areas like road easements. The remedial strategy will be a staged approach involving:

- Delineation sampling undertaken in BH9a, identified as containing asbestos;
- Delineation sampling undertaken in BH15, identified with concentration of lead exceeded the human health-based criteria;
- Delineation sampling undertaken in BH14, identified with concentration of PAH as Carcinogenic PAHs exceeded HIL B for residential exposure settings;
- Delineation sampling undertaken in BH1M, identified with of TRH (F2) exceeded HSL A & B for low to high density residential exposure;
- Hazardous materials assessment conducted on the remaining warehouse building prior to any partial demolition;
- Site demolition to allow further assessment;
- Removal of sources of contamination (including under the concrete slab during redevelopment);
- Classification and disposal of all wastes (including contaminated soils) by licensed transport to approved/licensed, off site, waste facilities; and
- Remediation of the impacted soils (where required) using a combination of the following:
 - Excavation and disposal of impacted soils to a licensed landfill facility or isolation of the soil by covering with a properly designed barrier;
 - Choosing a less sensitive land use to minimise the need for remedial works which may include partial remediation or leaving contaminated material in-situ provided there is no immediate danger to the environment or community and the site has appropriate controls in place;
 - Excavation and on-site separation of highly impacted soils (where concentrations exceed criteria for classification as restricted solid waste) for additional waste classification prior to disposal; and
 - Program of monitored natural attenuation for low level soil and groundwater contamination, which may remain due to design issues.

Material derived from the site, including contaminated soil, rock and fill would be removed by truck to a suitable licenced disposal facility or recycled where classified as virgin excavated natural material (VENM) or excavated natural material (ENM) in accordance with the general waste exemptions (EPA, 2014).

As groundwater impacts have not yet been confirmed and further groundwater assessment is required, remedial action for groundwater at the site is not proposed at this stage, but may be considered at a later stage if warranted.

Details on the methodology to be employed for the key work tasks are described below. They will not necessarily be conducted in the indicated sequence.

4.4 Site Preparation, Licences & Approvals

4.4.1 Consent Requirements

In accordance with *SEPP 55 - Remediation of Land*, the category of the remediation works defines whether consent is required prior to the commencement of the works. Under *SEPP 55*, works where there is the potential for significant environmental impact are classed as *Category 1* and require development consent. *Category 2* works pose a low potential for environmental impact and do not therefore require prior consent. The determination for the subject site is outlined in **Table 4-2**.

Table 4-2 Remediation Works Category Determination

Significant Environment Impact	Yes/No	Category
Designated Development or State Significant Development	No	2
Critical or threatened species habitat	No	2
Have significant impact on threatened species, populations, ecological communities or their habitats	No	2
In area identified environmental significance such as scenic areas, wetlands (see list*)	No	2
Comply with a policy made under the contaminated land planning guidelines by the council.	Yes	2
Is work ancillary to designated development	Yes	2

Notes: * Environmental significance list -coastal protection, conservation or heritage conservation, habitat area, habitat protection area, habitat or wildlife corridor, environment protection, escarpment, escarpment protection or escarpment preservation, floodway, littoral rainforest, nature reserve, scenic area or scenic protection, or wetland.

Based on the above assessment, the remediation works for the site are considered as Category 2 and will not require specific development consent and can be managed through the normal development application process.

4.4.2 Development Consent & Control Plans

All works should be in accordance with State Environmental Planning Policy and any development consent issued by NSW Department of Planning, Housing and Infrastructure for the development.

4.4.3 Other Licence Requirements

The appointed site contractor should prepare an appropriate Construction Environmental Management Plan (CEMP), health and safety plans. Where asbestos removal is required, the contractor must be appropriately licensed to perform such works.

4.5 Remediation Acceptance Criteria

Remediation criteria to be adopted for the site are summarised in **Table 4-2**.

Table 4-2 Adopted Remediation Criteria

Media	Criteria
Soil	- NEPM (2013) Residential B Health-based Investigation Levels (HIL B); - NEPM (2013) Soil Health Screening Levels for vapour intrusion (HSL D) for coarse-textured (sandy) soils on commercial / industrial sites; and - Ecological-based Investigation and Screening Levels (EILs / ESLs) – Urban residential and public open space (for the retained deep soils proposed for

Media	Criteria
	landscaping within the southern portion of the site)
Groundwater	ANZG (2018) <i>Marine Guidelines for 95% protection of slightly to moderately disturbed ecosystems</i>. Freshwater criteria have been selected as the closest downgradient ecological receptor is the Hawthorne Canal.
Waste	- In accordance with the NSW Waste Regulation 2014, waste soils must be classified in accordance with the: - EPA (2014a) Waste Classification Guidelines; <i>Protection of the Environment Operations Act 1997</i> and associated regulations, including the <i>Excavated Natural Material Order 2014</i> and associated exemption; and - All other relevant resource recovery orders, exemptions and approvals issued by the EPA.

Validation will be achieved when concentrations are reported below the criteria and do not pose an unacceptable risk. Statistical data may be adopted with respect to the criteria as follows:

- The 95% upper confidence limit (UCL) of the individual contaminant does not exceed the criteria;
- The individual contaminant concentration does not exceed the criteria by more than 250%; and
- The standard deviations of the individual contaminants do not exceed 50% of the criteria.

4.6 Data Quality Objectives

In accordance with EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd edition)*, Data Quality Objectives (DQO) will determine the quality of all collected validation results. The proposed DQOs are identified in **Table 4-**.

Table 4-3 Data Quality Objectives

Step	Description
State the Problem	Redevelopment is proposed, for residential end use. A previous investigation identified soil impacted by lead, TRH, PAH and asbestos and elevated concentrations of metals and total recoverable hydrocarbons within groundwater. Removal of the previous identified soils impacts in accordance with SEPP2021 and the CLM Act is required to make the site suitable for residential use, with basement parking.
Identify the Decision	Decisions that need to be made are: - Has enough data been collected to determine if the remediation activities were successful? - Is the validation data adequate to characterise the material retained and determine suitability of the site for residential use? - Does the site require long term management and notification of on-site contamination encapsulated within the land?

Step	Description
Identify Inputs to the Decision	Inputs to the decision process include: - Proposed development; - Understanding of current site use and historic activities that have occurred, including potential offsite sources of contamination; - The RAP detailing the remediation required and procedures to manage any unexpected finds; - Contaminant concentrations in soil and groundwater at the site for validation, including any imported material; and - Further input to the decision will be sample collection and handling, field and laboratory QAQC and confirmation that data quality indicators (DQIs) were achieved.
Define the Boundary of the Assessment	- Spatial – The validation will be limited to the site boundaries (Figure A.2) and the maximum depth of (contaminated) soil excavation. - Temporal – The results will be valid on the day samples are collected and will remain valid if no changes to site use occur, and contamination (if present) does not migrate from off-site sources. Constraints of sampling requiring consideration include access restrictions (due to site operations and/or conditions) and presence of both above and underground services / structures.
Develop a Decision Rule	The decision rules for the validation are: - What are the characteristics of soil surrounding any USTs at the site? - Soil validation samples will be assessed in the field and collected for laboratory analysis, to ensure any infrastructure and all impacted material has been removed adequately. Disposal dockets will ensure these items and any impacted material were removed and disposed of in line with regulatory standards. - What are the characteristics of asbestos at the site, post remediation? - Asbestos fill will be consolidated and full details of the fate of the material, either disposed offsite or encapsulated beneath hardstand will be required for the validation report and/or long term environmental management plan (EMP). - Is the information obtained adequate to determine the suitability of the site for its proposed use? - Should additional information be required as determined by the conceptual site model (CSM), then appropriate recommendations will be provided. Decision criteria for analytical data are defined by the Data Quality Indicators (DQI) in Table 4-.
Specify Acceptable Limits on Decision Errors	Specific limits for this project are to be in accordance with NEPM 2013, appropriate data quality indicators (DQIs) for assessing the useability of the data and EI standard procedures for field sampling and handling. To assess the useability of the data, pre-determined DQIs will be identified for completeness, comparability, representativeness, precision and accuracy. These are presented in Table 4-. If any of the DQIs are not met, further assessment will be necessary to determine whether the non-conformance will significantly affect the useability of the data. Corrective actions may include requesting further information from samplers and/or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of samples.

Step	Description
Optimise the Design for Obtaining Data	To achieve the decision rules, the validation will require: - Construction details of the encapsulated areas (where required), including an indication of the types of asbestos and volume encapsulated; - Collation of air monitoring results recorded during the fill removal works, to assess cross contamination and exposure of local inhabitants (including site workers) to air-borne asbestos dust; - Results for samples of site soils retained following remediation excavations, including any imported material; - Collation of all site walkover observations made by EI, including additional (data gap closure) and validation sample logs. - Waste disposal documentation, confirming impacted material has been appropriately removed from the site; and - Review of the validation sampling events, to determine suitability of the (overall) sampling frequency.

4.7 Data Quality Indicators

To ensure that the analytical data collated during the additional investigation (data gap closure) and validation phases are of acceptable quality, the following data quality indicators (DQI) will be applied (**Table 4-4**).

Table 4-4 Data Quality Indicators

DQO	DQI	Acceptable Range
Accuracy	Field – Trip spike (laboratory prepared)	80-120% recovery
	Field - Spilt duplicate (EI prepared)	< 30% relative percentage difference (RPD)
	Laboratory – Laboratory control spike and matrix spike	Prescribed by the laboratories
Precision	Field – Blind replicate	< 30% RPD
	Laboratory – Laboratory duplicate and matrix spike duplicate	Prescribed by the laboratories
Representativeness	Field – Trip blank (laboratory prepared)	< laboratory limit of reporting (LOR)
	Laboratory – Method blank	Prescribed by the laboratories
Completeness	Completion (%)	-

4.8 Deviations from RAP

While it may be possible to vary the sequence and/or details of the remediation works to meet site constraints, a qualified Environmental Scientist should be appointed to the project to ensure:

- Critical stages of the site remediation/validation process are appropriately supervised, implemented and documented, with the relevant data collected for environmental reporting purposes; and
- Any deviations from the works specified in this RAP are properly documented and approved, as required under the EPA (2020) Consultants reporting on contaminated land: Contaminated Land Guidelines.

Performing assessment works without the presence of a qualified environmental engineer/scientist when necessary may lead to project delays and extra costs, due to additional environmental investigation requirements imposed by a Qualified Independent Consultant or an appointed Site Auditor (if required) to confirm the environmental status of the site.

Furthermore, excess spoil removed from the site without proper characterisation and/or waste classification assessment, may lead to regulatory action and potential penalties, as described under the *Protection of the Environment Operations (Waste) Regulation 2014*, the *Protection of the Environment Operations Act 1997* and the *Contaminated Land Management Act 1997*.

5. Remediation Works

5.1 Remediation Schedule

The works proposed in this RAP will be implemented in accordance with the Inner West LEP 2022 and conditions of DA consent. They will be completed in the following stages:

1. Site Establishment and Preliminaries
2. Additional Site Investigation and Waste Classification
3. Excavation Preparation
4. Excavation and Off-site Disposal of Fill Soils
5. UST Excavation (*if required*)
6. Site Inspection
7. Containment Construction (*if required*)
8. Validation

5.2 Task 1 - Site Establishment and Preliminaries

5.2.1 Preliminaries

As the proposed development is subject to planning approvals, EI considers that the remedial works would be considered Category 2 under State Environmental Planning Policy No.55 (SEPP 55) – Remediation of Land. Category 2 works will not require development consent. Notice should be given to the NSW Department of Planning, Housing and Infrastructure at least 30 days prior to the commencement of remediation works. Provision of this RAP, as well as an indication of commencement and completion dates of the works in writing, is usually enough to meet the requirements of this notification. Establishment of environmental controls, site access, security, fencing, and signage is required prior to works commencement.

As part of the site preparation phase and preliminary tasks, a remediation workshop should be conducted with the appointed contractor(s) to further develop any remedial measures, excavation plans, and environmental management requirements. The site contractor is to complete a staging, or project, plan that outlines the basic steps of the remediation works. The staging plan should include, but not necessarily be limited to:

- Staging of areas to be excavated;
- Staging of the decommissioning and removal of tanks and associated equipment (*if required*);
- Areas designated for waste segregation, screening and storage (stockpiling), amenities, soil and groundwater treatment (*if required*);
- Prepare and implement a community engagement plan;
- Truck movements to allow loading to mitigate impacts to surrounding land users and council infrastructure; and
- Proposed environmental mitigation measures.

5.2.2 Management Plans

Site-specific management plans are required to manage any adverse effects resulting from the remedial work. The plans will be developed in accordance with Leichhardt Inner West Council DCPs and any development consent conditions issued for the site with consideration of WHS legislation. Plans shall include, but not be limited to a construction environmental management plan (CEMP), health and safety (H&S) plan and a hazardous materials management plan (HAZMAT). Decontamination procedures to minimise the spread of dust and dirt outside of the site boundaries is required, and detail the personal protective equipment, disposable overalls and hearing protection required. A project plan should also be developed to outline engineering design for temporary shoring excavation support (if required), staging of demolition and remediation works, stockpiling, waste material loading, traffic management and waste tracking. Staging should include but not be limited to the areas to be demolished, hardstand removal and soil to be excavated.

5.3 Task 2 - Additional Site Investigation and Waste Classification

Due to the identified data gaps outlined in **Section 3** of this RAP the following additional works are required in order to properly characterise the environmental status of the site. EI strongly recommends that the additional site investigation should be implemented following current site tenants vacating the premise. This will enable the assessment of the risks associated with potential exposure of human and ecological receptors to residual contamination. The data gap closure investigations will therefore be undertaken as follows:

- Site history survey involving a detailed search of Council for information relating to operational site history;
- Prior to any demolition, a detailed hazardous materials survey should be undertaken to identify any potential hazardous substances requiring management and to minimise any impact to the site soils;
- Following the removal of storage units, undertake a GPR survey and visual inspection across the site to identify if any UPSS infrastructure is present or any unexpected finds on the site require further remediation or management;
- Undertake additional soil assessment under buildings if UPSS, separator pits, hoists or any other unexpected contaminated sources are identified;
- As shown in **Figure 3**, undertake additional soil sampling within the following areas:
 - Deep soil zone at double density (2 times the NSW EPA 1995 Sampling Design Guidelines) to a depth of 2 m BGL, for further characterisation of soils and to assess their suitability to remain onsite;
 - As well as providing sampling coverage in previously inaccessible parts of the site, the new test locations will allow in-situ waste classification of materials to be excavated and removed for offsite disposal.
- As shown in **Figure 4**, Undertake soil delineation via a series of test-pits, in combination with in-situ waste classification, to characterise previously identified impacted fill material at:
 - Asbestos hotspot removal in the vicinity of test location BH9a in a 5m x 5m grid, down to at least 1.2 m BGL. Implementation of an Asbestos Management Plan will be required if the concentration of FA exceeds the %w/w criteria (0.001%w/w);

- Lead hotspot removal in the vicinity of test location BH15 in a 5m x 5m grid, down to at least 0.8 m BGL.
- Carcinogenic PAHs hotspot removal in the vicinity of test location BH14 in a 5m x 5m grid, down to at least 0.5 m BGL.
- TRH (F2) hotspot removal in the vicinity of test location BH1M in a 5m x 5m grid, down to at least 0.9 m BGL.
- The asbestos-impacted fill soils identified at BH9 (EI, 2020) and at any other locations identified during data-gap closure investigations (including within the deep soil zone), will be delineated and remediated. Soil samples will be collected within a minimum of 2 meters from the borehole location(s), including within the deep soil zone and are to be excavated to natural material. At least one 10L sample collected per 1m depth drilled/ excavated. Samples will be laboratory analysed for Asbestos-containing materials (ACM), Fibrous Asbestos (FA) and Asbestos Fines (AF) in accordance with the NEPM 2013 (WA, 2009) methodology; and
- As shown in **Figure 3**, data gap closure investigations in relation to groundwater will involve the installation of four new monitoring wells located as follows:
 - one well located at the south part of the site comprising an up-hydraulic gradient monitoring well to target potential impacts migrating from offsite;
 - one well located at the middle part of the site to delineate potential impacts migrating from offsite; and
 - two wells located at the southwest part of the site comprising a down-hydraulic gradient monitoring well and an up-hydraulic gradient monitoring well.
- A survey of the monitoring wells and standing water level measurement is also required in order to extrapolate and confirm the groundwater flow direction.

Should additional contamination be identified during additional investigatory works, an addendum to the RAP will be required to address the identified contamination.

The methodology for additional soil assessment is included in **Table 5-1**, while additional groundwater assessment methodology is included in

Table 5-2.

Table 5-1 Additional Soil Investigation Methodology

Activity	Details
Purpose of the Investigation	▪ Delineation of the lateral and vertical extents of the asbestos contamination present within the near surface fill soils in the west of the site. ▪ Assessment of the quality of soils beneath the former buildings that were inaccessible during the previous investigation. ▪ Assessment of the potential presence of UPSS infrastructure associated with the former engineering manufacturing works on-site and any associated impacts to soil.
Soil Sampling Locations and Depth	▪ Sampling will be conducted at 7 test pit locations at the site targeting asbestos contaminated area (BH9a), beneath former building footprint, and proposed deep soil zone. ▪ Samples will be taken at a minimum rate of 1 per 0.5m depth until natural soils are encountered.

Activity	Details
Soil Sampling Methodology	▪ Preferably test pitting, however other methodology may be adopted subject to site access constraints.
Analytical Suite	▪ Metals/Metalloids (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) ▪ TRH (F1, F2, F3, F4) ▪ BTEX ▪ PAH ▪ VOC ▪ Phenols (total) ▪ Pesticides (OCP / OPP) ▪ PCBs ▪ Asbestos (quantification) ▪ TCLPs, as required.
Sampling, Handling, Transport and Tracking	▪ The use of stainless steel sampling equipment. ▪ All sampling equipment to be washed in a 3% solution of phosphate free detergent (Decon 90), followed by a rinse with potable water prior to each sample being collected. ▪ Direct transfer of the sample into new plastic bags is preferred, with each plastic bag individually sealed to eliminate cross contamination during transportation to the laboratory. ▪ Label sample containers with individual and unique identification including Project No., Sample No., Sampling depth, date and time of sampling. ▪ Place sample containers into an enclosed and secure container for transport to the laboratory. ▪ Provide chain of custody documentation to ensure that sample tracking and custody can be cross-checked at any point in the transfer of samples from the field to the environmental laboratory.
Sample Containers and Holding Times	▪ Metals - 250g glass jar / refrigeration 4°C / 6 months (maximum holding period). ▪ TRH/BTEX - 250g glass jar / refrigeration 4°C / 14 days (maximum holding period). ▪ PAH - 250g glass jar / refrigeration 4°C / 14 days (maximum holding period). ▪ Asbestos – up to a 10 Litre resealable plastic (polyethylene) bag / no refrigeration / indefinite holding time.
Field QA/QC	▪ Appropriate sampling procedures will be undertaken to prevent cross contamination, in accordance with EI's Standard Operating Procedures Manual. This will ensure: › Standard operating procedures are followed; › Site safety plans are developed prior to works commencement; › Split duplicate field samples are collected and analysed; › Samples are stored under secure, temperature controlled conditions; › Chain of custody documentation is employed for the handling, transport and delivery of samples to the contracted environmental laboratory; and › Contaminated soil, fill or groundwater originating from the site area is disposed in accordance with relevant regulatory

Activity	Details
	guidelines.

Table 5-2 Additional Groundwater Investigation Methodology

Activity	Details
Purpose of the Investigation	Confirm the quality of the groundwater at the site, including groundwater flowing onto the site from up-gradient areas.
Well Construction	▪ The depth of monitoring well installation will be dependent on the depth of groundwater encountered during drilling. A 3m interval will be utilised for screening the water-bearing zone encountered. ▪ Monitoring well boreholes will be drilled by hydraulic drilling rig. Well construction details will be recorded on bore logs. ▪ Well construction will be in general accordance with the standards described in NUDLC (2012) and involve the following: ▸ 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals in shallow wells set to screen to at least 0.5m above the standing water level to allow sampling of phase-separated hydrocarbon product, if present; ▸ Base and top of each well sealed with a uPVC cap; ▸ Annular, graded sand filter used to approximately 0.3m above top of screen interval; ▸ Granular bentonite applied above annular filter to seal the screened interval; ▸ Drill cuttings used to backfill the bore annulus to just below ground level; and ▸ Surface completion comprised a steel road box cover set in neat cement and finished flush with the concrete slab level.
Well Development	▪ Development will be conducted for each well directly following installation. ▪ This will involve agitation within the full length of the water column using a dedicated, HDPE, disposable bailer, followed by removal of water and accumulated sediment using a 12V, HDPE submersible bore pump. ▪ Pumping will be continued until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Purging & Field Testing	▪ The groundwater monitoring well will be purged and sampled using a low-flow/minimal drawdown sampling method with a MicroPurge kit (MP15) and a portable MicroPurge pump following well gauging. ▪ The MicroPurge system incorporates a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube. The system used for this investigation will employ pressurised carbon dioxide gas to regulate groundwater flow. Pump pressure and pumping cycles will be adjusted accordingly to regulate extraction flow rate, and to avoid causing excessive drawdown of water level during the sampling process. ▪ Measurements of water quality parameters will be conducted repeatedly during well purging with a water quality meter (Hanna Multi Parameter 9829) positioned within an open flow-through cell. Groundwater parameters tested in the field will include Dissolved

Activity	Details
Groundwater Sampling and Sample Preservation	Oxygen (DO), Electrical Conductivity (EC), Redox, Temperature and pH. Measured parameters will be recorded onto a field data sheet along with the purged water volume at the time of measurement. Groundwater clarity, odours, and the presence of any sheen will also be recorded on field data sheets. ▪ Groundwater sampling will be performed when three consecutive readings of groundwater parameter indicate stabilisation (and representative groundwater quality), as per the specified ranges detailed below: ▸ Electrical Conductivity: $\pm 3\%$ of the read value; ▸ Redox: ± 20 mV; ▸ DO: $\pm 20\%$ of the read value; and ▸ pH: ± 0.2 pH unit; ▪ Final physico-chemical measurements will be recorded. Groundwater samples will be then collected into the following laboratory supplied sample containers with the following preservatives: ▸ One, 1 litre amber glass, acid-washed and solvent-rinsed bottle; ▸ Two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and ▸ One, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). ▪ Samples for metals analysis will be field-filtered using 0.45 μm pore-size filters. All containers will be filled with sample, capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.
Quality Control & Laboratory Analysis	▪ All groundwater samples will be submitted to a NATA accredited testing laboratory for analysis of: ▸ Metals / Metalloids ▸ TRH ▸ BTEX ▸ PAH ▸ VOCs ▸ Phenols ▪ QA/QC testing will comprise intra-laboratory duplicates ('field duplicates'), tested blind by the primary laboratory and an inter-laboratory field duplicate tested by a secondary laboratory. ▪ All samples will be transported in refrigerated chests under strict Chain-of-Custody (COC) conditions.
Sample Transport	▪ After sampling, chilled (with ice-bricks) sample chests will be transported to the primary analytical laboratory using strict Chain-of-Custody (COC) procedures. ▪ Inter-laboratory duplicate (ILD) samples will be forwarded to the secondary laboratory for QA/QC analysis. ▪ A Sample Receipt Advice (SRA) will be provided by each laboratory to document sample condition upon receipt.

If the additional investigation confirms groundwater contamination is attributable to the site, an addendum to this RAP will be provided to detail the groundwater remedial strategy.

5.4 Task 3 - Excavation Preparation

From a contamination perspective, the main issues requiring management are dust and sediment. Typical management measures for such issues include (but are not limited to):

- In dry conditions, soils should be covered with plastic sheeting to reduce dust generation.
- Locating stockpiles away from any open drainage systems or exposure to rain and reduce the movement of soil by placing hay bales around the base of each stockpile.
- Asbestos stockpiles must be stored in an isolated area of the site, sheltered from the weather and should remain covered.

The client must ensure an asbestos management plan is prepared for the site that includes the management measures stated above, as well as all other mitigation required under the relevant guidelines and standards endorsed under Work Health and Safety Act and the CLM Act, to be prepared by a suitably qualified and experienced person.

5.5 Task 4 - Waste Management

- Prior to any soil material being removed from the site, a formal waste classification certificate shall be completed, in accordance with the EPA (2014a) *Waste Classification Guidelines*.
- Soil samples designated for waste classification will be collected at a rate of one sample per 25m³ (min of 3) up to 250m³. For spoil exceeding 250m³ but less than 2,500m³, a minimum of 10 samples is required and 95% UCL statistical calculations of contaminant concentrations will be compared to the criteria. Samples to be analysed for TRH, BTEX, PAH, HMs, organochlorine / organophosphorus pesticides (OCP / OPP), polychlorinated biphenyls (PCBs) and asbestos.
- Any asbestos identified will be treated as an unexpected find and the unexpected finds protocol will be engaged.
- Results of analysis will be compared to the waste classification criteria set out in the NSW EPA (2014) *Waste Classification Guidelines* and a classification certificate will be provided, to enable offsite disposal.
- Ensuring that the waste fill/soil streams are kept separate, material will be loaded, transported and disposed offsite to waste landfill facilities that are appropriately licensed to receive the materials corresponding to the documented waste classifications.
- In accordance with the *POEO (Waste) Regulation 2014*, waste movements will be tracked and disposal receipts (dockets) will be maintained by the site manager and copies provided to EI for final reporting purposes.

5.6 Task 5 - UST Excavation (if required)

If identified during the GPR survey and redevelopment works, the following methodology is proposed for the area concerning the UPSS infrastructure:

- Appropriate decommissioning and removal of the UPSS infrastructure in accordance with:
 - AS4976 – 2008, Australian Standard for the removal and disposal of underground petroleum storage tanks;
 - POEO (Underground Petroleum Storage System) Regulations (2019); and

- Safework NSW and other requirements under the Work Health and Safety Act (2011) and associated regulations.
- Field screening of soil samples collected from the base and side walls of the final excavations in accordance with EPA (2020b) *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*, during which, a portable photo-ionisation detector (PID) will be used as a field screening tool to provide indicative (semi-quantitative) data in relation to VOC concentrations in soil headspace samples, together with visual and olfactory observations.
- Validation samples will be collected from excavation surfaces (walls and bases) for laboratory analysis for petroleum hydrocarbons, BTEX, PAHs, VOCs, and heavy metals.

Petroleum hydrocarbon impacted soils are to be stockpiled separately from other site fill/soils, for ex-situ, waste classification assessment. Water that may collect within remedial excavations will require water sampling and testing to enable appropriate disposal and /or recycling.

5.7 Task 6 - Validation

Validation is required to confirm:

- The suitability of retained / exposed soils, following removal of contaminated fill from the site;
- The appropriate implementation of any long term management requirements for the onsite containment of contaminated material (*if required*); and
- The suitability of any imported soil (*if required*).

Procedures for the recommended validation works are presented in **Section 6.2**.

5.8 Contingency Measures

It is possible that unexpected conditions (finds) may be encountered during the proposed excavations, such as a UPSS, the discovery of different types and extent of fill, aesthetic impacts, or soil conditions different to those currently understood. If encountered, it may be necessary to stop work and re-consider the proposed approach before continuing. **Table 5-3** presents an overview of contingency-related scenarios

Table 5-3 Remediation Contingencies

Scenario	Remediation Contingencies/Corrective Action
Highly contaminated soils (odours, colouration and/or oily residues) not identified during previous investigation are encountered, particularly at site boundaries.	Work to be suspended until the Environmental Project Manager can further assess impacted soils/ materials and associated risks. Under no circumstances shall the contractor or any site personnel undertake to move such materials, without prior advice by the appointed environmental specialist.
Contamination not identified during previous investigation is encountered, including UPSS	Isolate area / material and classify for off-site disposal. Ensure no risk of residual contamination exists. Manage UPSS removal and validation in accordance with EPA (2020b) <i>Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019</i> .
Suspected asbestos containing material is encountered.	Work to be suspended and area quarantined. Area inspected and sampled by qualified Hazmat professionals. Asbestos removed by a suitably qualified contractor, in accordance with WorkCover

Scenario	Remediation Contingencies/Corrective Action
	regulations. Should excess material be identified, a 'cap and contain' strategy may be required to be implemented. Should soils be retained onsite an Environmental Management Plan (EMP) should be implemented at the site.
Changes in proposed basement excavation depth	Review of the groundwater assessment to re-confirm the risk posed to basement.
Chemical spill / exposure	Stop work. Refer to Work Health and Safety Plan and immediately contact the Site Supervisor.
Excessive rain	Cover those working areas not located under cover, where possible, with plastic during off-shifts. Inspect and maintain sediment controls.
Excessive dust	Use water sprays, biodegradable dust sprays, cease dust-generating activity until better dust control is achieved, or apply interim capping systems. If necessary, install dust deposition gauges prior to and during works to monitor the effectiveness of dust controls implemented on-site.
Release of fuel/oil from machinery	Remove source. Use spill kit to absorb oil and make any repairs as required. If necessary, implement temporary measures until booms can be deployed; (e.g. earth embankments) to prevent movement of spill into water courses).
Complaint management	Notify site management and owners (if required) following complaint and record details as per management procedures. Implement control measures to address reason of complaint (if possible) and advise complainant of results.

6. Validation Strategy

Validation sampling is required to confirm the suitability of material retained at the site for the proposed use. Validation will be achieved when either:

- All concentrations of the contaminants of concern are below the adopted validation criteria; and/or
- When the 95% upper confidence limit (95% UCL) of the average concentration for each analyte is below the adopted validation criteria.

All material imported to site, will require validation to ensure the material is fit for the proposed development / future land use.

6.1 Validation Required

Validation sampling for the areas of remediation are required for:

- Areas of contaminated fill (EI, 2026 - DSI), including:
 - BH9a - asbestos impacted hotspot;
 - BH1M – TRH F2 impacted hotspot;
 - BH14 - Carcinogenic PAHs impacted hotspot; and
 - BH15 – lead impacted hotspot.
- Exposed soils across the basement area footprint and walls where exposed;
- Surface of retained fill within the deep soil zones;
- Any imported materials (*if required*).

6.2 Final Surface and Containment Validation

Validation sampling would be undertaken following the removal of identified contaminated material to ensure that the vertical and lateral extent of the contamination has been defined. Should residual contamination be identified, it would be “chased out” where appropriate until material exceeding the validation criteria has been removed. As part of the contingency process, however, consideration would also need to be given to potential impacts to flora.

The collection of validation samples will be based on:

- visual observations
- grid designed sampling
- screening of material using a photoionisation detector (PID) for the presence of elevated levels of volatile organic compounds (VOCs).

All samples should be sent under appropriate ‘chain of custody’ (CoCs) to NATA accredited laboratories.

If the levels of contaminants are found to exceed the criteria for solid waste, soil treatment by stabilisation and/or micro-encapsulation could be required before disposal.

Based on the above comments, the following validation sample design is proposed in **Table 6-1**
Validation Sampling Design

below.

Table 6-1 Validation Sampling Design

Item/Area (source)	Sampling Density	Potential Contaminants
Underneath buildings (and concrete slabs) / Final ground surface	10 m grid (surface and depth)	- Metals / Metalloids (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) - TRH (F1, F2, F3, F4) - PAH - BTEX - Pesticides (OCP/OPP) - PCBs - Asbestos (Quantification)
Remediated hotspots	Linear – 1 sampling location per 10m length of excavation walls. Vertical –1 sampling location per 0.5m depth of excavation. Base – 1 sample per 100 m ² .	Lead, asbestos, TRH and PAH
Final ground surface	10 m grid (surface and depth)	- Metals / Metalloids (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) - TRH (F1, F2, F3, F4) - PAH - BTEX - Pesticides (OCP/OPP) - PCBs - Asbestos (Quantification)
Groundwater	Appropriate wells will be sampled following source removal and near the end of the site preparation works. Selected seepage zones will be sampled if encountered in tank pit excavation.	- Metals / Metalloids - TRH - BTEX - PAH - VOCs - Phenols
Imported Fill Material	If material is required to be sourced from off-site to reinstate the sites, it should be certified suitable for the intended use. If the material is not Virgin Natural Excavated Material (VENM) or if no suitable certification can be supplied by the source then the material should be sampled at a rate of one per 100 m ³ .	

Excavation of contaminated material shall continue until the analytical results indicate compliance with the criteria (i.e. either the concentrations of all contaminants are within the criteria, or the 95% UCL average contaminant concentration for each detected parameter is within the criteria). If results indicate that additional excavation is necessary, the excavation shall be extended until the excavation surface samples indicate that the location is validated as meeting the criteria for each respective contaminant.

6.3 Imported Material

Only material that does not represent a health or environmental risk may be imported to site. Furthermore, imported material will only be accepted if it has been assessed by a suitably trained and experienced environmental professional to comprise:

- *Virgin Excavated Natural Material (VENM)*, as defined under the Protection of the Environment Operations Act 1997, *Excavated Natural Material Order 2014* and EPA (2014a) Waste Classification Guidelines: Part 1: Classifying Waste; or
- Any other suitable material granted an EPA exemption under the *Protection of the Environment Operations (Waste) Regulation 2014*.

All material shall be verified as suitable by the Environmental Consultant prior to being accepted at the site. This shall require inspection and characterisation of the materials at their source, as well as inspection of the materials as they are imported onto the site, to confirm they are consistent with the designated (original) materials.

6.4 Validation Methodology

The recommended methodology for soil validation sample collection and analysis is presented in **Table 6-2** below.

Table 6-2 Validation Methodology

Action	Description of Required Works
Sample Collection	▪ Soil validation samples will be collected as 'grab' samples from the base of remedial excavations. Each sample will be assessed in the field for the presence of ACM and volatile organic compounds (VOCs) using a photoionisation detector (PID), with observations noted. ▪ Soil sampling for asbestos will occur within any areas of exposed surface soil and for capping material (if not certified as virgin material) in general accordance with the NEPM 2013 procedure (WA 2009 Guidelines). For each sampling location / stockpile sample, 10L of material will be collected in a bucket, then spread thinly over a contrasting plastic board to a maximum depth of 1cm. Material will be piled and quartered with fingers until approximately 500 mL of sample remains (material considered to be fines <7mm). Any material >7mm considered to possibly contain asbestos will be bagged and collected. ▪ Samples will be logged and descriptions of soil included within the validation report.
Sampling, Handling, Transport and Tracking	▪ Sample collection will use stainless-steel tools or disposable (one time use) sampling equipment, to be decontaminated as follows: ▸ Wash in a 3% solution of phosphate free detergent (Decon 90), followed by a rinse with potable water prior to each sample being collected; ▪ Soil will be directly transferred into new, laboratory-supplied glass jars, bottles, vials or plastic bags, with each container individually sealed to eliminate cross contamination during transportation to the laboratory. ▪ Samples will be labelled with individual and unique identification including Project Number, Sample Identification, depth, date and time of sampling. ▪ Samples will be transported to the laboratory in a chilled, enclosed and secure container for transport with chain of custody documentation.
Sample Containers and Holding Times	▪ Metals - 250g glass jar / refrigeration 4°C / 6 months (maximum holding period). ▪ TRH/BTEX - 250g glass jar / refrigeration 4°C / 14 days (maximum holding period).

Action	Description of Required Works
	period). - PAH - 250g glass jar / refrigeration 4°C / 14 days (maximum holding period). - Asbestos – up to a 10 Litre resealable plastic (polyethylene) bag / no refrigeration / indefinite holding time.
Laboratory Analysis	- Soil samples will be analysed for: - Metals / Metalloids (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn) - TRH (F1, F2, F3, F4) - PAH - BTEX - Pesticides (OCP/OPP) - PCBs - Asbestos (Quantification) - Testing of imported materials intended for backfilling of excavated areas shall include, but not necessarily be limited to, the minimum suite specified for imported fill under the EPA (2014a) guideline (e.g. metals/metalloids, TRHs, BTEX, PAHs, OCPs, OPPs, PCBs and asbestos).
Field QA/QC	- Quality assurance (QA) and quality control (QC) procedures will be adopted throughout the field sampling program to ensure sampling precision and accuracy, which will be assessed through the analysis of 10% field duplicate/replicate samples. - Appropriate sampling procedures will be undertaken to prevent cross contamination, in accordance with EI's Standard Operating Procedures Manual. This will ensure: - Standard operating procedures are followed; - Site safety plans are developed prior to works commencement; - Split duplicate field samples are collected and analysed; - Samples are stored under secure, temperature-controlled conditions; - Chain of custody documentation is employed for the handling, transport and delivery of samples to the contracted environmental laboratory; and - Contaminated soil, fill or groundwater originating from the site area is disposed in accordance with relevant regulatory guidelines. - In total, field QA/QC will include one in 10 samples to be tested as intra-laboratory, blind field duplicates, one in 20 samples to be tested as inter-laboratory, split field duplicates, as well as one VOC trip blank, one VOC spike sample and one equipment wash blank sample per sample batch.
Laboratory Quality Assurance and Quality Control	- The contract laboratory will conduct in-house QA/QC procedures involving the routine analysis of: - Reagent blanks; - Spike recoveries; - Laboratory duplicates; - Calibration standards and blanks; - QC statistical data; and - Control standards and recovery plots.
Achievement of Data Quality Objectives	DQIs (Table 4-) are to be achieved and an assessment of the overall data quality should be presented in the final validation report, in accordance with the EPA (2017) <i>Guidelines for the NSW Site Auditor Scheme</i>.

6.5 Reporting

All results shall be presented in a Site Validation Report, prepared by a qualified environmental consultant in accordance with the EPA (2020) *Consultants reporting on contaminated land: Contaminated Land Guidelines*. The report will require submission to the NSW Department of Planning, Housing and Infrastructure and to an EPA-accredited Site Auditor (if required).

The report shall confirm that the site has been remediated to a suitable standard for the proposed development and that any environmental effects posed by the contaminated material encapsulated within the land (if applicable) can be effectively managed long term. Any required procedures stipulated in the corresponding EMP will be legally enforceable.

The report will also present the (final) design details of containment layers installed at the site, including:

- The surveyed location of each layer, including RLs of the demarcation layers;
- As built drawings;
- A description of the material contained on site; and
- The results of capping material used, which is validated as acceptable for commercial use.

7. Conclusions

This Remediation Action Plan outlines the procedures that will be used to remediate the property located at 40-76 William St, Leichhardt NSW ('the site'), to a condition suitable for the proposed development, without the need for ongoing environmental monitoring. This RAP is submitted in support of a rezoning and planning proposal to NSW Department of Planning, Housing and Infrastructure, and enables the developer to meet obligations under the *State Environmental Planning Policy* (Resilience and Hazards) (2021) (formerly SEPP 55 – Remediation of Land), for the assessment and management of contaminated soil and/or groundwater, should these be identified. This RAP also address the Secretary's Environmental Assessment Requirements (SEARs), in support of a State Significant Development Application (SSDA) for the construction and operation of proposed development, reference SSD-119545240.

The preferred approach involves excavation and offsite disposal of the impacted soils. Additional sampling of soil and groundwater is required to assess the quality of soil beneath buildings and the groundwater quality onsite. It is envisaged that the remediation works will be implemented in stages, as follows:

- **Stage 1** – Site Establishment and Preliminaries;
- **Stage 2** – Additional Site Investigation and Waste Classification;
- **Stage 3** – Excavation Preparation;
- **Stage 4** – Waste Management;
- **Stage 5** – UST Excavation (if required); and
- **Stage 6** – Site Validation

Material management procedures are provided to characterise soil for offsite disposal, and contingency measures are provided for any unexpected finds. In summary, EI considers that the site can be made suitable for the proposed residential use through the implementation of the works described in this RAP.

8. Limitations

This report has been prepared for the exclusive use of Anprisa Pty Ltd (the Client), being the only intended beneficiary of EI's work. The scope of this plan is limited to that agreed with our client.

No other party should rely on this document without the prior written consent of EI. EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in preparing similar plans by reputable members of the environmental industry in Australia, as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices.

The strategy presented in this report is based on limited investigations of existing site conditions, with specific sampling locations chosen to be as representative as possible under the given circumstances.

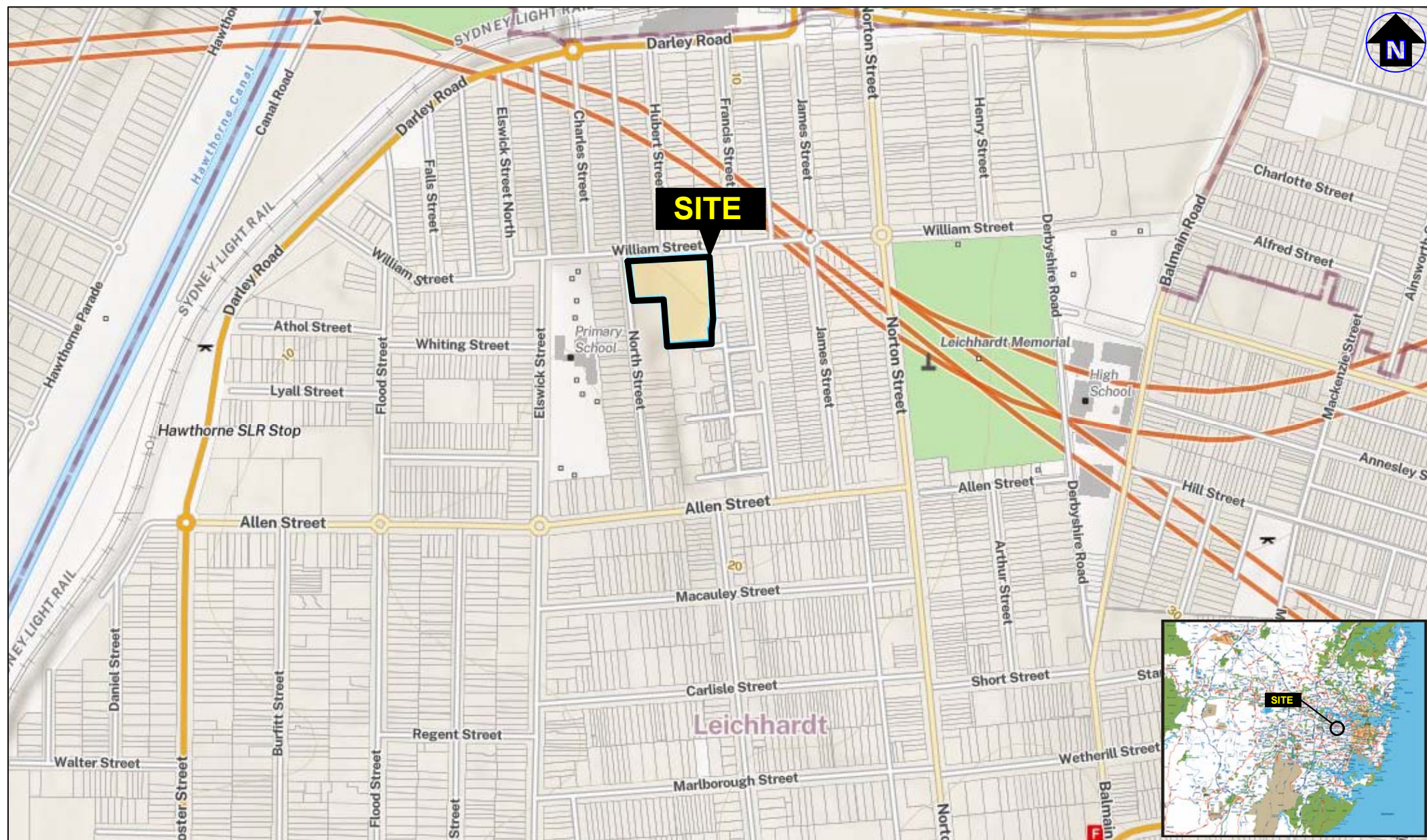
EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remediation activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

References

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Appendix A - Figures



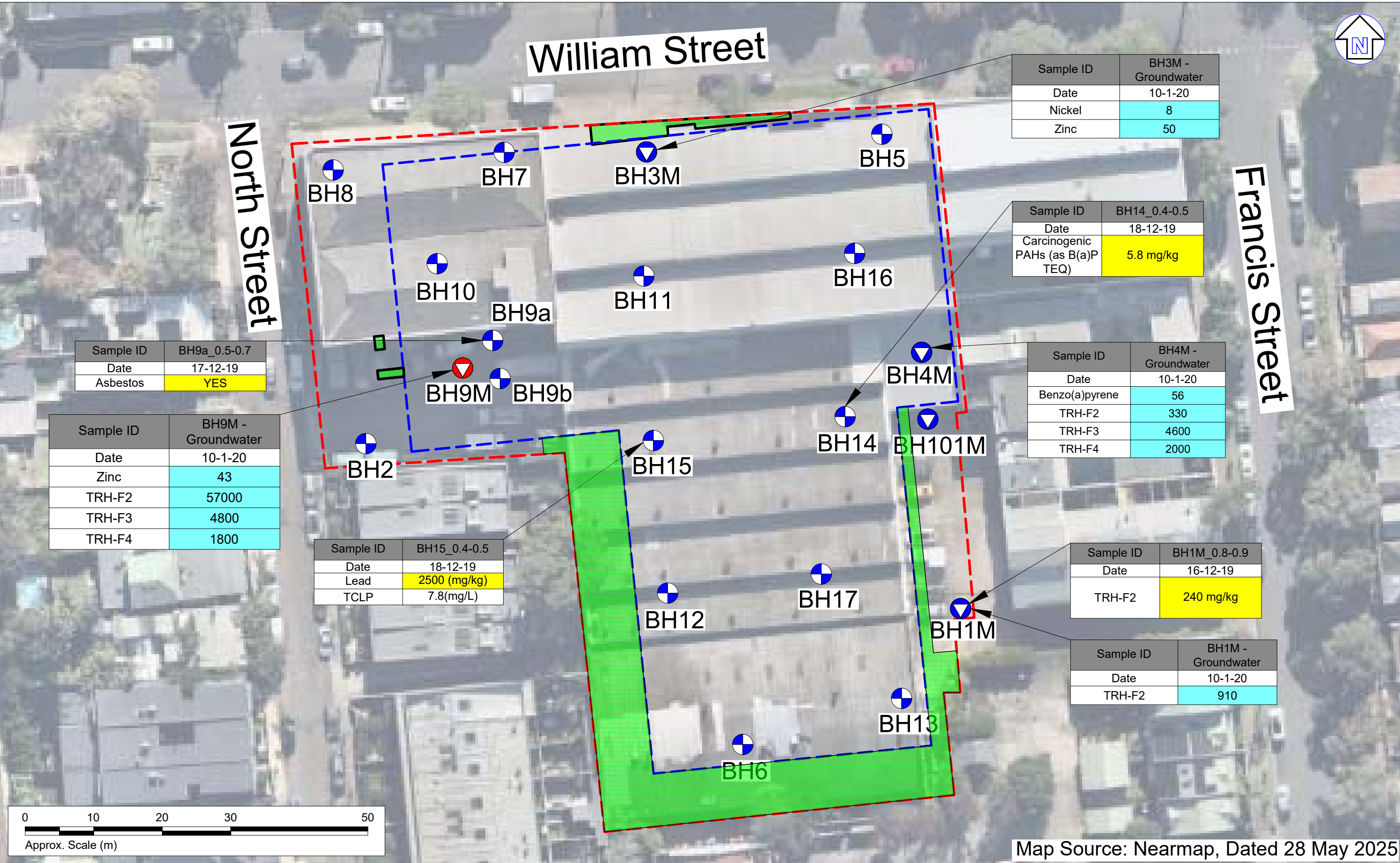
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Approved:	-
Date:	29-08-25
Scale:	Not To Scale

Anprisa Pty Ltd
 Remediation Action Plan
 40-76 William Street,
 Leichhardt NSW Site Locality
 Plan

Figure:

1

Project: E24470.E06



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Proposed landscape area
- ⊕ Borehole location
- ⊖ Monitoring well location
- ⊖ No soil samples, only well installed - see Section 7.2 of report

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Approved: -
Date: 10-09-25

Anprisa Pty Ltd
Remediation Action Plan
40-76 William Street, Mosman NSW
Areas of Environmental Concern

Figure:
2
Project:
E24470.E07_Rev5



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole location
- Monitoring well location
- No soil samples, only well installed

- Proposed sampling location
- Proposed monitoring well location



LEGEND (All Locations are Approximate)

- Site boundary
- Basement boundary
- Borehole location
- ▼ Monitoring well location
- Delineation sampling location

Appendix B - Tables

Table T1 - Summary of Soil Analytical results

Sample ID	Date	Heavy Metals										PAHs					BTEX				TRH				Pesticides		Total PCBs	VOCs	Asbestos			
		As	Cd	Cr	Cu	Pb	TCLP Pb (mg/L)	Hg	TCLP Hg (mg/L)	Ni	Zn	Carcinogenic PAHs (as B[a]P TEQ)	Benzo(a)pyrene	TCLP Benzo(a)pyrene	Total PAHs	Naphthalene	Benzene	Toluene	Ethylbenzene	Total Xylenes	F1	F2	F3	F4	OCPs	OPPs						
Fill																																
BH1M_0.8-0.9	16/12/2019	7	<0.3	29	100	110	N.A.	0.35	N.A.	34	150	<0.3	<0.1	N.A.	3	1.4	<0.1	0.1	0.4	0.8	<25	240	300	<120	<1	<1.7	<1	ND	No			
BH2_0.3-0.4		<1	<0.3	29	73	3	N.A.	<0.05	N.A.	30	40	<0.3	<0.1	N.A.	<0.8	0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH2_0.9-1.0		3	<0.3	27	34	110	N.A.	0.08	N.A.	22	180	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH3M_0.3-0.4	18/12/2019	1	<0.3	1.7	1.2	7	N.A.	<0.05	N.A.	0.6	5.7	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH4M_0.8-0.9		3	<0.3	12	79	84	N.A.	0.35	N.A.	4.1	37	1.5	1	N.A.	9.9	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	N.A.	No			
BH5_0.3-0.4		10	0.4	17	66	71	N.A.	<0.05	N.A.	42	60	0.8	0.5	N.A.	3.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH6_0.4-0.5	16/12/2019	2	<0.3	11	2.9	14	N.A.	6.70	<0.0001	1	120	5.7	4	<0.0001	46	0.2	<0.1	<0.1	<0.1	<0.3	<25	<25	140	<120	<1	<1.7	<1	ND	No			
BH9a_0.5-0.7	17/12/2019	4	<0.3	13	25	95	N.A.	<0.05	N.A.	1.9	100	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	Yes			
BH10_0.3-0.4		6	<0.3	2.8	<0.5	1	N.A.	<0.05	N.A.	1.2	3.6	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH12_0.3-0.4		4	<0.3	4.5	1.9	8	N.A.	<0.05	N.A.	7.2	13	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH14_0.4-0.5	18/12/2019	5	<0.3	12	52	230	0.03	0.36	N.A.	14	87	5.8	4	<0.0001	48	0.3	<0.1	<0.1	<0.1	<0.3	<25	<25	310	<120	<1	<1.7	<1	ND	No			
BH15_0.4-0.5		8	0.4	68	74	2500	7.8	0.10	N.A.	14	1000	1.9	1.4	N.A.	14	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	<1	<1.7	<1	ND	No			
BH16_0.4-0.5		5	<0.3	16	20	110	N.A.	0.13	N.A.	3.8	54	1	0.7	N.A.	6.7	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	120	<120	<1	<1.7	<1	ND	No			
BH17_0.4-0.5		6	<0.3	20	60	130	N.A.	0.19	N.A.	20	290	0.9	0.6	N.A.	7.1	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	150	<120	<1	<1.7	<1	ND	No			
Natural																																
BH1M_2.0-2.2	16/12/2019	4	<0.3	13	42	110	N.A.	0.2	N.A.	14	130	0.4	0.2	N.A.	2.5	0.2	<0.1	<0.1	<0.1	<0.3	<25	68	<90	<120	<1	<1.7	<1	ND	No			
BH4M_2.0-2.1	18/12/2019	5	<0.3	9.1	17	35	N.A.	0.05	N.A.	1	37	2.3	1.7	<0.0001	17	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH6_0.6-0.7	16/12/2019	1	<0.3	10	2.8	13	N.A.	0.06	N.A.	0.9	110	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH7_0.3-0.4		2	<0.3	5.2	2.5	29	N.A.	<0.05	N.A.	1.3	34	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH8_0.3-0.4		5	<0.3	4.4	1.4	3	N.A.	<0.05	N.A.	11	8.7	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH11_0.2-0.3	17/12/2019	3	<0.3	5.8	1.7	8	N.A.	<0.05	N.A.	36	26	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH13_0.3-0.4	18/12/2019	<1	<0.3	2.3	1	4	N.A.	0.64	N.A.	7.6	2.8	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH14_0.9-1.0	18/12/2019	5	<0.3	11	44	270	0.06	0.23	N.A.	7.1	150	0.5	0.3	N.A.	2.4	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	130	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH15_0.9-1.0		1	<0.3	17	1.5	67	N.A.	<0.05	N.A.	0.9	28	<0.3	<0.1	N.A.	<0.8	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
BH17_2.0-2.1		4	<0.3	11	3.6	12	N.A.	<0.05	N.A.	<0.5	9.9	0.5	0.3	N.A.	3	<0.1	<0.1	<0.1	<0.1	<0.3	<25	<25	<90	<120	N.A.	N.A.	N.A.	ND	N.A.			
Statistical Analysis																																
Maximum concentration		10	0.4	68	100	2500	7.8	6.7	<0.0001	42	1000	5.8	4	<0.0001	48	1.4	<0.1	0.1	0.4	0.8	<25	240	310	<120	<1	<1.7	<1	<PQL	Yes			
95% UCL concentrations - Fill Samples Only		NC	NC	NC	58.23	1980	NC	NC	NC	NC	339	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	107.3	107.3	NC	NC	NC	NC	NC	NC			
SILs																																
HIL B - Residential		500	150	500 Cr(VI)	30,000	1,200	120		1,200	60,000	4			400											600			1				
HIL C - Recreational/Open Space		300	90	300 Cr(VI)	17,000	600	80		1,200	30,000	3			300											400			1				
HSL A & B - Low to high density residential Soil texture classification – Sand ¹		Source depths (0 m to <1 m. BGL)														3	0.5	160	55	40	45	110										
		Source depths (1 m to <2 m. BGL)														NL	0.5	220	NL	60	70	240										
		Source depths (2m to <4 m. BGL)														NL	0.5	310	NL	95	110	440										
		Source depths (4 m+)														NL	0.5	540	NL	170	200	NL										
HSL C - Recreational/Open space Soil texture classification –Sand ¹		Source depths (0 m to <1 m. BGL)														NL	NL	NL	NL	NL	NL	NL										
		Source depths (1 m to <2 m. BGL)														NL	NL	NL	NL	NL	NL	NL										
		Source depths (2m to <4 m. BGL)														NL	NL	NL	NL	NL	NL	NL										
		Source depths (4 m+)														NL	NL	NL	NL	NL	NL	NL										
HSL D - Commercial / Industrial Soil texture classification – Sand ¹		Source depths (0 m to <1 m. BGL)														NL	3	NL	NL	230	260	NL										
		Source depths (1 m to <2 m. BGL)														NL	3	NL	NL	NL	370	NL										
		Source depths (2m to <4 m. BGL)														NL	3	NL	NL	NL	630	NL										
		Source depths (4 m+)															NL	3	NL	NL	NL	NL	NL									
EILs / ESLs - Urban Residential and Public Open Space ^{1 2}		100			198	80	1,200				35	145			33*			170	50	85	70	105	180	120	300	2800	180					
Management Limits – Residential, parkland and public open space ¹																						800	1,000	3,500	10,000							

Table T2 – Summary of Dewatering Investigation Results

Sample Identification		Date	HM								PAHs			BTEX					TRHs				Phenols	Cyanide	VOCs (ex. BTEX)	
			As	Al	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Total PAHs	Benzo(a)pyrene	Naphthalene	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1	F2	F3	F4	Total		Total (mg/L)
BH1M-1 (2020)		10/01/2020	<1	NA	<0.1	<1	<1	<0.1	5	14	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	910	<500	<500	<10	NA	ND	
BH3M-1 (2020)			2	NA	<0.1	1	<1	<1	<0.1	8	50	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	20	NA	ND
BH4M-1 (2020)			2	NA	<0.1	<1	1	<1	0.1	3	9	640	56	1.3	0.6	<0.5	<0.5	<0.5	<1	<50	330	4600	2000	30	NA	ND
BH9M-1 (2020)			1	NA	<0.1	<1	<1	<1	<0.1	7	43	<1	<0.1	<0.1	<0.5	5.2	0.6	1.2	2	<50	57000	4800	1800	20	NA	ND
BH3M-1 (2021)		3/09/2021	<1	49	<0.1	<1	<1	<0.1	5	24	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	NA	<0.004	NA	
BH9M-1 (2021)			<1	66	<0.1	<1	2	<1	<0.1	2	37	<1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	NA	<0.004	NA
Groundwater Investigation Levels																										
ANZG (2018)/NEPM 2013	Marine Water	NR		0.7	27.4	1.3	4.4	0.1	7	15 ¹	NR	0.1	50 ¹	500 ¹	180	5	350	275	50 ³	60 ³	500 ³	500 ³	400	0.004	NR	
	Fresh Water	24 (As III) 13 (As V)	0.8 (pH <6.5) 55 (pH >6.5)	0.2	3.3	1.4	3.4	0.6	11	8 ¹	NR	0.1	16	950		80							320	0.007	NR	
NHMRC (2017)	Recreational Water ²	100		20	50 ⁴	1,000	100	10	200	3,000	NR	0.01		10	8,000	3,000	6,000		NR			2	0.00008	NR		

Notes:

All values are µg/L unless stated otherwise

NL = Not Limiting

NA = 'Not Analysed' i.e. the sample was not analysed.

ND = Not Detected - i.e. concentration below the laboratory PQL

F1 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

F2 To obtain F2 subtract naphthalene from the >C10-C16 fraction.

F3 (>C16-C34)

F4 (>C34-C40)

1 = Figure may not protect key species from chronic toxicity, refer to ANZG (2018) for further guidance

2 = Based on NHMRC (2017) Drinking Water Guidelines. The lowest of the Health Guideline x10 or the Aesthetic Guideline has been chosen as the assessment criteria

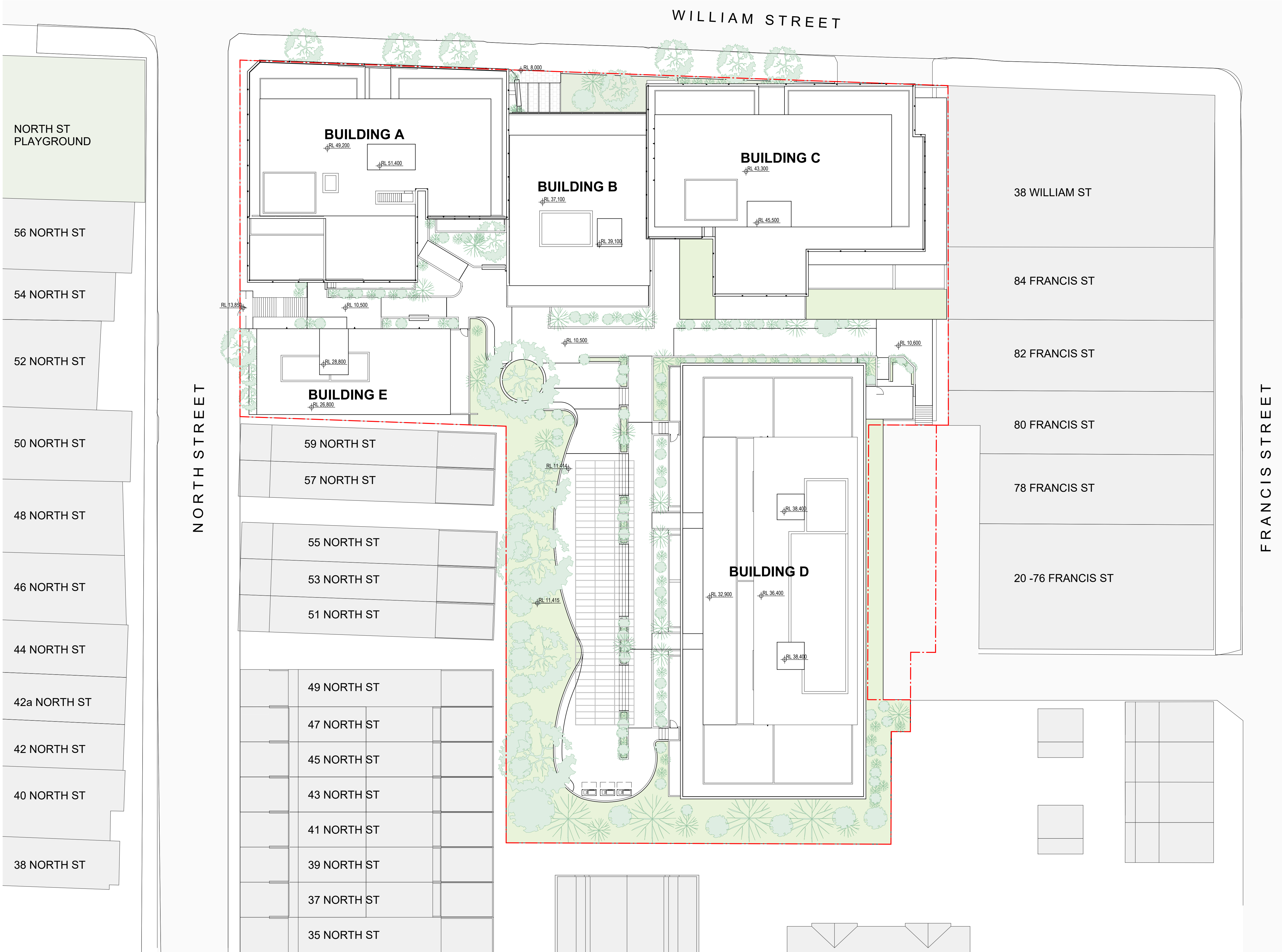
3 = In lack of a criteria the laboratory PQL has been used (DEC, 2007).

4 = ANZECC/ARMCANZ (2000) Recreational Criteria utilised were NHMRC (2017) does not provide criteria

5 = NEPC (2013) Table 1A(4) Groundwater HSL A&B and HSL D for vapour intrusion at the contaminant source depth ranges in sand 2m to <4m, as a conservative approach.

	Highlighted indicates ecological criteria exceeded
	Highlighted indicates criteria exceeded in latest round of testing

Appendix C - Proposed Development Plan



Recent revision history

#	Status	Description	Date
---	--------	-------------	------

Notes

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Contractor must verify all dimensions on site before commencing work or preparing shop drawings.
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Project

40-76 William Street

Client

Ceeroose

Issuer

W-B

WOODS BAGOT

Project number

122105

Size check

25mm

Checked	Approved	Sheet size	Scale
Checker	Approver	A1	1 : 250

Sheet title

Site Plan

Sheet number

SK-11001

Status

Revision



Recent revision history		
#	Status	Description
Date		

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Project number
122105

Size check
25mm

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Sheet size
Scale

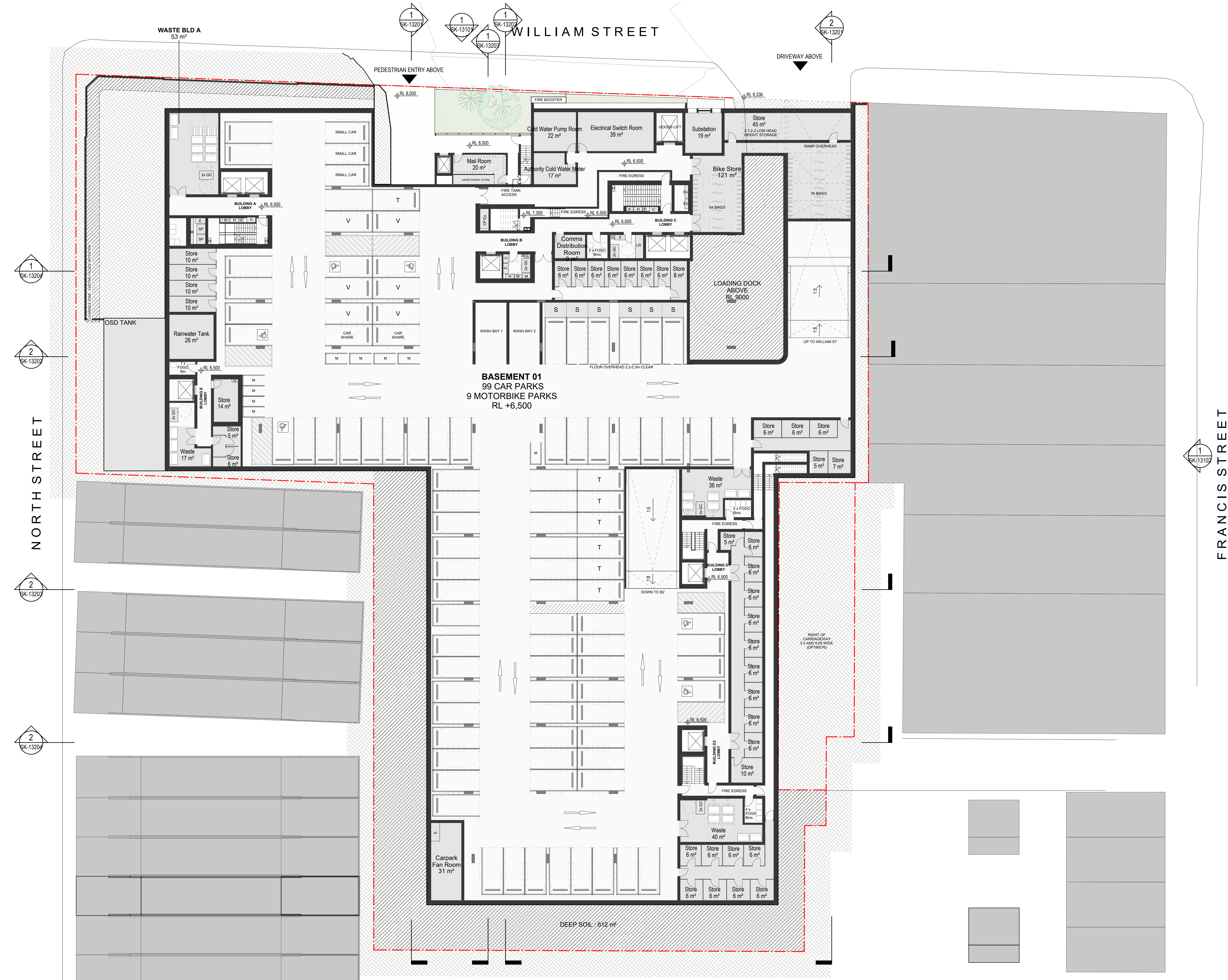
Checker
Approver
A1
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Sheet title
Basement 02

Sheet number
SK-12098

Revision

Status



Recent revision history		
#	Status	Description
		Date
Notes		
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Contractor must verify all dimensions on site before commencing work or preparing shop drawings.		
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Project		
40-76 William Street		
Client		
Ceerose		
Issuer		
W-B		
WOODS BAGOT		
Project number		
122105		
Size check		
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Checked		
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1 : 200		
Checker		
Approver		
Sheet title		
Basement 01		
Sheet number		
SK-12099		
Revision		
Status		



Recent revision history

#	Status	Description	Date
Rev	Status	Revision Description	00/00/00

Notes

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SOLAR

CROSS VENT

SILVER LIVEABLE HOUSING

Project

40-76 William Street

Client

Ceeroose

Issuer

W-B

WOODS BAGOT

Project number

122105

Size check

25mm

1

Checked

Approved

Sheet size

Scale

Checker

Approver

A1

1 : 200

Sheet title

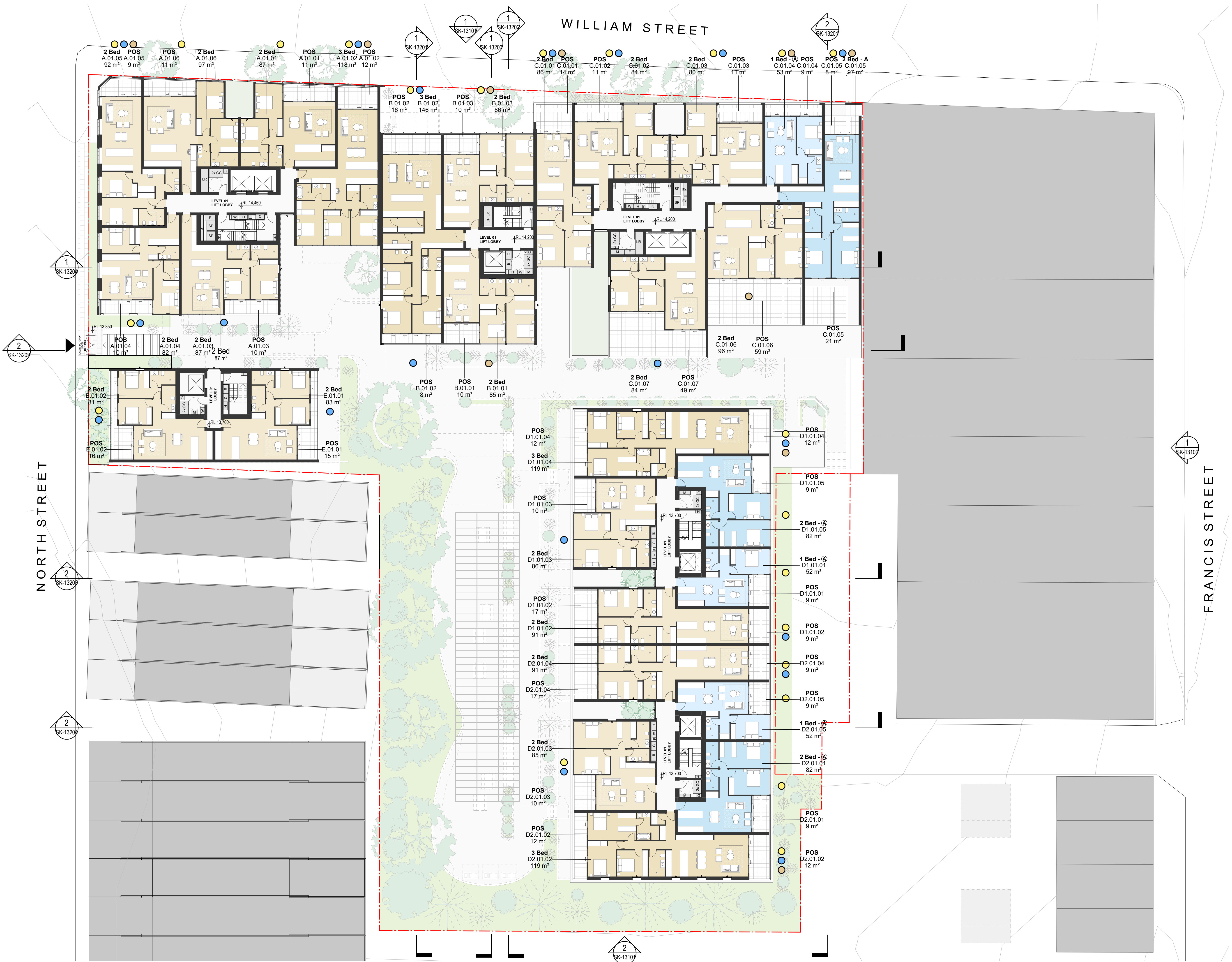
Ground Level

Sheet number

SK-12100

Revision

Status



Recent revision history

#	Status	Description	Date
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Notes

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SOLAR

CROSS VENT

SILVER LIVEABLE HOUSING

Project

40-76 William Street

Client

Ceeroose

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W-B

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Project number

122105

Size check

25mm

Checked

Approved

Sheet size

Scale

Checker

Approver

A1

1:200

Sheet title

Level 01

Sheet number

SK-12101

Revision

Status

Recent revision history		
#	Status	Description
Date		

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Project
40-76 William Street

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W-B
WOODS BAGOT

Project number
122105

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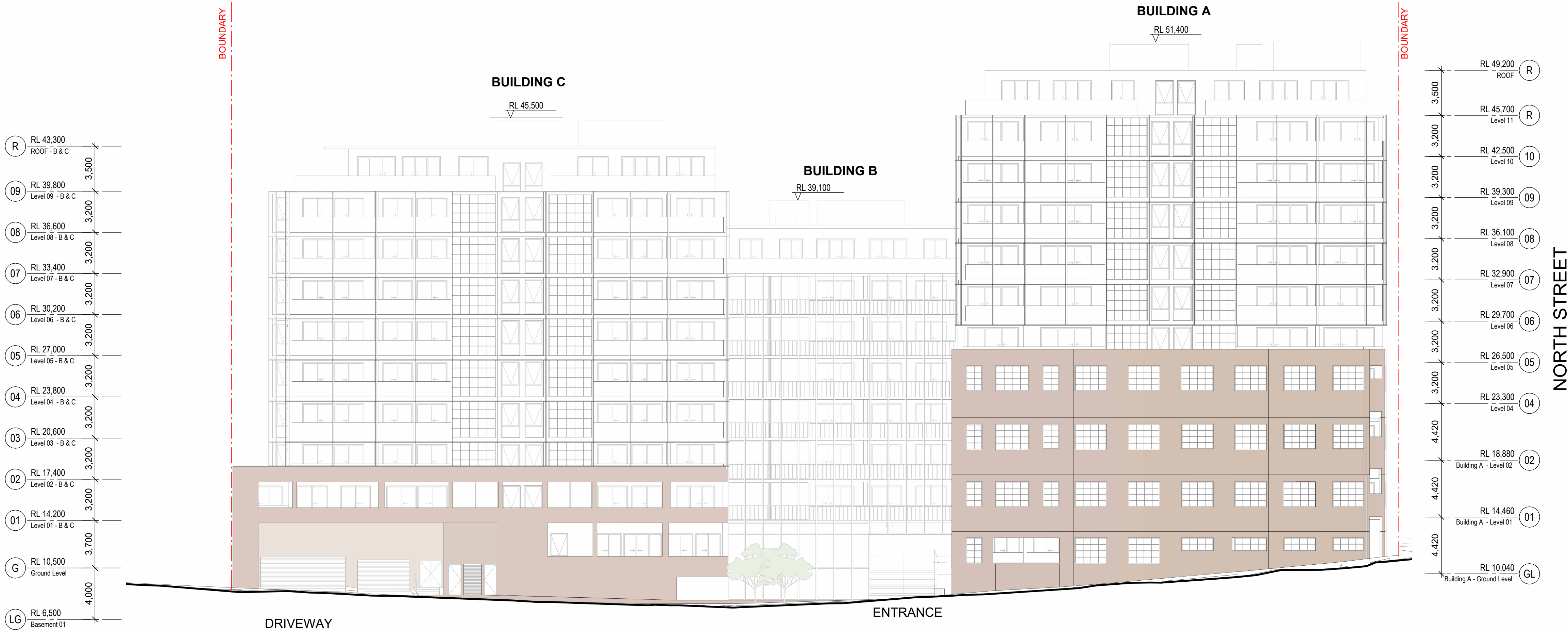
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Checker	Approver	A1	1 : 200

Sheet title
Overall Elevation - North & South

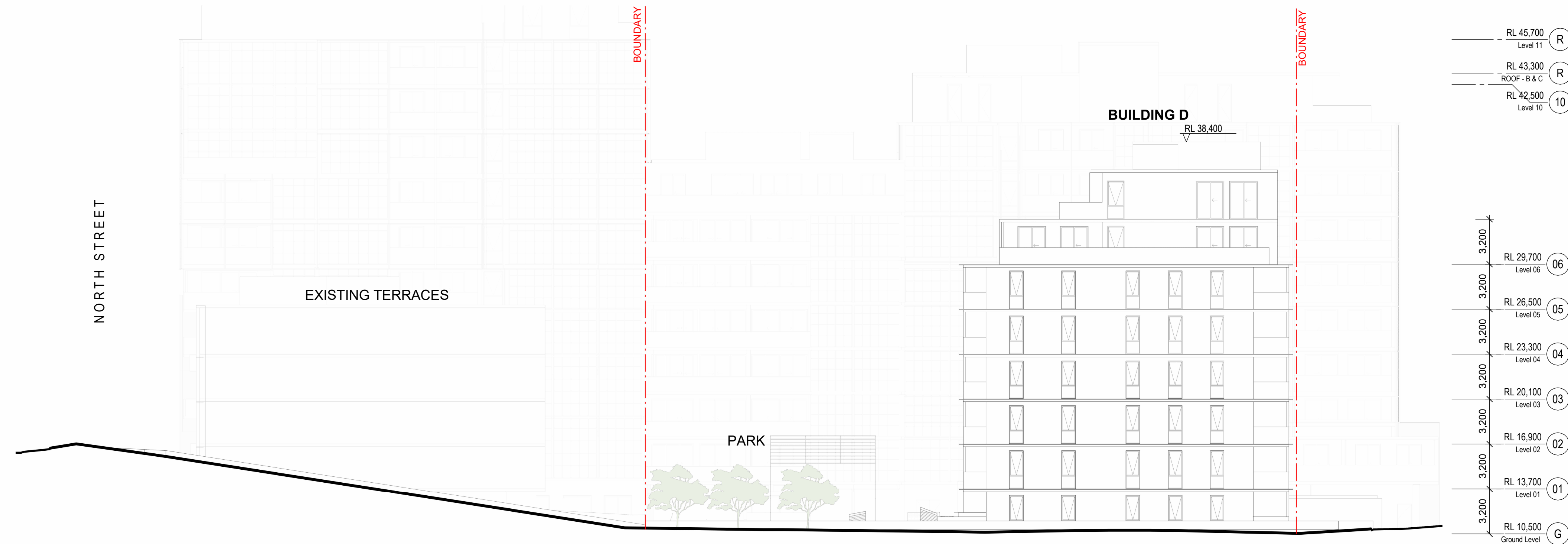
Sheet number
SK-13101

Revision

Status



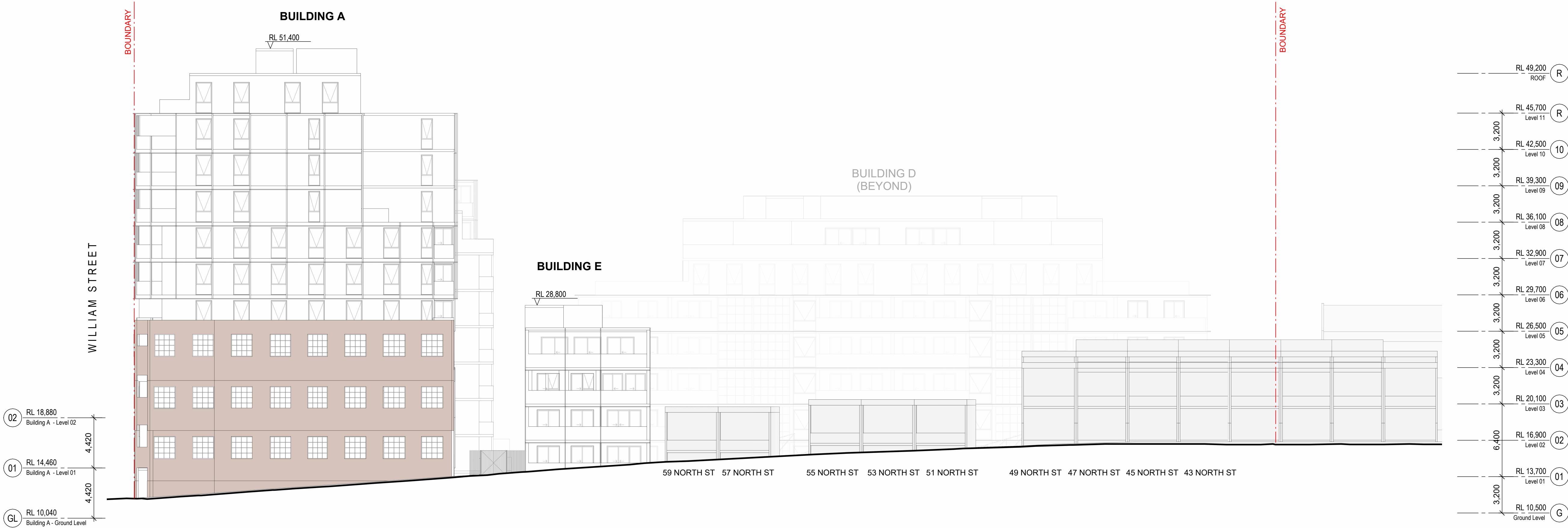
1 North Elevation
SCALE 1 : 200



2 South Elevation
SCALE 1 : 200



1 East Elevation
SCALE 1 : 200



2 West Elevation
SCALE 1 : 200

Recent revision history		
#	Status	Description
		Date

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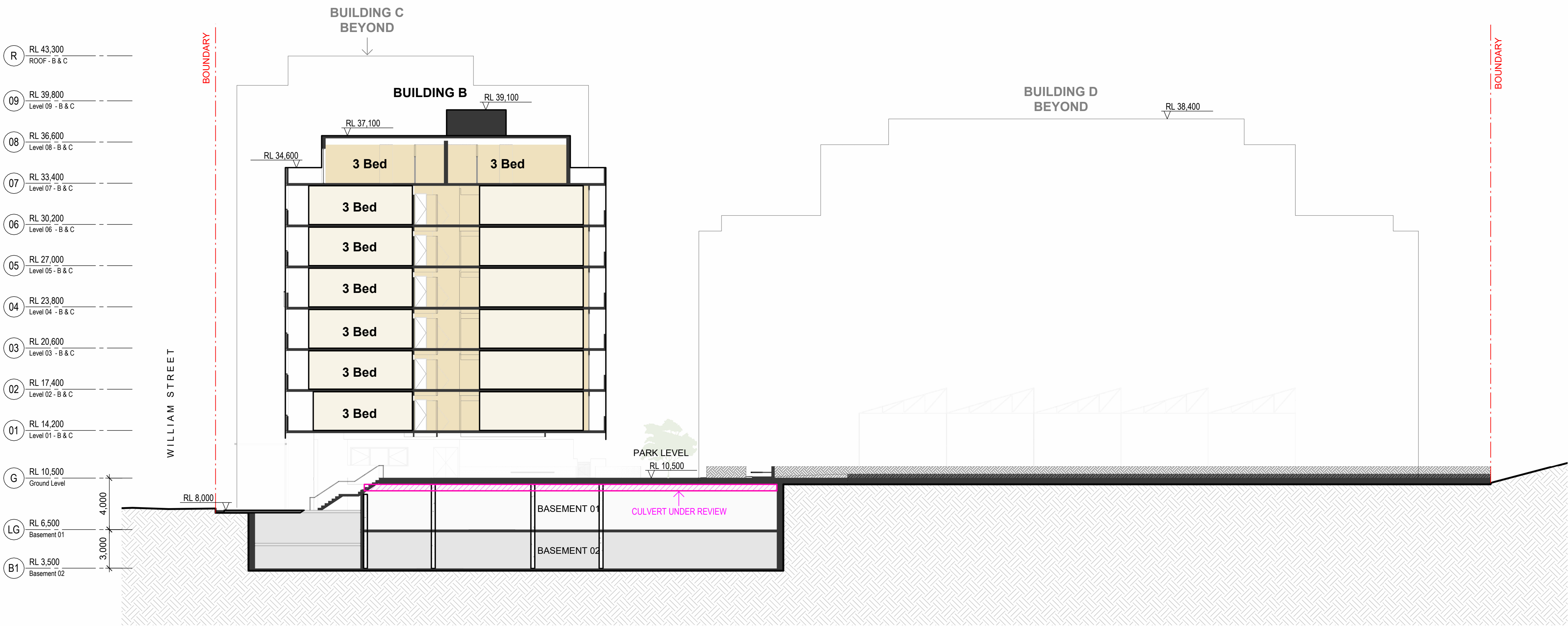
Client
Ceerose

Issuer
W-B
WOODS BAGOT

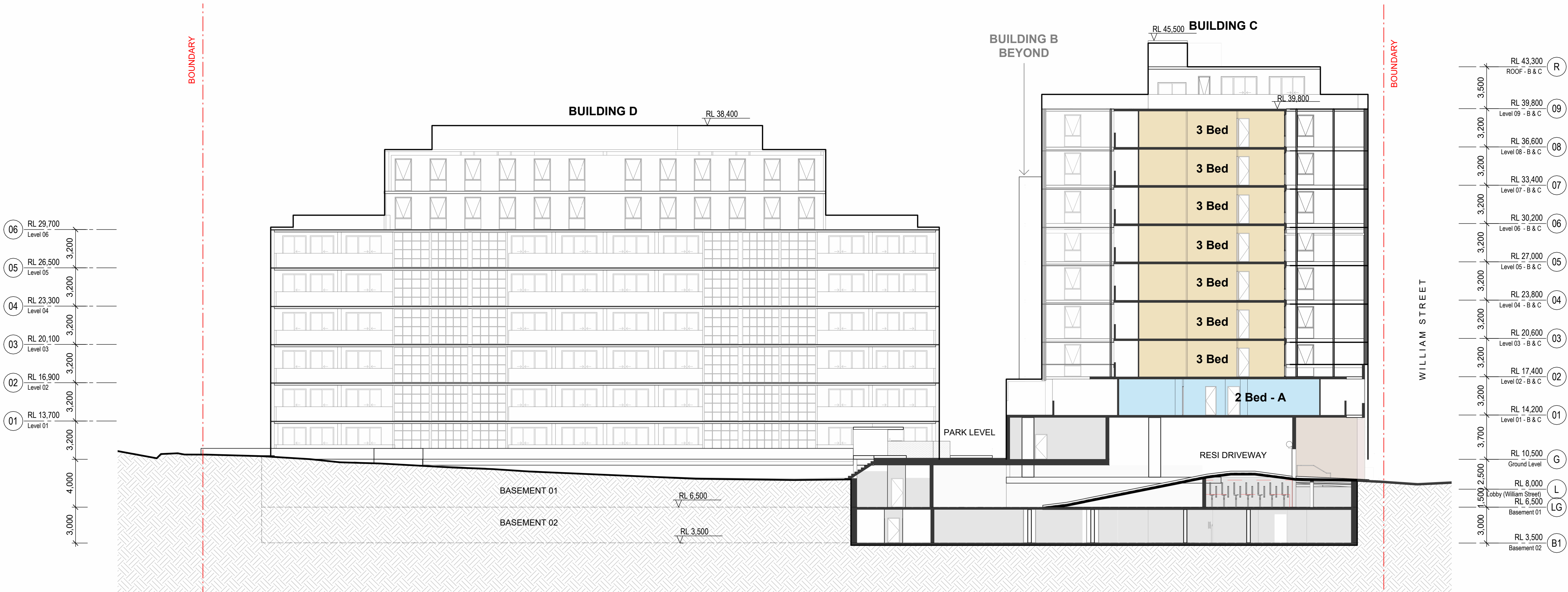
Project number
122105
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25mm
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Checker
Approved
Approver
Sheet size
A1
Scale
1 : 200

Sheet title
Overall Elevation - East & West

Sheet number
SK-13102
Revision
Status



1 Section A
SCALE 1 : 200



2 Section B
SCALE 1 : 200

Recent revision history		
#	Status	Description
Date		

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Project
40-76 William Street

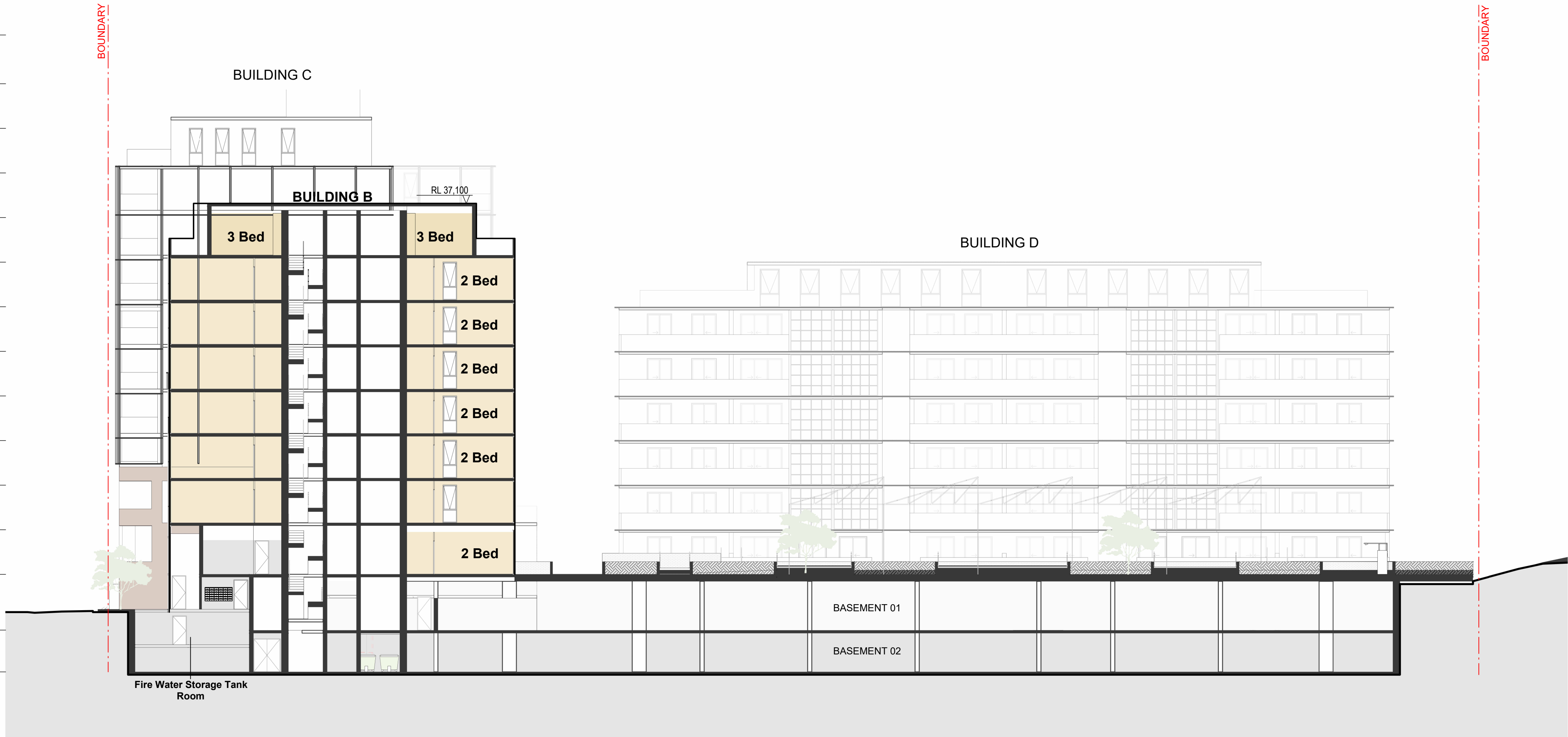
Client
Ceerose

Issuer
W-B
WOODS BAGOT

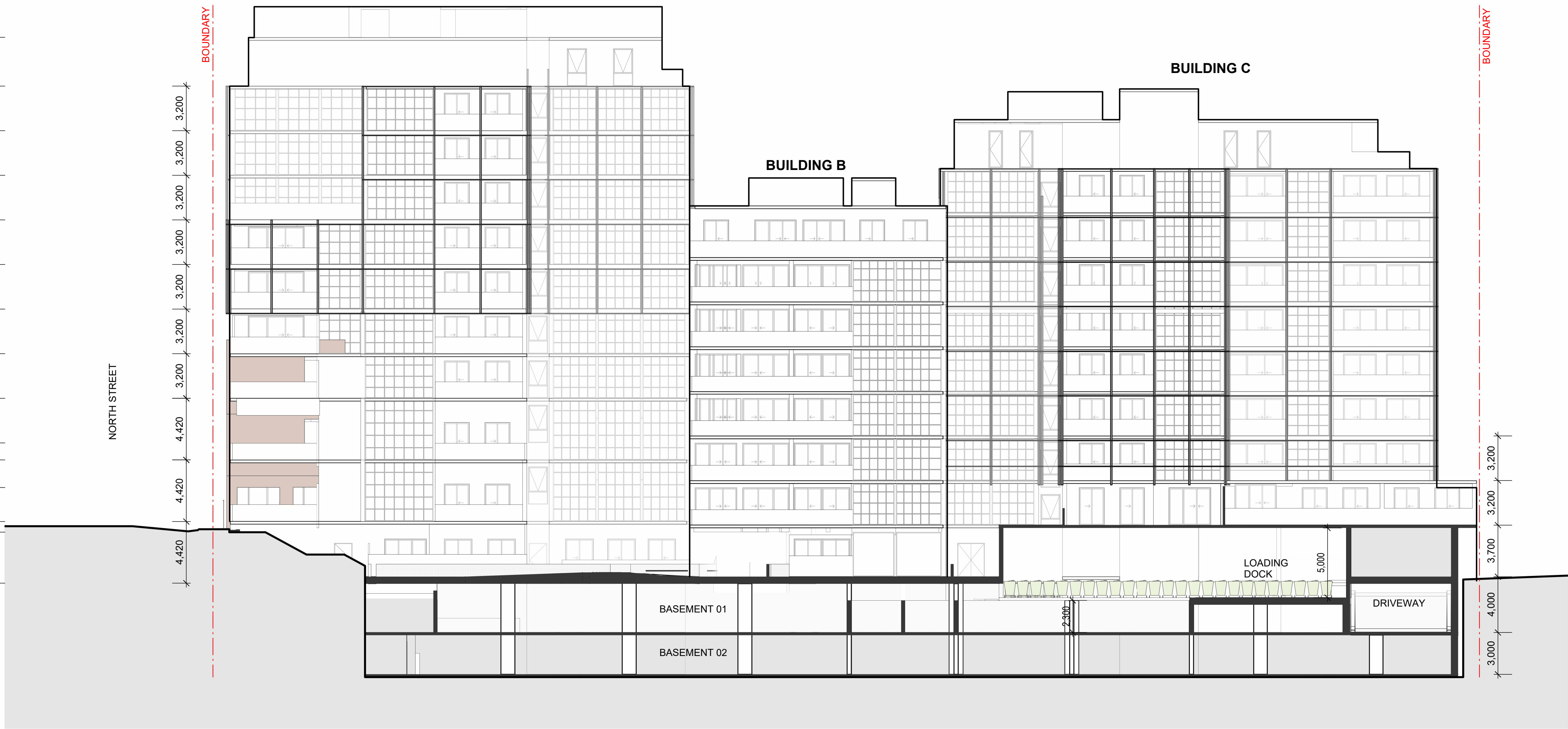
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Sheet title
Section A & B

Sheet number
SK-13201
Revision
Status



1 Section C
SCALE 1 : 200



2 Section D
SCALE 1 : 200

Recent revision history		
#	Status	Description
Date		

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Project
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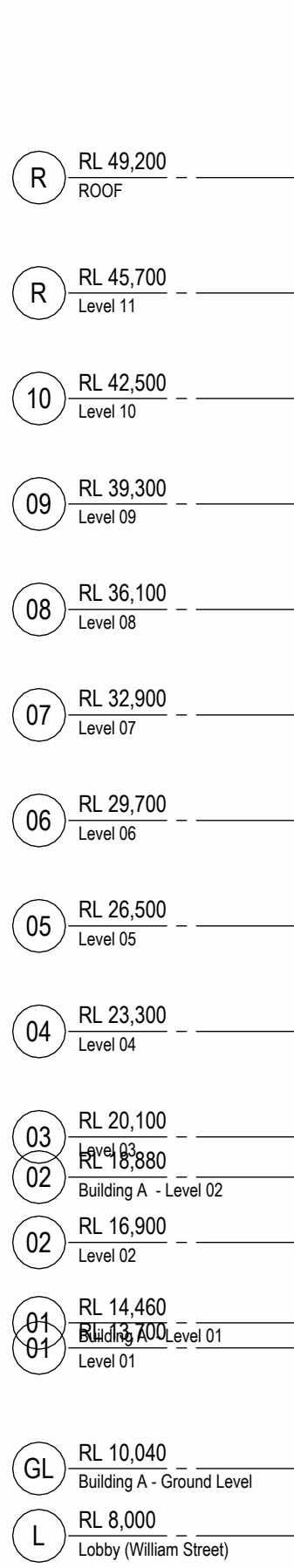
Client
Ceerose

Issuer
W-B
WOODS BAGOT

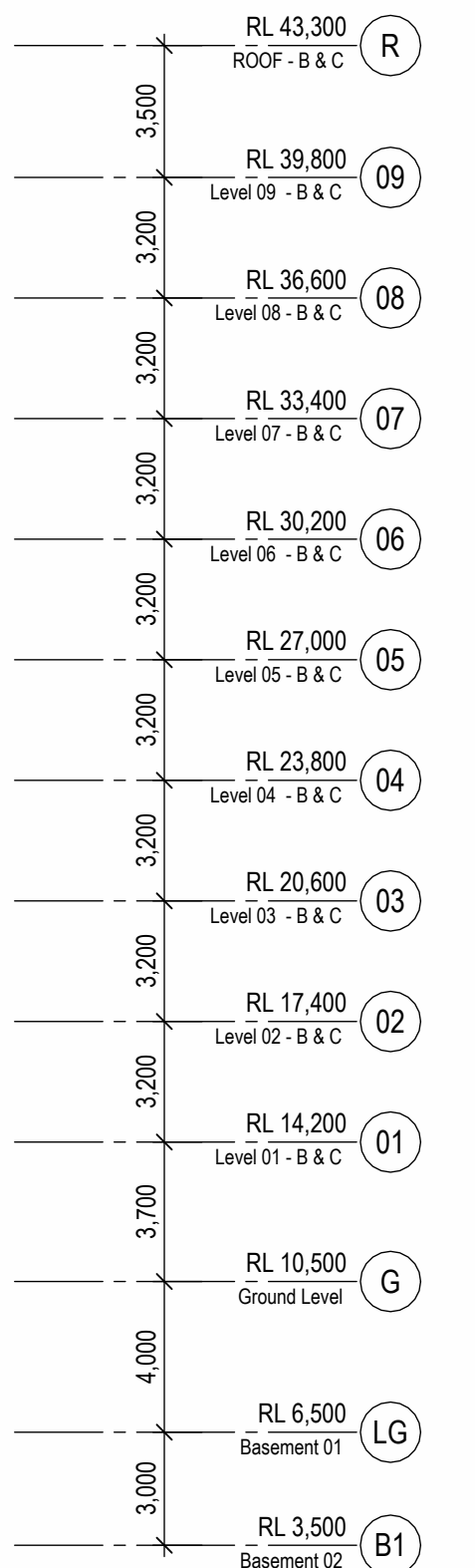
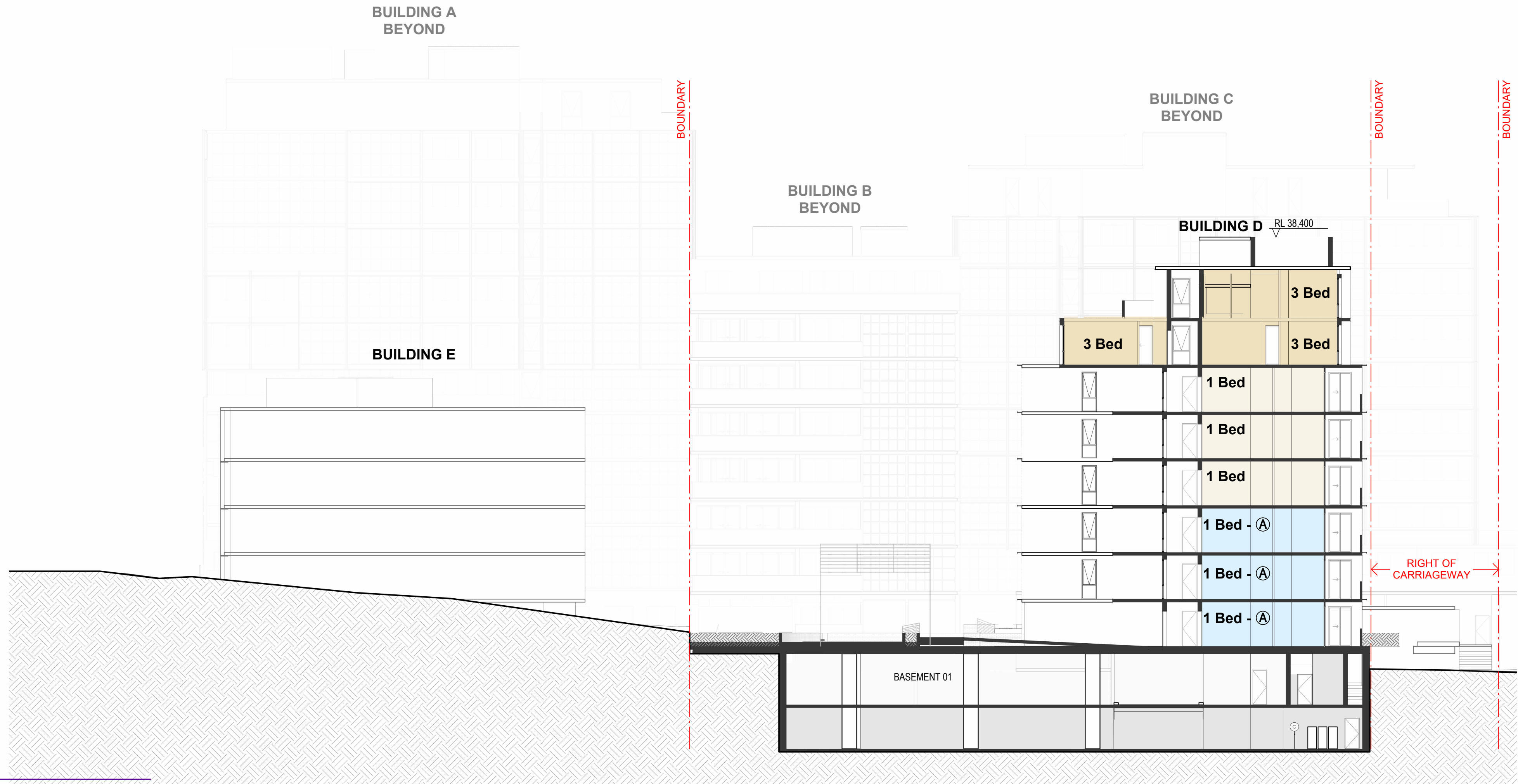
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25mm
Checked
Approved
Sheet size
Scale
1 : 200

Sheet title
Section C & D

Sheet number
SK-13202
Revision
Status

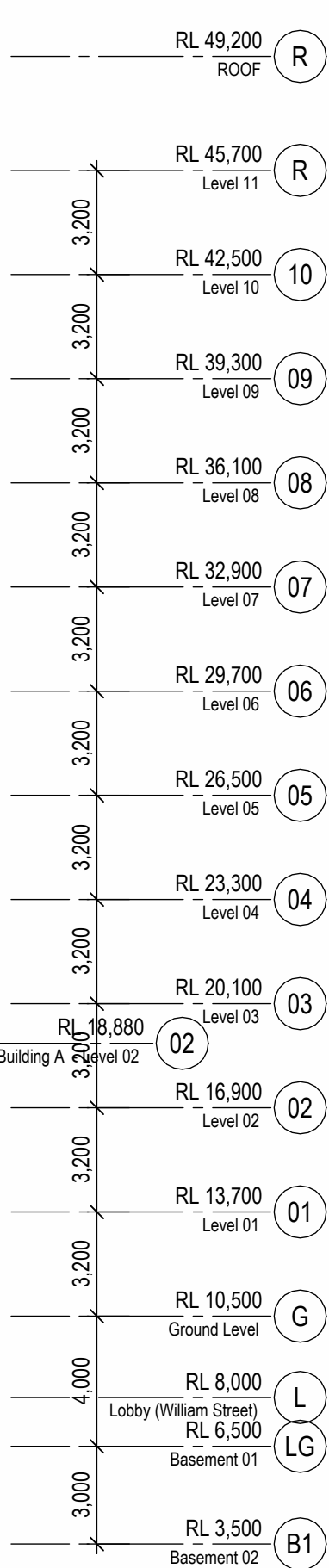
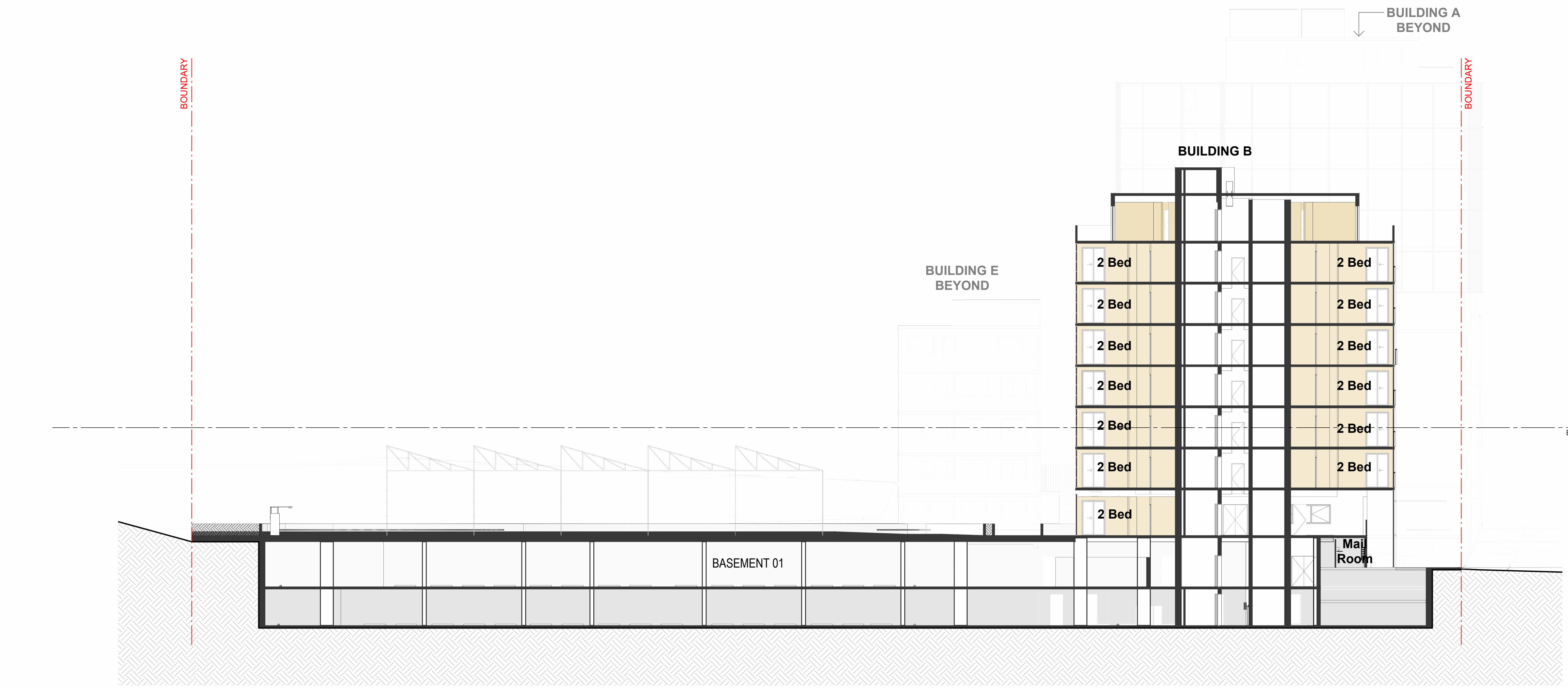


2 Section E
SCALE 1 : 200



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		Date

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1 Section F
SCALE 1 : 200

Project
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Client
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Issuer
W-B
WOODS BAGOT

Project number
122105

Size check
25mm

Checked	Approved	Sheet size	Scale
Checker	Approver	A1	1 : 200

Sheet title
Section E & F

Sheet number
SK-13203

Revision

Status