PLANNING PROPOSAL

636 and 638-646 New South Head Road, Rose Bay

HPE: 17/3167

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SECTION 1 – INTRODUCTION AND BACKGROUND

1 Summary

In December 2016 Woollahra Council received a request for a planning proposal from JPR Architects (the applicant), on behalf of the owners of 636 and 638-646 New South Head Road, Rose Bay (the site). The documentation submitted with the request, including a planning proposal report prepared by JBA Urban Planning Consultants is included as Attachment 1.

The site consists of two separate lots each subject to a different land use zones. No. 636 New South Head Rd is zoned R3 Medium Density Residential, and No. 638-646 New South Head Road is zoned B2 Local Centre.

The planning proposal seeks to amend Schedule 1 of the Woollahra Local Environmental Plan 2014 (WLEP 2014) to permit development on the site (across both lots) for the purpose of a residential flat building, but only as part of a mixed use development. Commercial uses addressing New South Head Road will still be required on 638-646 New South Head Road.

Residential flat buildings are permitted in the R3 Medium Density zone, which applies to 636 New South Head Road, but are prohibited in the B2 Local Centre zone, which applies to 638-646 New South Head Road. The only form of residential use permitted in the B2 Local Centre zone is shop top housing, however, this is defined as *"one or more dwellings located above ground floor retail premises or business premises"*. Therefore, the proposed amendment is required to permit a mixed use development with a residential flat building component across both lots. The amendment will apply only to this site.

The proposal does not seek any other amendments to the WLEP 2014 or Woollahra Development Control Plan 2015 (WDCP 2015).

The proposal is consistent with all relevant state and local environmental planning instruments, strategies, plans and policies, and will not result in any adverse environmental or amenity impacts on the site or neighbouring land. The proposal is also consistent with the desired future character for the Rose Bay Centre.

This report is divided into 2 sections. Section 1 provides introductory and background information about the site, planning controls and development concepts. Section 2 provides a strategic justification for the planning proposal, following the outline for a planning proposal described in the NSW Department of Planning and Environment's *A Guide to Preparing Planning Proposals* (August 2016).

2 The site and surrounding context

2.1 The site

The site is located on the north (bay) side of New South Head Road, Rose Bay, as shown below in Figure 1. It is located approximately 140m from Lyne Park and is partially within the Rose Bay Centre.

Figure 1: Local area map (the site is shown with a red outline on an aerial photograph with a WLEP 2014 zoning map overlay)

The site comprises two adjoining lots at 636 New South Head Road (SP 22533) and 638-646 New South Head Road (Lot A DP 393087). The combined area of the site is approximately 1,502m², with a water frontage of approximately 21m to Rose Bay and a road frontage of approximately 31m to New South Head Road. The site slopes evenly approximately 2.4m down from New South Head Road to the waterfront.

No. 636 New South Head Road is a battle-axe lot with an area of approximately 791m^2, a water frontage of approximately 21m to Rose Bay and an access handle with approximately 2m frontage onto New South Head Road. This lot accommodates a two storey residential flat building with 6 apartments known as “Kenmar Court”, and associated landscaping.

No. 638-646 New South Head Road is an irregular rectangular shape with an area of approximately 711m^2 and a frontage of approximately 29m to New South Head Road. This lot accommodates a petrol station and is located within the Rose Bay Centre.

An aerial photo of the site is included as Figure 2. Site photos of the existing development on the site are included as Figures 3 and 4.

Figure 2: Site aerial photograph *(source: JBA and Nearmap)*

Figure 3: Existing petrol station at 638-646 New South Head Road

Figure 4: Existing residential flat building at 636 New South Head Road viewed from beach area at Rose Bay

2.2 Existing context

The site is located near the northwest corner of the Rose Bay Centre. The centre is located along New South Head Road, which is an arterial road connecting Rushcutters Bay and Vaucluse (effectively connecting the Sydney CBD with South Head at Watsons Bay).

The Rose Bay Centre is a mixed use local centre with two supermarkets, three banks, chemists, a broad range of restaurants and cafes and other day-to-day services that contribute to making the centre the most convenient and important for residents from the eastern half of the Woollahra Local Government Area (LGA). Key industries in the centre include retail, accommodation and food services, health care, arts and recreation, and education (source: Eastern Suburbs Economic Profile (2014)).

The built form of development surrounding the site includes predominantly mixed use retail / business and residential development, commercial buildings and residential flat buildings. These are generally low scale being 2-3 storeys, although notable exceptions include the 7-8 storey mixed use development and residential flat building neighbouring the site to the west, at 624-634 and 624A New South Head Road. Site photos of the existing development surrounding the site are included as Figures 5 and 6.

Figure 5: Existing development to the south of the site on New South Head Road, showing examples of typical nearby 2-3 storey mixed use and residential flat buildings *(source: JBA)*

Figure 6 – Existing development to the southwest of the site at 624-634 and 624A New South Head Road, showing notable exceptions to typical development in nearby development
(source: JBA)

The site is well serviced by public transport with five bus routes running along New South Head Road to the CBD, being route Nos. 323, 324, 325, and L24. Connections are available from these routes at the Edgecliff Bus and Rail Interchange to district centres such as Bondi Junction. The Rose Bay Ferry Wharf is 550m from the centre with services to Circular Quay, Double Bay and Watsons Bay. Woollahra Council has recently improved cycling facilities to make cycling to and from the centre safer and more convenient.

The site is within walking distance of recreation facilities including Lyne Park which has tennis courts, basketball courts, sporting fields. The site fronts onto Sydney Harbour and Rose Bay beach, providing access to a range of recreational activities such as sailing, kayaking, paddle boarding and other water sports.

Providing opportunities for additional mixed use development incorporating retail / business and residential development on the site is consistent with the well-established best planning practice of increasing development potential near transport nodes and shopping centres to promote sustainable and public transport oriented development.

3 Background

3.1 Mixed use development application

Development application DA212/2015 was approved on 18 July 2016 for the demolition of the existing petrol station, remediation of the site and construction of a mixed use development comprising 10 residential apartments, ground floor retail, and 15 basement car spaces. This DA applies to 638-646 New South Head Road only.

3.2 Seniors housing development application

Development application DA377/2016 for a seniors housing development was submitted to Woollahra Council on 6 September 2016. At the time of preparing this report a planning assessment report recommending conditional approval was on the agenda to be considered by Council's Development Control Committee on 6 February 2017. The DA will then be determined by the Sydney Central Planning Panel on 16 February 2017. The DA proposes a single building across both lots consisting of 9 seniors housing apartments, 2 retail tenancies fronting New South Head Road, 2 commercial tenancies at ground floor and 19 basement car spaces. The applicant stated in their request that the DA was lodged to provide the landowners with an alternative development option should this planning proposal not be supported.

3.3 Pre-planning proposal application consultation

A pre-application planning proposal meeting was held with Woollahra Council officers on 8 June 2016 to discuss the proposed planning control changes for the site. At the meeting, options to address the constraints to residential development arising from the definition of shop top housing were discussed. A number of issues relating to proposed amendments to the height and floor space ratio development standards were also discussed. The proposed height and floor space ratio amendments are no longer being sought by the applicant.

3.4 Preparation of planning proposal

This planning proposal has been prepared in accordance with section 55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the two documents prepared by the NSW Department of Planning and Environment titled *A Guide to Preparing Planning Proposals* (August 2016) and *A Guide to Preparing Local Environmental Plans* (August 2016).

The applicant submitted the following supporting documentation with their request for a planning proposal:

- **Planning proposal report** prepared by JBA Urban Planning Consultants, dated December 2016 (Ref: 15940).
- **Survey plans** prepared by Project Surveyors. Drawing No. Survey 1-3 (Drawing No.: B2059-REVA).
- **Environmental site assessment** prepared by JBS Environmental Pty Ltd, dated January 2012 (Ref: JBS41261-15373 (Rev 1)).
- **Environmental site assessment report** (636 New South Head Road, Rose Bay) prepared by Consulting Earth Scientists, dated 29 April 2016 (Report ID: CES160201-DYL-AB).
- **Remediation action plan** (636 and 638-646 New South Head Road, Rose Bay, NSW) prepared by Consulting Earth Scientists, dated 27 June 2016 (Reference No. CES160201-DYL-AE).
- **Interim advice No.2** Review of Revised ESA 636 New South Head Road, Rose Bay: prepared by ZOIC Environmental Pty Ltd, dated 21 June 2016.
- **Interim advice No.3** Review of RAP for 638-648 [sic] New South Head Road, Rose Bay, NSW: prepared by ZOIC Environmental Pty Ltd, dated 17 August 2016.

SECTION 2 – PLANNING PROPOSAL REPORT

Part 1 Objective of planning proposal

Part 1.1 Objective

The objective of this planning proposal is to permit development on the site (across both lots) for the purpose of a residential flat building, but only as part of a mixed use development.

Part 1.2 Development concept

An indicative development concept for the site is illustrated in Figure 6, and comprises:

- ground floor retail and commercial tenancies at 638-646 New South Head Road, orientated to New South Head Road, with residential apartments above and behind;
- ground floor and upper level residential apartments on at the rear of the retail / business tenancies and on 636 New South Head Road, orientated to Rose Bay; and
- basement car parking in a common basement across the site for both residential and commercial/retail uses, accessed by a single driveway.

Part 2 Explanation of provisions

Part 2.1 Existing planning controls

The site is subject to two separate land use zones under WLEP 2014 as shown in Figure 5 and described below and in Table 1:

- 636 New South Head Rd is zoned R3 Medium Density Residential. The zone generally permits development of medium and high density residential uses, as well as other associated land uses that provide facilities or services to meet the day to day needs of residents. Permitted uses include business premises, residential flat buildings and shops (not including food and drink premises such as cafes and restaurants).

- 638-646 New South Head Road is zoned B2 Local Centre. The zone generally permits development of a range of retail, business, office, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. It also aims to provide active ground floor uses to create vibrant centres. Shop top housing is the only form of residential development permitted. The only form of residential use permitted in the B2 Local Centre zone is shop top housing, however, this is defined as *"one or more dwellings located above ground floor retail premises or business premises"*.

Figure 5: Existing WLEP 2014 land use zoning (site shown by yellow outline)

The zoning controls that apply to the sites under WLEP 2014 are set out in Table 1 below.

Table 1: Existing WLEP 2014 zoning controls

636 New South Head Rd	638-646 New South Head Road
Land use zones	
R3 Medium Density Residential	B2 Local Centre
Objectives of zone	
• To provide for the housing needs of the community within a medium density residential environment. • To provide a variety of housing types within a medium density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents. • To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.	• To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. • To encourage employment opportunities in accessible locations. • To maximise public transport patronage and encourage walking and cycling. • To attract new business and commercial opportunities. • To provide active ground floor uses to create vibrant centres. • To provide for development of a scale and type that is compatible with the amenity of the surrounding residential area. • To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.
Development permitted without consent	
Roads	Roads
Development permitted with consent	
Attached dwellings; Bed and breakfast accommodation; Boarding houses; Business premises; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Group homes; Home occupations (sex services); Hostels; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Office premises; Places of public worship; Public administration buildings; Recreation areas; Residential flat buildings; Respite day care centres; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shops	Amusement centres; Boarding houses; Building identification signs; Business identification signs; Car parks; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Environmental facilities; Environmental protection works; Function centres; Home occupations (sex services); Information and education facilities; Light industries; Medical centres; Passenger transport facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Service stations; Sex services premises; Shop top housing; Tourist and visitor accommodation; Veterinary hospitals
Prohibited development	
Any development not permitted with or without consent	Any development not permitted with or without consent

Part 2.2 Permissibility of development

While the uses proposed in the development concept are independently permissible on each site, this form of development in an integrated mixed use form is prohibited because:

- 638-646 New South Head Road is zoned B2 Local Centre, in which the only form of permissible residential accommodation is 'shop top housing'.
- 'Shop top housing' is defined in the WLEP 2014 as *"one or more dwellings located above ground floor retail premises or business premises"*.
- The Land and Environment Court has clarified that the definition requires **all** residential apartments to be located above ground floor retail or business premises. A development which incorporates both ground and upper level apartments would not satisfy the definition (e.g., *Hrsto v Canterbury City Council* [2014] NSWLEC 121).
- The indicative development concept incorporates a mixed use development across both lots as described in section 4.2 above. In this configuration, the apartments could not be characterised as 'shop top housing' and would therefore be prohibited at 638-646 New South Head Road.
- While the ground level apartments are proposed to be situated wholly within 636 New South Head Road, which is zoned R3 Medium Density Residential, the development will be an integrated mixed use development.

An amendment to the permissible uses on the site is required to permit development for the purpose of a residential flat building on the part of the site zoned B2 Local Centre (638-646 New South Head Road). The applicant requested the permissibility of the group term "residential accommodation" on the site. However, Council considers that the "residential accommodation" group term would permit too broad a range of residential land uses on the site. The "residential accommodation" group term includes various residential uses such as "dual occupancies", "hostels" and "multi-dwelling housing", as well as "shop top housing". The permissibility of some of these uses is inconsistent with the objectives of each of the two zones of the site. For example, the development of "dual occupancies" and "hostels" is inconsistent with the objectives of the B2 Local Centre zone, which are primarily aimed at permitting retail and commercial uses. Similarly, the development of "shop top housing" is inconsistent with the objectives of the R3 Medium Density zone, which are primarily aimed at permitting medium density housing not incorporated within a mixed use development.

"Residential flat building" is defined in the WLEP 2014 as "a building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing". Permitting this use on 638-646 New South Head Road would facilitate the objective of the planning proposal without compromising the objectives of either of the two zones that apply to the site.

Part 2.3 Proposed controls

The planning proposal seeks to amend Schedule 1 of the WLEP 2014. Schedule 1 identifies additional permitted uses on certain sites within the Woollahra LGA. An additional clause (Clause 15) is proposed as follows:

15 Use of certain land at 636-646 New South Head Road, Rose Bay

(1) This clause applies to land at 636 and 638-646 New South Head Road Rose Bay, being Lot A, DP 393087 and SP22533.

(2) Development for the purpose of a residential flat building is permitted with development consent, but only as part of a mixed use development.

This wording is consistent with the wording used in Clause 9 of Schedule 1 of the WLEP 2014 for 13-21 Macdonald Street, Paddington, as suggested by Council officers in the pre-application meeting of 8 June 2016. This is a simple and effective way of resolving the land use permissibility issue to achieve the desired outcome of the planning proposal.

The planning proposal does not seek to amend any other provision of the WLEP 2014.

Part 3 Justification

The planning proposal is consistent with the existing and desired future character of the Rose Bay Centre in that it provides the opportunity for additional flexibility in:

- development of commercial and residential uses within a mixed use development, in accordance with the NSW Government's documents A Plan for Growing Sydney (2014) and the Draft Central District Plan (2016);
- development to enhance the village atmosphere within and adjoining the Rose Bay centre. This is in accordance with Council's *Community Strategic Plan, Woollahra 2025 – our community our place our plan*, in particular Goal 4 Well planned neighbourhoods and Goal 5 Liveable places;
- residential development options which are consistent with the objectives and desired future character for the Rose Bay Centre, as outlined in WDCP 2015, Chapter D6 Rose Bay Centre;
- development outcomes on land which:
  - are within and adjoining an established local centre, the Rose Bay Centre,
  - are accessible to multiple forms of public transport, including bus and ferry services, which provides direct access to services and employment in the CBD, Bondi Junction and Double Bay, and
  - are in walking distance of recreational facilities such as parks, tennis courts, basketball courts and Sydney Harbour.
- development outcomes for the site, without adversely impacting the amenity neighbouring land or the local environment.

Part 3.1 Need for planning proposal

1. Is the planning proposal a result of any strategic study or report?

No. The planning proposal is the result of the land owners' intention to develop the site as a whole and to remove any ambiguity over land use permissibility.

2. Is the planning proposal the best means of achieving the objectives, or is there a better way?

Yes. This planning proposal is the best means of achieving the objective. Four other options were nominated by the applicant in their request for a planning proposal, but these options were not considered to achieve the objectives of the proposal.

The JBA planning proposal report, included as Attachment 1, provides a more detailed discussion of the following five options to facilitate the development concept:

- Option 1: Rezone 638-646 New South Head Road to R3 Medium Density Residential. This option will not meet the objective of the proposal as it will not permit mixed use development across both lots.
- Option 2: Rezone 636 New South Head Road to B2 Local Centre. This option will not meet the objective of the proposal as it will not permit the development of a residential flat building at ground level on either lot.
- Option 3: Amend the B2 Local Centre zoning table. This option will not meet the objective of the proposal as it will not restrict the permitted land use amendment to this site only.
- Option 4: No Planning Proposal. This option will not meet the objective of the proposal as it will not permit residential development at ground level on 638-646 New South Head Road.
- Option 5: Schedule 1 amendment (this Planning Proposal). This option will meet the objective of the proposal.

Part 3.2 Relationship to strategic planning framework

3. Is the planning proposal consistent with the objectives and actions contained within the applicable regional, subregional strategy or district plan or strategy (including exhibited draft plans or strategies)?

Yes. The planning proposal is consistent with the objectives of *A Plan for Growing Sydney* and the initiatives of the *Draft Central District Plan (2016)*. These plans are discussed in detail in Attachment 2.

4. Is the planning proposal consistent with a council's local strategy or other local strategic plan?

Yes. The planning proposal is consistent with Woollahra 2025 and the WDCP 2015.

Woollahra 2025

The planning proposal is consistent with Woollahra 2025, which is Council's 15 year strategic plan for the LGA. Woollahra's future planning is based on the principle of sustainability. That is, meeting the needs of the present, without compromising the ability of future generations to meet their own social, economic, environmental and civic leadership needs.

Key themes of Woollahra 2025 are to:

- Enhance and revitalise the village atmosphere of our shopping areas, providing convenient and easy access to a range of shops and facilities.
- Provide quality places and spaces to meet the different needs of people living in the area and houses within easy distance of shopping areas, business precincts and local facilities.
- Maintain the diversity of our local economic base and encourage new business into the area that will enhance and positively impact on community life.

The planning proposal will enhance the village atmosphere within and adjoining the Rose Bay centre by permitting additional flexibility in residential options for the site while retaining the requirement to provide retail, business, office and other types of non-residential uses.

WDCP 2015

The planning proposal will permit development which is consistent with the objectives and desired future character for the Rose Bay Centre. These are outlined in WDCP 2015, Chapter D6 Rose Bay Centre.

The WDCP 2015 seeks to develop the Rose Bay Centre into a high quality medium density urban village with a balanced mix of retail, commercial, residential and leisure uses, which cater primarily for the needs of the local community.

The planning proposal is consistent with this concept and the following relevant specific objectives for the centre:

O1 To retain and enhance the village atmosphere of the Rose Bay Centre.

The planning proposal will:

- Encourage contiguous ground floor retail frontage and preserve the 'small shop' character of the centre, to ensure liveliness of the centre, by maintaining a retail / business use to New South Head Road.
- Promote coherent building scale and high quality development, by maintaining the existing building envelopes of the site and permitting new development to replace an ageing petrol / service station.

O5 To foster the diverse mix of uses in the Rose Bay Centre.

The planning proposal will enhance the existing diverse mix of uses that characterise Rose Bay by permitting additional flexibility in residential options within a mixed use development on the site.

5. Is the planning proposal consistent with applicable State Environmental Planning Policies?

Yes. The planning proposal is consistent with the *Standard Instrument – Principal Local Environmental Plan* and all other applicable *State Environmental Planning Policies* (refer to Attachment 3).

6. Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?

Yes. The planning proposal is consistent with applicable section 117 directions (refer to Attachment 4).

Part 3.3 Environmental, social and economic impact

7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

No. There are no critical habitat areas, threatened species, populations or ecological communities or their habitats present on the subject land. Accordingly, the proposal will not have any impact in this regard.

8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Yes. The lot at No. 638-646 New South Head Road is currently developed and operating as a petrol / service station. The lot is currently identified on the NSW Environment Protection Authority (EPA) Contaminated Land Register as:

- "significantly contaminated land" (declaration No. 20121102), and
- the subject of a management order (order No. 20131405)

Environmental site investigations were conducted on the site in accordance with the provisions of *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55). A Remedial Action Plan was prepared to manage the environment effects of contamination on the site (refer to Attachment 1). The site investigations concluded that, if the Remedial Action Plan is implemented, the site will be suitable for the proposed land uses. A summary of the environmental site investigations is included below.

An **Environment Site Assessment** prepared in January 2012 by JBS Environmental for 638-646 New South Head Road concluded that:

- sources of contamination on the site contain constituents related to the storage and handling of petroleum products;
- the contamination is most likely restricted to the site's historical use as a service station and associated workshop;
- the highest levels of impact are generally present in the eastern and north-eastern portions of the site; and
- a Remedial Action Plan for development of the site be prepared and implemented.

An **Environment Site Assessment** prepared in April 2016 by Consulting Earth Scientists for 636 New South Head Road concluded that:

- contamination is comparatively low and localized;
- there is no significant risk to current site users or ecological receptors; and

- any potential impacts to future construction workers or residents of the proposed development can be addressed by the implementation of a Remedial Action Plan.

A **Remedial Action Plan** was prepared in June 2016 by Consulting Earth Scientists for the entire site. The plan concludes that if its recommendations are implemented, the site will be suitable for the proposed development concept.

Council has consulted with the EPA regarding contamination and remediation issues on the site. The EPA advised that they are currently working with the owners of the site, their environmental consultants and the site auditor to resolve the remediation issues raised by the management order. The EPA has advised that the removal of soil contamination from the site during redevelopment can address any residual risks, allowing for the completion of the management order following validation.

Council's Environmental Health Officer has reviewed the development application DA377/2016 for a seniors housing and recommended the inclusion of a number of development consent conditions to ensure effective remediation of the site. The conditions include engagement of a site auditor accredited under the *Contaminated Land Management Act 1997* to review and determine the appropriateness of the site investigations and the Remediation Action Plan, and provide a Site Audit Statement and Site Audit Report to this effect. While the environmental effects of contamination form part of the assessment of the planning proposal, Council considers that these environmental effects can be best managed at the development application stage, through appropriate conditions of consent.

Therefore, in accordance with SEPP 55 (Clause 6), Council is satisfied that, after remediation, the site will be suitable for mixed use retail / business and residential uses, and that the site can be effectively remediated before it is used for these purposes.

Similarly, any other environmental effects, not related to contamination, that might arise through the redevelopment of this site and future uses would be identified through a development application. Good design and conditions of consent will limit these effects.

9. Has the planning proposal adequately addressed any social and economic effects?

Yes. The planning proposal will have positive social and economic effects, in that it provides the additional flexibility in residential development outcomes, which will allow:

- the opportunity for additional residential development within and adjoining a local centre near transport nodes, providing the opportunity for sustainable and public transport oriented development;
- the opportunity for additional housing mix and affordability and differing apartment sizes;
- the potential to increase the local population and provide economic support to local businesses; and
- additional incentive to redevelop the site to replace an ageing petrol/service station and residential flat building.

Part 3.4 State and Commonwealth interests

10. Is there adequate public infrastructure for the planning proposal?

Yes. The site is connected to water, sewer, electricity and telephone services. The site is in proximity to regular and frequent public transport services which have capacity to accommodate increased demand.

There is no significant infrastructure demand that will result from the planning proposal. The existing services that are available to the subject sites are suitable for the proposal and appropriate for the requirements of a local centre.

Notwithstanding, we will consult with public utility and public services providers during the public exhibition.

11. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Council will consult with all government departments required by the Department of Planning and Environment during the public exhibition of the planning proposal, including Transport for NSW, RMS and EPA.

Part 4 Mapping

The planning proposal does not require any amendments to the WLEP 2014 maps.

Part 5 Community consultation

The public exhibition will be undertaken in accordance with the requirements of the Act and the *Environmental Planning and Assessment Regulation 2000*.

We recommend that the planning proposal is exhibited for a minimum of 28 days.

Public notification of the exhibition will comprise:

- a weekly notice in the local newspaper (the Wentworth Courier) for the duration of the exhibition period,
- a notice on Council's website,
- a letter to land owners in the vicinity of the site,
- a letter to the land owner, and
- a letter to any relevant public agency, including the EPA and RMS.

During the exhibition period, the following material will be available on Council's website and in the customer service area at Woollahra Council offices:

- the planning proposal, in the form approved by the gateway determination,
- the gateway determination, and
- information relied upon by the planning proposal (such as the contamination report and any other relevant reports).

Part 6 Project timeline

As Council is authorised to exercise the functions of the Minister for Planning under section 59 of the *Environmental Planning and Assessment Act 1979*, the proposed timeline for completion is as follows:

Plan-making step	Estimated completion
Urban Planning Committee recommends proceeding	February 2017
Council resolution to proceed	March 2017
Gateway determination	May 2017
Additional technical assessment required by Gateway determination	Unknown
Government agency consultation	June/July 2017
Public exhibition period	June/July 2017
Submissions assessment	August 2017
Council assessment of planning proposal post exhibition	August 2017
Urban Planning Committee recommends proceeding	September 2017
Council decision to make the LEP amendment (if delegated)	September 2017
Council to liaise with Parliamentary Counsel to prepare LEP amendment (if delegated)	September 2017
Forwarding of LEP amendment to Department of Planning and Environment for notification	October 2017
Notification of the approved LEP	October 2017

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ATTACHMENTS

Attachment 1

Applicant planning proposal documentation

1. **Planning proposal report** prepared by JBA Urban Planning Consultants, dated December 2016 (Ref: 15940).
2. **Survey plans** prepared by Project Surveyors. Drawing No. Survey 1-3 (Drawing No.: B2059-REVA).
3. **Remediation action plan** (636 and 638-646 New South Head Road, Rose Bay, NSW) prepared by Consulting Earth Scientists, dated 27 June 2016 (Reference No. CES160201-DYL-AE).

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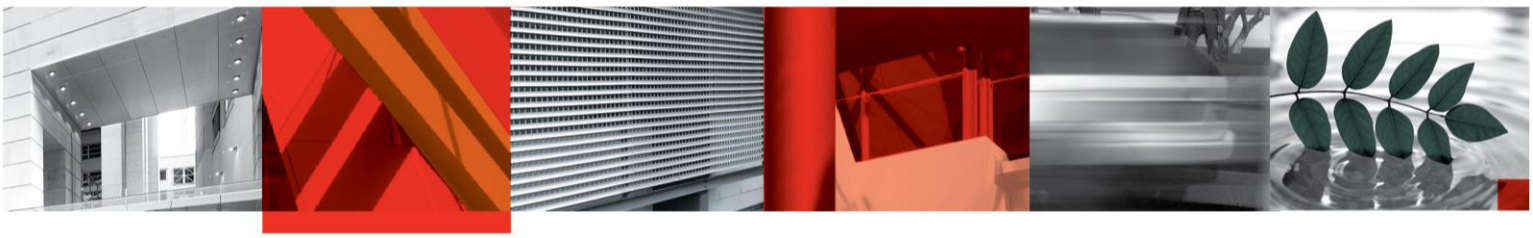
Planning Proposal



636-646 New South Head Road, Rose Bay

Planning Proposal

Submitted to Woollahra Municipal Council
On Behalf of RBJV Nominees Pty Ltd

December 2016 ■ 15940

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JBA operates under a Quality Management System that has been certified as complying with ISO 9001:2008. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

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James Harrison 21/07/2016

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Appendices

1.0 Introduction

This report has been prepared by JBA in support of a Planning Proposal to amend the *Woollahra Local Environmental Plan 2014* (WLEP 2014). This report has been prepared on behalf of RBJV Nominees Pty Ltd and relates to two properties being 636 New South Head Road and 638-646 New South Head Road, Rose Bay. A detailed description of the site is provided at **Section 3.0** of this report.

The objective of this Planning Proposal is to facilitate a mixed use development of the site that includes ground floor residential accommodation at 636 New South Head Road and ground floor non-residential with shop top housing at 638-646 New South Head Road. While these uses are independently permissible on each site, this form of development in an integrated mixed use form with a common entry from New South Head Road is currently prohibited. That is because of a technical issue with the definition of 'shop top housing' which, while permissible at 638-646 New South Head Road, does not allow a mixed use building to have residential apartments on the ground floor. An amendment to Schedule 1 (Additional Permitted Uses) of the WLEP 2014, listing 'residential accommodation' as permissible with consent on the site, will resolve this anomaly.

The development concept is described in **Section 4.1** of this report and will be subject to a separate development application (DA) to Woollahra Municipal Council (Council).

The proposed amendments relate only to Schedule 1 Additional Permitted Uses by listing 'residential accommodation' as permissible with consent on the site. The proposed amendments do not seek to change the land use zone of the site or the Land Use Table within the WLEP 2014. An explanation of the provisions is provided at **Section 4.3** of this report. This Planning Proposal does not propose to alter any development standards that apply to the site, nor any provisions of the Woollahra Development Control Plan 2015 (WDCP 2015).

This Planning Proposal has been prepared in accordance with Section 55 of the *Environmental Planning & Assessment Act, 1979* (EP&A Act), and *'A Guide to Preparing Planning Proposals'* prepared by the NSW Department of Planning and Environment. **Section 5.0** of this report sets out the strategic justification for the Planning Proposal and provides an assessment of the relevant strategic plans, state environmental planning policies, ministerial directions and the environmental, social and economic impacts of the proposed amendment. This report should be read in conjunction with the relevant expert consultant reports appended (see Table of Contents).

2.0 Background

2.1 DA212/2015 – 638-646 New South Head Road

DA212/2015 was approved 18 July 2016 for the demolition of the existing petrol station, remediation of the site and construction of a mixed use development comprising 10 residential apartments, ground floor retail, and 15 basement car spaces. This DA only applies to 638-646 New South Head Road, being the portion of the site fronting New South Head Road and not 636 New South Head Road, being the portion of the site fronting Sydney Harbour. A photomontage of the approved development in DA212/2015 is presented in **Figure 1**.

This DA did not rely on the Planning Proposal in order to be permissible. This Planning Proposal does not impact development consent of DA212/2015.

Figure 1 – Photomontage of DA212/2015
Source: CSA Architects

2.2 Seniors Living DA

A development application (DA377/2016) for a seniors living development was submitted to Woollahra Council on 6 September 2019. The seniors living DA is permitted with consent and does not rely on this Planning Proposal. It was lodged to provide the landowners with an alternative development option should this Planning Proposal not be supported.

The seniors living DA proposes a single building across both sites and accommodates:

- Nine seniors living apartments;
- Two retail tenancies fronting New South Head Road;
- Two commercial tenancies at ground floor;
- Resident facilities including pool areas, spas and rooftop terraces;
- Two basement levels providing 19 car spaces, storage, and garbage rooms; and
- Landscaping and site remediation.

2.3 Pre-lodgement Consultation

A formal pre-application meeting was held with Woollahra Council officers on 8 June 2016 (meeting reference: 1/2016). The issues raised and the proposed resolutions are detailed in **Table 1** below. We note that a number of these comments relate to built form outcomes associated with previously proposed amendments to the floor space ratio and building height development standards for the site. These elements, in response to Council's feedback, have been removed from the Planning Proposal. The Planning Proposal, as submitted, only relates to land use. Therefore a number of these issues are no longer applicable.

A meeting was also held with officers from the Sydney Region East team of the Department of Planning and Environment on 24 October 2016. The officers present were briefed on the Planning Proposal and no substantive issues were identified.

Table 1 – Summary of pre-application meeting issues

Issue	Proposed Resolution
Council staff note that an amendment of Schedule 1: Additional permitted uses in the WLEP 2014 is an effective way of legally resolving the permissibility of a mixed use development across the site.	This Planning Proposal pursues this option. See **Section 4.3** for further details.
Council staff do not support the proposed amendment to the floor space ratio (FSR) controls or the application for a site-specific maximum gross floor area (GFA) without further explanation and justification.	Not pursued in this Planning Proposal.
Simplified concept diagrams showing the distribution of different land uses across the site and compliance with the relevant development standards on the site should be submitted with a request for a planning proposal.	As per Council's letter dated 21 November 2016, concept diagrams have been removed from this Planning Proposal. A description of the distribution of land uses across the site is provided in **Section 4** of this report.
Concepts to support the request must be fully compliant with the height controls.	In accordance with the Section 117 Directions, item 6.3 Site Specific Provisions, a planning proposal must not contain or refer to drawings that show the detail of the development proposal. Accordingly, the development concept diagrams do not relate to height or floor space. Compliance with the relevant development standards will be addressed during the assessment of a future DA.
A request for a planning proposal should identify whether the development concept is consistent with the WDCP 2015.	An assessment whether a Planning Proposal facilitates a development that is consistent with the WDCP 2015 is provided in **Section 5.1** for each option considered.
The request for a planning proposal should address any potential amenity issues such as view loss, bulk and scale and overshadowing resulting from the proposed amendments.	The Planning Proposal no longer relates to built form controls but only addresses land use permissibility on the site. Amenity issues will be addressed during the assessment of any future DA.
The management of contaminated land should be in accordance with *State Environmental Planning Policy No 55 – Remediation of Land* and Chapter E4 Contaminated Land of the WDCP 2015.	See **Section 5.3.2**. A Contamination Reports, Remedial Action Plan and Interim Advice are submitted at **Appendix B-E**.
Documents requested to be submitted with the planning proposal:	
▪ Request to prepare a planning proposal addressing the matters in 'A Guide to Preparing Planning Proposals'	This Report.
▪ Concept plans	Not required as per Council's letter dated 21 November 2016.
▪ Owner's consent ▪ Disclosure statement	Planning Proposal Application Form attached.
▪ Shadow diagrams	This Planning Proposal only seeks to alter land use

Issue	Proposed Resolution
	and does not propose any changes to built form controls. Shadow diagrams will be submitted with any future DA for development on the site.
▪ View analysis	This Planning Proposal only seeks to alter land use and does not propose any changes to built form controls. As per Council's letter dated 21 November 2016, a view analysis is not required.
▪ Land contamination report	See **Appendix B-E**.
▪ Traffic and parking report	This Planning Proposal does not alter the built form controls. It proposes a change to the land use permissible on the site, which in effect, will not change the traffic generation. For this reason, a Traffic and Parking report will be submitted with any future DA on the site.
▪ 3D model suitable for use in SketchUp	As per Council's letter dated 21 November 2016, a 3D model is not required.
▪ Survey Plan	See **Appendix A**

3.0 The Site

3.1 The Locality

The site is located at 636-646 New South Head Road, Rose Bay, within the Woollahra Local Government Area (LGA). Rose Bay is an established residential suburb located approximately 7 kilometres east of Sydney CBD. New South Head Road is the primary arterial road between the suburb and the Sydney CDB and east to Vaucluse, Watsons Bay and South Head. Old South Head Road, Dover Road, Newcastle Street and O'Sullivan Road provide connections to surrounding centres such as Bondi Beach and Bondi Junction.

The suburb of Rose Bay has a population of 5,743 based on the 2011 Census. The area is characterised by residential development of varying scales and ages surrounding a town centre including services such as shops, cafes, restaurants, supermarkets, hardware store, hairdressers, medical services (GP, dentist, optometrist), vet, petrol stations, real estate agencies and gym (see **Figures 3-7**).

The location benefits from convenient public transport, with multiple bus routes frequently servicing Sydney CBD, Bondi Junction and Watsons Bay. Rose Bay Ferry Wharf is within 800 metres of the site, providing a 10-minute connection to Circular Quay every 20 minutes during peak hours.

The Rose Bay locality enjoys substantial open space and access to the Sydney Harbour foreshore. Lyne Park, to the west of the site along New South Head Road, provides a range of recreational opportunities, including Lyne Park Tennis Centre and Woollahra Sailing Club as well as access to the commercial seaplane base, ferry wharf and public boating ramps and wharves.

A site context map is provided at **Figure 2** and key locations are outlined in **Table 2**.

Table 2 – The site's distance from key locations in the surrounding area

Location	Travel distance from the site
Rose Bay Town Centre	<100m (Immediate vicinity)
Tingira Memorial Park	130m (2 min. walk)
Lyne Park	350m (4 min. walk)
Rose Bay Ferry Wharf	790m (10 min. walk)
Public foreshore and beach	395m (5 min. walk)
The Royal Sydney Golf Club	520m (6 min. walk)
Woollahra Playing Fields	1,035m (12 min. walk)
Dangar Oval	800m (10 min. walk)
Rose Bay Public School	540m (6 min. walk)
Greenwood Early Education Centre	445m (5 min. walk)
Percival Park	180m (3 min. walk)
Rose Bay RSL	160m (3 min. walk)

Figure 2 – Context Map
Source: JBA

Figure 3 – Rose Bay town centre
Source: JBA

Figure 4 – Rose Bay harbour foreshore
Source: JBA

Figure 5 – Tingira Memorial Park
Source: JBA

Figure 6 – Lyne Park
Source: JBA

Figure 7 – Sydney Ferries Rose Bay Wharf
Source: JBA

3.2 Site Description

The site is described as 636-646 New South Head Road, Rose Bay and is comprised of two separate allotments in a battle-axe block arrangement as shown in **Figure 8**. The site has a real property description being:

- SP22533; and
- Lot A in DP 393087

The site has a combined area of approximately 1,502m^2 with a frontage of 31 metres to New South Head Road. The site has direct access to the Rose Bay harbour foreshore with a waterfront frontage of 21 metres. The site has a fall of approximately 2.4 metres from New South Head Road to the existing ground level at the property boundary on the harbour foreshore. The rear boundary is marked by a stone and masonry retaining wall, with a vertical drop of approximately 2 metres. It is noted that at high tide, the harbour water level reaches the base of the retaining wall with minimal beach area remaining (see **Figure 10**).

A Survey Plan is submitted at **Appendix A**.

It is the intention of the proponent to consolidate the sites.

Figure 8 – Site layout
Source: JBA and Nearmap

3.3 Existing Development

Land at 636 New South Head Road is currently developed for the purposes of a residential flat building. The existing two storey brick building contains 6 apartments and was constructed in the inter-war period. The residential development does not provide any off-street parking. There is existing landscaped area (turf only) surrounding the northern portion of the existing building. Pedestrian access is provided to the site by way of battle-axe handle at the eastern property boundary as well as via the harbour foreshore (see **Figure 8**).

Land at 638-646 New South Head Road is currently developed for the purposes of a petrol station and vehicle service centre. The petrol station comprises a large undercover area, four bowsers, a small retail shop and larger vehicle workshop.

The site is currently void of vegetation with the exception of limited landscaping at the boundary between 636 and 638-646 New South Head Road, and at the eastern and western property boundaries.

The existing development is presented in **Figures 9-11**.

Figure 9 – Existing Development – 636 New South Head Road
Source: JBA

Figure 10 – Existing Development – 636 New South Head Road
Source: JBA

Figure 11 – Existing Development – 638 New South Head Road
Source: JBA

3.4 Surrounding Development

Northwest

Sydney Harbour fronts the site to the immediate northwest (see **Figure 12**). The site benefits from private foreshore and beach access. Public access to the harbour foreshore is provided via Collins Avenue and Tingara Memorial Park. At high tide, the water level reaches the property boundary of the site (see **Figure 10**).

East

Two residential properties are located to the immediate east of the site. A two-storey art deco style residential flat building fronts New South Head Road (see **Figure 13**). A modern two-storey dwelling fronts the harbour foreshore. Limited vegetation lines the property boundary between the site and the adjoining development to the east (see **Figure 14**).

South

Two residential flat buildings and one commercial building are located to the south of the site. A built form of three to four storeys fronts New South Head Road opposite the site (see **Figure 15**).

Southwest

To the immediate southwest of the site fronting New South Head Road is an eight-storey mixed use building containing a two-storey podium of ground floor retail, first floor seniors living amenities and a six-storey seniors living residential tower (see **Figure 16**). The building is a unique design; the tower is cylindrical with pronounced windows aligned around its façade. An older style, eight-storey brick unit building with ground floor parking fronts the harbour foreshore (see **Figure 17**). Access is via the northeast boundary. Limited screening is provided between this development and the site.

Figure 12 – Harbour foreshore area directly to the northwest of the site
Source: JBA

Figure 13 – Existing development to the east of the site on New South Head Road
Source: JBA

Figure 14 – Existing development to the east of the site fronting the harbour foreshore
Source: JBA

Figure 15 – Existing development to the south of the site
Source: JBA

Figure 16 – Existing development to the southwest of the site fronting New South Head Road, harbour development behind.
Source: JBA

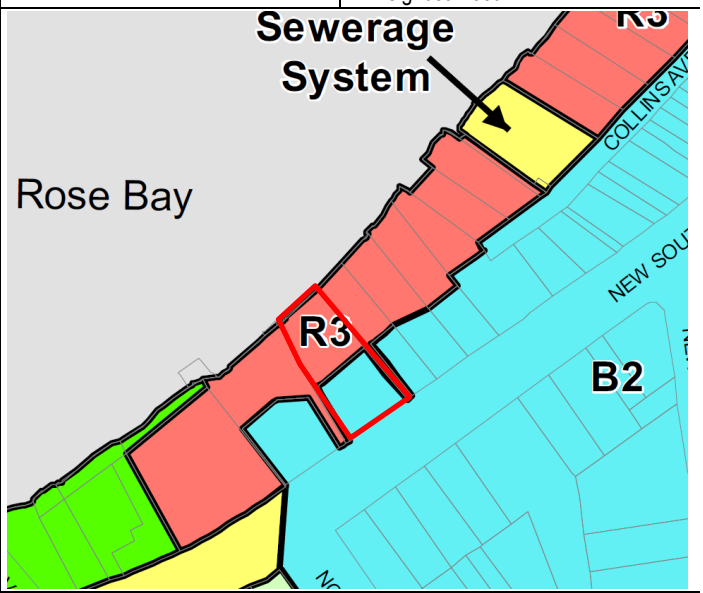
Figure 17 – Existing development to the southwest of the site fronting the harbour foreshore
Source: JBA

3.5 Current Planning Controls

3.5.1 Woollahra Local Environmental Plan 2014

The primary planning instrument applying to the site is the *Woollahra Local Environmental Plan 2014* (WLEP 2014). The key statutory controls under the WLEP 2014 are described in **Table 3** below.

Table 3 – Statutory Planning Controls

Planning Control	636 New South Head Rd	638-646 New South Head Road
Land Use Zone	R3 Medium Density Residential	B2 Local Centre
Zone Objectives	▪ To provide for the housing needs of the community within a medium density residential environment. ▪ To provide a variety of housing types within a medium density residential environment. ▪ To enable other land uses that provide facilities or services to meet the day to day needs of residents. ▪ To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.	▪ To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. ▪ To encourage employment opportunities in accessible locations. ▪ To maximise public transport patronage and encourage walking and cycling. ▪ To attract new business and commercial opportunities. ▪ To provide active ground floor uses to create vibrant centres. ▪ To provide for development of a scale and type that is compatible with the amenity of the surrounding residential area. ▪ To ensure that development is of a height and scale that achieves the desired future character of the neighbourhood.
Extract of WLEP 2014 map		
Development permissible without consent	Roads	Roads
Development permissible with consent	Attached dwellings; Bed and breakfast accommodation; Boarding houses; **Business premises**; Child care centres; Community facilities; Dual occupancies; Dwelling houses; Environmental protection works; Group homes; Home occupations (sex services); Hostels; Information and education facilities; Multi dwelling	Amusement centres; Boarding houses; Building identification signs; Business identification signs; Car parks; Child care centres; **Commercial premises**; Community facilities; Educational establishments; Entertainment facilities; Environmental facilities; Environmental protection works; Function centres; Home occupations (sex services); Information

Planning Control	636 New South Head Rd	638-646 New South Head Road
	housing; Neighbourhood shops; Office premises; Places of public worship; Public administration buildings; Recreation areas; **Residential flat buildings**; Respite day care centres; Secondary dwellings; Semi-detached dwellings; Seniors housing; **Shops**	and education facilities; Light industries; Medical centres; Passenger transport facilities; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Service stations; Sex services premises; **Shop top housing**; Tourist and visitor accommodation; Veterinary hospitals
Prohibited development	Any development not specified in item not specified as permissible without consent or permissible with consent	**Any development not specified in item not specified as permissible without consent or permissible with consent.**
Height of Buildings	9.5 metres	14.1 metres
Floor Space Ratio	0.65:1	2:1
Foreshore Building Line	A portion of the site is within the foreshore area and a setback of 12 metres is required	Not-affected

3.5.2 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

The site is wholly located within the Foreshore Area as identified under the *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (Sydney Harbour SREP). Land immediately to the north of the site is zoned W2 Environmental Protection under the Sydney Harbour SREP. The Sydney Harbour SREP sets Planning Principles that must be considered in the preparation of environmental planning instruments. This Planning Proposal's consistency with these principles is addressed in **Section 5.2.3**. The Sydney Harbour SREP sets additional Matters for Consideration which must be assessed during the development assessment process including biodiversity and public foreshore access and use of foreshore land.

3.5.3 Woollahra Development Control Plan 2015

Chapter B1 of the Woollahra Development Control Plan 2015 (WDCP) identifies the site as part of the Rose Bay Residential Precinct. It is noted that this only relates to part of the site, being 636 New South Head Road. This chapter describes the desired future character objectives including:

- To respect and enhance the streetscape character and key elements of the precinct.
- To encourage development at a scale which relates to the function and role of the streets they address, i.e. larger scale development on the major streets (Old South Head Road and New South Head Road adjacent to the commercial centre) and a range of housing types on the minor streets.
- To provide for an evolution of building stock from dwelling houses to medium density development in the R3 zoned areas.
- To maintain the evolution of residential building styles through the introduction of well designed contemporary buildings incorporating modulation and a varied palette of materials.
- To reinforce a consistent building scale within streets.
- To design and site buildings to respond to the topography and minimise cut and fill.
- To protect important iconic and harbour views from the public spaces of the precinct.
- To reinforce the landscape setting and maintain the existing tree canopy.

638-646 New South Head Road is identified as part of the Rose Bay Local Centre in Chapter D6 of the WDCP 2015. This Chapter sets out built form controls designed to optimise development, whilst taking into consideration the potential of adjoining properties and public spaces.

The site sits at what is identified as the 'entrance' to the Rose Bay Local Centre from the west. The WDCP 2015 states that entrances should be more clearly defined to strengthen the centre's containment, enriching the contrast between this busy pedestrian area and its quieter environs. This Chapter also seeks to enhance the village character of Rose Bay Centre by encouraging mixed use developments and active uses at street level.

4.0 Planning Proposal

This Planning Proposal has been prepared in accordance with Section 55 of the *Environmental Planning & Assessment Act, 1979* (EP&A Act), and *'A Guide to Preparing Planning Proposals'* prepared by the NSW Department of Planning and Environment, which requires the following matters to be addressed:

- objectives and intended outcomes of the amendment to the LEP;
- explanation of provisions;
- justification;
- relationship to strategic planning frameworks;
- environmental, social and economic impact;
- State and Commonwealth interests; and
- community consultation.

The following Section outlines the indicative development concept, the objectives and intended outcomes and provides an explanation of provisions in order to achieve those outcomes, including relevant mapping. The justification and evaluation of impacts is set out in **Section 5** of this report.

4.1 Development Concept

The Planning Proposal seeks to amend Schedule 1 of the WLEP 2014 to facilitate a mixed use development of the site. The development will comprise ground floor retail and commercial tenancies at 638-646 New South Head Road (the lot fronting New South Head Road) with apartments above and behind the retail/commercial. Residential uses will be provided at ground floor at the rear of the development concept, orientated to Sydney Harbour. The development concept will provide basement car parking in a common basement across the site for both residential and commercial/retail uses using a single driveway. The conceptual layout of land uses is shown in **Figure 18**.

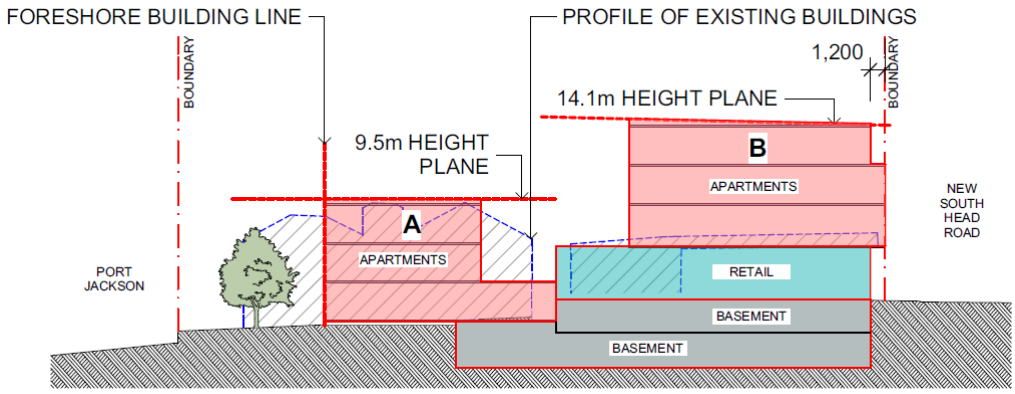


Figure 18 – Conceptual layout of land uses
Source: JPRA

4.2 Objectives and Intended Outcomes

The objective of this Planning Proposal is to facilitate a mixed use development of the site that includes ground floor residential accommodation at 636 New South Head Road and ground floor non-residential with shop top housing at 638-646 New South Head Road as shown in **Figure 18** above. While these uses are independently permissible on each site, this form of development in an integrated mixed use form, is prohibited because:

- 638-646 New South Head Road is zoned B2 Local Centre, in which the only form of permissible residential accommodation is 'shop top housing'.
- 'Shop top housing' is defined in the WLEP 2014 as *"one or more dwellings located above ground floor retail premises or business premises"*.
- The Land and Environment Court has clarified that the definition requires **all** residential apartments to be located above ground floor retail or business premises. A development which incorporates both ground and upper level apartments would not satisfy the definition (e.g., *Hrsto v Canterbury City Council* [2014] NSWLEC 121).
- The proposed development concept incorporates a single mixed use building with both ground (at 636 New South Head Road) and upper level (at 638-646 New South Head Road) apartments, such that it could not be characterised as 'shop top housing' and would therefore be prohibited at 638-646 New South Head Road.
- While the ground level apartments are proposed to be situated wholly within 636 New South Head Road which is zoned R3 Medium Density Residential, the development will be an integrated mixed use development with a single characterisation. Accordingly, an amendment to the permissible uses is required.

It is intended to rectify the above anomaly to permit a mixed use development over the combined two lots. This is an effective way of legally resolving the land use permissibility issue. As outlined in the following chapter of this Planning Proposal, this will result in a better planning outcome for the site.

4.3 Explanation of Provision

The proposed outcomes will be achieved by amending Schedule 1 of the WLEP 2014. Schedule 1 identifies additional permitted uses on certain sites within the Woollahra LGA. An additional Clause 15 is proposed under Schedule 1 as follows:

> ***15 Use of certain land at 636-646 New South Head Road, Rose Bay***
>
> *(1) This clause applies to land at 636 and 638-646 New South Head Road Rose Bay, being Lot A, DP 393087 and SP22533.*
>
> *(2) Development for the purpose of residential accommodation is permitted with development consent, but only as part of a mixed use development.*

This wording is consistent with the wording used in Schedule 1 of the WLEP 2014 for 13-21 Macdonald Street, Paddington, as suggested by Council officers in the pre-application meeting of 8 June 2016.

This Planning Proposal does not seek to amend the WDCP 2015.

4.4 Mapping

This Planning Proposal does not propose any amendments to the WLEP 2014 maps.

5.0 Strategic Justification

5.1 The Need for a Planning Proposal

5.1.1 Q1 – Is the Planning Proposal a result of any strategic study or report?

No.

This Planning Proposal is the result of the proponent's intention to develop the site as a whole and to remove any ambiguity over land use permissibility.

5.1.2 Q2 – Is the Planning Proposal the best means of achieving the intended outcome?

Yes.

In preparing this Planning Proposal, five options were considered to facilitate the development concept. These are listed and discussed below:

- Option 1: Rezone 638-646 New South Head Road to R3 Medium Density Residential;
- Option 3: Rezone 636 New South Head Road to B2 Local Centre;
- Option 3: Amend the B2 Local Centre zoning table;
- Option 4: No Planning Proposal; and
- Option 5: Schedule 1 amendment (this Planning Proposal).

Option 1 – Rezone 638-646 New South Head Road to R3 Medium Density Residential

The first option that was considered was to rezone 638-646 New South Head Road so that a single R3 Medium Density Residential zone applies across the whole site. This option would achieve the objectives and intended outcomes of this Planning Proposal as residential flat buildings, shops and business premises are permissible with consent in the R3 zone.

However, the disadvantages of this option are:

- It would disrupt the consistency and continuity of the zoning of land along the Rose Bay harbour foreshore, comprising R3 Medium Density Residential along the waterfront and B2 Local Centre along New South Head Road; and
- It would not provide security to Council that active, non-residential uses would be provided on the ground floor on New South Head Road frontage, which is evidently the intent from the pattern of zoning and the character of this part of New South Head Road.

Option 2 – Rezone 636 New South Head Road to B2 Local Centre

The second option that was considered was to rezone 636 New South Head Road to B2 Local Centre so that a single business zoning applies across the whole site. This option is not appropriate for the following reasons:

- It does not achieve the objectives and intended outcomes of this Planning Proposal as no residential development would be permissible at ground floor on any part of the site. Although shop top housing is permissible within the B2 Local Centre zone, the intended development outcome includes ground floor residential uses fronting Sydney Harbour. This cannot be considered shop top housing;

- It would require a further Schedule 1 amendment to permit residential flat buildings on the land which would unnecessarily complicate the Planning Proposal;
- It would disrupt the consistency and continuity of the zoning of land along the Rose Bay harbour foreshore, comprising R3 Medium Density Residential along the waterfront and B2 Local Centre along New South Head Road;
- It would facilitate development that is inconsistent with the desired future character of 636 New South Head Road and the Rose Bay Residential Precinct as described in section B1 of the WDCP 2015; and
- Ground floor retail/business uses fronting Sydney Harbour could potentially be incompatible with adjoining development which comprises residential development fronting the harbour.

Option 3 – Amend the B2 Local Centre zoning table

This option would involve an amendment to the B2 Local Centre zoning table to permit residential flat buildings. While this option would achieve the objectives and intended outcomes of this Planning Proposal, it is not appropriate because:

- It would not provide security to Council that active, non-residential uses would be provided on the ground floor on the New South Head Road frontage, which is evidently the intent from the pattern of zoning and the character of this part of New South Head Road and the restriction on residential development to shop top housing; and
- It would result in residential flat buildings becoming permissible on all land zoned B2 Local Centre across the Woollahra LGA. This would be inappropriate in the absence of a strategic planning study of all B2 Local Centre zoned land examining the appropriateness of this outcome.

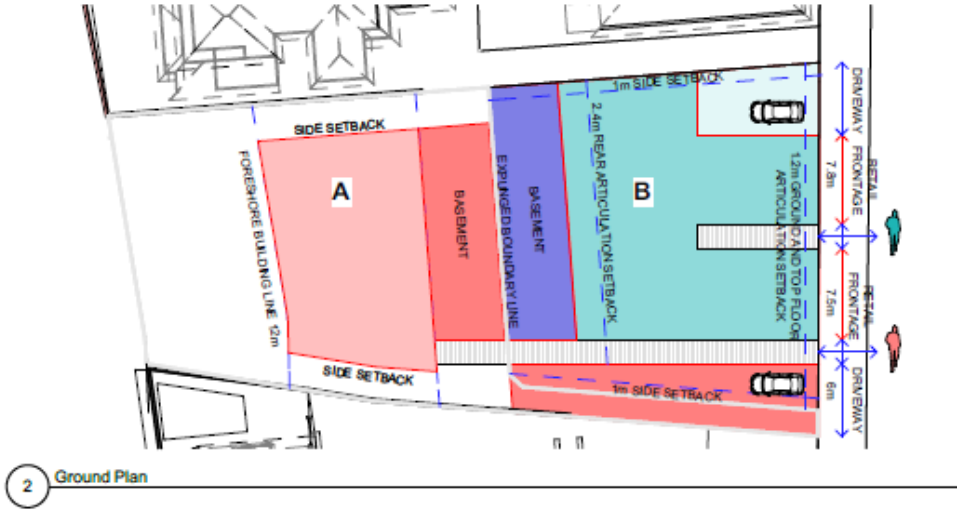
Option 4 – No Planning Proposal

This option maintains the status quo. A development application could be lodged for a mixed use development under the current provisions of the WLEP 2014, comprising shop top housing on 638-646 New South Head Road fronting the street, and a residential flat building on 636 New South Head Road fronting the harbour. However, under this approach, a number of issues arise:

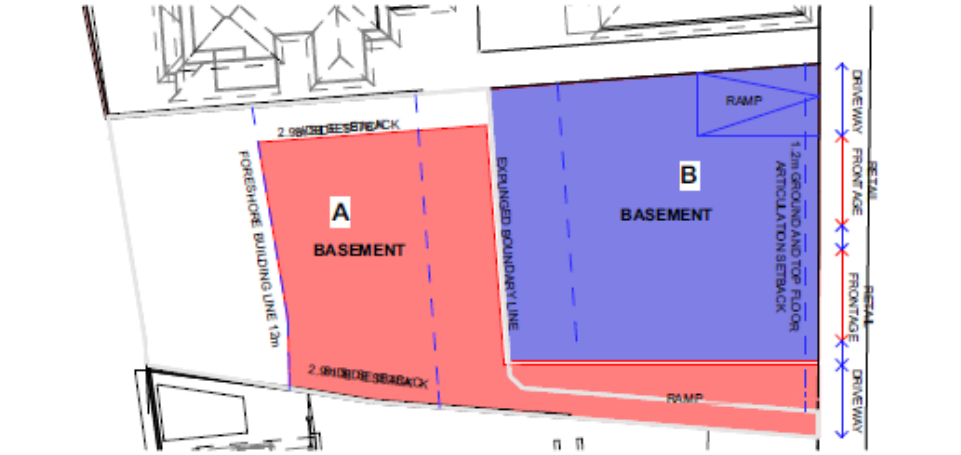
- This would require the separate development of the two lots – a mixed use development on one lot, and a residential flat building on the other lot;
- Vehicular and pedestrian access to the residential flat building would require access over part of the front lot which is zoned B2 Local Centre; arguably this would be prohibited by the zoning as the access would be for the purpose of a prohibited use;
- Even if separate access could be provided to the residential flat building fronting the harbour, utilising the narrow 2-metre-wide access handle of that is an inferior planning outcome as set out below;
- It would result in an inferior planning outcome to the one intended by this Planning Proposal, in that:
  - It would require two separate vehicular crossings for the two developments (see **Figure 19**), which would disrupt active street frontages and result in sub-optimal outcomes from a traffic safety point of view;
  - It would require additional basement excavation to accommodate separate basement car parks for the two developments (see **Figure 19**), which would add unnecessary cost to the development and may not be possible from a geotechnical and hydraulic point of view given the proximity of the rear lot to Sydney Harbour;
  - It would associate potential open space on 638 New South Head Road with ground floor retail/commercial uses, causing a potential conflict with adjacent

residential uses as evidenced by the strong objection by neighbours to the recently approved DA 212/2015 in relation to the use of such open space; and

– It would require separate servicing such as garbage and plant rooms, which would be an inefficient use of land.



2 Ground Plan



3 Basement Plan

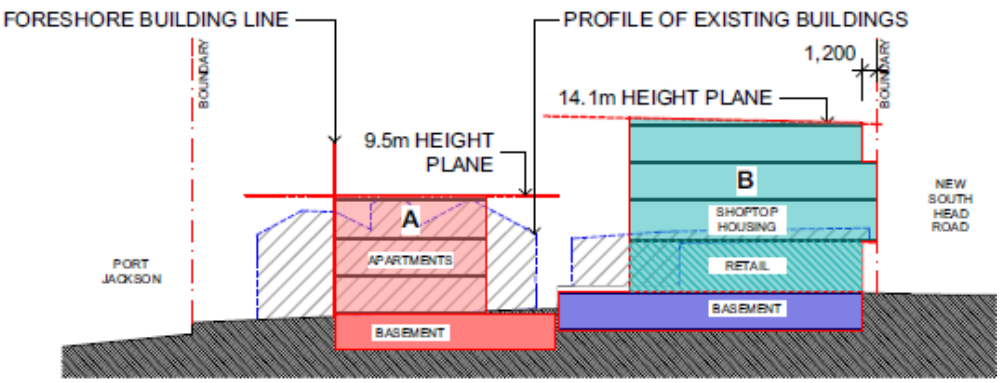


Figure 19 – Separate development of two lots under current zoning
Source: JPRA

Option 5 – Schedule 1 amendment (this Planning Proposal)

The proposed Schedule 1 amendment represents the preferred option and is advanced through this Planning Proposal. This option is recommended because:

- It achieves the objectives and intended outcomes of this Planning Proposal;
- It does not require any changes to the zoning map or land use table and maintains the consistency and continuity of the zoning pattern along this part of New South Head Road;
- It requires that residential uses are permissible only as part of a mixed use development, reinforcing the provision of ground floor retail uses fronting New South Head Road, which is consistent with the site's context, the objectives of the B2 Local Centre zone and the desired future character of the Rose Bay Centre as set out in section D6 of the WDCP 2015;
- It achieves the desired future character of the Rose Bay Residential Precinct as described in section B1 of the WDCP 2015;
- It facilitates the redevelopment of the whole site, including the demolition of the existing residential flat building which encroaches on the foreshore building line. It is unlikely that development of each lot separately would result in the demolition of this building (as it exceeds the current FSR control). Therefore, this option results in an opening of the existing view corridors and a superior planning outcome; and
- It achieves an optimal planning outcome as it avoids the issues associated with Option 4 as outlined above.

The use 'residential accommodation' has been selected as the additional permitted use, as this is the collective term for both 'shop top housing' and 'residential flat buildings'. This removes any ambiguity as to the permissibility of a mixed use development across the site.

5.2 Relationship with the Strategic Planning Framework

5.2.1 Q3 – Is the Planning Proposal consistent with the objectives and actions of the applicable regional, sub-regional or district plan or strategy (including any exhibited draft plans or strategies)?

Strategic Merit Test

A Guide to Preparing Planning Proposals sets out that in order to answer this question, a planning proposal needs to justify that it meets the Strategic Merit Test. The consistency of this Planning Proposal with the mandated assessment criteria is set out below.

a) Does the proposal have strategic merit?

Is it:

- Consistent with the relevant regional plan outside of the Greater Sydney Region, the relevant district plan within the Greater Sydney Region, or corridor/precinct plans applying to the site, including any draft regional, district or corridor/precinct plans released for public comment; or
- Consistent with a relevant local council strategy that has been endorsed by the Department; or
- Responding to a change in circumstances, such as the investment in new infrastructure or changing demographic trends that have not been recognised by existing planning controls.

The site is located within the Greater Sydney Region. *A Plan for Growing Sydney* is the current regional strategy for the Sydney metropolitan area. The Woollahra LGA is included in the Central Subregion. The plan identifies Bondi Junction as a strategic centre supported by surrounding residential areas.

Goal 2 of the Plan identifies the need to provide housing choice and accelerate housing supply and urban renewal across Sydney. Although Rose Bay has a large number of apartments, these are primarily older-style walk up residential flat buildings that are inaccessible to less mobile and an aging population. This Planning Proposal will facilitate the provision of high quality, modern and accessible apartments within the Rose Bay local centre and will assist in increasing the diversity of accommodation types available – directly responding to Direction 2.1 and Direction 2.3 of the Plan.

The site's proximity to the strategic centre of Bondi Junction and the availability of public transport services to both Bondi Junction and the Sydney CBD is aligned with Direction 2.2 of the Plan to situate housing in existing urban areas and in close proximity to local jobs. The Rose Bay local centre provides an additional source of employment for potential future residents.

The site is located within the Central Subregion, with additional aims to accelerate housing supply and housing choice. The Plan identifies the need to work with Council's to identify suitable locations for intensification of land uses. This Planning Proposal has identified that the site is suitable for redevelopment and can assist in the delivery of housing that meets the needs of the local population, whilst maintaining consistency with the desired future character for the Rose Bay area.

The Central District Plan was released 21 November 2016. Nothing within this Planning Proposal is inconsistent with the Central District Plan. Similarly to the objectives and directions of *A Plan for Growing Sydney*, the plan identifies a need for additional housing opportunities in close proximity to centres. The Planning Proposal will facilitate the delivery of housing with a high level of public transport access and a number of centres that can be reached within 30 minutes.

It should be noted, however, that this Planning Proposal does not seek any additional density on the site given Council's desired future character under the current WLEP 2014 and WDCP 2015.

Although this Planning Proposal seeks to amend an LEP that is less than five years old, the proposed amendment relates to a site specific additional permitted use. The Planning Proposal does not seek to change the land use zoning that applies to the site and does not seek to alter the Land Use Table of the WLEP 2014. This demonstrates that this Planning Proposal will not undermine the integrity of the WLEP 2014.

b) Does the proposal have site-specific merit

Having regard to the following:

- the natural environment (including known significant environmental values, resources or hazards) and
- the existing uses, approved uses, and likely future uses of land in the vicinity of the proposal and
- the services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangements for infrastructure provision.

The aims and objectives of this Planning Proposal are to achieve a site-specific development concept that responds to the unique nature of the site. This Planning Proposal will facilitate a development outcome on the site that provides for an increase

in the set back of development from the harbour foreshore and will enable rehabilitation of contaminated land on the site.

This Planning Proposal will not result in a land use being permissible that is inconsistent with the current and future desired character of the Rose Bay Town Centre. The redevelopment facilitated by this planning proposal will replace an uncharacteristic development with one that responds to the site characteristics and improves the streetscape of both New South Head Road and Sydney Harbour. The proposed site-specific amendments will not reduce the development opportunities of surrounding sites.

As set out in Section 5.4.1, the site is located within a well serviced urban area and existing infrastructure will be available to meet the demands of this Planning Proposal. The Planning Proposal does not facilitate a scale of development that is above that intended for the Rose Bay town centre location and is not expected to increase infrastructure and services demand.

Summary
This Planning Proposal achieves the assessment criteria as it demonstrates both strategic merit and site-specific merit. Therefore it is considered that this Planning Proposal meets the Strategic Merit Test.

5.2.2 Q4 – Is the Planning Proposal consistent with a Council's local strategy or other local strategic plan?

Not applicable.

No relevant local strategies have been prepared for the Rose Bay town centre.

5.2.3 Q5 – Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

Yes.

An assessment of the Planning Proposal against relevant State Environmental Planning Policies (SEPPs) is set out in **Table 4** below.

Table 4 – Consistency with State Environmental Planning Policies

SEPP	Consistency			Comment
	Yes	No	N/A	
SEPP No. 1 Development Standards			✓	SEPP 1 does not apply to Woollahra Council
SEPP (State and Regional Development) 2011			✓	Not relevant to proposed LEP amendment
SEPP (Affordable Rental Housing)			✓	Not relevant to proposed LEP amendment
SEPP (Exempt and Complying Development Codes)			✓	Not relevant to proposed LEP amendment. May apply to future development on the sites.
SEPP No. 55 Remediation of Land	✓			Contamination Reports, Remedial Action Plan and Interim Advice are provided at **Appendix B-E**. See discussion at **Section 5.3.2**.
SEPP No. 64 Advertising and Signage			✓	Not relevant to proposed LEP amendment.
SEPP No. 65 Design Quality of Residential Apartment Development	✓			Nothing within this amendment will prevent a future DA's ability to comply with SEPP 65.
SREP (Sydney Harbour Catchment) 2005	✓			The Planning Proposal's consistency with the Sydney Harbour SREP

SEPP	Consistency			Comment
	Yes	No	N/A	
				Planning Principles is set out below. Any future DA will be required to consider the relevant matters for consideration under this SREP.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 Planning Principles

As stated in **Section 3.5.2**, the Sydney Harbour SREP sets out Planning Principles that must be considered when preparing an environmental planning instrument. This Planning Proposal is consistent with these Principles, as demonstrated in **Table 5** below.

Table 5 – Consistency of the Planning Proposal with Planning Principles of the Sydney Harbour SREP

SREP Planning Principle	Comment
Sydney Harbour Catchment Principles	
Development is to protect and, where practicable, improve the hydrological, ecological and geomorphological processes on which the health of the catchment depends	The Planning Proposal will facilitate the redevelopment of the site which will result in an improvement to the hydrology of the site, including improved stormwater management subject to future DA.
The natural assets of the catchment are to be maintained and, where feasible, restored for their scenic and cultural values and their biodiversity and geodiversity.	The Planning Proposal will not impact on natural assets in the local catchment.
Decisions with respect to the development of land are to take account of the cumulative environmental impact of development within the catchment.	The Planning Proposal will not impede the holistic approach to development within the Foreshore area.
Action is to be taken to achieve the targets set out in Water Quality and River Flow Interim Environmental Objectives: Guidelines for Water Management: Sydney Harbour and Parramatta River Catchment (published in October 1999 by the Environment Protection Authority), such action to be consistent with the guidelines set out in Australian Water Quality Guidelines for Fresh and Marine Waters (published in November 2000 by the Australian and New Zealand Environment and Conservation Council).	The Planning Proposal will not impact on this objective.
Development in the Sydney Harbour Catchment is to protect the functioning of natural drainage systems on floodplains and comply with the guidelines set out in the document titled Floodplain Development Manual 2005 (published in April 2005 by the Department).	The site is not on a natural floodplain. Any future DA will consider the potential flooding impacts of future development on the site.
Development that is visible from the waterways or foreshores is to maintain, protect and enhance the unique visual qualities of Sydney Harbour	This Planning Proposal does not propose to amend the built form controls applying to the site that regulate visual quality from Sydney Harbour. It should be noted that subsequent development will improve the visual quality of Sydney Harbour by replacing an older style residential building that encroaches within the foreshore building line with a contemporary modern building, setback from the high water mark.
The number of publicly accessible vantage points for viewing Sydney Harbour should be increased.	The Planning Proposal will not impact on this objective.
Development is to improve the water quality of urban run-off, reduce the quantity and frequency of urban run-off, prevent the risk of increased flooding and conserve water.	Stormwater management and urban run-off will be considered as part of any future DA.
Action is to be taken to achieve the objectives and	The Planning Proposal will not impact on this

SREP Planning Principle	Comment
targets set out in the Sydney Harbour Catchment Blueprint, as published in February 2003 by the then Department of Land and Water Conservation.	objective.
Development is to protect and, if practicable, rehabilitate watercourses, wetlands, riparian corridors, remnant native vegetation and ecological connectivity within the catchment.	The Planning Proposal will not impact on this objective.
Development is to protect and, if practicable, rehabilitate land from current and future urban salinity processes, and prevent or restore land degradation and reduced water quality resulting from urban salinity.	The Planning Proposal will not impact on this objective.
Development is to avoid or minimise disturbance of acid sulfate soils in accordance with the Acid Sulfate Soil Manual, as published in 1988 by the Acid Sulfate Soils Management Advisory Committee.	The Contamination Reports, submitted at **Appendix B** and **Appendix C** indicate that acid sulfate soils may be present on 636 New South Head Road but are not present on 638-646 New South Head Road. Any acid sulfate soil will be managed by a Remedial Action Plan (**Attachment D**) for the holistic remediation of the site.
Foreshore and Waterway Area	
Development should protect, maintain and enhance the natural assets and unique environmental qualities of Sydney Harbour and its islands and foreshores.	The Planning Proposal will facilitate development that will protect and maintain the natural assets of the Rose Bay harbour foreshore area and the broader Sydney Harbour area.
Public access to and along the foreshore should be increased, maintained and improved, while minimising its impact on watercourses, wetlands, riparian lands and remnant vegetation.	This Planning Proposal will not inhibit public access to the Rose Bay harbour foreshore area.
Access to and from the waterways should be increased, maintained and improved for public recreational purposes (such as swimming, fishing and boating), while minimising its impact on watercourses, wetlands, riparian lands and remnant vegetation.	This Planning Proposal will not inhibit public access to the Rose Bay harbour foreshore area.
Development along the foreshore and waterways should maintain, protect and enhance the unique visual qualities of Sydney Harbour and its islands and foreshores.	This Planning Proposal does not propose to amend the built form controls applying to the site that regulate visual quality from Sydney Harbour.
Adequate provision should be made for the retention of foreshore land to meet existing and future demand for working harbour uses.	The site is not identified as adjoining working harbour uses.
Public access along foreshore land should be provided on land used for industrial or commercial maritime purposes where such access does not interfere with the use of the land for those purposes.	The site is not identified as adjoining industrial harbour uses. The Planning Proposal will not impede access for existing and potential future commercial maritime purposes including Sydney Ferries and the Sydney Sea Plane base.
The use of foreshore land adjacent to land used for industrial or commercial maritime purposes should be compatible with those purposes.	The proposed land uses facilitated by this Planning Proposal are compatible with existing and potential future commercial maritime uses.
Water-based public transport (such as ferries) should be encouraged to link with land-based public transport (such as buses and trains) at appropriate public spaces along the waterfront.	The Planning Proposal will not impact on water-based public transport services.
The provision and use of public boating facilities along the waterfront should be encouraged.	The Planning Proposal will not impact on the use of public boating facilities including the public boat ramps at Rose Bay.

5.2.4 Q6 – Is the Planning Proposal consistent with applicable Ministerial Directions (s. 117 directions)?

Yes.

An assessment of the Planning Proposal against applicable Section 117 Directions is set out in **Table 6** below.

Table 6 – Consistency with Section 117 Directions

Direction	Consistency			Comment
	Yes	No	N/A	
1. Employment and Resources				
1.1 Business and Industrial Zones	✓			This Planning Proposal does not reduce the opportunities for employment generating uses on the site.
1.2 Rural Zones			✓	
1.3 Mining, Petroleum Production and Extractive Industries			✓	
1.4 Oyster Aquaculture			✓	
1.5 Rural Lands			✓	
2 Environment and Heritage				
2.1 Environmental Protection Zones	✓			The site adjoins land zoned W2 Environmental Protection under the Sydney Harbour REP. Nothing within this proposal will have a negative impact on the protection of these lands.
2.2 Coastal Protection			✓	The site is not within coastal zone.
2.3 Heritage Conservation			✓	The site is not listed as an item of heritage significants and is not within a heritage conservation zone. No heritage items are within the immediate vicinity of the site.
2.4 Recreational Vehicle Area			✓	
3. Housing, Infrastructure and Urban Development				
3.1 Residential Zones	✓			Part of the site is within a residential zone. The Planning Proposal is consistent with this Direction as: ▪ It will enable the use of the site for residential purposes as to meet existing and future needs. ▪ It will facilitate residential development in an area of high demand (as identified by A Plan for Growing Sydney 2031) and increase housing choice in the immediate area. ▪ The site is well located to existing infrastructure.
3.2 Caravan Parks and Manufactured Home Estates			✓	
3.3 Home Occupations			✓	No change is proposed to the current permissibility of home occupations.
3.4 Integrating Land Use and Transport	✓			This Direction applies due to this Planning Proposal relating to a residential zone. The Direction states that a Planning Proposal must be consistent with the aims, objectives and principles of: a) *Improving Transport Choice – Guidelines for planning and development* (DUAP 2001), and

Direction	Consistency			Comment
	Yes	No	N/A	
				b) *The Right Place for Business and Services – Planning Policy* (DUAP 2001). The Planning Proposal is broadly consistent with the aims, objectives and principles of the above documents in that it will provide residential accommodation in an area well serviced by public transport. The area has a significant number of local jobs as well as being closely connected to the strategic centre of Bondi Junction.
3.5 Development Near Licensed Aerodromes			✓	
3.6 Shooting Ranges			✓	
4. Hazard and Risk				
4.1 Acid Sulfate Soil	✓			The Contamination Reports, submitted at **Appendix B** and **Appendix C** indicate that acid sulfate soils may be present on 636 New South Head Road but are not present on 638-646 New South Head Road. Any acid sulfate soil will be managed by a Remedial Action Plan (**Attachment D**) for the holistic remediation of the site.
4.2 Mine Subsidence and Unstable Land			✓	The site is not identified as mine subsidence or unstable land.
4.3 Flood Prone Land			✓	The site is identified as Flood Prone Land under WLEP 2014. This Planning Proposal does not affect flooding, and will not be affected by flooding, as it does not seek to allow additional development potential (height/floor space) on the land.
4.4 Planning for Bushfire Protection			✓	The site is not identified as bushfire prone land and is not within the vicinity of land identified as bush fire prone land.
5. Regional Planning			✓	
6. Local Plan Making				
6.1 Approval and Referral Requirements	✓			This Planning Proposal is consistent with this Direction in that it does not introduce any provisions that require any additional concurrence, consultation or referral.
6.2 Reserving Land for Public Purposes	✓			This Planning Proposal is consistent with this Direction in that it does not create, alter or reduce existing zonings or reservations of land for public purposes.
6.3 Site Specific Provision	✓			This Planning Proposal is consistent with this Direction as it facilitates the proposed development without imposing any development standards or requirements in addition to those already contained in the WLEP 2014. Unnecessarily restrictive site-specific planning controls are not proposed, therefore this Planning Proposal is consistent with the objectives and requirements of this direction.
7. Metropolitan Planning				

Direction	Consistency			Comment
	Yes	No	N/A	
7.1 Implementation of A Plan for Growing Sydney	✓			The Planning Proposal is consistent with the Metropolitan Plan, as discussed in **Section 5.2.1** above.

5.3 Environmental, Social and Economic Impacts

5.3.1 Q7 – Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

No.

The Planning Proposal will not result in any impact on critical habitat or threatened species, populations or ecological communities or other habitats. These matters can be appropriately considered at the DA stage, if relevant.

5.3.2 Q8 – Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?

No.

Environmental site investigations have been conducted on the site in accordance with the provisions of *State Environmental Planning Policy No. 55 – Remediation of Land*. Contamination reports for each property are submitted at **Appendix B** – 638-646 New South Head Road, and **Appendix C** – 636 New South Head Road. No change in land use is proposed on 636 New South Head Road and therefore the site is considered suitable for residential uses. Sources of contamination at 636 New South Head Road include ground water and potential acid sulfate soils management, which can be managed during the construction process.

Sources of at 638-646 New South Head Road are most likely restricted to the sites historical use as a service station and associated workshop, with the highest levels of impact generally present in the eastern and north-eastern portions of the site which contain constituents related to the storage and handling of petroleum products. A Remedial Action Plan has been prepared accordingly and is submitted at **Appendix D** and Interim Advice is submitted at **Appendix E**.

The Planning Proposal does not envisage any additional environmental impacts resulting from the additional permitted uses facilitated by the Proposal. Any relevant environmental impacts that arise can be appropriately considered at the Development Application stage.

5.3.3 Q9 – Has the Planning Proposal adequately addressed any social and economic impacts?

Yes.

The Planning Proposal will facilitate development of the site in a manner that is consistent with the desired future character of Rose Bay, set out in the WDCP 2015. The intended development outcome will include retail development on the New South Head Road frontage, complementing the existing Rose Bay town centre. The provision of business premises within a mixed use development on the site will increase available floor space for services such as doctors and other consulting services. The uses proposed as part of this Planning Proposal will result in additional provision of

high quality, modern and accessible apartments in close proximity to existing services and public transport. The Planning Proposal will not generate any negative social or economic impacts.

5.4 State and Commonwealth Interests

5.4.1 Q10 – Is there adequate public infrastructure for the Planning Proposal?

Existing public transport, roads utilities, waste management, recycling services and other essential services exist within the Woollahra LGA and are generally adequate to serve and meet the needs of the proposal. The Development Application stage will be subject to further detailed analysis of issues, particularly traffic and transport.

5.4.2 Q11 – What are the views of State or Commonwealth public authorities consulted in accordance with the Gateway determination?

The views of State and Commonwealth public authorities will be known once consultation has occurred in accordance with the Gateway determination of the Planning Proposal.

5.5 Community Consultation

Community consultation will be conducted in accordance with section 57 of EP&A Act and *A Guide to Preparing Planning Proposals*.

6.0 Conclusion

This Planning Proposal seeks an amendment to Schedule 1 of the WLEP 2014 to permit development for the purpose of residential accommodation, but only as part of a mixed use development. The aim of this amendment is to facilitate the redevelopment of the site as a mixed use development. This development concept will be subject to a future development application made to Woollahra Council.

This Planning Proposal is justified for the following reasons:

- The proposal is consistent with the objects of the EP&A Act, in that it promotes the orderly and economic use and development of land;
- The proposal is consistent with the strategic planning framework for the site;
- The development concept which the Planning Proposal aims to facilitate:
  - is consistent with the existing and future desired character of the Rose Bay town centre;
  - will be a positive contribution to the streetscape;
  - will result in a better planning outcome than the separate development of the two sites under the current planning controls in relation to (for example) consolidated vehicle access, reduced extent of basement excavation and the use of open space for residential purposes only; and
- The proposal is consistent with the applicable SEPPs and Ministerial Directions.

In light of the above, we would have no hesitation in recommending that the Planning Proposal proceed through the Gateway to public exhibition.

NOTES :

* THIS DETAIL SURVEY IS NOT A 'SURVEY' AS DEFINED BY THE SURVEYING ACT,2002.
* BEARINGS AND DISTANCES ARE BY TITLE AND ARE SUBJECT TO SURVEY INVESTIGATION
* BEARINGS RELATE TO MGA NORTH AS SHOWN ON DP1029553
* TOTAL SITE AREA IS 791.2m² CALCULATED FROM TITLE INFORMATION
* THE POSITION OF IMPROVEMENTS IN RELATION TO BOUNDARIES IS DIAGRAMMATIC ONLY
* NEIGHBOURING HOUSES , RIDGE AND ROOF POSITIONS ARE APPROXIMATE ONLY
* VISIBLE, ACCESSIBLE SERVICES ONLY HAVE BEEN LOCATED
* NOT ALL SERVICES ARE SHOWN
* THE EXISTENCE OF UNDERGROUND SERVICES HAS NOT BEEN ESTABLISHED. IF THESE ARE CRITICAL IT IS ESSENTIAL THE APPROPRIATE AUTHORITIES BE CONTACTED PRIOR TO DEVELOPMENT WORKS.
* EXISTENCE OF SERVICES MUST BE VERIFIED BY CONTACTING DIAL BEFORE YOU DIG (DBYD) PH 1100. CRITICAL SERVICES MUST BE EXPOSED AND LOCATED. (NOT ALL SERVICE PROVIDERS ARE MEMBERS OF DBYD)
* THIS TITLE BLOCK IS AN INTEGRAL PART OF THIS DRAWING WHICH IS NOT TO BE REMOVED
* THIS PLAN SHOULD BE READ IN CONJUNCTION WITH REPORT OF THE SAME REFERENCE

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LEGEND

B - BOLLARD
ELP - ELECTRIC LIGHT POLE
HYD - HYDRANT
L - STORMWATER LINTEL
MH - MANHOLE
PC - PRAM CROSSING
PP - POWER POLE
SMH - SEWER MANHOLE
SP - SIGN POST
SV - STOP VALVE
TEL - TELSTRA PIT
TL - TRAFFIC LIGHT
SW - STORMWATER
WM - WATER METER

REV	AMENDMENTS	DATE

SCALE 1:100
0 1 2 3 4 5 6 7 8 9 10

SHEET 1 0F 3 - DETAIL SURVEY

CLIENT : JPR ARCHITECTS

SURVEYOR :	KURT F
DATUM :	AUSTRALIAN HEIGHT DATUM
ORIGIN :	PM 90 RL3.879
JOB REF. :	B2059
COMPUTER REF. :	B2059
DRAWING No.	B2059-REVA
CHECKED :	
DATE OF SURVEY:	3 FEBRUARY 2016
REDUCTION RATIO :	1:100

PLAN OF: No636 NEW SOUTH HEAD ROAD, ROSE BAY

BEING: SP 22533

SHOWING: GENERAL DETAIL AND SITE LEVELS

PURPOSE: ARCHITECTURAL DESIGN COUNCIL SUBMISSION

MACQUARIE PARK
ABN 20 068 433 974
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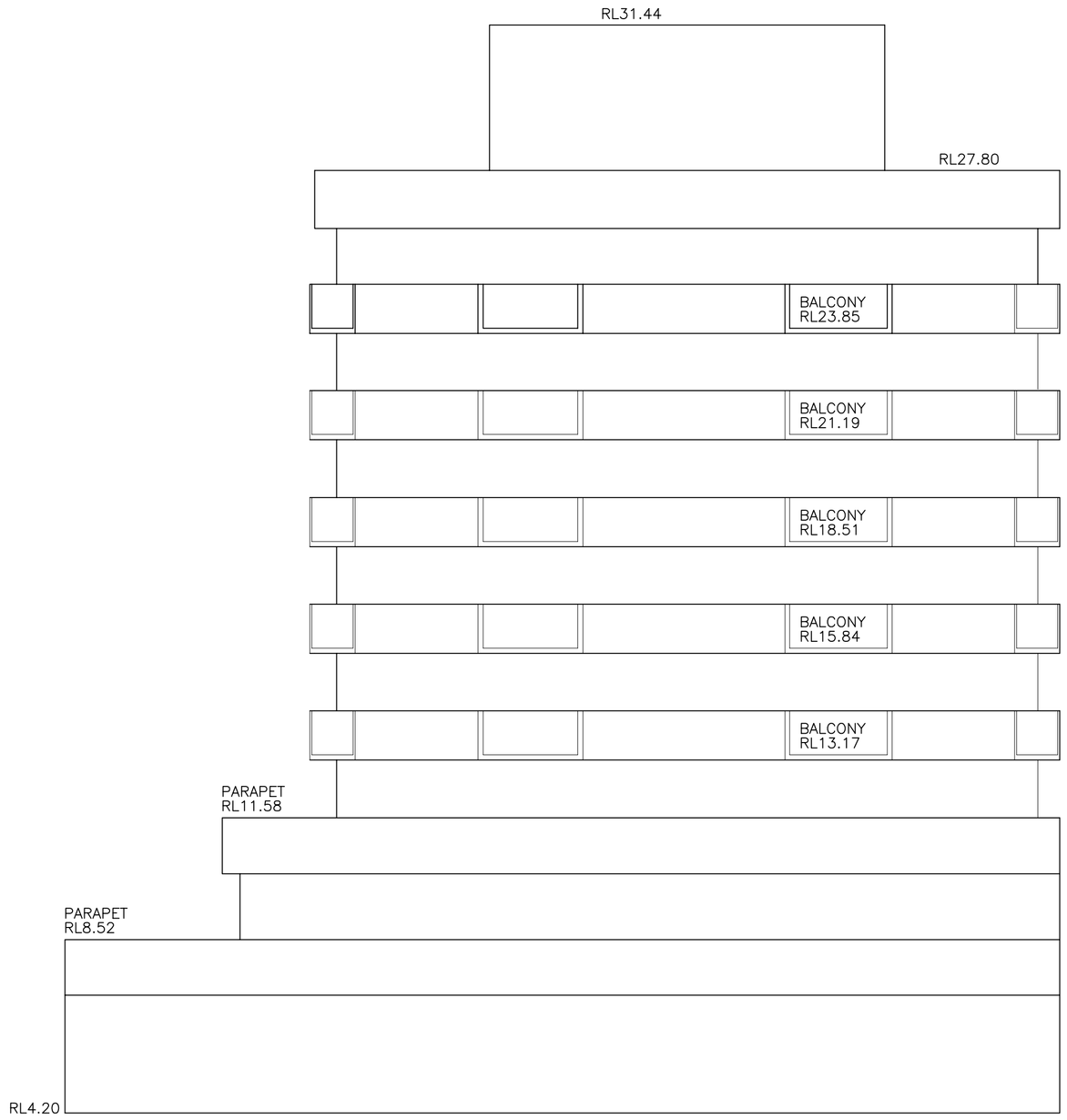
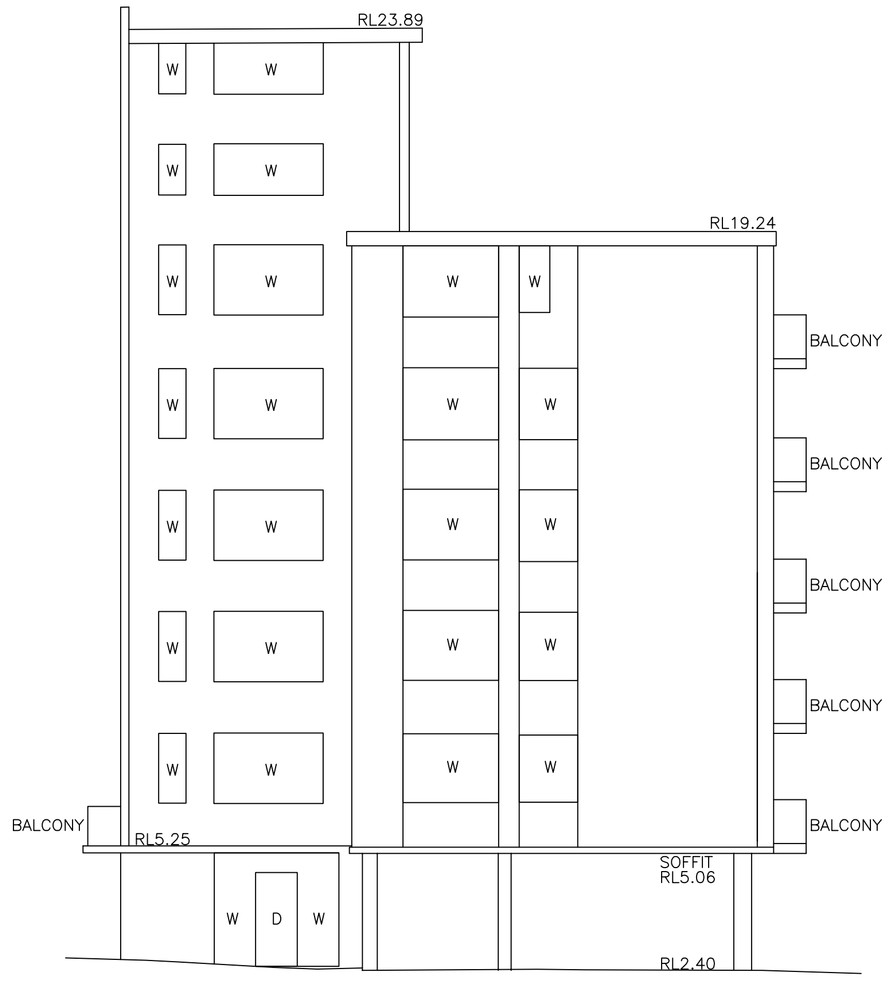


ELEVATION OF EASTERN WALL AT
No624-634 NEW SOUTH HEAD ROAD



ELEVATION OF EASTERN WALL AT
No624B NEW SOUTH HEAD ROAD

SCALE 1:100

0 1 2 3 4 5 6 7 8 9 10

A1

SHEET 3 0F 3

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REMEDIATION ACTION PLAN
636 AND 638-646 NEW SOUTH HEAD ROAD, ROSE BAY, NSW
PREPARED FOR ROSE BAY JOINT VENTURE
CES DOCUMENT REFERENCE: CES160201-DYL-AE

Written by: Erin Millar

Reviewed by: Darren Hanvey & David Johnson

Authorised by: Duncan Lowe

Client: Rose Bay Joint Venture

Date: 27 June 2016

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REMEDIATION ACTION PLAN

636 AND 638-646 NEW SOUTH HEAD ROAD, ROSE BAY, NSW

ROSE BAY JOINT VENTURE

CES DOCUMENT REFERENCE: CES160201-DYL-AE

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Revision Number	Revision Date	Description
0.0	06.05.16	CES160201-DYL-AC
1.0	27.06.16	CES160201-DYL-AE

The revision register tracks changes to the document.

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Executive Summary

Consulting Earth Scientists Pty Ltd (CES) was commissioned by Rose Bay Joint Venture to prepare a Remediation Action Plan (RAP) for the property located at 636 and 638-646 New South Head Road, Rose Bay, New South Wales (NSW) (the site). It is understood that Rose Bay Joint Venture intends to redevelop the site with the construction of a new apartment block, including basement carpark.

The principal objectives of the RAP include the remediation and validation approach to address previously identified impacted soil and groundwater at the site, the identification of contingency measures that may be required should previously unidentified impacted soil and / or impacted groundwater be encountered during excavation works, and to provide guidance so that remediation works are undertaken in accordance with relevant legislation.

The scope of works for the RAP include a review of previous environmental site assessment reports, identification of impacts on the site requiring remediation, evaluation of remediation strategies and options, provision of an outline of remediation methods and validation procedures for the site.

A number of previous sampling events completed by JBS&G from 2012 to 2016 and CES in 2016 identified hydrocarbon contamination impacts within groundwater within the Service Station Site and along the southern boundary of the Northern Site. It was observed that the hydrocarbon impact reduced to below the laboratory reporting limits down-gradient of the border of both sites (i.e. to the north of the boundary between the two sites).

It is recommended by CES that controlled excavation of the site to the depth of the basement level be completed to allow for waste classification of the materials. Validation sampling will be undertaken during the remediation programme to confirm whether the identified contamination has been adequately removed from the excavation and whether any further remediation is required. Validation sampling will also be undertaken in the footprint of the existing residential complex following its demolition and removal.

It is concluded that if the RAP is implemented, then the site will be suitable for the proposed development.

REMEDIATION ACTION PLAN
636 AND 638-646 NEW SOUTH HEAD ROAD, ROSE BAY, NSW
ROSE BAY JOINT VENTURE
CES DOCUMENT REFERENCE: CES160201-DYL-AE

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LIST OF ABBREVIATIONS

ACM	Asbestos Containing Material
AHD	Australian Height Datum
ASS	Acid Sulfate Soil
BTEX	Benzene, Toluene, Ethylbenzene and Total Xylenes
CES	Consulting Earth Scientists Pty Ltd
CLM	Contaminated Land Management
COPC	Contaminants of Potential Concern
DECCW	Department of Environment and Climate Change and Water
DLWC	Department of Land and Water Conservation
ENM	Excavated Natural Material
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
km	Kilometre
LGA	Local Government Area
LPI	Land and Property Information Division
LEP	Local Environmental Plan
m	Metre
mm	Millimetre
mbgl	metres Below Ground Level
mAHD	metres Australian Height Datum
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PSP	Project Safety Plan
RAP	Remediation Action Plan
TCLP	Toxicity Characteristics Leaching Procedure
TRH	Total Recoverable Hydrocarbons
UPSS	Underground Petroleum Storage System
VENM	Virgin Excavated Natural Material

1 INTRODUCTION

Consulting Earth Scientists Pty Ltd (CES) was commissioned by Rose Bay Joint Venture (RBJV) to prepare a Remediation Action Plan (RAP) for the property located at 636 and 638-646 New South Head Road, Rose Bay, New South Wales (NSW) (the site). It is understood that RBJV intends to redevelop the site with the demolition of all existing buildings, including service station and apartment block, and construction of a new apartment block, including basement carpark.

This RAP applies to the properties located at 638-646 New South Head Road, Rose Bay, herein referred to as the "Service Station Site" and 636 New South Head Road, Rose Bay, herein referred to as the "Northern Site". The site location is presented in **Figure 1** and a site features plan is presented in **Figure 2**.

Based on current development plans for the site it is understood that the redevelopment over both lots will include the construction of a four storey apartment block with one level underground parking.

This RAP is based on review of all previous environmental investigations and reports for the site including those carried out for the Northern site by CES and those carried out by JBS&G Australia Pty Ltd (JBS&G) for the Service Station Site.

This RAP has been prepared in general accordance with guidelines "made or approved" by NSW EPA under Section 105 of the Contaminated Land Management Act, 1997. These guidelines include the following:

- NSW Office of Environment & Heritage (OEH) 2011, *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*;
- NSW Environment Protection Authority (EPA) 2014, *Waste Classification Guidelines, Part 1: Classifying Waste*;
- NSW Department of Environment and Conservation (DEC) 2007, *Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination;*
- NSW DEC 2006, Contaminated Sites: *Guidelines for NSW Site Auditor Scheme (2nd Edition)*;
- Australia and New Zealand Environment and Conservation Council (ANZECC) 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality;*

- National Environment Protection Council (NEPC) 1999, *National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended*; and
- NSW EPA 1995, *Contaminated Sites: Sampling Design Guidelines*.

1.1 OBJECTIVES

The principal objectives of the RAP are as follows:

- To prescribe a remediation and validation approach to address previously identified impacted soil and groundwater at the site;
- To identify contingency measures that may be required should previously unidentified impacted soil and / or impacted groundwater be encountered during excavation works; and
- To provide guidance so that remediation works are undertaken in accordance with relevant legislation.

This RAP does not provide a technical specification for the demolition and/or removal of building elements, buried infrastructure, and/or underground petroleum storage systems (UPSS).

1.2 SCOPE OF WORK

The scope of works for the RAP is as follows:

- Review of previous environmental site assessment reports and appraisal of the data;
- Identification of impacts on the site requiring remediation;
- Definition of remediation goals and acceptance criteria;
- Evaluation of remediation strategies and options;
- Provision of an outline of remediation methods for the site;
- Provision of an outline of validation procedures for the site; and
- Preparation of an outline of Work Health and Safety (WHS) Plan to minimise the risk of exposure of site workers and/or site occupiers to impacted soil and groundwater materials.

Remediation will be carried out as part of the site civil works, prior to commencement of building construction. The remedial works will form part of the initial excavations, in that the majority of fill materials will be excavated and removed from the site.

Following the execution of the remediation works, a validation report will be prepared. The objective of the validation report is to document that the site has been remediated to a standard commensurate with the proposed land use.

1.3 ROLES AND RESPONSIBILITIES

The following roles and responsibilities have been identified.

Table 1: Roles and Responsibilities

Key Stakeholders		Responsibility
Client	Rose Bay Joint Venture	The client and principal.
NSW EPA Accredited Site Auditor	Kylie Lloyd of Zoic Environmental Pty Ltd	The site Auditor will undertake an independent review of the works in accordance with the *Contaminated Land Management Act.*
Remediation Contractor	To be confirmed	The contractor will be responsible for undertaking the remedial works and obtaining and complying with all relevant approvals such as those required to undertake these works.
Environmental Consultant	Consulting Earth Scientists Pty Ltd	Will be required to liaise with the Client, Site Auditor and Remediation Contractor and provide an independent review and validation of the remedial works / management measures.

2 REVISION OF THIS PLAN

This RAP is applicable for the duration of the earthworks being undertaken across the site. During this time (i.e. for the duration of the construction) it may be necessary to revise and re-issue the RAP in order to reflect changes in project objectives; parties responsible for implementation of the RAP and development; unexpected finds; or changes to planning or statutory requirements.

If revision of the RAP is necessary, the following procedure should be followed:

- Review of the RAP by an experienced environmental scientist / engineer with reference to the changes requiring the revision. This review should also be done in consultation with the Site Auditor, and Woollahra Council, particularly if the updated report varies or is inconsistent with any condition of consent imposed by council which could require a Section 96 (Modification of Consent) application under the Environmental Planning and Assessment Act 1979 to be submitted to modify the consent;
- Update the RAP, including the document register revision number information, to address the requirements of the changed conditions; and
- Re-issue of the RAP and provision of notice to the stakeholders that previous versions have been superseded.

A copy of any revised RAP should be provided to the Key Stakeholders listed in Table 1 above.

3 PREVIOUS REPORTS

In development of this RAP, the following environmental reports have been reviewed and considered and should be read in conjunction with this RAP.

1. Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373, dated July 2010;

2. Potential Acid Sulfate Soils Assessment – Proposed Redevelopment – 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Brenchley Architects and Mr Ari Spindel, reference JBS41673-17264, dated 3 June 2011;
3. Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373 Rev 1, dated January 2012;
4. Draft Additional Environmental Site Assessment, Pre-Remediation Environmental Site Assessment and Off-Site Extent Assessment, Budget Service Station, 638-646 New South Head Road, rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50196 Rev A, dated March 2012;
5. Additional Environmental Site Assessment at Rose Bay in proximity of 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50470, dated 13 April 2012;
6. Draft Additional Environmental Site Assessment, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-53102 Rev A, dated January 2013;
7. Remedial Action Plan: Service Station UPSS Decommissioning and Petroleum Hydrocarbon Remediation and Validation Works, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Ari and Ildi Spindel, reference JBS41564-16488 Rev 0, dated July 2013;
8. Groundwater Monitoring Event Report – December 2015, Rose Bay Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS&G for Mr Ari and Ms Ildi Spindel, reference 50377-102578 (Rev A), 20 January 2016; and,
9. Environmental Site Assessment Report, 636 New South Head Road, Rose Bay, NSW, prepared by CES for Rose Bay Joint Venture, reference CES160201-DYL-AB, dated 2 June 2016.

4 SITE CONDITION AND SURROUNDING ENVIRONMENT

4.1 SITE LOCATION

The site is located at 636 and 638-646 New South Head Road within the suburb of Rose Bay, NSW. The site covers an area of approximately 1,554 m^2 and is located within the Local Government Area (LGA) of Woollahra Council within Lot A in DP 393087 and SP 22533. The site location is shown in **Figure 1** and the site layout is presented in **Figure 2**. Plans for the proposed redevelopment are presented in **Appendix A**.

4.2 SITE DESCRIPTION

The site is comprised of a two-storey residential apartment building in the northern portion bordering Rose Bay (the Northern Site) and a petrol service station bordering New South Head Road (the Service Station Site).

A site inspection of the Northern Site was carried out on 22 February 2016 by CES. The Northern Site was found to be currently occupied by a residential unit complex identified as Kenmar Court. The two-storey brick clad structure is surrounded by grass landscaping whilst a concrete paved footway provides access from New South Head Road. The northwest site boundary consists of a retaining wall that fronts onto Rose Bay beachfront. No visual or olfactory evidence of impacts (e.g. surface staining or distressed vegetation) and no storage of chemicals or fuels were observed on the site.

Site inspections of the Service Station Site were completed by JBS on the 16 June 2010 and 2 December 2012 and reported. The site was observed to be irregularly shaped and paved over the complete site area. Site features observed during the site inspection included:

- A brick building present over the majority of the north-western boundary consisting of a retail area and adjoining workshop;
- A metal shed located at the northern corner of the site observed to be used for storage of oils and lubricants associated with the operation of the workshop;
- Four fuel dispensers underlying a metal canopy within the central portion of the site;
- Five current underground storage tanks (USTs) were located adjoining the centre and south-western boundary and the eastern portion of the site. The fill point of the USTs was generally located overlying the USTs;
- Two historical USTs located within proximity of the western portion of the site; and,
- An above-ground coalescing plate oil / water separator and triple interceptor trap, located in the northern portion of the site.

A summary of the USTs is provided in Table 3.2 below.

Table 3.2: Summary of USTs at Petrol Station (1)

UST ID	Volume	Product	Status	Approximate Age and Likely Year of Installation
UST1	40 kL	Unleaded petroleum	In use	28 years (1984)
UST2	45 kL	Unleaded / ethanol blend	In use	25 years (1987), relined in 2006
UST3	20 kL	Premium unleaded (98)	In use	>30 years
UST4	16 kL	Diesel	In use	25 years (1987)
UST5	45 kL	Premium unleaded (95)	In use	25 years (1987)
UST6	Unknown	Kerosene	Abandoned	Abandoned prior to 1987

UST7	Unknown	Oil	Abandoned	Abandoned prior to 1987

(1) Based on JBS&G RAP, reference JBS41564-16488 Rev 0, dated July 2013. The current status of in-situ USTs is unknown.

4.3 SITE ZONING

The site is currently subject to zoning under the Woollahra Local Environmental Plan and is zoned 'R3' Medium Density Residential and 'B2' Local Centre.

4.4 SURROUNDING LAND USE

Based on observations from the site inspection of the site, the surrounding land use comprised the following:

- North – Rose Bay marine water body and beach front;
- East – A residential property (Lot 7 DP1089028) and two-storey residential apartment building (Lot 101 DP1029553);
- South – Bordered to the immediate south by New South Head Road. Commercial and retail properties are located on the opposite side of New South Head Rd. An operational Shell branded service station is also located at 775-777 New South Head Road, approximately 60m from the site and a large greenspace comprising the Woollahra Golf Course, Royal Sydney Golf Course, Cranbrook Junior School and several sports ovals are located within 100 m to the southwest of the site; and,
- West – Bordered by Rose Bay Towers, a mixed commercial / residential development located to the south-west of the site (Lot A DP441483 and SP28). Further west lies the Tingira Memorial Park (approximately 100 m), the Woollahra Sailing Club (approximately 150 m), Lyne Park (approximately 200 m), and Rose Bay Wharf (approximately 450 m).

4.5 PROPOSED DEVELOPMENT

The proposed development involves the demolition and removal of the existing apartment block (Kenmar Court) and existing petrol service station, and construction of a residential apartment building with limited commercial space in accordance with the requirements of Rose Bay Joint Venture and drawings prepared or varied by JPR Architects.

Based on Drawing 638 NSH Rd Rosebay Option 67, Section A, DA2300 A, Project No. 2015072, Plotted 22 February 2016 prepared by JPR Architects Pty Ltd the site is proposed to be developed for a high density residential apartment style development with commercial space. This will comprise:

- A basement car park level with access/egress ramp over the majority of the site footprint with the top of slab basement level car park at Reduced Level (RL) 0.250 mAHD;
- A second level of car parking over the basement level car parking area; and,

- Up to four storeys of high density residential apartment style properties.

Based on the measured elevation of groundwater (ranging from approximately 0.5 mAHD up to 1.8 mAHD), the basement excavation will extend below the groundwater level and will require control during construction. An indicative plan of the proposed redevelopment scheme for the site is presented in Appendix A.

Although foundation design or construction methodology has not been finalised, it is presumed that the proposed construction will involve an excavation of fill and natural soils across the entire site footprint to depths ranging from at least approximately 1.5 to 2.0 mbgl at the northern end of the site and to 4.0 to 4.5 mbgl at the southern end of the site to achieve a basement level of RL 0.25 mAHD. It is also expected that additional depth of excavation for the purposes of perimeter shoring, basement slab, utility infrastructure and foundation design will occur. Working in dry conditions will require dewatering of the site which is expected to be achieved by "tanking/bath-tubbing" the site via shoring and/or well-point dewatering, and temporary construction dewatering via localised sumps and pumping within the excavation.

4.6 SITE HISTORY

The history of the site can be summarised in regards to each of the two portions of the site:

- Northern Site - Based on historic aerial photographs reviewed as part of the previous investigation (CES, 2016), the present residential property (Kenmar Court) was constructed between 1930 and 1943. A review of subsequent aerial photographs up to present day indicate no significant changes to the site.
- Service Station Site - The site has had a history of residential and industrial development as summarised below:
    - The site was a residential dwelling prior to the mid 1950's. It was then developed as a service station, operated by the Vacuum Oil Company (subsequently Mobil) until approximately 1986;
    - An uncontrolled release of petroleum product occurred from UST1 located at the west of the site prior to 1983-1984. The Vacuum Oil Company responded by replacing the UST. No soil or groundwater remediation works are known to have occurred in response;
    - Two historical USTs were decommissioned prior to 1987 by Vacuum Oil Company. It is understood by the current site owner (Spindel Family) that these USTs were decommissioned, however it is not known whether these USTs are still present on site;
    - The current site owner (Spindel Family) acquired the site in 1987. An additional three USTs (USTs 2, 4 and 5) were installed in 1987 to increase storage capacity of the site; and

- UST2 was re-lined in 2006 by the current site owner (Spindel Family) with fibreglass to facilitate storage and distribution of ethanol blended fuels.

4.7 TOPOGRAPHY

The site is relatively level and gradually descends in elevation from south to north with a ground surface elevation of approximately 4.6 mAHD in the southern part of the site and 1.8 mAHD in the northern portion of the site. It is anticipated that surface water would likely drain towards Rose Bay and/or into water authority/Council stormwater drains and infrastructure.

4.8 GEOLOGY

Review of the Sydney Geological Map Sheet 9130, 1:100 000 Edition 1, 1983 (Dept. of Mineral Resources, 1983) indicated that the site is underlain by Quaternary aged dune deposits of Botany Sands. These typically comprise medium to fine grained 'marine' sand with podzols.The geology of the Service Station Site was characterised in JBS Environmental (January 2012) 'Environmental Site Assessment 638-646 New South Head Rd Rose Bay NSW' (JBS 2012a) as:

- CONCRETE: Concrete pavement present across the majority of the site surface;
- FILL: Fill material comprised of sands to gravelly sands present to a typical depth of 0.8-1.2 mbgs. Some road base, sandstone or igneous gravels were also observed in the fill materials; and
- SAND: Sand was identified in the boreholes to a maximum depth of investigation of 4m. Sand consisted of fine to moderate sized particles and was grey to brown in colour.

The geology of the Northern Site was characterised in CEC (2016) 'Environmental Site Assessment 636 New South Head Rd Rose Bay NSW' (CES 2016) as:

- TOPSOIL: Top soil overlain majority of the site;
- FILL: Fill material comprised of sand presented to a typical depth of 0.5-1.2 mbgs. Some roadbase material and trace rootlets were observed in the fill materials; and
- SAND: Sand was identified in the boreholes to a maximum depth of investigation of 6m. Sand consisted of fine to moderate sized particles and was grey in colour.

4.9 SOILS

A review of the Sydney 1:100,000 Soil Landscape Series Map (Sheet 9130: Soil Conservation Service of NSW, 1983) indicates that the site is underlain by Aeolian Tuggerah Landscape Group. The Tuggerah Soil Landscape Group is characterised by *"gently undulating to rolling coastal dunefields. Local relief to 20 m, slope gradients generally 1-10%, but occasionally up to 35%. North— south oriented dunes with convex narrow crests, moderately inclined slopes and broad gently inclined concave swales. Extensively cleared open-forest and eucalypt/apple woodland".* The soils are typically subject to extreme wind and wave erosion hazard, are non-cohesive, have low soil fertility and are generally highly permeable.

4.10 ACID SULFATE SOILS

JBS Environmental (3 June 2011) 'Potential Acid Sulphate Soils Assessment – Proposed Redevelopment – 638-646 New South Head Road, Rose Bay, NSW was prepared to assess the occurrence of acid sulphate soils in proximity of the site. Based on the results of laboratory analyses of four samples obtained from boreholes JBH01 to JBH04, the results indicated no ASS. JBS concluded that actual / potential acid sulphate soils were unlikely to be encountered during the proposed construction / development works on the site, which consisted of potential excavation to a depth of 3.0 m bgs.

4.11 HYDROLOGY

The nearest surface water receptor to the site is Rose Bay (part of Sydney Harbour), located approximately 5m north-west of the Northern Site. Some storm water runoff not collected by the surface water drains located around the site would be anticipated to flow towards Rose Bay, based on local topography. Collected storm water is anticipated to be discharged to the municipal storm water system in New South Head Road, located to the south of the site.

4.12 HYDROGEOLOGY

The aquifer underlying the site is represented by the water level in Rose Bay. Within the vicinity of the site, Rose Bay is tidal and diurnal fluctuations in groundwater levels in the peripheral areas of the site are expected to occur in response to tidal cycles.

There were no reported aquifers sufficient for the supply of potable water on site, however, the aquifers within 150 m of the site are described as porous, extensive aquifers of low to moderate activity to porous, extensive highly productive aquifers. It is expected that groundwater would flow towards Rose Bay to the north.

There are currently ten groundwater monitoring wells installed at the site with groundwater levels ranging from 1.2 to 3.0 mbgl, Groundwater contours indicate groundwater flow in a north to northeast direction with discharge to Rose Bay with a gradient of 0.024 m/m.

Thirty-five registered groundwater wells are located within 500 m of the site. All of the wells are registered for private 'Domestic Use', with the exception of one well registered as local government (irrigation). It is presumed that general and domestic wells refer to use by private persons for non-potable use. None of the registered wells are located on the site. The reported well yields range from 0.5 to 4.0 L s^{-1} and depth to groundwater ranges between 0.9 and 7.6 mbgl. The salinity of the registered wells is reported as 'potable' to 'good'. These data indicate that the study area is surrounded and underlain by relatively permeable strata. Low ('good') salinity of water extracted from the wells indicates that saline or brackish intrusion is likely to be limited to peripheral areas adjacent to the site.

5 CONTAMINATION STATUS

5.1 SUMMARY OF PREVIOUS REPORTS

The following sections provide a summary of contamination reported in the previous reports for the site.

5.1.1 Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373, dated July 2010

JBS Environmental was engaged by Ari Spindel to conduct an environmental site assessment (ESA) at the service station located at 638-646 New South Head Road, Rose Bay. JBS conducted a program of soil and groundwater sampling across the Service Station Site, targeting locations of petroleum infrastructure and petroleum based contaminants. It was found that the highest levels of impact were generally present in the eastern and north-eastern portions of the site. These levels of impact contained contaminants relating to the storage and handling of petroleum products. It was recommended that a remedial action plan be prepared and implemented.

5.1.2 Potential Acid Sulfate Soils Assessment – Proposed Redevelopment – 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Brenchley Architects and Mr Ari Spindel, reference JBS41673-17264, dated 3 June 2011

JBS Environmental were engaged by Brenchley Architects to undertake a potential acid sulfate soil assessment at the service station site located at 638-646 New South Head Road, Rose Bay. Four samples were collected from depths between 2.8 and 6.0m bgl and tested for pH, electrical conductivity and sPOCAS. It was found that the soils were considered mildly acidic, however did not indicate the presence of actual or potential acid sulfate soil conditions that would be disturbed during the proposed development of the site. It was concluded that the preparation and implementation of an ASSMP plan was not necessary prior to the commencement of redevelopment works.

5.1.3 Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373 Rev 1, dated January 2012

JBS Environmental was engaged by Ari Spindel to conduct an environmental site assessment (ESA) at the service station site located at 638-646 New South Head Road, Rose Bay. Soil samples were collected from eight locations situated in the south-eastern portion of the site. Hydrocarbon odours and elevated BTEX results were observed in soils located in proximity of the USTs at the eastern portion of the site and south of the fuel dispensers. Two groundwater monitoring wells (MW1 and MW2) were installed on the site and sampled. Highest levels of impact were observed to be present in the eastern and north-eastern portions of the site and contained contaminants relating to the storage and handling of petroleum products. It was recommended that a remedial action plan be prepared and implemented and the north and western portions of the site be assessed.

5.1.4 Draft Additional Environmental Site Assessment, Pre-Remediation Environmental Site Assessment and Off-Site Extent Assessment, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50196 Rev A, dated March 2012

JBS reported on additional soil vapour, groundwater and seepage water assessment undertaken in proximity to the service station site. Soil vapour was sampled from two soil vapour probes installed in the northwest boundary of the service station site to assess the vapour risk to the residential properties adjoining the boundary of the site and in proximity to the source of petroleum hydrocarbon impact. Existing groundwater monitoring wells were resampled to complete the assessment from the previous round of sampling. An assessment was also undertaken with regard to seepage / pore water in the beach sands located between the residential property (636 New South Head Road), adjoining the northwest boundary of the site, and Rose Bay. Tank integrity testing was undertaken in February and March 2012 on five USTs and associated product lines. The following is a list of pertinent information obtained from the assessment:

- Levels of soil vapour did not pose a potential human health risk to residents in proximity to the service station located to the northwest;
- The extent of petroleum impact in groundwater was identified as being within the residential property located to the northwest and down hydraulic-gradient of the service station site;
- Seepage water at Rose Bay was found to be free of petroleum hydrocarbon impacts with the exception of a localised detection of benzene, which was below the human health and ecological screening criteria; and,
- Tank integrity testing confirmed that the tanks and lines on the site are not a current source of petroleum impact.

5.1.5 Additional Environmental Site Assessment at Rose Bay in proximity of 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50470, dated 13 April 2012

JBS Environmental was engaged by Mr Ari and Ms Ildi Spindel to complete additional assessment of the occurrence and distribution of petroleum hydrocarbon impact in soils and shallow seepage water within the areas of proximity of the Budget Service Station. Works included collection of five seepage water samples from the on-shore area of Rose Bay, testing for total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs) and naphthalene Collection of eight soil samples from the capillary zone were tested for TPH, VOCs, naphthalene and Total Organic Carbon. Levels of TPH, VOCs and naphthalene in the soil and seepage water were below the laboratory detection limits. The analytical results were assessed for potential human health risks to users of Rose Bay. The levels of petroleum hydrocarbon in the soil and seepage water and the limited extent of the impact were not considered to pose an unacceptable human health risk.

5.1.6 Draft Additional Environmental Site Assessment, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-53102 Rev A, dated January 2013

JBS Environmental were engaged by Ari and Ildi Spindel to provide environmental services in relation to the Budget Service Station. The additional environmental assessment included additional groundwater sampling and analysis from seven locations, soil vapour sampling in proximity of residential receptors to the north and north-east and an additional round of sampling of seepage water at Rose Bay. Petroleum hydrocarbon impacts in groundwater were found to be delineated within the residential property located hydrogeologically downgradient of the site. Seepage water was found to be free of petroleum hydrocarbon impacts and soil vapour results showed levels of petroleum hydrocarbon generally close to laboratory reporting limits and did not indicate levels that would pose a potential human health risk. It was recommended that additional rounds of groundwater and seepage water sampling and analysis be undertaken during the winter months.

5.1.7 Remedial Action Plan: Service Station UPSS Decommissioning and Petroleum Hydrocarbon Remediation and Validation Works, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Ari and Ildi Spindel, reference JBS41564-16488 Rev 0, dated July 2013

JBS Environmental was engaged by Ari and Ildi Spindel to prepare a Remediation Action Plan (RAP) for the decommissioning of the underground petroleum storage system (UPSS) infrastructure on the Budget Service Station site and the remediation and validation of petroleum hydrocarbon soils and groundwater located on the site. The RAP outlined the preferred remediation options for the service station which included:

- Decommissioning and removal of USTs and associated facilities;
- Identification, excavation and off-site transport of hydrocarbon impacted soils;
- On-site treatment of hydrocarbon impacted groundwater as generated by de-watering works to remove petroleum hydrocarbon contamination;
- Reinstatement of site levels using validated material and validated imported fill.

The RAP also recommended additional off-site assessments of potential human health/ecological risks occurring off-site to determine the requirements to complete assessment of the appropriate remediation method for off-site areas. Such assessments included assessments of the soil and groundwater underlying the adjoining properties to the south-west and the north-east and additional soil vapour assessments.

5.1.8 Groundwater Monitoring Event Report – December 2015, Rose Bay Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS&G for Mr Ari and Ms Ildi Spindel, reference 50377-102578 (Rev A), 20 January 2016

JBS&G Australia was commissioned to carry out a Groundwater Monitoring Event (GME) in December 2015. The GME included sampling of wells within the service station. The objective of

this assessment was to assess whether previously investigated levels of petroleum hydrocarbons in groundwater presented a human health risk to occupants of the site and surrounds, as well as assessing the potential ecological impacts. The following is a list of pertinent information obtained from the assessment:

- Analytical results for Total Petroleum Hydrocarbons (TPH) C_6-C_9 indicated elevated levels for the sampled wells located on-site and along the northern boundary of the site. In comparison, the analytical results showed the TPH C_6-C_9 concentrations in the downgradient wells located furthest north (MW06 & MW07) to reduce to below the laboratory limits of detection. These results thus indicated the contamination greatly reducing with increasing distance from the service station site;
- Analytical results for TPH C_{10}-C_{36} indicated elevated levels for the sampled wells located on-site and along the northern boundary of the site. In comparison, the analytical results showed the TPH C_{10}-C_{36} concentrations in the downgradient wells located furthest north (MW06 & MW07) to reduce to below the laboratory limits of detection. These results thus also indicated the contamination greatly reducing with increasing distance from the service station site;
- Analytical results for BTEXN complemented those for TPH showing results for Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene all reducing from elevated concentrations to below the laboratory limits of detection in the downgradient wells located furthest north towards Rose Bay (MW06 & MW07); and
- Some localised increases of contaminant concentration were reported but were not considered significant when compared to historical levels, therefore, the results were not found to be indicative of increased human health and/or ecological risk.

5.1.9 Environmental Site Assessment Report, 636 New South Head Road, Rose Bay, NSW, prepared by CES for Rose Bay Joint Venture, reference CES160201-DYL-AB, dated 2 June 2016

The ESA included the drilling of seven boreholes and installation of three groundwater monitoring wells within the Northern Site and associated analytical testing of soil and groundwater samples. The following is a list of pertinent information obtained from the assessment:

- With regard to soil samples:
    - No exceedance of human health criteria were detected in the analysed samples.
    - Benzo(a)pyrene concentrations exceeded the ecological criteria in the following boreholes: BH101, BH102, BH103, BH104, MW105, MW106. The vertical extent of the impact was delineated within the natural material at a maximum depth of 0.5 mbgl confirmed by analytical results.
    - Copper concentrations exceeded the ecological criteria in BH101 at a depth of 0.0-0.1 mbgl.

  - No visual evidence of bonded ACM was made on the ground surface or in soil samples obtained during the borehole drilling.
  - As the building currently occupying the site was built during a time when asbestos materials were commonly used, assessment of building materials for the presence of Hazardous Building Materials (e.g. asbestos, lead) would need to be undertaken prior to demolition. Any impacts from these materials in soil should be undertaken post-demolition.
- With regard to groundwater:
  - Groundwater was encountered at depths ranging from 1.20 to 1.93 mbgl;
  - Groundwater flow direction is inferred in a north/northwest direction towards Rose Bay;
  - No LNAPL was detected in either the pre-existing or newly installed groundwater monitoring wells on the site.
  - TRH, BTEXN, and total PAHs were detected in groundwater monitoring wells MW03, MW04, and MW05 located along the southern boundary of the site adjacent to the service station. Concentrations of the measured analytes increased in the direction from MW03 towards MW05. These analytes were not detected in the remaining wells on the site.
  - Copper was in exceedance of the GIL tier 1 assessment criteria in MW05 and MW06.
- A preliminary petroleum vapour intrusion assessment was conducted, the results of which indicated the following:
  - Dissolved phase contamination is present beneath the Northern site.
  - The lateral extent of the plume is considered stable and its extent on the site is anticipated to be localised to the southern area of the Northern site.
  - No short term/acute risks have been identified.
  - A detailed PVI assessment may be required subject to post-remediation works.
- Conclusions were made as follows:
  - Based on the comparatively low detections of COPC and given their localised nature and extent, CES does not consider there to be a significant risk to current site users or ecological receptors.
  - Based on the findings of this investigation it is the opinion of CES that the detected soil and groundwater impacts that have the potential to impact future construction workers and residents of the proposed redevelopment can be addressed during redevelopment of the site with appropriate remediation and validation sampling which would include the footprint of existing structures on the site.
  - A RAP will be provided which will prescribe the remediation strategy for the site.

5.2 SUMMARY OF CONTAMINATION

CES has reviewed the soil and groundwater site data provided in the previous reports discussed in Section 5. It should be noted that previous investigations by JBS&G utilised adopted assessment criteria that have now been replaced by current screening criteria outlined in the NEPM Schedule B1 – Guideline on Investigation Levels for Soil and Groundwater. The historical and recent soil and groundwater data has been screened against the current applicable criteria in this RAP.

5.2.1 Soil Contamination Summary

Table 2 provides a summary of the soil contamination (analytes with concentrations above the adopted screening criteria) present in the samples collected and analysed by CES and JBS&G. The table excludes the analytes with concentrations less than the screening criteria.

Table 2: Summary of Soil Impacts in Exceedance of Assessment Criteria

Contaminant	Sample ID and Measured Concentration	Adopted Criteria
Benzo(a)pyrene	BH101_0.0-0.1m: 1.9 mg/kg	ESL* = 0.7 mg/kg
	BH102_0.0-0.1m: 2.0 mg/kg	
	BH103_0.0-0.1m: 1.4 mg/kg	
	BH104_0.0-0.1m: 1.2 mg/kg	
	BH104_0.5-0.6m: 1.7 mg/kg	
	MW105_0.0-0.1m: 0.98 mg/kg	
	MW105_1.5-1.6m: 2.3 mg/kg	
	MW106_0.0-0.1m: 2.2 mg/kg	
Benzene	SB07_1.4-1.6m: 20 mg/kg	HSL = 3 mg/kg
Toluene	SB07_14-1.6m: 440 mg/kg	ESL* = 105 mg/kg
Ethylbenzene	SB07_14-1.6m: 150 mg/kg	ESL* = 125 mg/kg
Total Xylenes	SB02_1.9-2.1m: 98 mg/kg*	HSL = 230 mg/kg ESL = 45 mg/kg
	SB04_1.9-2.1m: 161 mg/kg*	
	SB02_QC03 1.9-2.1m: 129 mg/kg*	
	SB04_QC03A 1.9-2.1m: 120 mg/kg*	
	SB07_1.4-1.6m: 1170 mg/kg	
Copper	BH101_0.0-0.1m: 16,000 mg/kg	EIL** = 215 mg/kg

* Ecological Screening Level Urban Residential / Public Open Space

** Ecological Investigation Level Urban Residential / Public Open Space

*** Health Investigation Level Residential B (Residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments).

Based on the soil results to date for the site, the contaminants of potential concern (COPC) are BTEX and benzo(a)pyrene. The copper exceedance is an isolated exceedance and not representative of widespread contamination. As such, it is not considered to be a COPC. It is noted that samples of soil have not been obtained from the immediate vicinity (i.e. in direct contact) with target UPSS contamination sources (i.e. UPSS). It is anticipated that further extent of impact will

be revealed once UPSS are excavated. From a potential vapour, odour, amenity, and aesthetic concern the COPCs for soil should also include TRHs.

The sampling locations are shown on **Figure 3**.

Table 3 provides a preliminary screening of the soil samples (CES, 2016) which have exceeded the screening criteria of the NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*.

Table 3: Preliminary Soil Waste Classification

Contaminant	Sample ID and Measured Concentration	CT1 Criteria	CT2 Criteria
Benzo(a)pyrene	BH101_0.0-0.1m: 1.9 mg/kg	0.8 mg/kg	3.2 mg/kg
	BH102_0.0-0.1m: 2.0 mg/kg		
	BH103_0.0-0.1m: 1.4 mg/kg		
	BH104_0.0-0.1m: 1.2 mg/kg		
	BH104_0.5-0.6m: 1.7 mg/kg		
	MW105_0.0-0.1m: 0.98 mg/kg		
	MW105_1.5-1.6m: 2.3 mg/kg		
	MW106_0.0-0.1m: 2.2 mg/kg		
Benzene	SB07_1.4-1.6m: 20 mg/kg	10 mg/kg	40 mg/kg
TPH C_6-C_9 Fraction	SB07_1.4-1.6m: 2,500 mg/kg	650 mg/kg	2,600 mg/kg
Lead	BH101_0.0-0.1m: 350 mg/kg	100 mg/kg	400 mg/kg
	BH102_0.0-0.1m: 270 mg/kg		
	BH103_0.0-0.1m: 500 mg/kg		
	BH104_0.0-0.1m: 280 mg/kg		
	MW105_0.0-0.1m: 230 mg/kg		
	MW105_1.5-1.6m: 290 mg/kg		
	MW106_0.0-0.1m: 670 mg/kg		
	SB04_0.15-0.3m: 560 mg/kg		
	SB05_0.15-0.3m: 510 mg/kg		
	SB07_0.15-0.3m: 100 mg/kg		

- Results below CT1 criteria indicate General Solid Waste and/or may include VENM/ENM classification under the Waste Classification Guidelines (2014)
- Results exceeding CT1 criteria indicate Restricted Solid Waste classification under the Waste Classification Guidelines (2014)
- Results exceeding CT2 criteria indicate Hazardous Waste classification under the Waste Classification Guidelines (2014)

Although the majority of individual results of analyses shown in Table 3 above indicate classification of soils as Restricted Solid Waste for off-site disposal purposes, it is noted that waste

classification should also be based on the results of Toxicity Characteristic Leaching Procedure (TCLP) which has not been conducted on samples retrieved from the site. As such, finalised waste classification should be conducted during remediation of the site and should include specific contaminant concentration (SCC) testing and TCLP testing for comparison with values listed in Table 2 of the Waste Classification guidelines.

5.2.2 Groundwater Contamination Summary

Table 4 provides a summary of the exceedance of groundwater adopted criteria reported by CES and JBS&G.

Table 4: Summary of Groundwater Contamination (ug/L)

Contaminant	Sample ID and Measured Concentration	Adopted Criteria
Benzene	MW01 (06/2010): 24,000 ug/L* MW01 (01/2012): 14,000 ug/L* MW01 (12/2012): 11,000 ug/L* MW01 (10/2013): 7,400 ug/L* MW01 (11/2014): 5,600 ug/L* MW01 (12/2015): 2,600 ug/L*	AqMW* = 500 ug/L Recreation** = 10 ug/L
	MW02 (06/2010): 4,500 ug/L* MW02 (01/2012): 1,300 ug/L* MW02 (12/2012): 310 ug/L** MW02 (10/2013): 86 ug/L** MW02 (11/2014): 140 ug/L**	
	MW03 (01/2012): 1,500 ug/L* MW03 (12/2012): 940 ug/L* MW03 (10/2013): 560 ug/L* MW03 (1120/10): 250 ug/L** MW03 (12/2015): 260 ug/L**	
	MW04 (12/2012): 330 ug/L** MW04 (10/2013): 190 ug/L** MW04 (11/2014): 230 ug/L** MW04 (12/2015): 34 ug/L**	
	MW05 (01/2012): 230 ug/L** MW05 (12/2012): 82 ug/L** MW05 (10/2013): 45 ug/L** MW05 (11/2014): 52 ug/L** MW05 (12/2015): 13 ug/L**	
	MW07 (01/2012): 1,300 ug/L* MW07 (12/2012): 12 ug/L** MW07 (10/2013): 15 ug/L**	
Naphthalene	MW01 (06/2010): 170 ug/L* MW01 (01/2012): 280 ug/L*	AqMW* = 50 ug/L

	MW01 (10/2013): 550 ug/L* MW01 (11/2014): 610 ug/L* MW01 (12/2015): 750 ug/L*	
	MW02 (06/2010): 170 ug/L* MW02 (01/2012): 290 ug/L* MW02 (10/2013): 290 ug/L* MW02 (11/2014): 440 ug/L* MW02 (12/2015): 730 ug/L*	
	MW03 (01/2012): 220 ug/L* MW03 (10/2013): 100 ug/L* MW03 (11/2014): 60 ug/L* MW03 (12/2015): 170 ug/L*	
	MW04 (10/2013): 52 ug/L* MW04 (12/2015): 70 ug/L*	
	MW07 (01/2012): 73 ug/L*	
Copper	MW06 (04/2016): 2 ug/L**	Recreation** = 1.3 ug/L
	MW07 (04/2016): 3 ug/L**	

Adopted Groundwater Assessment Criteria

* AqMW - Aquatic Ecosystems, 95% Level of Protection, Marine Waters listed in NEPM2013. In some cases the default value represents 99% level of protection.

** Recreation – Primary and Secondary Contact Recreation, ANZECC 2000

Based on the groundwater results to date for the site, the contaminants of potential concern (COPC) are benzene and naphthalene. Concentrations of copper in exceedance of the adopted GIL assessment criteria were detected in groundwater sampled from MW06 and MW07. The detected concentrations (2 ug/L and 3 ug/L) are not considered significant and are likely indicative of background levels and not the results of onsite activities. From a potential vapour, odour, amenity, and aesthetic concern the COPCs for groundwater should also include TRHs, toluene, ethylbenzene, and xylenes.

Based on the current groundwater data, contamination migration appears to be occurring in boreholes BH01 to BH07 located within the service station and the southern area of the Northern site. Based on the current and historic data, and lack of significant contamination down gradient, CES does not consider that there is a significant risk posed to off-site receptors.

5.2.3 Vapour Contamination Summary

In 2013, JBS&G sampled soil vapour from two soil vapour probes (SV4-1.1m and SV5-1.2m) installed in the northwest boundary of the service station site to assess the vapour risk to the residential properties adjoining the boundary of the service station site and in proximity to the source of petroleum hydrocarbon impact.

JBS concluded the following:

- Levels of soil vapour did not pose a potential human health risk to residents in proximity to the service station located to the northwest;
- In areas of anaerobic soils, there is a potential for high levels of petroleum hydrocarbon vapours. Anaerobic soils have been demonstrated to be present underlying the central portion of the service station site and do not extend to the proximity of the sensitive off-site receptors.

The results of a preliminary petroleum vapour intrusion (PVI) assessment undertaken by CES (June 2016) for the Northern site indicated the following:

Although the dissolved phase is assumed to be in direct contact with the existing building foundations there is not enough evidence to suggest the definitive extent of the plume at this stage. On the basis of current soil vapour information (JBS 2013) and groundwater dissolved phase data, no short term/acute risks are likely to be present. Excavation and remediation works aim to remove the primary and secondary sources of contamination which will reduce potential PVI risk. Therefore, conducting a detailed PVI assessment is considered to be subject to post-demolition and post-remediation investigations.

6 APPLICABLE LEGISLATION AND APPROVALS

The NSW Environmental Planning and Assessment Regulation (2000), under the Environmental Planning and Assessment Act (EP&A) 1979 (NSW Government, 1979), provides the legislative framework within which notifications and approvals must be made for redevelopment of the site. The demolition and remediation works (involving handling potential contaminated waste materials and removal of Underground Petroleum Storage Systems) to be undertaken must comply with the applicable environmental legislative requirements. The following table provides a summary of the applicable legislative and regulations for the proposed remediation works.

Table 8: Applicable Legislation / Regulation

Legislation / Regulation	Key Project Requirements
Contaminated Land Management Act 1997	Establishes the process for investigating and remediating land.
Protection of the Environment Operations Act 1997 (POEO Act)	Under all activities so as to minimise harm to the environment (in particular pollution of air and water and noise emissions) and not cause an offence under the Act. Discharge to stormwater may require a licence under the Act if required.
Protection of the Environment Operations (Waste) Regulation 2005	Transporters of waste (including Restricted Solid Waste and Hazardous Waste) are required to be licensed under the Act. Some waste disposal / processing facilities are required to be licensed under the Act.

Legislation / Regulation	Key Project Requirements
	Requirements in relation to transportation, collection, storage or disposal of waste.
Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014	The Regulation stipulates the process and reporting requirements for the decommissioning and removal of UPSS.
State Environment Planning Policy No 55 – Remediation of Land	SEPP 55 specifies consent requirements for remediation, specifies certain considerations that are relevant for rezoning land, and requiring that remediation is conducted to meet certain standards and notification requirements. Council will require minimum 30 day notification of remediation works to verify that the work is not Category 1 remediation works.
State Environmental Planning Policy No 71 – Coastal Protection	SEPP 71, in general, specifies requirements for the protection and management of the natural, cultural, recreational, and economic attributes of the NSW coast and applies to land which is within the coastal zone.
Woollahra Council Local Environment Plan 2014	Governs planning approval for development and the Council, the Consent authority, in determination of consent for the development. Notification to Council of remediation works will be required.
Work Health and Safety Act 2011	All works to be conducted in accordance with WHS Act.
Work Health and Safety Regulation 2011	All works to be conducted in accordance with WHS Regulations.
SafeWork NSW	Notifications required for asbestos removal, hazardous chemicals, lead, and demolition.

The site remediation process and removal of underground storage tanks, validation works, and reporting prescribed within this document should be conducted with reference to the following industry standards, guidelines, and codes of practice:

i. National Environment Protection (Assessment of Contamination) Measure, 1999, as amended;

ii. NSW EPA, Technical Note: Investigation of Service Station Sites, 2014;

iii. DECCW, UPSS Technical Note: Site Validation Reporting, January 2010;

iv. DECCW, UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS; January 2010;

v. Australian Standard AS 4976 - The removal and disposal of underground petroleum storage tanks;
vi. Australian Standard AS 4482.1 Part 1 – Non-volatile and Semi-volatile Compounds;
vii. Australian Standard AS 4482.2 Part 2 – Volatile Compounds;
viii. Australian Standard 1940-2004: The Storage and Handling of Flammable and Combustible Liquids; and,
ix. Australian Standard AS2550.1-2011: Cranes, hoist and winches – Safe use – General requirements.
x. National Environment Protection Council (1998): NEPM on Ambient Air Quality;
xi. NSW Office of Environment and Heritage (March 2004): Managing Urban Stormwater – Soils and Construction;
xii. NSW EPA (2014): Waste Classification Guidelines. Part 1: Classifying Waste;
xiii. NSW DECCW (2005): Approved Methods for the Modelling and Assessment of Air Pollutants in NSW; and,
xiv. NSW DECCW (2007): Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.

Hazardous building materials (i.e. asbestos and lead) and demolition of building structures should form part of a demolition specification that is outside this RAP.

6.1 NOTIFICATIONS AND PERMIT REQUIREMENTS

All works related to the site remediation must be undertaken with the appropriate notifications and permits in place. A summary of the notifications and permits which will be required prior to initiating works are listed below:

- SafeWork NSW issued licence to manage asbestos materials and asbestos containing waste (if identified);
- 30 day notification of remediation works to Woollahra Council under the CLM Act 1997 and SEPP 55 as Category 2 remediation works;
- Traffic management plan approved by Woollahra Council (if required);
- Tree preservation approval by Woollahra Council for removal of trees across the site (if required);
- Controlled Activity Permit in Waterfront Land issued under the Water Management Act; and,
- Under the NSW Department of Primary Industries and the Water Management Act 2000 or Water Act 1912 and administered by the NSW Office of Water, a water licence will be required for dewatering of groundwater at the site for construction purposes in accordance with the Aquifer Interference Policy. The dewatering of a site for the construction and maintenance of associated works, such as buildings, roads and other civil works are considered an aquifer interference activity which is applicable to the site. Where the

dewatering of the site causes displacement of surface water from Rose Bay to fill the void caused by dewatering of the groundwater underlying the site, a second licence is required for the movement of Rose Bay surface water. Issuance of this licence(s) will require an application that includes details of dewatering requirements, aquifer and surface water impacts, and strategies for compliance with the License as outlined in the Policy.

6.2 SEPP 55 REMEDIATION CATEGORY

Development consent is required for Category 1 remediation works which may occur when there is a potential for significant environmental impacts from the work. Development consent is not required for Category 2 remediation works.

In accordance with SEPP 55, Category 1 remediation work is a remediation work that is:

a) Designated development; or
b) Carried out or to be carried out on land declared to be critical habitat, or
c) Likely to have a significant effect on a critical habitat or a threatened species, population or ecological community, or
d) Development for which another State environmental planning policy or a regional plan requires development consent, or
e) Carried out or to be carried out in an area or zone to which any classifications to the following effect apply under an environmental planning instrument:
    i. Coastal protection,
    ii. Conservation or heritage conservation,
    iii. Habitat area, habitat protection area, habitat or wildlife corridor,
    iv. Environment protection,
    v. Escarpment, escarpment protection or escarpment preservation,
    vi. Floodway,
    vii. Littoral forest,
    viii. Nature reserve,
    ix. Scenic area or scenic protection
    x. Wetland, or

f) Carried out or to be carried out on any land in a manner that does not comply with a policy made under the contaminated land planning guidelines by the council for any local government area in which the land is situated (or if the land is within the unincorporated area, the Western Lands Commissioner).

Based on preliminary review of the Woollahra LEP, the land on which the remediation is to occur does not fall clearly within the Category 1 definitions, however, an exhaustive environmental planning review has not been undertaken and this should be further resolved with Council.

7 REMEDIATION WORKS

7.1 CHEMICALS OF POTENTIAL CONCERN

Based on the results of environmental investigations conducted at the site, the following chemicals of potential concern (COPC) in soil and groundwater were identified:

- Soil – BTEX, benzo(a)pyrene, and TRHs.
- Groundwater – BTEX, naphthalene, and TRHs.

7.2 EXTENT OF CURRENT IMPACTS

Soil and groundwater impacts, in exceedance of the adopted assessment criteria, are shown on **Figure 3** and are based on information from previous environmental works conducted at the site.

7.2.1 Soil Impacts

Shallow soil impacts in exceedance of the adopted assessment criteria were encountered between surface level and a maximum depth of 0.6 mbgl at BH101, BH102, BH103, BH104, MW105 and MW106 (CES 2016).

Deeper soil impacts in exceedance of the adopted assessment criteria were encountered between 1.4 and 1.6 mbgl at SB07 (JBS&G 2010) and BH105 (CES 2016).

7.2.2 Groundwater Impacts

Concentrations of benzene exceeded the adopted GIL assessment criteria in samples MW01, MW02, MW03, MW05, MW06, MW07 and RB01. These exceedances, with the exception of RB01, were found to reduce in concentrations with each monitoring occasion between 2010 and 2015. The 2016 sampling event (CES 2016) showed concentrations in samples MW03, MW04 and MW05 to be below the adopted GIL assessment criteria.

Concentrations of Naphthalene exceeded the adopted GIL assessment criteria in samples MW01, MW02, MW03, MW04 and MW07. Concentrations in samples MW01, MW02 and MW04 were found to increase with each monitoring event.

8 REMEDIATION OPTIONS AND STRATEGY

8.1 REMEDIATION GOAL

The site is proposed to be redeveloped with the construction of a new apartment complex that includes a basement (parking). The goal of remedial works is to provide sufficient engineering and management controls to make the site suitable (with respect to soil, groundwater, and vapour contamination) for the proposed redevelopment.

8.2 EXTENT OF REMEDIATION REQUIRED

On the basis that the proposed development at the site will involve an excavation of fill and natural soils across the entire site footprint to depths ranging from at least approximately 1.5 to 2.0 mbgl at the northern end of the site to 4.0 to 4.5 mbgl at the southern end of the site, the remediation of soil contamination will be achieved by excavation and off-site removal of primary and secondary sources of contamination, namely UPSS and impacted on-site soils. Groundwater contamination, expected to be contained within the site boundary, will be mitigated by removal of primary and secondary sources, however will require further monitoring during and following excavation activities. The potential presence of soil and/or groundwater vapour impact will require a detailed petroleum vapour intrusion investigation following remedial excavations.

8.3 REMEDIATION OPTIONS AND RATIONALE FOR SELECTION

In accordance with the ANZECC / NHMRC (1992) *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites* and as outlined in the NSW DEC 2006, Contaminated Sites: *Guidelines for NSW Site Auditor Scheme (2nd Edition)*, the preferred order of options for site remediation and management are:

1. On-site treatment of the soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
2. Off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site;
3. Removal of any contaminated soil to an approved site or facility, followed, where necessary, by replacement with clean fill (in this case there is no requirement for the importation of clean fill); and
4. Consolidation and isolation of the soil on-site by containment within a properly designed barrier.

It is normal practice to consider these options in determining a strategy for site remediation. However, in this case, because the majority of fill materials on the site are to be excavated and removed from the site for the provision of basement level parking, the appropriate option is number 3 above.

8.4 PREFERED REMEDIATION APPROACH

Primary sources of COPC impact at the site are considered to be the storage of hydrocarbon products in the USTs and associated infrastructure (i.e. fuel lines, remote fill points and oil / water separator) in the service station. Primary source control would constitute the removal of the existing USTs and associated infrastructure. As part of the redevelopment of the site, demolition and removal of both the on-site existing apartment complex and the service station (including USTs) will take place.

Secondary sources of COPC impact at the site are considered to be potentially impacted soils. Determination of whether soil and / or groundwater may be a secondary source will be evaluated by a combination of visual and olfactory evidence and laboratory analyses during the removal of the existing tank infrastructure and existing apartment complex.

Considering the above, the following remediation approach has been identified to achieve the remediation goal:

- Demolition of above ground structures and buildings;
- Removal of petroleum hydrocarbon impact from the site through the excavation, to the extent practicable, of potentially impacted materials associated with the service station to allow validation of residual soils in excavated areas; and
- Classification and off-site disposal of excavated material to an appropriately licensed landfill.

9 REMEDIATION ASSESSMENT CRITERIA

9.1.1 Human Health Soil Assessment Criteria

To determine the success of the proposed remediation and to evaluate different site rectification options, it is necessary to define appropriate Remediation Acceptance Criteria (RAC). For the proposed land use the proposed RAC are presented in **Appendix C** and comprise the NEPM 2013 Health Investigation Levels "B" which are applicable to residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments). For petroleum hydrocarbon contaminants, the NEPM 2013 Health Screening Levels will be used as an initial screening tool, however, a detailed Petroleum Vapour Intrusion assessment will be conducted to confirm that risk has been mitigated for the proposed land use.

Acceptable remediation will occur where all analytical results are below the human health criteria. In the event of isolated impact, statistical analyses will be used as follows:

- The upper 95% confidence level (95%UCL) on the average concentration for each analyte is below the adopted criteria;
- No single analyte concentration shall exceed 250% of the adopted criteria; and,
- The standard deviation of the results is less than 50% of the criteria.

The presence of aesthetically impacted soils (i.e. odorous) shall also constitute a need to consider for remediation.

9.1.2 Groundwater Assessment Criteria

The extent of additional groundwater assessment at the site will be subject to the observations to be made during remedial excavations and the efficacy of soil remediation. Groundwater

assessment criteria will be criteria for Aquatic ecosystems (95% level of protection for marine environments), drinking water, secondary and primary recreation, and visual amenity outlined in ANZECC 2000 and NEPM 2013.

9.1.3 Vapour and Ambient Air Assessment Criteria

A detailed petroleum vapour intrusion assessment must be conducted following remediation of the site in accordance with NEPM 2013. The level and extent of this assessment will be subject to the results of remediation of the site contaminants but may include on-site and off-site soil vapour sampling and sampling of ambient air in open and closed spaces.

9.1.4 Waste Classification Criteria

The NSW EPA Waste Classification Guidelines; Part 1: Classifying Waste includes a stepped framework for the classification of waste including classification of waste based on a soils specific contaminant concentration (SCC) and the leachable concentration of any chemical contaminant based on the results of Toxicity Characteristic Leaching Procedure (TCLP).

Current assessments of site soils have not included TCLP testing and as such, classification of site soils as Restricted Solid Waste may be incorrect, resulting in higher off-site disposal costs. It is recommended that adequate access to site soils and SCC and TCLP combined testing should be undertaken during remedial works to accurately characterise soils for off-site disposal. All wastes are to be classified in accordance with this framework.

10 PROPOSED REMEDIATION METHOD

10.1 SITE PREPARATION

Prior to undertaking any excavation works, the nominated site supervisor will ensure that the necessary environmental management, notifications, permits and safety controls are in place. As a minimum, site preparation works should include:

- A hazard assessment, Project Safety Plan (PSP) and inductions for all persons visiting or working on the site;
- Implement all necessary environmental controls (including but not limited to sedimentation, dust and erosion controls) and safety measures (including but not limited to site signage, security fencing);
- The designation of stockpile, equipment and material placement areas;
- The implementation of a Traffic Management Plan; and
- Isolation and disconnection of all underground services on-site.

10.2 UPSS REMOVAL

Following site preparation works and necessary demolition and removal works to allow access to UPSS, the proposed sequence for the UPSS removal works, as managed by the nominated remediation contractor, is generally as follows:

1. Removal of the overlying concrete and bitumen and off-site disposal;
2. Removal of the soils overlying the UPSS (USTs, fuel lines, vent lines) and waste classification assessment;
3. Identification of residual liquids and/or gas that may be present within UPSS and pump-out or displacement and collection for off-site disposal at a suitably licensed facility;
4. Controlled excavation of immediately adjacent impacted soils from around the UST and stockpiling on-site, for waste classification;
5. Excavation and segregation of impacted soils as is practicable. If the extent of impact is found to continue off-site, excavation should cease until further assessment of off-site locations is completed;
6. Controlled dewatering of the tank pit excavations (if required) and off-site disposal of purged groundwater at a suitably licensed facility;
7. Impacted groundwater should be collected separately and treated off-site if possible given the limited site space. Further groundwater remediation criteria may be provided following details of site dewatering and site management;
8. Removal and appropriate off-site disposal of the UPSS and associated infrastructure to a licensed destruction facility;
9. Offsite disposal of soil to licensed landfill or waste treatment facility;
10. Validation of the tank pit excavation and former infrastructure in accordance with NSW EPA, Technical Note: Investigation of Service Station Sites, 2014 and DECCW, UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS, January 2010. Generally in accordance with sampling frequency at a rate of 1 sample per 5 m linear for pipelines and 1 sample per 25 m^2 for base and walls of excavations;
11. Reinstatement of excavations where required to achieve site levels with validated imported materials classified as Virgin Excavated Natural Material (VENM, POEO Act 1997) or Excavated Natural Material (ENM, POEO Resource Recovery Order 2014) and compaction of materials to meet geotechnical and structural requirements of the proposed development;
12. Preparation of a validation report DECCW, UPSS Technical Note: Site Validation Reporting, January 2010; and
13. Notification of SafeWork NSW of the UPSS removal within 30 days of removal.

10.3 *MANAGEMENT OF UPSS RESIDUAL LIQUIDS*

Residual liquids (if any) are to be removed from the UPSS by a licensed liquid waste contractor. The procedure outlined below should be adopted (in general accordance with AS4976-2008):

- The appointed principal, or supervisor, shall ensure that documented work instructions and all the relevant work permits including hot work permits are issued to the contractor prior to works proceeding;
- Remove all possible product from the tank and pipework via the dip fitting using an air operated pump or other appropriate equipment for a hazardous area and industry approved hoses. All transfer equipment should be electrically bonded to the tank and a fire extinguisher and spill kit should be available at all times.
- Transfer residual product to sealed drums or licensed tankers for safe off-site disposal; and
- Seal off all ground level connections to the tank, but leave the vent intact.

10.4 *UPSS REMOVAL PROCESS*

The staging of UPSS removal is presented below:

1. Drain, blank (to prevent accidental leakage) and disconnect all redundant pipework, withdraw any tank mounted equipment, and plug all openings including the vent. One plug shall have a 3 mm hole to act as a pressure equalising vent;
2. Complete the excavation to expose the total width and length of the USTs, and remove concrete anchors if present. Care should be taken to prevent the excavator from striking the tank. On no account should excavation equipment be used to punch holes into a UST. The work should be planned so that as soon as a tank is fully exposed, it is immediately removed from the excavation and placed on to the transport vehicle. It should then be taken to the approved disposal or storage site without delay;
3. When lifting the USTs, ensure that the lifting lugs are in good condition and that the crane or excavator has sufficient capacity to overcome the ground suction effects likely to be encountered. If the lifting lugs are deemed to be corroded, alternative lifting techniques (e.g. the use of slings) should be considered;
4. An appropriately sized (to accommodate the tanks, lines, dunnage, blocks and tank clearance, as described below) HDPE liner may be positioned on the ground to minimise the potential for loss of product to the ground, with appropriate dunnage to keep the tank elevated above the ground (100 mm), blocks should be used to prevent the tanks from rolling and the tanks should be positioned so that access can be gained to all sides;
5. As soon as the USTs are clear of the excavation, scrape off all loose soil and perform visual inspection. Defects are to be noted and photographed. The operator should remain clear of the tank at all times;
6. Cold patch or plug any holes prior to loading the tank to transport vehicle;
7. Each UST should be permanently marked with warning label:

"NOT GAS FREE
NO NAKED LIGHTS
TANK HAS CONTAINED LEADED PETROL/DIESEL
NOT SUITABLE FOR STORAGE OF FOOD OR LIQUIDS INTENDED FOR HUMAN OR ANIMAL CONSUMPTION."

Note:

8. If any of the USTs have been filled with concrete slurry this will need to be broken-out prior to lifting. Concrete may either be crushed and then taken off site or placed into the base of the excavation pit following validation of both the concrete and the base of the excavation;
9. If the USTs have been filled with sand, this will need to be stockpiled in designated areas, tested, classified and managed in accordance with NSW EPA Waste Classification Guidelines (2014);
10. Contaminated soil and backfill sands will be removed by controlled excavation. An environmental scientist using visual, olfactory and Photoionisation Detector or similar, will guide the excavation;
11. Validation samples will then be collected from the resulting tank pit walls, base and pipework trenches;
12. Upon the completion of excavation works in this area, the pits should be cordoned off with temporary fencing, to prevent unauthorised access to the area. Silt fences or bund walls or hay bales should be placed around the excavation area in order to prevent the inflow of runoff;
13. If contaminants (associated with hydrocarbons) are at concentrations in the validation samples that exceed the assessment criteria, further material will require removal from the walls and / or base to the stockpile prior to the collection of additional validation samples;
14. Dewatering of the soil mass may be required during excavation works. Water removed from the excavation should be tested prior to disposal; and
15. Stockpiles of excavated material should be placed so that they drain into the existing excavation, or in water-tight skips and the potential for cross-contamination is minimised.

10.5 *UPSS OFF-SITE DISPOSAL*

The UPSS will be transported in accordance with DECCW (2010) and AS4976-2008:

- Vehicles should be diesel powered and have exhaust systems generally in conformance with the requirements of AS2809-2008. The contractor should train drivers to recognise the hazards associated with the operation and appropriate emergency procedures;
- As far as possible, the trip to the disposal site should be uninterrupted. If it is necessary to park the vehicle for any period it should be isolated from other vehicles and kept under observation, with the warning notices clearly visible;

- USTs will be transported to an appropriate facility for disposal, with adequate records kept of the disposal (disposal date and time and destination). The USTs will be destroyed by cutting with intrinsically safe cold shears prior to recycling;
- A certificate of tank destruction / disposal is required for each UST removed from the site; and,
- USTs that have been filled with an inert material (sand or concrete) may be disposed of at a licensed landfill or recycling yard following the removal of filling material.
- Documentation of the fate of such tanks should be provided, however destruction certificates are not required.

10.6 *CONTROLLED EXCAVATION AND STOCKPILING*

Any impacted fill material requiring off-site disposal will be excavated in a controlled manner under the supervision of the remediation contractor with experience in contaminated site projects.

Contaminated material is to be excavated and placed directly into skip bins and / or stockpiled on sealed areas or plastic sheeting in a manner and location to reduce stormwater runoff and erosion for waste classification prior to off-site disposal. Erosion control methods may include covering of the stockpiles with plastic tarp, silt fencing, hay bales, or similar to control sediments from leaving the stockpile area. Stockpile odours must be controlled through stockpile covering, application of vapour suppressant foam, or immediate removal from the site in covered truck load.

Overburden and contaminated soils must be stockpiled separately to allow for accurate waste classification. Excavated contaminated material should be sampled and analysed at a rate of at least three samples for quantities up to 75 m^3 and one sample per 25 m^3 for quantities greater than 75 m^3. Classification of material to be removed from the site will be undertaken in accordance with the NSW EPA Waste Classification Guidelines (2014).

Laboratory testing for COPCs should include specific contaminant concentration and TCLP in order to determine accurate waste classification.

The waste guidelines do not specifically require any data quality objectives or data quality indicators to be established for waste classification testing.

10.7 *MANAGEMENT OF GROUNDWATER*

Should dewatering be required, all groundwater removed must be pumped from the excavation into a holding tank or tanker and will require classification in accordance with the receiving facility prior to off-site disposal. Authorisation will be required from the NSW Office of Water prior to dewatering.

10.8 *SOIL AND GROUNDWATER OFF-SITE DISPOSAL*

Following receipt of waste classification results any stockpiled material or recovered groundwater will be transported to appropriately licensed facilities for disposal.

10.9 *VALIDATION*

Following excavation and removal of the UPSS, a programme of soil validation will be required in general accordance with Table 1 of the NSW EPA Technical Note: Investigation of Service Station Sites.

The validation programme will include excavations and if required, imported material used to re-instate the excavation. Any imported material must be characterised as virgin excavated natural material (VENM) or excavated natural material (ENM) and meet the relevant screening criteria for a multi-level residential development.

10.10 *REPORTING*

At the completion of the UPSS removal works, a validation report (in general accordance with the requirements of the UPSS Technical Note: Site Validation Reporting (DECCW, 2010) will be prepared outlining the results of the remediation works undertaken and an assessment prepared as to the suitability of the site for future residential usage.

11 VALIDATION PLAN

Validation sampling will be undertaken during the remediation programme. Sampling will be conducted in accordance with relevant NSW EPA guidance to confirm whether the identified contamination has been adequately removed from the excavated areas and whether any further remediation is required.

Based on the COPC identified in previous assessments, soil / fill samples will be collected from the base and sidewalls of excavations and analysed for:

- TRH;
- BTEX;
- Naphthalene;
- Benzo(a)pyrene; and
- Lead.

Soils at the base and walls of excavations will be assessed against the site criteria outlined in Section 9 as well as consideration for statistical analyses of results where appropriate in accordance with NEPM 2013.

11.1.1 Method of Sample Collection

Care will be taken to ensure that representative samples are obtained and that the integrity is maintained, particularly when dealing with potentially volatile or semi-volatile compounds. Specific sampling procedures for each method of collection are provided below in following sections.

11.1.2 Sample Collection

Samples will be collected using either a decontaminated stainless steel trowel or by using new nitrile gloves for each sample and placing the soil directly into laboratory supplied containers.

11.1.3 Decontamination Procedures

The following decontamination procedures will be adopted for sampling equipment.

11.1.3.1 *Sampling Equipment*

Sampling equipment, such as trowels, will be washed between sampling events using Decon 90 (or similar laboratory grade detergent) initially followed by adequate rinsing with clean potable and de-ionised water. To check the adequacy of the decontamination protocol, rinsate samples will be collected for analysis.

11.1.4 Sample Containers

Soil and groundwater sample containers will comprise glass or plastic containers, as required, supplied by either the primary or secondary laboratory. The containers will be completely filled leaving no headspace, labelled with the job number, date, unique sampling point identification and initials of the project environmental scientist/engineer.

11.1.5 Method of Sample Storage and Handling

The samples will immediately be placed in an esky / cool box in which ice has been added, to keep the samples below a temperature of approximately 4^{o}C. At the end of each day, the samples in the cool box will be transported to laboratory (within holding times).

11.1.6 Sample Logging

A log of excavation works and soil/groundwater samples collected will be completed during fieldwork by a qualified environmental engineer/scientist. The log records the following data:

- Sample number and depth;
- Soil classification, colour, consistency or density, odour and moisture content;
- Groundwater colour, odour, suspensions;
- Depth of excavation;
- Excavator bucket refusal;
- Method of excavation; and
- The depth of first encountered free water.

11.1.7 QA / QC Documentation

While on site, the supervising engineer/scientist will be required to fill out a copy of a 'sample register', which documents:

- Time of sample collection;
- Weather;
- Unique sample identification number; and
- Sample location and depth.

All samples will be classified in the field based on soil/fill/groundwater characteristics and obvious signs of contamination such as discolouration or odour will be noted on a log.

All samples, including QC samples, will be transported to the primary and check laboratories under Chain-of Custody (COC) procedures and maintained in an ice-filled cooler. The following details will be recorded on the COC form:

- Site identification;
- The sampler;
- Nature of the sample;
- Collection time and date;
- Analyses to be performed;
- Sample preservation method;
- Departure time from site; and
- Dispatch courier(s).

11.2 FIELD SCREENING

Field screening will be undertaken to screen potentially contaminated material being removed from the excavations for the presence of volatile compounds. Field screening will be conducted using a Photo-Ionisation Detector (PID) or similar instrument capable of measuring Volatile Organic Compounds (VOCs) in air.

The instrument will be operated using the controlled headspace method in accordance with a documented procedure by appropriately trained persons. Full documentation will be provided relating to the calibration of the instrument, the samples analysed, gas screening results and site observations. These results will be compiled and presented in the validation report.

The presence of VOCs in imported material will result in that batch of material being rejected.

11.3 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM (QA/QC)

The proposed field and laboratory QA/QC programme for this project is consistent with National Environmental Protection Council (NEPC, 1999 as amended 2013) requirements. The programme consists of the following:

- Laboratory blind replicates at 1 in 10 (10 %) samples or one per batch; and
- Split samples (intra-lab duplicates) at 1 in 20 (5 %) samples or one per batch.

11.3.1 Field QA/QC Programme

Field QA/QC consists of the application of documented quality work procedures and the collection of field QC samples listed above.

Environmental Samples

The environmental samples collected for the validation programme are representative samples of soil/groundwater collected for analysis. Environmental samples are the original samples taken from a particular location and other samples are blind replicates or split samples of the original.

Blind Replicate Samples

Blind replicate samples are provided by the collection of two similar samples from the same location or successively from the same monitoring bore. These samples are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples.

Split Samples

Split samples provide a check on the analytical proficiency of the laboratories. Split samples are collected from the same location or successively from the same monitoring bore. Split samples must be taken from the same location as the blind replicate, thus becoming a triplicate sample. However, split samples are not taken as often as blind replicates. Spilt samples (triplicates) are preserved, stored, transported, prepared and analysed in an identical manner to environmental samples, but are sent for testing to a different laboratory.

11.3.2 Laboratory QA / QC Programme

The reliability of test results from the analytical laboratories will be monitored according to the QA / QC procedures used by the NATA accredited laboratory. The QA/QC programme employed by the NATA registered laboratories specifies sample tracking procedures, methods of extraction, analysis, PQLs and acceptance criteria for results. Laboratory QA/QC procedures adopted by the laboratories used in this investigation are summarised below.

Laboratory Duplicate Samples

Laboratory duplicates provide data on analytical precision for each batch of samples. Where required and in order to provide sufficient sample for analysis of laboratory duplicate, two batches of samples are collected at a site listed and marked ‘laboratory duplicate’ on the Chain of Custody form. This is done in order to ensure that sufficient sample is collected.

Standards

Calibration standards should be prepared from individual certified materials, AR Grade or better reagents purchased as certified mixtures. Stock solutions are replaced every 6 months. Working standards should be prepared at least every month from the stock solutions.

Laboratory Control Samples

Laboratory control samples consist of a clean matrix (de-ionised water or clean sand) spiked with a known concentration of the analyte being measured. These samples monitor method recovery in clean samples and can also be used to evaluate matrix interference by comparison with matrix spikes. Laboratory control samples may be certified reference materials.

Surrogates

For organic analyses, a surrogate is added to environmental samples at the extraction stage in order to verify method effectiveness. The surrogate is then analysed with the batch of samples. Percent recovery is calculated.

Matrix Spike

A matrix spikes consist of samples spiked with a known concentration of the analyte being measured, in order to identify properties of the matrix that may hinder method effectiveness. Samples are spiked with concentrations equivalent to 5 to 10 times the PQL. Percent recovery is calculated.

Method Blanks

Method blanks (de-ionised water or clear sand) were carried through all stages of sample preparation and analysis at a rate of approximately 10 %. Analyte concentrations in blanks should be less than the stated PQL. Reagent blanks are run if the method blank exceeds the PQL. The purpose of method blanks is to detect laboratory contamination.

11.4 DATA QUALITY OBJECTIVES (DQO) AND ACCEPTANCE CRITERIA

The objective of the validation programme is to verify the quality of any soil brought onto the site, and the effectiveness of contamination removal.

Sampling shall be conducted in accordance with relevant guidelines (NSW DECCW, 2010, NSW EPA, 2014 and NEPC, 1999 as amended 2013) to confirm whether the RAP objectives have been attained. Data Quality Objectives (DQOs) for the proposed validation sampling and analysis programme are presented below.

11.4.1 **Data Quality Objectives**

As stated in Appendix B of Schedule B2 *Guidelines on Site Characterisation* (NEPC 1999, amended 2013), the Data Quality Objectives (DQO) process is used to “define the type, quantity

and quality of data needed to support decisions relating to the environmental condition of a site". The seven-step DQO process that should be adopted for remediation of the site is outlined below:

Step 1: State the problem

The site is to be made environmentally suitable for the proposed redevelopment of the site as a high density residential apartment block with limited commercial space. Impacts on the site in soil and groundwater are the result of historic petroleum station use in the southern part of the site. The site is located adjacent to Rose Bay and shallow groundwater is located under the site. Basement construction is likely to require dewatering of the site which may also result in surface water migration from Rose Bay. The nature of vapour impact from soil and groundwater under parts of the site occupied by existing buildings is not known and must be evaluated.

Step 2: Identify the decision

- Following removal of UPSS sources on the site, were there any unacceptable risks to future on-site and/or off-site human or ecological receptors remaining on the site or off-site?
- Were soils and groundwater removed from the site appropriately characterised for off-site disposal or re-use?
- Were potential impacts of the remedial works to on-site workers and neighbouring human and ecological communities mitigated appropriately?

Step 3: Identify inputs into the decision

- Identification of issues of potential ecological and human health concern;
- Appropriate identification of COPCs;
- Systematic sampling and analysis program of fill, across / underlying the area of the proposed redevelopment;
- Assessment for the presence of asbestos in fill;
- A judgemental / targeted based sampling and analysis program of areas of concern identified; and
- Screening sample analytical results against appropriate Tier 1 Assessment Criteria for the intended land use (high density residential).

Step 4: Define the boundaries of the site

The project boundary is defined as the area shown in **Figure 1** and **Figure 2**.The site is located at 636 and 638-646 New South Head Road within the suburb of Rose Bay, NSW. The site covers an area of approximately 1,554 m^2 and is located within the Local Government Area (LGA) of Woollahra Council within Lot A in DP 393087 and SP 22533.

Step 5: Develop a decision rule

To conclude the decision, the assessment decision rules must be met. The results of sampling and analysis of soil and groundwater must meet the following criteria:

Soil

- The calculated 95% Upper Confidence Level value (95%UCL) for COPCs do not exist in soil samples at concentrations in excess of Tier 1 Assessment Criteria;
- The standard deviation of the results should be less than 50% of the relevant investigation or screening level; and,
- No single analytical result for a COPC should exceed 250% of the relevant investigation level or screening level.

The results of the asbestos in soil analyses must meet the following criteria:

- No observed Asbestos Containing Material (ACM) on site surface less than screening criteria; and
- No detections of friable asbestos within analytical results.

Groundwater

- COPC do not exist in groundwater samples at concentrations in excess of Tier 1 Assessment Criteria.

Step 6: Specify acceptable limits on decision errors

The field sampling methodology, sample preservation techniques and laboratory analytical procedures must be appropriate to provide confidence in data quality so any comparison against assessment criteria can be considered reliable. This is achieved by defining and comparing results against Data Quality Indicators for precision, accuracy, representativeness, completeness and comparability as outlined in Schedule B2, Site Characterisation, NEPM 2013.

Step 7: Optimise the design for obtaining data

This is achieved by sampling plan design in consideration of the available site history information, area of investigation, contaminant behaviour in the environment, and likely spatial distribution of contamination.

12 CONTINGENCY PLAN AND UNEXPECTED FINDS

Unexpected features and materials such as buried drums or underground storage tanks may be encountered wherever fill is present, and for this reason an unexpected finds protocol will apply to all excavations in fill, and will require the availability of a qualified environmental consultant to attend and assess or test any unexpected material finds.

Where any suspect fill materials are encountered, the site supervisor must stop work in that area and contact CES or the nominated environmental consultant who will inspect the material. The consultant will then determine whether sampling is required, and the appropriate number of samples will be collected for analysis as determined by the consultant. No work is to continue in the affected area until the environmental consultant gives the instruction or determines that special actions are necessary. Records, including observations, sample results, volumes, photographs and

other forms of documentation relating to such unexpected finds are to be maintained by the site supervisor.

Being a construction and excavation site, the normal industry health & safety procedures and requirements will apply. This will include appointment of a health & safety officer and this person will be required to liaise with the appointed environmental consultant in regard to the protection of worker health and safety, particularly in terms of unexpected finds and the management of any potentially hazardous or contaminated material.

13 CONCLUSION

It is concluded that if the RAP is implemented, then the site will be suitable for the proposed development.

14 LIMITATIONS OF THIS REPORT

This report has been prepared for use by the client who commissioned the works in accordance with the project brief and based on information provided by the client. The advice contained in this report relates only to the current project and all results, conclusions and recommendations should be reviewed by a competent person with experience in geotechnical and environmental investigations before being used for any other purpose. CES accepts no liability for use or interpretation by any person or body other than the client. This report must not be reproduced except in full and must not be amended in any way without prior approval by the client and CES.

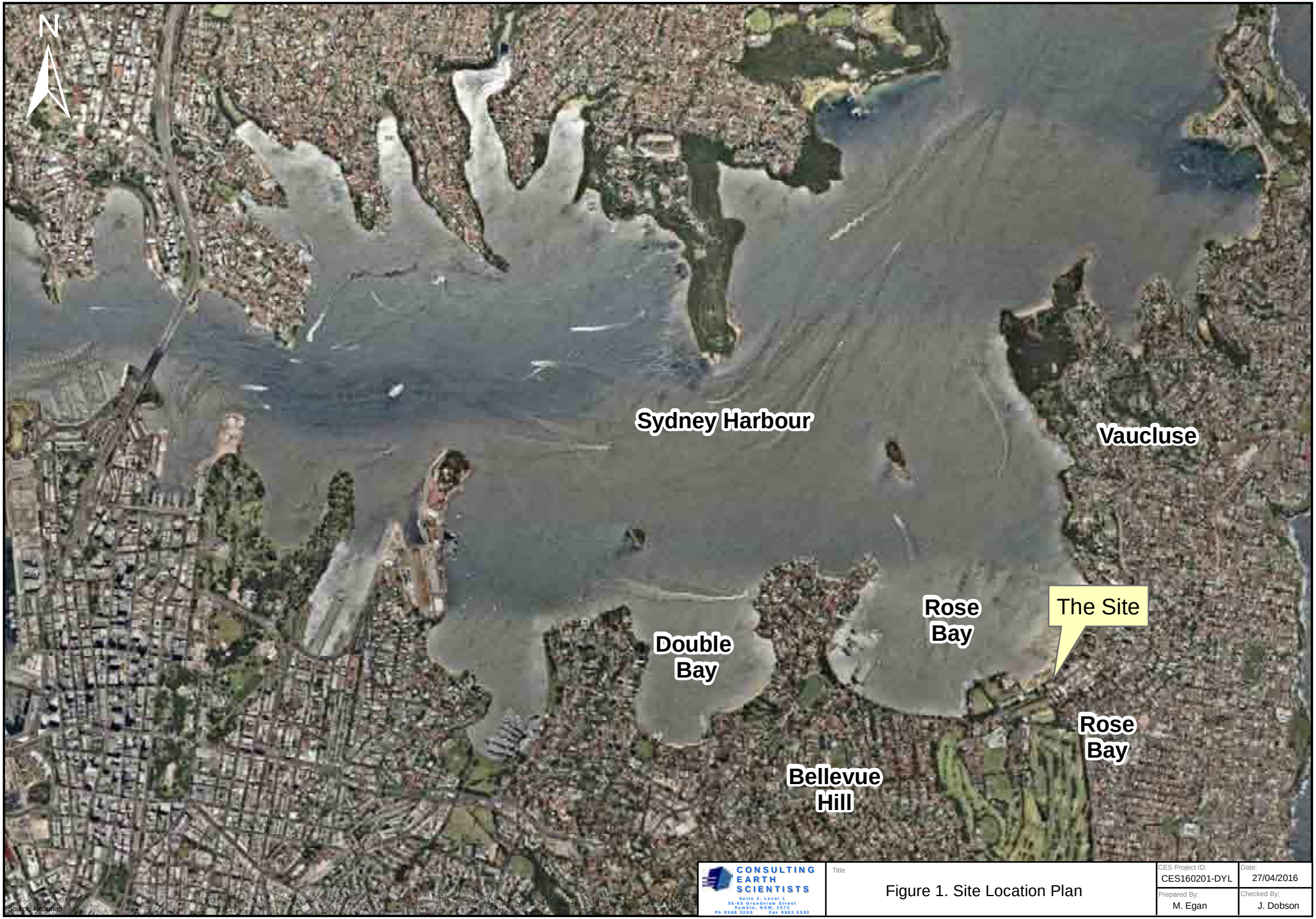
This report does not provide a complete assessment of the environmental status of the site and is limited to the scope defined therein. It is noted that areas of the site could not be investigated due to the presence of structures including the residential property and presence of ponds. Should information become available regarding conditions at the site including previously unknown sources of contamination, CES reserves the right to review the report in the context of the additional information.

15 REFERENCES

- National Environment Protection (Assessment of Contamination) Measure, 1999, as amended;
- NSW EPA, Technical Note: Investigation of Service Station Sites, 2014;
- DECCW, UPSS Technical Note: Site Validation Reporting, January 2010;
- DECCW, UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS; January 2010;
- Australian Standard AS 4976 - The removal and disposal of underground petroleum storage tanks;
- Australian Standard AS 4482.1 Part 1 – Non-volatile and Semi-volatile Compounds;
- Australian Standard AS 4482.2 Part 2 – Volatile Compounds;
- Australian Standard 1940-2004: The Storage and Handling of Flammable and Combustible Liquids; and,
- Australian Standard AS2550.1-2011: Cranes, hoist and winches – Safe use – General requirements.
- National Environment Protection Council (1998): NEPM on Ambient Air Quality;
- NSW Office of Environment and Heritage (March 2004): Managing Urban Stormwater – Soils and Construction;
- NSW EPA (2014): Waste Classification Guidelines. Part 1: Classifying Waste;
- NSW DECCW (2005): Approved Methods for the Modelling and Assessment of Air Pollutants in NSW; and,
- NSW DECCW (2007): Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.
- Contaminated Land Management Act 1997
- Protection of the Environment Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (Waste) Regulation 2005
- Protection of the Environment Operations (underground Petroleum Storage Systems) Regulation 2014
- State Environment Planning Policy No 55 – Remediation of Land
- State Environmental Planning Policy No 71 – Coastal Protection
- Woollahra Council Local Environment Plan 2014
- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2011
- SafeWork NSW
- Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373, dated July 2010;

- Potential Acid Sulfate Soils Assessment – Proposed Redevelopment – 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Brenchley Architects and Mr Ari Spindel, reference JBS41673-17264, dated 3 June 2011;
- Environmental Site Assessment, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari Spindel, reference JBS41261-15373 Rev 1, dated January 2012;
- Draft Additional Environmental Site Assessment, Pre-Remediation Environmental Site Assessment and Off-Site Extent Assessment, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50196 Rev A, dated March 2012;
- Additional Environmental Site Assessment at Rose Bay in proximity of 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-50470, dated 13 April 2012;
- Draft Additional Environmental Site Assessment, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Mr Ari and Ms Ildi Spindel, reference JBS41893-53102 Rev A, dated January 2013;
- Remedial Action Plan: Service Station UPSS Decommissioning and Petroleum Hydrocarbon Remediation and Validation Works, Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS Environmental Pty Ltd for Ari and Ildi Spindel, reference JBS41564-16488 Rev 0, dated July 2013;
- Groundwater Monitoring Event Report – December 2015, Rose Bay Budget Service Station, 638-646 New South Head Road, Rose Bay, NSW, prepared by JBS&G for Mr Ari and Ms Ildi Spindel, reference 50377-102578 (Rev A), 20 January 2016; and,
- Environmental Site Assessment Report, 636 New South Head Road, Rose Bay, NSW, prepared by CES for Rose Bay Joint Venture, reference CES160201-DYL-AB, dated 2 June 2016.

Figures



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Title

Figure 1. Site Location Plan

CES Project ID:	Date:
CES160201-DYL	27/04/2016
Prepared By: M. Egan	Checked By: J. Dobson

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Figure 2. Site Features Plan

CES Project ID:	Date:
CES160201-DYL	16/05/2016
Prepared By: M. Egan	Checked By; J. Dobson

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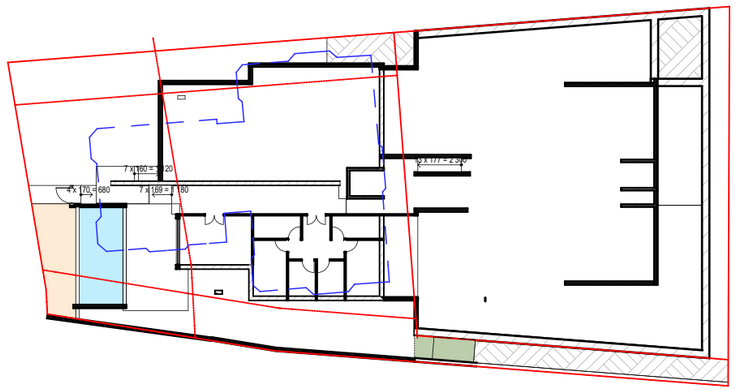
Figure 3. Borehole Location Plan

CES Project ID:	Date:
CES160201-DYL	27/06/2016
Prepared By: E. Millar	Checked By: D. Harvey

Appendix A
Redevelopment Plans



BASEMENT - LEVEL 1 - GFA

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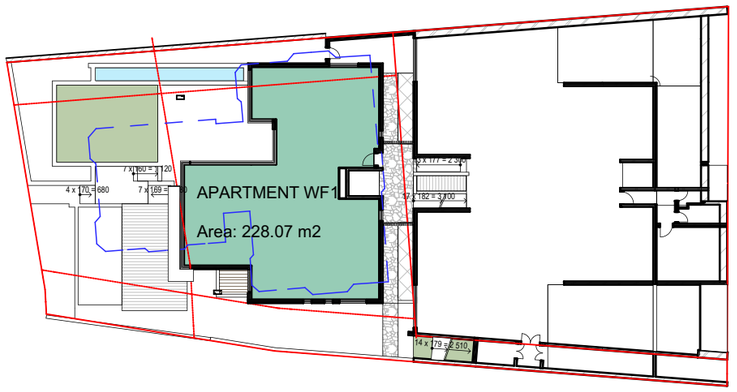

LOWER GROUND - LEVEL 2 - GFA

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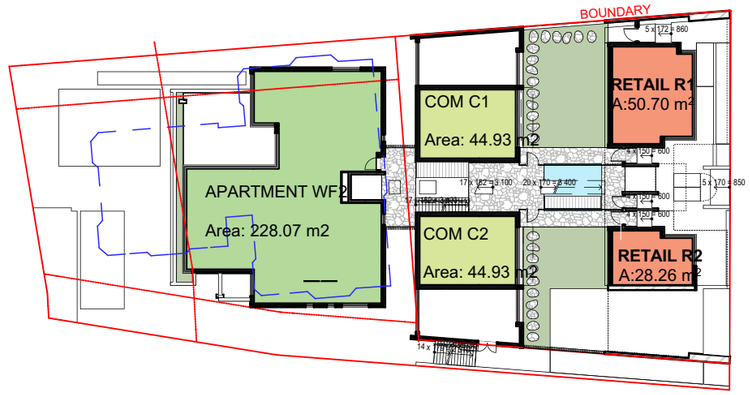

GROUND FLOOR - LEVEL 3 - GFA

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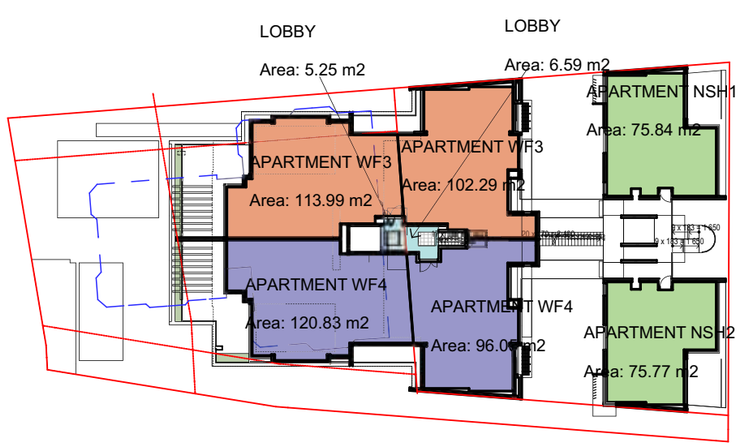

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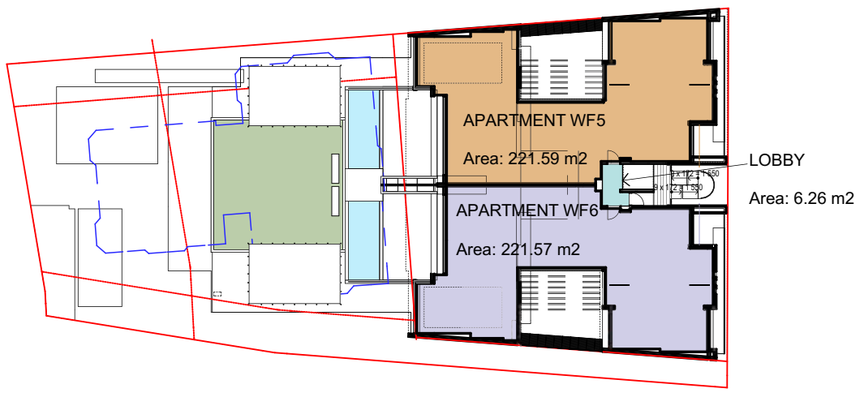

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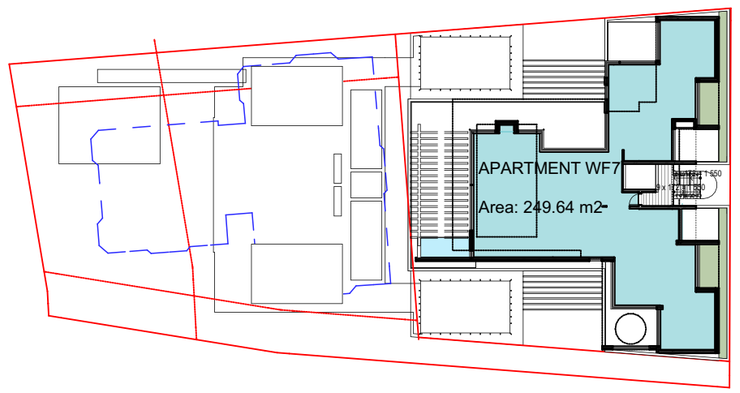

THIRD FLOOR - LEVEL 6 - GFA

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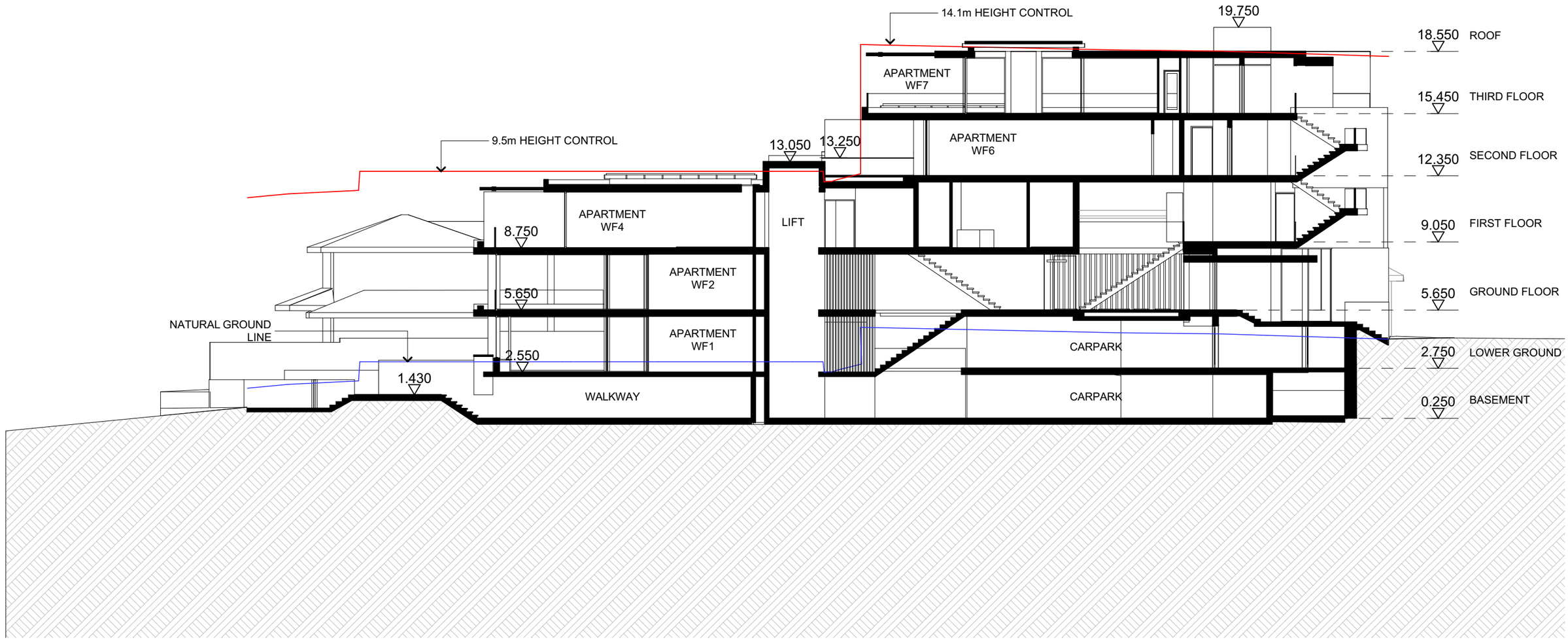
638 NSH RD ROSEBAY OPTION 6
PROJECT ADDRESS:
638 NSH RD ROSEBAY
CLIENT:

DRAWING:
GFA PLANS

PROJECT NO: 2015072
DRAWN BY: JE
SCALE: 1:500 @A3
DRAWING NO: REV:
PLOTTED: 22/02/2016

DA900 A



SECTION A

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PROJECT:
638 NSH RD ROSEBAY OPTION 6
PROJECT ADDRESS:
638 NSH RD ROSEBAY
CLIENT:

DRAWING:
SECTION A

PROJECT NO: 2015072
DRAWN BY: JE
SCALE: 1:200 @A3
DRAWING NO: REV:
PLOTTED: 22/02/2016

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Appendix B
Historic Soil and Groundwater Analytical Results

Consolidated Analytical Results - Soil
636 New South Head Road, Rose Bay, NSW
CES Project Job No. CES160201-DYL

					TPH				TRH - NEPM 2013						BTEXN							PAHs																		
					C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1)	>C10 - C16 Fraction	C10 - C16 minus Naphthalene (F2)	>C16 - C34 Fraction	>C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	m&p-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Benzo(b) & Benzo(k)fluoranthene	Benzo(a)pyrene TEQ (WHO) - Sum of individual ana	Total PAHs
				LOR	25	50	100	100	25	25	50	50	100	100	0.2	0.5	1	2	1	3	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.5	0.5
				Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				Action Levels																																		
				Amended ASC NEPM (NEPC 2013) - Health Investigation Levels Exposure Setting "B" (Residential with minimal opportunities for soil access)																																		4	400
				Amended ASC NEPM (NEPC 2013) - Health Screening Levels Exposure Setting "B" (High Density Residential) Sand - 0 to <1 metres deep					45			110			0.5	160	55			40	3																		
				Amended ASC NEPM (NEPC 2013) - Ecological Investigation Levels Exposure Setting - Urban Residential/Public Open Space																	10	170																		
				Amended ASC NEPM (NEPC 2013) - Ecological Screening Levels Exposure Setting - Urban Residential/Public Open Space - fine soil texture						180		120			65	105	125			45									0.7										
	Sample Location	Date Sampled	Sample ID	Sample Type																																		
CES April 2016	BH101	22/03/2016	BH101_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	**0.1**	<0.1	<0.1	**0.1**	**1.2**	**0.4**	**2.8**	**2.6**	**1.1**	**1.3**	**1.4**	**1.6**	<0.1	**1**	**1**	**2**	**15**
		22/03/2016	BH101_0.0-0.1m	TOPSOIL REP	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**1**	**0.4**	**3.4**	**3.2**	**1.6**	**1.9**	**1.9**	**1.1**	**0.1**	**1.4**	**1.4**	**2.7**	**20**
		22/03/2016	BH101_0.5-0.6m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	BH101_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	BH102	22/03/2016	BH102_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	**0.2**	**0.1**	<0.1	**0.2**	**2.5**	**0.7**	**4.6**	**4.1**	**1.7**	**1.9**	**2**	**1.6**	**0.3**	**1.5**	**1.5**	**3**	**24**
		22/03/2016	BH102_0.5-0.6m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	BH102_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	QAQC-102-01	SAND FD	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	BH103	22/03/2016	BH103_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**1**	**0.3**	**2.5**	**2.4**	**1.1**	**1.3**	**1.4**	**1.2**	<0.1	**1.2**	**1.2**	**2**	**15**
		22/03/2016	BH103_2.5-2.6m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	BH103_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	BH104	22/03/2016	BH104_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**0.2**	<0.1	**0.7**	**0.7**	**0.3**	**0.4**	**0.3**	**0.3**	<0.1	**0.3**	**0.6**	**3.9**
		22/03/2016	BH104_0.0-0.1m	TOPSOIL REP	<25	<50	<100	<100	<25	<25	<50	<50	130	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**0.3**	<0.1	**0.9**	**0.9**	**0.5**	**0.6**	**0.5**	**0.4**	<0.1	**0.4**	**0.4**	**0.8**	**5.4**
		22/03/2016	BH104_0.5-0.6m	FILL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**0.4**	**0.1**	**1.7**	**1.7**	**1**	**1**	**1.2**	**1**	<0.1	**1**	**1**	**1.8**	**11**
		22/03/2016	BH104_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	MW105	22/03/2016	MW105_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**0.4**	**0.2**	**1.7**	**1.7**	**0.8**	**1.1**	**0.98**	**0.8**	<0.1	**0.8**	**0.8**	**1.4**	**10**
		22/03/2016	MW105_1.5-1.6m	FILL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	**1**	**0.3**	**3.4**	**3.1**	**1.7**	**1.8**	**1.6**	**1.2**	**0.1**	**1.1**	**1.1**	**2.3**	**18**
		22/03/2016	QAQC-105	FILL FD	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	**0.2**	<0.1	<0.1	**1.4**	**0.4**	**4.7**	**4.5**	**2.3**	**2.5**	**2.3**	**1.8**	**0.2**	**1.4**	**1.4**	**3.3**	**25**
		22/03/2016	MW105_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	MW106	22/03/2016	MW106_0.0-0.1m	TOPSOIL N	<25	<50	<100	<100	<25	<25	<50	<50	110	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	**0.1**	<0.1	<0.1	**0.6**	**0.1**	**3.4**	**3.4**	**1.9**	**2.1**	**2.2**	**2**	**0.2**	**1.7**	**1.7**	**3.2**	**21**
		22/03/2016	MW106_4.9-5.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	MW106_4.9-5.0m	SAND REP	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	MW106_5.9-6.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
	MW107	22/03/2016	MW107_0.5-0.6m	FILL N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.2**	<0.1	**0.1**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**0.46**
		22/03/2016	MW107_1.5-1.6m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
		22/03/2016	MW107_4.9-5.0m	SAND N	<25	<50	<100	<100	<25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<2	<1	< 3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.5	**NIL (+)VE**
JBS&G 2010	SB01	16/06/2010	2.4-2.6	SAND N	<25	<50	<100	<100	<250						<0.5	<0.5	<1	<2	<1	<3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB02	16/06/2010	1.9-2.1	SAND N	**170**	**160**	<100	<100	**180**						1.3	**35**	**18**	**71**	**27**	**98**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB03	16/06/2010	0.15-0.3	FILL N	<25	<50	<100	<100	<250						<0.5	<0.5	<1	<2	<1	<3		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.06**	<0.1	<0.1	<0.1	<0.2		**0.06**
	SB04	16/06/2010	0.15-0.3	FILL N	<25	<50	<100	<100	<250						0.6	**2.6**	<1	5.3	2	7.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16/06/2010	1.9-2.1	SAND N	**180**	**570**	**120**	<100	**690**						<0.5	**23**	**22**	**110**	**51**	**161**		**17**	**0.1**	<0.1	**0.2**	**0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.2		**17.5**
		16/06/2010	QC03 1.9-2.1	SAND FD	**180**	**470**	**110**	<100	**580**						<0.5	**14**	**20**	**88**	**41**	**129**		**14**	**0.1**	<0.1	**0.1**	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2		**14.4**
		16/06/2010	QC03A 1.9-2.1	SAND FD	**280**	**740**	**180**	<50	**920**						<0.1	**15**	**18**	-	-	**120**		**18**	<0.1	<0.1	**0.2**	**0.39**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.2		**18.6**
	SB05	16/06/2010	0.15-0.3	FILL N	<25	<50	<100	**190**	**190**						<0.5	<0.5	<1	<2	<1	<3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB06	16/06/2010	2.4-2.6	SAND N	<25	<50	<100	<100	<250						0.8	<0.5	<1	<2	<1	<3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB07	16/06/2010	0.15-0.3	FILL N	<25	<50	<100	<100	<250						<0.5	<0.5	<1	2.8	<1	**3.3**		**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.1**	<0.1	**0.1**	0.3		**1.5**
		16/06/2010	1.4-1.6	SAND N	**2500**	**2800**	<500	<500	**2800**						**20**	**440**	**150**	**830**	**340**	**1170**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB08	16/06/2010	0.4-0.6	FILL N	**40**	<50	<100	<100	<250						**2.4**	**8.8**	**6.8**	**30**	**7.2**	**37.2**		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				Maximum	2500.0	2800.0	180.0	190.0	2800.0	0.0	0.0	0.0	130.0	0.0	20.0	440.0	150.0	830.0	340.0	1170.0	0.0	18.0	0.2	0.0	2.5	0.7	4.7	4.5	2.3	2.5	2.3	2.0	0.3	1.7	1.7	3.3	25.0	15.0
				Average	558.3	948.0	136.7	190.0	890.0	N/A	N/A	N/A	113.3	N/A	5.0	76.9	39.1	162.4	78.0	215.7	N/A	8.2	0.1	N/A	0.2	0.8	0.3	2.3	2.2	1.2	1.2	1.2	1.1	0.2	1.0	1.0	2.1	13.0
				Standard Deviation	954.3	1056.6	37.9	N/A	980.6	N/A	N/A	N/A	15.3	N/A	8.4	160.4	54.6	297.2	129.7	390.0	N/A	9.0	0.0	N/A	0.1	0.6	0.2	1.6	1.4	0.7	0.8	0.8	0.6	0.1	0.5	0.5	0.9	8.2
				95%UCL	1343.4	1955.3	200.5	N/A	1696.7	N/A	N/A	N/A	139.1	N/A	13.0	194.8	84.0	380.7	184.7	477.0	N/A	15.6	0.2	N/A	0.2	1.1	0.4	3.1	2.9	1.5	1.6	1.6	1.4	0.3	1.3	1.3	2.6	16.5

Legend:
- Not analysed / not calculated
mg/kg: milligrams per kilogram
LOR: Limit of reporting
NL - "no limiting" - no limit value available
* LOR Exceeds Guideline Trigger Value
Sample Type: N - Primary, FD - Duplicate, FT - Triplicate, REP - Laboratory Replicate
Action Levels:

Amended ASC NEPM (NEPC 2013) - Health Investigation Levels Exposure Setting "B" (Residential with minimal opportunities for soil access)
Amended ASC NEPM (NEPC 2013) - Health Screening Levels Exposure Setting "B" (High Density Residential) Sand - 0 to <1 metres deep
Amended ASC NEPM (NEPC 2013) - Ecological Investigation Levels Exposure Setting - Urban Residential/Public Open Space
Amended ASC NEPM (NEPC 2013) - Ecological Screening Levels Exposure Setting - Urban Residential/Public Open Space - fine soil texture

J - Estimated value.

U - Less than LOR

Consolidated Analytical Results - Soil
636 New South Head Road, Rose Bay, NSW
CES Project Job No. CES160201-DYL

Metals

Sample Location	Date Sampled	Sample ID		Sample Type	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury
				LOR	4	0.4	1	1	1	1	1	1
				Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
				Action Levels								
Amended ASC NEPM (NEPC 2013) - Health Investigation Levels Exposure Setting "B" (Residential with minimal opportunities for soil access)					500	150	500	30000	1200	1200	60000	120
Amended ASC NEPM (NEPC 2013) - Health Screening Levels Exposure Setting "B" (High Density Residential) Sand - 0 to <1 metres deep												
Amended ASC NEPM (NEPC 2013) - Ecological Investigation Levels Exposure Setting - Urban Residential/Public Open Space					100		310	230	1100	210	630	
Amended ASC NEPM (NEPC 2013) - Ecological Screening Levels Exposure Setting - Urban Residential/Public Open Space - fine soil texture												
BH101	22/03/2016	BH101_0.0-0.1m	TOPSOIL	N	**15**	**0.7**	**19**	**16000**	**350**	**4**	**430**	**0.2**
	22/03/2016	BH101_0.0-0.1m	TOPSOIL	REP	**14**	**0.9**	**18**	**120**	**490**	**31**	**530**	**0.2**
	22/03/2016	BH101_0.5-0.6m	SAND	N	<4	<0.4	<1	**6**	**19**	<1	**14**	<0.1
	22/03/2016	BH101_5.9-6.0m	SAND	N	<4	<0.4	**4**	<1	**3**	<1	<1	<0.1
BH102	22/03/2016	BH102_0.0-0.1m	TOPSOIL	N	<4	**0.7**	**8**	**72**	**270**	**3**	**240**	**0.2**
	22/03/2016	BH102_0.5-0.6m	SAND	N	<4	<0.4	<1	**2**	**4**	<1	**2**	<0.1
	22/03/2016	BH102_5.9-6.0m	SAND	N	<4	<0.4	**2**	**3**	**2**	<1	**2**	<0.1
	22/03/2016	QAQC-102-01	SAND	FD	<4	<0.4	**2**	**2**	**2**	<1	**1**	<0.1
BH103	22/03/2016	BH103_0.0-0.1m	TOPSOIL	N	<4	**0.6**	**13**	**140**	**500**	**5**	**270**	**0.2**
	22/03/2016	BH103_2.5-2.6m	SAND	N	<4	<0.4	<1	<1	<1	<1	<1	<0.1
	22/03/2016	BH103_5.9-6.0m	SAND	N	<4	<0.4	**3**	<1	**3**	**1**	<1	<0.1
BH104	22/03/2016	BH104_0.0-0.1m	TOPSOIL	N	<4	**0.9**	**8**	**95**	**280**	**48**	**440**	**0.2**
	22/03/2016	BH104_0.0-0.1m	TOPSOIL	REP	<4	**0.8**	**8**	**91**	**300**	**40**	**490**	**0.2**
	22/03/2016	BH104_0.5-0.6m	FILL	N	<4	<0.4	**5**	**18**	**81**	**2**	**77**	**6.3**
	22/03/2016	BH104_5.9-6.0m	SAND	N	<4	<0.4	**4**	<1	**3**	**1**	**1**	<0.1
MW105	22/03/2016	MW105_0.0-0.1m	TOPSOIL	N	<4	**0.4**	**5**	**44**	**230**	**3**	**140**	<0.1
	22/03/2016	MW105_1.5-1.6m	FILL	N	<4	<0.4	**11**	**47**	**290**	**3**	**73**	**0.2**
	22/03/2016	QAQC-105	FILL	FD	**4**	<0.4	**13**	**41**	**310**	**2**	**83**	**0.2**
	22/03/2016	MW105_5.9-6.0m	SAND	N	<4	<0.4	**4**	<1	**7**	**1**	**1**	<0.1
MW106	22/03/2016	MW106_0.0-0.1m	TOPSOIL	N	**4**	**0.7**	**11**	**160**	**670**	**4**	**310**	**0.2**
	22/03/2016	MW106_4.9-5.0m	SAND	N	<4	<0.4	**4**	<1	**2**	<1	<1	<0.1
	22/03/2016	MW106_4.9-5.0m	SAND	REP	<4	<0.4	**2**	<1	**2**	<1	<1	<0.1
	22/03/2016	MW106_5.9-6.0m	SAND	N	<4	<0.4	**2**	<1	**3**	<1	<1	<0.1
MW107	22/03/2016	MW107_0.5-0.6m	FILL	N	<4	<0.4	**8**	**3**	**83**	<1	**18**	<0.1
	22/03/2016	MW107_1.5-1.6m	SAND	N	<4	<0.4	<1	<1	**4**	<1	**1**	<0.1
	22/03/2016	MW107_4.9-5.0m	SAND	N	<4	<0.4	**1**	<1	**2**	<1	<1	<0.1
SB01	16/06/2010	2.4-2.6	SAND	N	-	-	-	-	<1	-	-	
SB02	16/06/2010	1.9-2.1	SAND	N	-	-	-	-	<1	-	-	
SB03	16/06/2010	0.15-0.3	FILL	N	<4	<0.5	**20**	**16**	**87**	**17**	**58**	
SB04	16/06/2010	0.15-0.3	FILL	N	-	-	-	-	**560**	-	-	
	16/06/2010	1.9-2.1	SAND	N	-	-	-	-	**2**	-	-	
	16/06/2010	QC03 1.9-2.1	SAND	FD	-	-	-	-	**1**	-	-	
	16/06/2010	QC03A 1.9-2.1	SAND	FD	-	-	-	-	**1**	-	-	
SB05	16/06/2010	0.15-0.3	FILL	N	-	-	-	-	**510**	-	-	
SB06	16/06/2010	2.4-2.6	SAND	N	-	-	-	-	<1	-	-	
SB07	16/06/2010	0.15-0.3	FILL	N	<4	<0.5	**97**	**32**	**100**	**83**	**62**	
	16/06/2010	1.4-1.6	SAND	N	-	-	-	-	**2**	-	-	
SB08	16/06/2010	0.4-0.6	FILL	N	-	-	-	-	**3**	-	-	
				Maximum	0.9	97.0	16000.0	670.0	83.0	530.0	6.3	N/A
				Average	9.3	0.7	11.3	938.4	152.2	15.5	154.4	0.8
				Standard Deviation	6.1	0.2	19.1	3759.2	202.5	23.5	183.1	1.9
				95%UCL	16.4	0.8	18.0	2479.8	211.0	25.8	223.4	1.9

OCPs

Sample ID	Sample Type	cis-Chlordane	Endrin aldehyde	Methoxychlor	trans-Chlordane	alpha-BHC	beta-BHC	gamma-BHC	delta-BHC	Heptachlor	Aldrin	Heptachlor epoxide	alpha-Endosulfan	4,4-DDE	Dieldrin	Endrin	beta-Endosulfan	4,4-DDD	Endosulfan sulfate	4,4-DDT	Hexachlorobenzene (HCB)
	LOR	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Health Investigation Levels (Setting "B")		90		500	90					10	10			600	10	20	400	600		600	15
Health Screening Levels (Setting "B")																					
Ecological Investigation Levels																					
Ecological Screening Levels																					
BH101_0.0-0.1m	N																				
BH101_0.0-0.1m	REP																				
BH101_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH101_5.9-6.0m	N																				
BH102_0.0-0.1m	N																				
BH102_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH102_5.9-6.0m	N																				
QAQC-102-01	FD																				
BH103_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH103_2.5-2.6m	N																				
BH103_5.9-6.0m	N																				
BH104_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_0.0-0.1m	REP	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_5.9-6.0m	N																				
MW105_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW105_1.5-1.6m	N																				
QAQC-105	FD																				
MW105_5.9-6.0m	N																				
MW106_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW106_4.9-5.0m	N																				
MW106_4.9-5.0m	REP																				
MW106_5.9-6.0m	N																				
MW107_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW107_1.5-1.6m	N																				
MW107_4.9-5.0m	N																				
SB01 2.4-2.6	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB02 1.9-2.1	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB03 0.15-0.3	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	
SB04 0.15-0.3	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB04 1.9-2.1	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
QC03 1.9-2.1	FD																				
QC03A 1.9-2.1	FD																				
SB05 0.15-0.3	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB06 2.4-2.6	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB07 0.15-0.3	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	
SB07 1.4-1.6	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
SB08 0.4-0.6	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
	Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Standard Deviation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	95%UCL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

OPPs, PCBs, Asbestos

Sample ID	Sample Type	Dimethoate	Diazinon	Chlorpyrifos-methyl	Chlorpyrifos	Bromophos-ethyl	Ethion	Ronnel	Fenitrothion	Aroclor 1016	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Asbestos Type
	LOR	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
	Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% w/w
Health Investigation Levels (Setting "B")										1	1	1	1	1	0.001
Health Screening Levels (Setting "B")															
Ecological Investigation Levels															
Ecological Screening Levels															
BH101_0.0-0.1m	N														
BH101_0.0-0.1m	REP														
BH101_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1
BH101_5.9-6.0m	N														
BH102_0.0-0.1m	N														
BH102_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH102_5.9-6.0m	N														
QAQC-102-01	FD														
BH103_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH103_2.5-2.6m	N														
BH103_5.9-6.0m	N														
BH104_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_0.0-0.1m	REP	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH104_5.9-6.0m	N														
MW105_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW105_1.5-1.6m	N														
QAQC-105	FD														
MW105_5.9-6.0m	N														
MW106_0.0-0.1m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW106_4.9-5.0m	N														
MW106_4.9-5.0m	REP														
MW106_5.9-6.0m	N														
MW107_0.5-0.6m	N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MW107_1.5-1.6m	N														
MW107_4.9-5.0m	N														
SB01 2.4-2.6	N		-			-				-	-	-	-	-	
SB02 1.9-2.1	N		-			-				-	-	-	-	-	
SB03 0.15-0.3	N		<0.1			<0.1				<0.1	<0.1	<0.1	<0.1	<0.1	
SB04 0.15-0.3	N		-			-				-	-	-	-	-	
SB04 1.9-2.1	N		-			-				-	-	-	-	-	
QC03 1.9-2.1	FD														
QC03A 1.9-2.1	FD														
SB05 0.15-0.3	N		-			-				-	-	-	-	-	
SB06 2.4-2.6	N		-			-				-	-	-	-	-	
SB07 0.15-0.3	N		<0.1			<0.1				<0.1	<0.1	<0.1	<0.1	<0.1	
SB07 1.4-1.6	N		-			-				-	-	-	-	-	
SB08 0.4-0.6	N		-			-				-	-	-	-	-	
	Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Standard Deviation	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	95%UCL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Legend:
- Not analysed / not calculated
mg/kg: milligrams per kilogram
LOR: Limit of reporting
NL - "no limiting" - no limit value available
* LOR Exceeds Guideline Trigger Value
Sample Type: N - Primary, FD - Duplicate, FT - Triplicate, REP - Laboratory Replicate
Action Levels:

Amended ASC NEPM (NEPC 2013) - Health Investigation Levels
Exposure Setting "B" (Residential with minimal opportunities for soil access)

Amended ASC NEPM (NEPC 2013) - Health Screening Levels
Exposure Setting "B" (High Density Residential)
Sand - 0 to <1 metres deep

Amended ASC NEPM (NEPC 2013) - Ecological Investigation Levels
Exposure Setting - Urban Residential/Public Open Space

Amended ASC NEPM (NEPC 2013) - Ecological Screening Levels
Exposure Setting - Urban Residential/Public Open Space - fine soil texture

J - Estimated value.

U - Less than LOR

Analytical Results - Groundwater
636 and 638-646 New South Head Road, Rose Bay, NSW
CES Project Job No. CES160201-DYL

				TPH				TRH - NEPM 2013						BTEXN								PAH																Metals							
				C6 - C9 Fraction	C10 - C14 Fraction	C15 - C28 Fraction	C29 - C36 Fraction	C6 - C10 Fraction	C6 - C10 Fraction minus BTEX (F1) EP080	>C10 - C16 Fraction	>C10 - C16 Fraction minus Naphthalene (F2)	>C16 - C34 Fraction	>C34 - C40 Fraction	Benzene	Toluene	Ethylbenzene	m & p-Xylene	ortho-Xylene	Total Xylene	Sum of BTEX	Naphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of Polycyclic Aromatic Hydrocarbons	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
				PQL	10	50	100	50	10	20	50	50	100	100	1	1	1	2	<1	2	1	1	1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2	1	1.0	1.0	1.0	1	1	0.1	1	1	1	0.05	1	1
				Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
				Action Levels																																									
				Amended ASC NEPM (NEPC 2013) - GILs Marine											500								50																0.7	27	1.3	4.4	0.1	7	15
				NWQMS 2000 - Water Quality Guidelines for Recreational Purposes											10																	0.01							50	5	50	1000	50	1	100	5000
	Sample Location	Date Sampled	Sample ID	Sample Type																																									
CES April 2016	MW03	08-Apr-16	MW03_08.04.16	N	3200	2600	810	<100	6000	4400	2400	2300	250	<100	230	58	160	840	280	1120	1568	55	48	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	48	1	<0.1	<1	<1	<1	<0.05	<1	8
	MW04	08-Apr-16	MW04_08.04.16	N	23	520	<100	<100	73	73	530	520	<100	<100	<1	<1	<1	<2	<1	<2	<1	9	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	5.9	<1	<0.1	<1	<1	<1	<0.05	<1	3
		08-Apr-16	QAQC101_08.04.16	FD	22	660	<100	<100	68	68	670	660	<100	<100	<1	<1	<1	<2	<1	<2	<1	9	7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	6.5	<1	<0.1	<1	<1	<1	<0.05	<1	3
		08-Apr-16	QAQC102_08.04.16	FT	40	580	<100	<50	80	80	630	630	<100	<100	<1	<1	<1	<2	<1	<2	<1	<5	4.8	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<1	<1	<1	<1	4.8	<1	<0.1	<1	<1	<1	<0.1	<1	7
		08-Apr-16	MW04_08.04.16	REP	27	-	-	-	73	73	-	-	-	-	<1	<1	<1	<2	<1	<2	<1	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	MW05	08-Apr-16	MW05_08.04.16	N	<10	<50	<100	<100	23	20	<50	<50	<100	<100	1	<1	1	<2	<1	<2	2	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	6.4	1	<0.1	1	<1	2	<0.05	<1	7
	MW06	08-Apr-16	MW06_08.04.16	N	<10	<50	<100	<100	<10	<10	<50	<50	<100	<100	<1	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	2	<1	<0.05	<1	12
	MW07	08-Apr-16	MW07_08.04.16	N	<10	<50	<100	<100	<10	<10	<50	<50	<100	<100	<1	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	3	<1	<0.05	<1	12
	MW105	08-Apr-16	MW105_08.04.16	N	<10	<50	<100	<100	<10	<10	<50	<50	<100	<100	<1	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	1	<1	<0.05	<1	11
	MW106	08-Apr-16	MW106_08.04.16	N	<10	<50	<100	<100	<10	<10	<50	<50	<100	<100	<1	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	1	3	<0.05	<1	9
	MW107	08-Apr-16	MW107_08.04.16	N	<10	<50	<100	<100	<10	<10	<50	<50	<100	<100	<1	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	<1	<1	<0.05	<1	5
	MW107	08-Apr-16	MW107_08.04.16	REP	-	<50	<100	<100	-	-	<50	-	<100	<100	-	-	-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	<1	<0.1	<1	<1	<1	<0.05	<1	5
JBS&G	MW01	29/06/2010	-	-	63,000	3200	<100	<100	-	-	-	-	-	-	24,000	23,000	3200	12,000	2400	14,400	-	170	170	<0.1	<0.1	0.2	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	170.4	-	-	-	-	-	-	-	-
	MW01	30/01/2012	-	-	43,000	3100	<100	<100	-	-	-	-	-	-	14,000	2600	2900	10,000	1000	11,000	-	280	280	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	280	-	-	-	-	-	-	-	-
	MW01	19/12/2012	-	-	38,000	6500	120	<100	-	-	-	-	-	-	11,000	360	3800	11000	260	11260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW01	24/10/2013	-	-	34,000	5700	110	<100	-	-	-	-	-	-	7,400	990	3800	9600	430	10030	-	-	550	-	-	-	-	-	-	-	-	-	-	-	-	-	550	-	-	-	-	-	-	-	-
	MW01	3/11/2014	-	-	34,000	4700	<100	<100	-	-	-	-	-	-	5,600	800	3800	8100	520	8600	-	-	610	-	-	-	-	-	-	-	-	-	-	-	-	-	610	-	-	-	-	-	-	-	-
	MW01	15/12/2015	-	-	17,000	1800	<100	<100	-	-	-	-	-	-	2,600	91	3400	2900	240	3100	-	-	750	-	-	-	-	-	-	-	-	-	-	-	-	-	750	-	-	-	-	-	-	-	-
	MW02	29/06/2010	-	-	46,000	3600	<100	<100	-	-	-	-	-	-	4500	31,000	1800	7600	3400	11,000	-	170	170	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	170	-	-	-	-	-	-	-	-
	MW02	30/01/2012	-	-	50,000	3700	360	<100	-	-	-	-	-	-	1300	21,000	2200	7200	3300	10,500	-	290	290	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	290	-	-	-	-	-	-	-	-
	MW02	19/12/2012	-	-	41,000	3500	<100	<100	-	-	-	-	-	-	310	17000	2100	7500	3500	11000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW02	24/10/2013	-	-	22,000	4700	<100	<100	-	-	-	-	-	-	86	5100	1700	5300	2400	7700	-	-	290	-	-	-	-	-	-	-	-	-	-	-	-	-	290	-	-	-	-	-	-	-	-
	MW02	3/11/2014	-	-	30,000	4800	<100	<100	-	-	-	-	-	-	140	5900	2100	6800	3200	9900	-	-	440	-	-	-	-	-	-	-	-	-	-	-	-	-	440	-	-	-	-	-	-	-	-
	MW02	15/12/2015	-	-	3,700	3900	<100	<100	-	-	-	-	-	-	<50	2800	2400	8200	3900	12000	-	-	730	-	-	-	-	-	-	-	-	-	-	-	-	-	730	-	-	-	-	-	-	-	-
	MW03	30/01/2012	-	-	20,000	7200	590	<100	-	-	-	-	-	-	1500	320	370	7600	4400	12,000	-	220	220	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	220	-	-	-	-	-	-	-	-
	MW03	19/12/2012	-	-	6,600	4700	650	<100	-	-	-	-	-	-	940	95	290	3000	1900	4900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW03	24/10/2013	-	-	8,600	1100	1300	<100	-	-	-	-	-	-	560	340	250	4100	2300	6400	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-
	MW03	3/11/2014	-	-	2,500	2600	300	<100	-	-	-	-	-	-	250	<20	120	100	430	1400	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-
	MW03	15/12/2015	-	-	6,100	1700	300	<100	-	-	-	-	-	-	260	31	240	1700	400	2100	-	-	170	-	-	-	-	-	-	-	-	-	-	-	-	-	170	-	-	-	-	-	-	-	-
	MW04	30/01/2012	-	-	500	2100	510	<100	-	-	-	-	-	-	1	2	2	110	200	310	-	8	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	8	-	-	-	-	-	-	-	-
	MW04	19/12/2012	-	-	6400	4500	530	<100	-	-	-	-	-	-	330	900	97	2800	1500	4300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW04	24/10/2013	-	-	2400	6200	570	<100	-	-	-	-	-	-	190	320	66	780	320	1100	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	52	-	-	-	-	-	-	-	-
	MW04	3/11/2014	-	-	2400	3100	200	<100	-	-	-	-	-	-	230	10	120	980	42	1400	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-
	MW04	15/12/2015	-	-	2100	2200	100	<100	-	-	-	-	-	-	34	51	46	560	210	770	-	-	70	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-	-	-	-	-	-
	MW05	30/01/2012	-	-	1300	260	<100	<100	-	-	-	-	-	-	230	150	94	280	130	410	-	4	4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	4	-	-	-	-	-	-	-	-
	MW05	19/12/2012	-	-	320	250	<100	<100	-	-	-	-	-	-	82	7	34	46	27	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW05	24/10/2013	-	-	370	510	200	<100	-	-	-	-	-	-	45	5	29	150	24	174	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-
	MW05	3/11/2014	-	-	510	2200	200	<100	-	-	-	-	-	-	52	<10	20	190	24	220	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW05	15/12/2015	-	-	70	240	<100	<100	-	-	-	-	-	-	13	<1	6	8	<1	8	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-
	MW06	30/01/2012	-	-	53	<50	<100	<100	-	-	-	-	-	-	6	151	2	17	8	25	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE	-	-	-	-	-	-	-	-
	MW06	19/12/2012	-	-	<10	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW06	24/10/2013	-	-	<10	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW06	3/11/2014	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW06	15/12/2015	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW07	30/01/2012	-	-	6100	1700	<100	<100	-	-	-	-	-	-	1300	152	400	770	520	1290	-	73	73	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	73	-	-	-	-	-	-	-	-
	MW07	19/12/2012	-	-	53	<50	<100	<100	-	-	-	-	-	-	12	<1	12	3	3	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW07	24/10/2013	-	-	27	<50	<100	<100	-	-	-	-	-	-	15	<1	<1	<2	12	12	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW07	3/11/2014	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MW07	15/12/2015	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
JBS&G	RB01 (Rose Bay pore water)	30/01/2012	-	-	800	<50	<100	<100	-	-	-	-	-	-	450	6	12	9	22	31	-	8	8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	8	-	-	-	-	-	-	-	-
	LOW-1	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MID-1	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MID-1	24/10/2013	-	-	<10	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	SW01	3/11/2014	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<20	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	SW01	15/12/2015	-	-	<20	<50	<100	<100	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	LOW-2	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MID-2	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	HIGH-2	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	LOW-3	19/12/2012	-	-	-	<1	<1	<1	-	-	-	-	-	-	<1	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	MID-3	19/12/2012	-	-	-	2	<1	<1	-	-	-	-	-	-	2	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
	HIGH-3	19/12/2012	-	-	-	2	<1	<1	-	-	-	-	-	-	2	<1	<1	<2	<1	<3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL (+)VE	-	-	-	-	-	-	-	-
				Maximum	20000.0	7200.0	1300.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1500.0	2800.0	2400.0	8200.0	4400.0	12000.0	0.0	220.0	730.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	730.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				Average	3376.3	2340.2	454.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	295.6	333.8	230.5	1570.2	818.6	2330.0	N/A	62.6	113.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	113.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				Standard Deviation	4650.1	2130.1	324.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	426.0	696.2	525.9	2458.8	1320.7	3671.5	N/A	92.6	188.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	188.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
				95%UCL	5126.5	3187.6	622.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	451.9	638.8	433.8	2520.8	1329.2	3711.8	N/A	150.9	202.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	202.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Legend:
- Not analysed / not calculated
LOR: Limit of Reporting
* LOR Exceeds Guideline Trigger Value
ug/l: micrograms per litre
mg/l: milligrams per litre
Sample Type: N - Primary, FD - Duplicate, FT - Triplicate, REP - Replicate

Action Levels:

Amended ASC NEPM (NEPC 2013) - GILs
NWQMS 2000 - Water Quality Guidelines for Recreational Purposes

Lab Qualifiers:
J - Estimated value.
U - Less than LOR

Appendix C
Remediation Acceptance Criteria

636 AND 638-646 NEW SOUTH HEAD ROAD, ROSE BAY, NSW
SOIL REMEDIATION ACCEPTANCE CRITERIA
PROJECT NUMBER: CES160201-DYL-AE

		LOR	Units	*NEPM 2013 - HIL B Residential*	*NEPM 2013 - HSL SOIL B SAND 0m to 1m*	*NEPM 2013 - ESL Urban Residential and public open space fine*	*NEPM 2013 - EIL Urban Residential and Public Open Space*
TRH	**TRH C6 - C10 Less BTEX (F1)**	25	mg/kg	-	**45**	**180**	**-**
	TRH >C10 - C16 Less Naphthalene (F2)	50	mg/kg	-	**110**	**120**	**-**
	TRH >C16-C34	100	mg/kg	-	**-**	**1300**	**-**
	TRH >C34-C40	100	mg/kg	-	**-**	**5600**	**-**
BTEXN	**Benzene**	0.2	mg/kg	-	**0.5**	**65**	**-**
	Toluene	0.5	mg/kg	-	**160**	**105**	**-**
	Ethylbenzene	1	mg/kg	-	**55**	**125**	**-**
	m&p-Xylene	2	mg/kg	-	**40**	**45**	**-**
	ortho-Xylene	1	mg/kg	-	**40**	**45**	**-**
	Naphthalene	1	mg/kg	-	**3**	**-**	**170**
PAHs	**Naphthalene**	0.1	mg/kg	-	**-**	**-**	**170**
	Benzo(a)pyrene	0.05	mg/kg	**4**	**-**	**0.7**	**-**
	Benzo(a)pyrene TEQ calc (zero)	0.5	mg/kg	**-**	**-**	**-**	**-**
	Total PAHs	0.5	mg/kg	**400**	**-**	**-**	**-**
Metals	**Arsenic**	4	mg/kg	**500**	-	-	**100**
	Cadmium	0.4	mg/kg	**150**	-	-	**-**
	Chromium	1	mg/kg	**500**	-	-	**480**
	Copper	1	mg/kg	**30000**	-	-	**100**
	Lead	1	mg/kg	**1200**	-	-	**1100**
	Mercury	0.1	mg/kg	**120**	-	-	**-**
	Nickel	1	mg/kg	**1200**	-	-	**25**
	Zinc	0.05	mg/kg	**60000**	-	-	**290**
OCPs	**Methoxychlor**	0.05	mg/kg	**500**	-	-	**-**
	Heptachlor	0.05	mg/kg	**10**	-	-	**-**
	Aldrin	0.05	mg/kg	**10**	-	-	**-**
	Dieldrin	0.05	mg/kg	**10**	-	-	**-**
	Endrin	0.05	mg/kg	**20**	-	-	**-**
	beta-Endosulfan	0.05	mg/kg	**400**	-	-	**-**
	4.4-DDT	0.2	mg/kg	**600**	-	-	**180**
	Hexachlorobenzene (HCB)	0.05	mg/kg	**15**	-	-	**-**
OPPs	**Chlorpyrifos**	0.05	mg/kg	**340**	-	-	**-**
PCBs	**Aroclor 1016**	0.1	mg/kg	**1**	-	-	**-**
	Arochlor 1232	0.1	mg/kg	**1**	-	-	**-**
	Arochlor 1242	0.1	mg/kg	**1**	-	-	**-**
	Arochlor 1248	0.1	mg/kg	**1**	-	-	**-**
	Arochlor 1254	0.1	mg/kg	**1**	-	-	**-**

NEPM 2013 - HIL B Residential: Residential with minimal opportunities for soil access, includes dwellings with fully and permanently paved yard space such as high-rise buildings and flats

NEPM 2013 - HSL SOIL B SAND - 0m to 1m: High density residential. For petroleum hydrocarbons depend on physicochemical properties of soil as it affects hydrocarbon vapour movement in soil and the characteristics of building structures. They apply to different soil types, land uses and depths below surface to >4 m and have a range of limitations

NEPM 2013 - ESL Urban Residential and Public Open Space; fine: For petroleum hydrocarbon materials broadly apply to coarse and fine grained soils and various land uses. They are applicable to the top 3m of soil.

NEPM 2013 - EIL Urban Residential and Public Open Space: Depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil.

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Attachment 2

Consistency with *A Plan for Growing Sydney* (2014) and *Draft Central District Plan* (2016)

***A Plan for Growing Sydney* (December 2014)**	
This plan contains: ▪ A vision for Sydney ▪ 4 goals, 3 planning principles and 22 directions ▪ Priorities for Sydney's 6 subregions. The site is located with the Central Subregion.	
Goal	**Comment on consistency**
1. A competitive economy with world-class services and transport	Consistent. The planning proposal will help meet this goal by providing additional flexibility in the development opportunities within and adjoining the Rose Bay Centre. The centre is one of the existing business centres within the Woollahra LGA and has access to bus and ferry transportation.
2. A city of housing choice, with homes that meet our needs and lifestyles	Consistent. The planning proposal will provide additional flexibility in the housing development options for the site, providing the opportunity for additional diversity in housing choice to meet different lifestyle.
3. A great place to live with communities that are strong, healthy and well connected	Consistent. The planning proposal will provide additional flexibility in the development options for housing supply and choice in an existing local centre. The Rose Bay Centre is also in close proximity to a range of recreational areas and activities, with safer cycling facilities being planned and constructed. This provides additional opportunities for healthy and connected lifestyle choices such as recreation, active transport, such as walking and public transport and working closer to home.
4. A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources	Consistent. The planning proposal will not impede sustainability or the protection of the natural environment.

Planning principles	Comment on consistency
Principle 1: Increasing housing choice around all centres through urban renewal in established areas	Consistent. The planning proposal will provide additional flexibility in the development options for housing supply and choice within and adjoining an existing centre in an established area.
Principle 2: Stronger economic development in strategic centres and transport gateways	Consistent. The planning proposal will provide additional flexibility in development options for the site, which is located within and adjoining an existing centre. The site is well located to take advantage of jobs in the centre and has good public transport links to access jobs and services in other nearby strategic centres such as the CBD, Bondi Junction and Double Bay.
Principle 3: Connecting centres with a networked transport system	Consistent. The planning proposal will not impede the provision of efficient public transport links to commercial centres.

Directions
A set of 22 directions is listed for the four goals of A Plan for Growing Sydney. Each direction has been considered, but many are not related to this planning proposal. The relevant planning directions are addressed below.

Direction	Comment on consistency
Direction 2.1 Accelerate housing supply across Sydney	Consistent. The planning proposal will provide additional flexibility in housing development options for the site, which may assist to accelerate the supply of housing.
Direction 2.2 Accelerate urban renewal across Sydney – Providing homes close to jobs	Consistent. The planning proposal will provide additional flexibility in housing options for the site, which is located within and adjoining an established centre. The site has good public transport links to other centres that provide jobs, such as Sydney Central Business District, Bondi Junction and other centres.

Direction	Comment on consistency
Direction 2.3: Improve housing choice to suit different needs and lifestyles	Consistent. The planning proposal will provide additional flexibility in housing redevelopment opportunities for the site to suit a range of different needs and lifestyles.
Direction 3.1: Revitalise existing suburbs	Consistent. The planning proposal will provide additional flexibility in the development options for the site, providing additional incentive to redevelop the site to replace an ageing petrol/service station and residential flat building.
Direction 3.3: Create healthy built environments	Consistent. The planning proposal applies to land located within and adjoining a centre with shops, services, recreational spaces, cycleways and public transport. This promotes healthy activities such as walking or cycling to these locations as part of daily activities and promotes physical activity.
Direction 4.1 Protect our natural environment and biodiversity	Consistent. The planning proposal applies to land located in an existing urban environment and does not apply to sensitive land or land with significant conservation values.
Central Subregion priorities	**Comment on consistency**
The priorities for the Central Subregion are: ▪ A competitive economy ▪ Accelerate housing supply, choice and affordability and build great places to live ▪ Protect the natural environment and promote its sustainability and resilience	Consistent. The planning proposal is consistent with the priorities of the subregion as it: • will facilitate additional flexibility in the redevelopment options within the Rose Bay Centre; • will facilitate residential development to accelerate housing supply, choice and potentially affordability; • will facilitate development close to existing recreation facilities such as Lyne Park and Sydney Harbour; • is in proximity to existing transportation infrastructure, services and recreation; and • does not apply to land with any significant conservation value.

Draft Central District Plan
The Draft Central District Plan (2016) [the District Plan] sets out a vision, priorities and actions for the development of the Central District of Greater Sydney. The four goals of *A Plan for Growing Sydney* are addressed in the District Plan in three themes: • A productive city (Goal 1) • A liveable city (Goals 2 and 3) • A sustainable city (Goals 3 and 4) Each theme contains priorities which must be addressed during the preparation of a planning proposal. The consistency of this planning proposal with these priorities is addressed in this table.

A productive city	
District priorities	**Comment on consistency**
Productivity Priority 1: **Creating opportunities for the growth of commercial floor space** Relevant planning authorities need to consider the mechanisms to protect and enhance opportunities for the growth of commercial floor space. When planning strategic and district centres, relevant planning authorities should consider Productivity Priority 3 (Section 3.5), as well as strategies to: • enhance the urban amenity and walkability of centres • promote the diversification of complementary commercial activities • maintain a commercial core for employment activities in targeted locations • support the economic viability of office development.	Consistent. The planning proposal will not impede the development of commercial floor space under existing development standards and controls.
Productivity Priority 2: **Support the growth of innovation and creative industries** The relevant planning authority should investigate opportunities to support the growth of innovation and creative industries. Consideration should be given to the full spectrum of activities from high-end global businesses to small start-ups.	Not applicable. The planning proposal will not impede the integration of arts and cultural outcomes, or creative hubs under existing development standards and controls.

A productive city	
District priorities	**Comment on consistency**
This may be achieved through a range of mechanisms and strategies including: • providing flexibility in appropriate zones for the co-location of creative industries in desirable locations with access to transport and ancillary uses such as retail, cafes and restaurants • incentivising opportunities for the provision of affordable space for creative and start-up businesses. Councils and State agencies should also consider opportunities to grow innovation and creative industries by: • providing affordable space for creative hubs on government-owned land and/or in large-scale government-led urban renewal projects • enhancing synergies and connectivity between health and education facilities • supporting increased opportunities for a diversity of housing choices including price points close to work opportunities.	
Productivity Priority 3: **Manage growth and change in strategic and district centres and, as relevant, local centres** When undertaking planning for strategic, district and local centres, the relevant planning authority should consider: • opportunities for existing centres to grow and new centres to be planned to meet forecast demand across a range of retail business types, including: the need to reinforce the suitability of centres for retail and commercial, encouraging a competitive market • the commercial requirements of retailers and commercial operators such as servicing, location, visibility and accessibility • the use of B3 Commercial Core Zones in strategic centres, and where appropriate, in district centres to	Consistent. The Rose Bay Centre has a range of retail, business and community uses that serve the needs of people who live in Rose Bay, Vaucluse and Watsons Bay. There is no specific job target for the Woollahra LGA, but the centre has capacity to provide more jobs under the existing controls. The planning proposal will not impede the growth and change of the centre under existing development standards and controls.

A productive city	
District priorities	**Comment on consistency**
reinforce and support the operation and viability of non-residential uses, including local office markets. When preparing strategic plans, the relevant planning authority needs to demonstrate how its planning for centres has considered strategies to: • deliver on the strategic and district centre's job targets • meet the retail and service needs of the community • facilitate the reinforcement and/ or expansion of allied health and research activities • promote the use of walking, cycling and integrated public transport solutions • provide urban spaces such as meeting places and playgrounds • respond to the centre's heritage and history • promote community arts • reflect crime prevention through environmental design (CPTED) principles such as safety and management • manage the transition between higher intensity activity in and around a centre and lower intensity activity that frames the centre.	
Productivity Priority 4: **Prioritise the provision of retail floor space in centres** When preparing retail and commercial strategies to inform local planning, the following matters should be considered: • existing and future supply and demand for retail floor space within the District, based on the Department of Planning and Environment's medium population growth scenario • the accessibility of different types of retail and commercial floor space to	Not applicable. The planning proposal will not impede the preparation of retail and commercial strategies to inform local planning.

A productive city	
District priorities	**Comment on consistency**
communities • opportunities to allow retail and commercial activities to innovate • the impacts of new retail and commercial proposals to enhance the viability and vitality of existing and planned centres • the need for new retail development to reinforce and enhance the public domain • the net social, economic and environmental implications of new supply within different locations	
Productivity Priority 5: **Protect and support employment and urban services land** Relevant planning authorities should take a precautionary approach to rezoning employment and urban services lands, or adding additional permissible uses that would hinder their role and function. The exception being where there is a clear direction in the regional plan (currently *A Plan for Growing Sydney*), the District Plan or an alternative strategy endorsed by the relevant planning authority. Any such alternative strategy should be based on a net community benefit assessment (i.e. analysis of the economic, environmental and social implications) of the proposed exception, taking account of a District-wide perspective in accordance with Action P5. How these matters are taken into account is to be demonstrated in any relevant planning proposal.	Consistent. The planning proposal will not rezone any employment and urban services lands, or adding additional permissible uses that would hinder their role and function. The planning proposal applies to land within the B2 Local Centre zone which permits light industry and other business uses. The proposal seeks to permit the additional use of residential flat buildings in the zone only as a part of a mixed use development. Therefore, the proposal will not impede the development of employment and urban services uses under existing development standards and controls.

A Liveable City	
District priorities	**Comment on consistency**
Liveability Priority 1: **Deliver Central District's five-year housing targets** To deliver these five-year housing targets, councils need to: • plan to provide sufficient capacity and monitor delivery of the five-year housing targets • liaise with the Commission to identify barriers to delivering additional housing in accordance with the targets.	Consistent. The planning proposal will provide additional flexibility in housing development options for the site. This may assist in providing housing to meet the district plan's five year housing target for Woollahra Council of 300 dwellings.
Liveability Priority 2: **Deliver housing diversity** Relevant planning authorities should to consider the needs of the local population base in their local housing strategy and how to align local planning controls that: • address housing diversity that is relevant to the needs of the existing and future local housing market • deliver quality design outcomes for both buildings and places.	Not applicable. The planning proposal does not form part of a local housing strategy. However, the proposal will provide additional flexibility in housing development options for the site, permitting the opportunity for additional housing diversity.
Liveability Priority 3: **Implement the Affordable Rental Housing Target** Building on Action 2.3.3 of *A Plan for Growing Sydney,* when preparing planning proposals or strategic plans for new urban renewal or greenfield areas, the relevant planning authority will include an Affordable Rental Housing Target as a form of inclusionary zoning. A target of 5% to 10% of new floor space will be applied at the rezoning stage so that it can factored into the development equation: • within areas that have been shown, via a local housing strategy, or another form of appropriate research, to have current or future need for affordable rental housing • to applicable land within new urban	Not applicable. The planning proposal does not apply to land in a new urban renewal or greenfields area.

A Liveable City	
District priorities	**Comment on consistency**
renewal or greenfield areas (government and private) subject to development feasibility assessed at a precinct scale • to all new floor space (above the existing permissible floor space) • in addition to local and State development contributions and cognisant of any public or private subsidy for affordable rental housing provision • to provide a range of dwelling types including one, two and three+ bedroom homes • in accordance with any relevant guidance developed by the Commission and Department of Planning and Environment. The Affordable Rental Housing dwellings will be secured by the relevant planning authority and passed onto a registered Community Housing Provider to manage, further developing this emerging sector of the economy. In this regard, we encourage the NSW Government to bring forward its own land to maximise affordable housing and Affordable Rental Housing.	

A Liveable City	
District priorities	**Comment on consistency**
Liveability Priority 4: **Increase social housing provision** Relevant planning authorities and the Department of Family and Community Services (and the Land and Housing Corporation) should collaborate to optimise housing and community diversity outcomes on sites of social housing concentration. Subject to appropriate consultation, feasibility considerations and environmental assessment, relevant planning authorities should translate optimal outcomes for social housing sites into land use controls.	Not applicable. The site does not contain any social housing.
Liveability Priority 5: **Facilitate the delivery of safe and healthy places** Relevant planning authorities should: • facilitate the development of healthy and safe built environments • consider the inclusion of planning mechanisms such as floor space bonuses to incentivise the provision of: - neighbourhoods with good walking and cycling connections particularly to schools - social infrastructure such as public libraries or child care - urban agriculture, community and roof gardens for productive food systems.	Consistent. The planning proposal will not impede the planning or delivery of healthy and safe environments under existing development standards and controls.
Liveability Priority 6: **Facilitate enhanced walking and cycling connections** Relevant planning authorities should facilitate enhanced walking and cycling outcomes by giving due consideration to the delivery of district and regional connections and walkable neighbourhoods.	Not applicable. The planning proposal will not impede the planning or delivery of walking and cycling facilities.

A Liveable City	
District priorities	**Comment on consistency**
Liveability Priority 7: **Conserve heritage and unique local characteristics** Relevant planning authorities should: • require the adaptive re-use of historic and heritage listed buildings and structures in a way that enhances and respects heritage values • protect Aboriginal, cultural and natural heritage and places, spaces and qualities valued by the local community.	Not applicable. The planning proposal does not affect land in a heritage conservation area or land that contains heritage items.
Liveability Priority 8: **Foster the creative arts and culture** Relevant planning authorities should: • integrate arts and cultural outcomes into urban development through planning proposals that nurture a culture of art in everyday local spaces and enhance access to the arts in all communities • give due consideration to the inclusion of planning mechanisms that would incentivise the establishment and resourcing of creative hubs and incubators and accessible artist-run spaces.	Consistent. The planning proposal will not impede the integration of arts and cultural outcomes, or creative hubs under existing development standards and controls.
Liveability Priority 9: **Share resources and spaces** Relevant planning authorities should consider the delivery of shared local facilities such as community hubs, cultural facilities and public libraries as multifunctional shared spaces.	Not applicable. The planning proposal will not impede the delivery of shared local facilities under existing development standards and controls.

A Liveable City	
District priorities	**Comment on consistency**

Liveability Priority 10:
 	
Support innovative school planning and delivery
 	
Relevant planning authorities should give due consideration to:
• innovative land use and development approaches, including:
  o using travel management plans, that identify travel options, to reduce car use
  o enabling the development and construction of schools as flexible spaces, so they can facilitate shared use and change over time to meet varying community need
• the inclusion of planning mechanisms that would incentivise the:
  o development of new schools as a part of good quality and appropriate mixed use developments
  o the shared use of facilities between schools and the local community including playing fields and indoor facilities, so they can meet wider community needs.
	Not applicable.
	
	The planning proposal does not apply to land which is currently used or proposed to be used for educational establishments.
	
	The Department of Education has advised that they do not anticipate the need for any new schools in the foreseeable future.

Liveability Priority 11: Provide socially and culturally appropriate infrastructure and services Relevant planning authorities should: • collaborate with Federal and State agencies and service providers to integrate local and District social infrastructure for Aboriginal residents including preschools, child care and aged care services • include appropriate planning mechanisms to incentivise the provision of these services required by local communities where appropriate.	Not applicable. A need for additional services and facilities to service Woollahra's Aboriginal population has not been identified.

A Liveable City	
District priorities	**Comment on consistency**
Liveability Priority 12: **Support planning for health infrastructure** Relevant planning authorities should give due consideration to the need to support the co-location of ancillary uses that complement health precincts, including: • residential aged care facilities • housing for health workers • visitor and short-term accommodation • health and medical research activities • child care • non-critical patient care • commercial uses that are complementary to and service the health precinct Consideration should also be given to the protection of health precincts and super precincts from residential encroachment into key employment areas.	Not applicable. The sites are not located in the vicinity of a major health precinct identified in the Draft Central District Plan. Co-locating ancillary services is not relevant to this planning proposal.
Liveability Priority 13: **Support planning for emergency services** Relevant planning authorities must consider the operational and locational requirements of emergency services.	Not applicable. Woollahra's target of 300 additional dwellings over five years identified in the Draft Central District Plan does not require additional emergency services. However, Council will consult with NSW State Emergency Services, NSW Police, NSW Ambulance and Fire & Rescue NSW as part of the public exhibition of the planning proposal.
Liveability Priority 14: **Support planning for cemeteries and crematoria** Relevant planning authorities should give consideration to the need and locational requirements of cemeteries and crematoria.	Not applicable. Cemeteries and crematoria are not permissible anywhere in the Woollahra LGA under Woollahra LEP 2014, nor does the planning proposal propose to permit them. Cemeteries and Crematoria NSW advise that due to land value, the provision of cemeteries in the Central District is unlikely.

A sustainable City	
District priorities	**Comment on consistency**
Sustainability Priority 1: **Maintain and improve water quality and waterway health** The Office of Environment and Heritage and the Environment Protection Authority have developed a risk-based framework to assist decisions that maintain, improve or restore water quality in the strategic planning process to help meet the NSW Water Quality and River Flow Objectives. Relevant planning authorities and managers of public land should: • adopt the Office of Environment and Heritage and the Environment Protection Authority's framework to determine the appropriate stormwater and wastewater management targets that contribute to maintaining or improving water quality and waterway health to meet the community's values • consider more water sensitive approaches to managing stormwater to meet the water quality and quantity targets, including harvesting and re-use of water and management of riparian corridors • develop mechanisms to allow offsetting between sub-catchments and facilitate cost-effective opportunities to meet the management targets for whole catchments and water quality objectives for receiving waters • while management targets are being established, ensure that the quality of stormwater and wastewater from public land and new development in established urban areas maintains or improves the health of waterways, in line with community values and expectations of how waterways will be used.	Consistent. The planning proposal applies to developed land in an existing centre and on the Sydney Harbour foreshore. The planning proposal will not impede opportunities to appropriately manage or improve stormwater and wastewater quality and waterway health. A detailed assessment of these issues can be undertaken as part of a development application. Redevelopment of the site in accordance with the Remedial Action Plan can decontaminate the site and improve water quality and waterway health. Due to the contaminated nature of the site, Council will consult with the EPA.

A sustainable City	
District priorities	**Comment on consistency**
Sustainability Priority 2: **Protect and conserve the values of Sydney Harbour** When preparing strategic plans, relevant planning authorities around Sydney Harbour should consider opportunities to: • conserve and interpret Aboriginal and European heritage • protect and enhance aquatic and terrestrial biodiversity (also see Section 5.5) • enhance access to and along the foreshore and provide connected green space around the foreshore (also see Section 5.6) • manage demand for and the design of essential maritime facilities within the natural and built environment.	Not applicable. The planning proposal is not a strategic plan. However, the planning proposal applies to land in an existing centre and on the Sydney Harbour foreshore. The planning proposal will not impede opportunities to manage or enhance heritage, biodiversity, foreshore access or the design of maritime facilities. A detailed assessment of these issues can be undertaken as part of a development application.
Sustainability Priority 3: **Enhance access to Sydney Harbour foreshore and waterways** Councils around Sydney Harbour should work with Roads and Maritime Services to revise foreshore and waterway access strategies for Sydney Harbour. These strategies should consider ways to manage competing demands placed on Sydney Harbour including: • protection of flora and fauna • public access to the foreshore and waterway • growth in boat ownership • changes in boat size • demand for moorings, marinas, dinghy storage and other boat support infrastructure • demand for on-street boat parking	Consistent. The planning proposal applies to developed land in an existing commercial centre and on the Sydney Harbour foreshore. The proposal will not impede options to manage competing demands placed on Sydney Harbour. Woollahra Council will consult with the Roads and Maritime Services to revise foreshore and waterway access strategies for Sydney Harbour as required by the gateway determination.

A sustainable City	
District priorities	**Comment on consistency**
Sustainability Priority 4: **Avoid and minimise impacts on biodiversity** Efforts to protect biodiversity values should be based on avoiding and minimising adverse impacts to biodiversity, as far as practicable. Only when impacts cannot be avoided or minimised, should consideration be given to offsetting those impacts.	Not applicable. The planning proposal applies to an existing developed site. There are no known critical habitat areas, threatened species, populations or ecological communities or their habitats present on the site. The site is located on the Sydney Harbour foreshore. The impact of any future development on the biodiversity of Sydney Harbour can be assessment as part of a development application.
Sustainability Priority 5: **Align strategic planning to the vision for the Green Grid** Consistent with Action 3.2.1 of *A Plan for Growing Sydney*, relevant planning authorities should consider opportunities to support the delivery of the Central District Green Grid. This could include consideration of how land use zones can be applied, how new development is designed, or where voluntary planning agreements and agreements for dual use of open space and recreational facilities could contribute to delivering the Green Grid.	Consistent. The planning proposal applies to land on the Sydney Harbour foreshore. The proposal will not impede the delivery of any known priority projects which support the long term vision for Sydney's Green Grid identified in the Draft Central District Plan.
Sustainability Priority 6: **Maximise benefits to the public from the innovative use of golf courses** When new opportunities to examine the future use of golf courses arise, relevant planning authorities should consider how golf courses could be managed to provide greater public benefits to communities in a way that responds to local needs for green space and recreation.	Not applicable. The planning proposal does not apply to a golf course or propose any changes to the use of golf courses.

A sustainable City	
District priorities	**Comment on consistency**
Sustainability Priority 7: **Protect, enhance and extend the urban canopy** When making strategic plans, relevant planning authorities should consider tree canopy cover in land release and established urban areas, with a focus on providing shade to streets. Councils should include green cover and shade tree planting along major transport corridors in local infrastructure investment planning, development control and urban design.	Not applicable. The planning proposal will not impede the option for addition vegetation on the site.
Sustainability Priority 8: **Improve protection of ridgelines and scenic areas** The scenic qualities of landscapes are already recognised and considered in some areas of Greater Sydney, as part of the strategic planning and development process. All councils should identify and map areas with high scenic value and develop strategies, planning and development controls that protect important scenic landscapes and vistas of them. Planning and development controls should prohibit opportunities for development on ridgelines that would diminish their scenic quality.	Consistent. The planning proposal does not apply to land on a ridgeline. However, the site is on the Sydney Harbour foreshore and therefore visible from Sydney Harbour. The planning proposal will not alter the height or FSR controls for the site, and will therefore not alter the potential bulk and scale of development on the site. The visual amenity of future development can be assessment as part of a development application.
Sustainability Priority 9: **Support opportunities for District waste management** When making plans, relevant planning authorities should: • use appropriate land use zones to minimise the potential for conflict with the operation and expansion of existing waste facilities • protect precincts that have functioning waste management facilities from encroachment by residential and other sensitive development • consider ways to encourage design measures such as fully	Not applicable. The planning proposal does not apply to land that is or will be used for district waste management.

A sustainable City	
District priorities	**Comment on consistency**
enclosing waste facilities to minimise dust, odours and noise impacts to mitigate the risks and potential impacts on surrounding communities • consider opportunities to support co-location of waste management facilities with other activities that produce or reuse waste materials.	
Sustainability Priority 10: **Mitigate the urban heat island effect** Relevant planning authorities should consider where the urban heat island effect is experienced, and the location of vulnerable communities and use strategic plans to reduce impacts from extreme heat.	Not applicable. The planning proposal applies to developed land in an existing commercial centre and land on the Sydney Harbour foreshore. The planning proposal will not amend the height and FSR controls on the site and therefore will not increase the site's development capacity in terms of bulk, scale or density, or its capacity to add to urban heat island effects.
Sustainability Priority 11: **Integrate land use and transport planning to consider emergency evacuation needs** Relevant planning authorities should coordinate with Transport for NSW and the State Emergency Service to consider land use and local road planning, so that it is integrated with emergency evacuation planning and takes into account the cumulative impact of growth on road evacuation capacity.	Not applicable. The planning proposal will not amend the height and FSR controls on the site and therefore will not increase the site's development capacity in terms of density or traffic generation.
Sustainability Priority 12: **Assist local communities develop a coordinated understanding of natural hazards and responses that reduce risk** The Commission, the NSW Government and local councils will continue to adopt a range of tools and resources and implement actions to adapt to climate change and reduce risks to public and private assets. We will also explore ways to coordinate, improve and communicate information about risks associated with climate change to local communities.	Not applicable. Woollahra Council's Rose Bay Floodplain Risk Management Study and Plan (2014) lists new urban development as an opportunity to minimise risk of flooding along New South Head Road. The planning proposal will not affect the ability of the Commission, the NSW Government and Woollahra Council to adopt tools and resources and implement actions to adapt to climate change and reduce risks to public and private assets.

Attachment 3

Consistency with state environmental planning policies

State environmental planning policy	Comment on consistency
SEPP No 1 – Development Standards	Not applicable
SEPP N0.14 – Coastal Wetlands	Not applicable
SEPP No 19 – Bushland in Urban Areas	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 21 – Caravan Parks	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 26 – Littoral Rainforests	Not applicable
SEPP No 30 – Intensive Agriculture	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 33 – Hazardous and Offensive Development	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 36 – Manufactured Home Estates	Not applicable
SEPP No 44 – Koala Habitat Protection	Not applicable
SEPP No 47 – Moore Park Showground	Not applicable
SEPP No 50 – Canal Estate Development	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 52 – Farm Dams and Other Works in Land and Water Management Plan Areas	Not applicable

State environmental planning policy	Comment on consistency
SEPP No 55 – Remediation of Land	Applicable Consistent. No. 638-646 New South Head Road is currently developed and operating as a petrol / service station. Environmental site investigations were conducted on the site in accordance with the provisions of *State Environmental Planning Policy No. 55 – Remediation of Land*, and a Remedial Action Plan prepared to manage the environment effects of contamination on the site. The investigations concluded that if the Remedial Action Plan is implemented, the site will be suitable for the additional uses for which the site may be used as sought in this planning proposal.
SEPP No 62 – Sustainable Aquaculture	Not applicable
SEPP No 64 – Advertising and Signage	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 65 – Design Quality of Residential Apartment Development	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 70 – Affordable Housing (Revised Schemes)	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP No 71 – Coastal Protection	Not applicable
SEPP (Affordable Rental Housing) 2009	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Building Sustainability Index: BASIX) 2004	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Exempt and Complying Development Codes) 2008	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.

State environmental planning policy	Comment on consistency
SEPP (Housing for Seniors or People with a Disability) 2004	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Infrastructure)	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Kosciuszko National Park - Alpine Resorts) 2007	Not applicable
SEPP (Kurnell Peninsula) 1989	Not applicable
SEPP (Major Development) 2005	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Miscellaneous Consent Provisions) 2007	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Penrith Lakes Scheme) 1989	Not applicable
SEPP (Rural Lands) 2008	Not applicable
SEPP (Transitional Provisions) 2011	Not applicable
SEPP (State and Regional Development) 2011	Applicable Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy.
SEPP (Sydney Drinking Water Catchment) 2011	Not applicable
SEPP (Sydney Region Growth Centres) 2006	Not applicable

State environmental planning policy	Comment on consistency
SEPP (Three Ports) 2013	Not applicable
SEPP (Urban Renewal) 2010	Not applicable
SEPP (Western Sydney Employment Area) 2009	Not applicable
SEPP (Western Sydney Parklands) 2009	Not applicable

Sydney Regional Environmental Plans – now deemed State Environmental Planning Policies	Comment on consistency
SREP No 8 (Central Coast Plateau Areas)	Not applicable
SREP No 9 - Extractive Industry (No 2 - 1995)	Not applicable
SREP No 16 – Walsh Bay	Not applicable
SREP No 20 - Hawkesbury- Nepean River (No 2 - 1997)	Not applicable
SREP No 24 - Homebush Bay Area	Not applicable
SREP No 26 – City West	Not applicable
SREP No 30 - St Marys	Not applicable
SREP No 33 - Cooks Cove	Not applicable
SREP (Sydney Harbour Catchment) 2005	Applicable. Consistent. The planning proposal does not contain a provision which is contrary to the operation of this policy. The planning proposal applies to land within the Sydney Harbour Catchment and the Foreshores and Waterways Area. The planning principles of the SREP (Sydney Harbour Catchment) 2005 have been considered during its preparation.

Attachment 4

Compliance with section 117 directions

Compliance with section 117 directions		
Direction		**Applicable/comment**
1	**Employment and resources**	
1	Business and industrial zones	Consistent. The planning proposal will: • retain the area and location the existing business zone (B2 Local Centre), and • not reduce the total potential floor space area for employment uses and related public services in business zones.
1.2-1.5	Directions 1.2-1.5	Not applicable. These directions are not relevant to the Sydney metropolitan area.
2	**Environment and heritage**	
2.1	Environment protection zones	Not applicable. The planning proposal does not apply to land within an environmental protection zone or land identified for environmental protection.
2.2	Coastal protection	Not applicable. The planning proposal does not apply to land within the coastal zone.
2.3	Heritage conservation	Consistent. The site does not contain a heritage item and is not within a heritage conservation area. The planning proposal will not impact on the significance of any heritage items.
2.4	Recreation vehicle areas	Not applicable. The planning proposal does not apply to sensitive land or land with significant conservation values. It will not allow land to be developed for a recreation vehicle area.
2.5	Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs	Not applicable. The planning proposal does not apply to land in the Far North Coast.
3	**Housing, infrastructure and urban development**	

Compliance with section 117 directions		
Direction		**Applicable/comment**
3.1	Residential zones	Consistent. The planning proposal will create an opportunity to broaden the range of housing available in Rose Bay and the Woollahra LGA, through a mixed use development. The site is well placed to efficiently use existing infrastructure and services as it is near public transport facilities that will support connections to employment and services, both within the Rose Bay Centre and further afield. As the planning proposal applies to land in an established urban area it will not consume land at the urban fringe. Any future residential development will be subject to assessment under the development controls which apply to all residential and mixed use development, such as SEPP 65 and the Apartment Design Guide.
3.2	Caravan parks and manufactured home estates	Consistent. The planning proposal does not relate to caravan parks or manufactured home estates.
3.3	Home occupations	Not applicable. The planning proposal does not affect home occupations in dwelling houses.
3.4	Integrating land use and transport	Consistent. The planning proposal is consistent with the aims, objectives and principles of *Improving Transport Choice – Guidelines for planning and development* (DUAP 2001), and *The Right Place for Business and Services – Planning Policy* (DUAP 2001) as: • the site is located within and adjoining a local centre which is accessible by public transport, walking and cycling and supported by many existing businesses and patronised by the residents of Rose Bay and nearby suburbs. • The site is located in proximity to numerous bus routes and a ferry service offering frequent public transport connections within the Woollahra LGA and beyond. The proximity of these transport services will encourage public transport use and discourage private transport use. • This proposal will provide for a development density consistent with the scale and character of surrounding development.

Compliance with section 117 directions		
Direction		**Applicable/comment**
3.5	Development near licensed aerodromes	Not applicable. The planning proposal does not apply to land near a licensed aerodrome.
3.6	Shooting ranges	Not applicable. The planning proposal does not apply to land adjacent to or adjoining an existing shooting range.
4	**Hazard and risk**	
4.1	Acid sulfate soils	Consistent. The Contamination Reports undertaken on the site indicate that acid sulfate soils may be present on 636 New South Head Road but are not present on 638-646 New South Head Road. A Remedial Action Plan was prepared in June 2016 by Consulting Earth Scientists for the site. The plan concludes that if its recommendations are implemented, the site will be suitable for the proposed land uses. The management of potential acid sulfate soils can be managed during the construction process.
4.2	Mine subsidence and unstable land	Not applicable. The planning proposal does not apply to land within a proclaimed Mine Subsidence District or to land identified as unstable.
4.3	Flood prone land	Consistent. The planning proposal applies to land within a flood prone area. Flood protection planning and management of new development on the site can be assessed in detail with future redevelopment of the site.
4.4	Planning for bushfire protection	Not applicable. The planning proposal does not apply to land mapped as bushfire prone land.
5	**Regional planning**	
5.1 - 5.9	Strategies 5.1-5.9	Not applicable. These strategies do not apply to the Woollahra LGA.
5.10	Implementation of Regional Plans	Not applicable. No regional (or district) plan applies to the Woollahra LGA.

Compliance with section 117 directions		
Direction		**Applicable/comment**
6	**Local plan making**	
6.1	Approval and referral requirements	Consistent. The planning proposal does not include provisions that require development applications to be referred externally and is not related to designated development.
6.2	Reserving land for public purposes	Consistent. The planning proposal does not create, alter or reduce existing zonings or reservations of land for public purposes.
6.3	Site specific provisions	Consistent. The planning proposal proposes an additional permitted use on the site to enable residential flat building development on the ground floor, but only as part of a mixed use development. This change does not impose any development standards or requirements in addition to those already contained in Woollahra LEP 2014.
7	**Metropolitan Planning**	
7.1	Implementation of A Plan for Growing Sydney (Dec 2014)	Consistent. The planning proposal will facilitate additional flexibility in residential development in proximity to public transport, shops, services and employment.
7.2	Implementation of Greater Macarthur Land Release Investigation	Not applicable.
7.3	Parramatta Road Corridor Urban Transformation Strategy	Not applicable.