ENVIRONMENTAL INVESTIGATION SERVICES

REPORT

TO

NSW HEALTH INFRASTRUCTURE

ON

REMEDIATION ACTION PLAN

FOR

PROPOSED HOSPITAL REDEVELOPMENT

AT

97-103 BOWRAL ROAD, BOWRAL, NSW

2 JULY 2018 **REF: E31452Krpt2-RAP**

Postal Address: PO Box 976, North Ryde BC NSW 1670
Tel: 02 9888 5000 • Fax: 9888 5004
EIS is a division of Jeffery and Katauskas Pty Ltd • ABN 17 003 550 801

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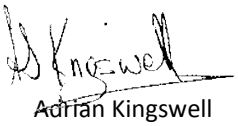
Report prepared by:

Katrina Taylor
Senior J Environmental Scientist

Report reviewed by:



Adrian Kingswell
Principal | Environmental Scientist

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ABBREVIATIONS

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Development Application	**DA**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Environmental Investigation Services	**EIS**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environment Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
Ecological Screening Level	**ESL**
Fibre Cement Fragment(s)	**FCF**
General Approval of Immobilisation	**GAI**
Health Investigation Level	**HILs**
Hardness Modified Trigger Values	**HMTV**
Health Screening Level	**HSLs**
International Organisation of Standardisation	**ISO**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**

ABBREVIATIONS

Potential ASS	**PASS**
Polychlorinated Biphenyls	**PCBs**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Site Audit Statement	**SAS**
Site Audit Report	**SAR**
Site Specific Assessment	**SSA**
Source, Pathway, Receptor	**SPR**
Specific Contamination Concentration	**SCC**
Standard Penetration Test	**SPT**
Standard Sampling Procedure	**SSP**
Standing Water Level	**SWL**
Trip Blank	**TB**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**
Milliequivalents	**meq**
micro Siemens per Centimetre	**µS/cm**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage	**%**

1 INTRODUCTION

NSW Health Infrastructure ('the client') commissioned Environmental Investigation Services (EIS)[1] to prepare a Remediation Action Plan (RAP) for the proposed hospital redevelopment at Bowral & District Hospital, 97-103 Bowral Road, Bowral, NSW ('the site'). The location of the site is shown on Figure 1, main hospital site location is shown on Figure 2 and the RAP is applicable to the development area as shown on Figure 3. For the purposes of the RAP, the development area will be referred to as 'the site'.

EIS previously completed an Environmental Site Assessment (ESA)[2] at the main hospital site. Summary information from the ESA is presented in Section 2 of this report. The ESA encountered asbestos in fibre cement fragments in the vicinity of BH31 (see Figure 2). This RAP provides a methodology to address known and potential contamination and validate that the site is suitable for the proposed development (from a contamination viewpoint).

1.1 Proposed Development Details

It is understood the proposed development involves extending Bowral and District Hospital to the north of the existing, main hospital building. The development will include a new emergency department, wards, ambulance drop off and associated car parking area.

1.2 Remediation Goal, Aims and Objectives

The goal of the remediation is to render the site suitable and confirm the suitability of the site for the proposed development from a contamination viewpoint.

The primary aim of the remediation is to remove any source(s) of contamination in order to reduce any human health and/or environmental/ecological risks posed by the contaminants to an acceptable level.

The objectives of the RAP are to:

- Provide a methodology to remediate and validate the site;
- Provide a contingency plan for the remediation works;
- Outline site management procedures to be implemented during remediation work; and
- Provide an unexpected finds protocol to be implemented during the development works.

1.3 Scope of Work

The RAP was prepared generally in accordance with an EIS proposal (Ref: EP47439KT) of 20 June 2018 and written acceptance from Capital Insight on behalf of NSW Health Infrastructure of 19 June 2018. The scope of work included the following:

[1] Environmental consulting division of Jeffery & Katauskas Pty Ltd (J&K)

[2] EIS Report Reference E29265KrptRev2, dated 26 June 2017 (referred to as the PESA)

- Review of the previous EIS environmental report;
- Review of the proposed development details; and
- Preparation of a report.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[3], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[4] and State Environmental Planning Policy No.55 – Remediation of Land (1998)[5]. A list of reference documents/guidelines is included in the appendices.

[3] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

[4] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

[5] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)

2 SITE INFORMATION

2.1 Site Identification

Table 2-1: Site Identification

Site Address:	97-103 Bowral Road, Bowral, NSW
Lot & Deposited Plan:	Lot 4 in DP858938
Current Land Use:	Bowral and District Hospital
Proposed Land Use:	Continued use as a hospital
Local Government Authority:	Wingecarribee Shire Council
Current Zoning:	SP2 – Infrastructure: Health Services Facilities
Site Area applicable to RAP (m^2):	~7,000m^2
Geographical Location (decimal degrees) (approx.):	Latitude: --34.484332 Longitude: 150.423776

2.2 Site Description

The site is located in an urban area of Bowral, NSW. The site is bounded by Bowral Road to the north, Mona Road to the east, Ascot Road to the south and Sheffield Road to the west. The site is situated approximately 290m to the southwest of Mittagong Creek.

The regional topography is characterised by a north-east facing hillside that falls gently towards Mittagong Creek. The site is located towards the toe of the hillside and has a gentle slope towards the north-east at approximately 1°-3°. Parts of the site appear to have been levelled to account for the slope and accommodate the existing development.

A walkover inspection was undertaken by EIS on 11 May 2018 as documented in the ESA report. Key observations from the inspection relevant to the site were as follows:

- The north-west half of the site was generally asphaltic concrete paved car park and driveway with concrete gutters and landscaped areas;
- The east side of the site was generally grass covered garden area with concrete paved pedestrian pathways;
- A demountable building had recently been removed from the south-west corner of the site and fill soils were exposed. Numerous fibre cement fragments were observed on the surface of this fill material; and
- A new asphaltic concrete paved carpark was in the final stages of construction, located to the north-east of the existing Yeoman Ward.

2.3 Underground Services

The 'Dial before You Dig' (DBYD) plans were reviewed for the ESA. The plans did not identify any major underground services at the site that would be expected to act as preferential pathways for contaminant migration.

2.4 Summary of Geology and Hydrogeology

The regional geological map of Wollongong (1966)[6] indicated that the site was underlain by Triassic aged deposits of the Liverpool Sub-Group, typically consisting of shale with some sandstone beds.

In all sample locations undertaken during the previous EIS investigation, fill was encountered at the surface or beneath pavements of the site overlying shallow natural (residual) soil and shale bedrock (see Figure 2).

Fill extended to a maximum depth of 1.6m below existing ground level (mbgl) and was found to contain igneous gravel, ash, shale gravels, ironstone gravels, root fibres, sand, brick, river pebbles, concrete fragments, quartz, sandstone gravels, and building rubble (bricks, concrete, glass, and asphaltic concrete fragments). A copy of the borehole and test pit logs are attached in the appendices.

The EIS investigation included the installation of four groundwater wells in BH03 and BH21, BH28 and BH29, to a depth of 5.0mbgl to 6.0mbgl. Groundwater was encountered in the wells at depths between 3.6mbgl to 4.75m bgl a short time after installation and between 1.24m and 3.25mbgl one week after installation.

Considering the above, groundwater is likely to be encountered during the proposed development.

2.5 Summary of Site History

Site history information presented as part of the EIS ESA report is summarised below as relates to the entire hospital site:

- Land use at the site was identified to have been agricultural/unused until between 1931-1965 when the ownership of the site was transferred to The Berrima District Hospital (now the Bowral and District Hospital);
- A search of the EPA public registers identified a former licence (August 2000) at the site for the generation and/or storage of Hazardous, Industrial or Group A Waste. Non-conformances were recorded for each year between 2001 to 2006, although no details were provided; and
- SafeWork NSW records indicated a current licence for the site for the storage of dangerous goods including: hydrogen, ethanol, methanol, alcohols, Giesma Stain (a dying agent for cell preparation), liquid oxygen and diesel. A former licence for an underground storage tank (UST) for diesel storage was also noted (in the southern section of the main hospital, outside of the development area).

[6] Department of Mineral Resources, (1966). *1:250,000 Geological Map of Wollongong (Series S1 56-9)*

The records noted that decommissioning of the UST had commenced on 12 February 1996 however there was no further information on this UST or its removal.

2.6 Summary of ESA Results

Elevated concentrations of CoPC were not encountered above the adopted SAC in any of the soil samples analysed.

Fibre cement fragments (FCF) were encountered on the surface of the site in the vicinity of BH31. Part of a demountable building had recently been removed and exposed fill containing building and demolition rubble was observed across the area (see Figure 2). The source of this FCF is considered to be associated with imported fill in this area based on the visible building and demolition rubble within the material (rubble, glass, brick, asphaltic concrete, asphalt, sandstone and igneous gravel, ash, and sand). None of the fragments could be broken by hand pressure, therefore the material was considered to be in the bonded form.

Building and demolition rubble was not observed within the fill profile at BH21 nor BH22, these boreholes were located approximately 20m to the south and 21`m to the north-east of BH31 respectively (refer to Figure 2). Based on the site observations made during the fieldwork, the asbestos contaminated fill potentially limited to the former demountable building footprint in the vicinity of BH31 and to extend to an approximate depth of 0.2m bgl. At the time of the fieldwork this area was secured with man-proof fencing preventing access by the general public however, contractors were observed to be operating in this area. Due to the identification of the FCF on the site surface and within shallow fill soils, there is a complete source-pathway-receptor (SPR) linkage. EIS are of the opinion that the risk posed to human receptors is low to moderate and will require remediation and/or management.

Elevated nickel concentrations in groundwater were encountered at MW21 and MW29 at concentrations greater than the human contact (drinking water) SAC. An elevation of chromium was encountered in the groundwater at MW21 at a concentrations greater than the ecological SAC. These elevations are not considered to represent a significant ecological risk for the following reasons:

1. These elevated heavy metal concentrations are most likely a regional issue as no significant elevations of cadmium, copper, nickel or zinc were detected in any of the soil samples (i.e. there was no indication of a point source on site);
2. Elevated heavy metal concentrations are often encountered in urban groundwater. The elevated concentrations are typically associated with leaking water infrastructure and surface water runoff; and
3. Elevated heavy metal concentrations can be associated with groundwater from shale aquifers. This is due to the high concentrations of dissolved salts associated with groundwater from shale aquifers.

EIS note that the pH of two of the groundwater samples was outside of the acceptable range. This is most likely due to a regional issue and is unlikely to represent a human health or environmental risk

to the proposed development. The proposed development will be connected to the mains water supply.

3 REMEDIATION EXTENT

The ESA identified asbestos containing fibre cement fragments within fill in the vicinity of BH31. Based on this data, all fill within the site has been assumed to contain asbestos and will be treated as such unless demonstrated otherwise. For waste classification purposes all fill at the site has been classified as General Solid Waste (non-putrescible) containing asbestos.

The proposed remediation works are based on point source data that has been spatially interpreted between previous sampling points. Therefore, the precise extent of the remediation works will not be defined until completion of the remediation and successful validation data has been obtained.

Where contamination is found to extend beyond the remediation boundaries through validation, remediation should be continued until the CoPC does not pose a risk to site receptors.

4 REMEDIATION OPTIONS

4.1 Soil Remediation

The NSW EPA follows the hierarchy set out in NEPM 2013. The preferred order for soil remediation and management is as follows:

1. On-site treatment of soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level;
2. Off-site treatment of excavated material 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; or

if the above are not practicable:

3. Consolidation and isolation of the soil on-site by containment with a properly designed barrier;
4. Removal of contaminated material to an approved site or facility, followed where necessary by replacement with clean material; or
5. Where the assessment indicates that remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.

The above hierarchy items (1 to 5 inclusive) have been referred to as Option 1, Option 2 etc herein.

4.2 Consideration of Remediation Options

The tables below discusses a range of remediation options:

Table 5-1: Remediation Options

Option	Discussion	Applicability
Option 1 On-site treatment of contaminated soil	On-site treatment provides a mechanism to reuse the processed material and in some instances, to avoid the need for large scale earthworks. Some of the treatment options include bio-remediation, soil washing, air sparging and soil vapour extraction, thermal desorption and physical removal of bonded ACM fragments. Depending on the treatment option, licenses may be necessary for specific individual waste streams due to the potential for air pollution and the formation of harmful by-products during incineration processes.	Generally not applicable for this project. On-site treatment options are generally very expensive and time consuming. These are applicable for large scale remediation work of sites with large areas impacted by contaminants that can be treated.
Option 2 Off-site treatment of contaminated soil	Contaminated soils are excavated, transported to an approved/ licensed treatment facility, treated to remove/stabilise the contaminants then returned to the subject site, transported to an alternative site or disposed to an approved landfill facility. This option provides for a relatively short program of on-site works, however there may be some delays if the material is to be returned to the site following treatment. The cost per tonne for transport to and from the site and for treatment is considered to be relatively high. The material would also have to be assessed in terms of suitability for reuse as part of the proposed development works under the waste and resource recovery regulatory framework.	Not applicable for this project.

Option	Discussion	Applicability
Option 3 Consolidation and isolation of impacted soil by cap and containment	This would include the placement of a marker material and barrier over the contaminated fill to isolate the contaminated material and thereby reduce the health risk to future site users and to the environment/ecology. This action may also reduce the transport of contamination via surface water movement and dust generation. The capping and/or containment must be appropriate for the specific contaminants of concern. An ongoing Environmental Management Plan (EMP) would be required and site identification documentation, possibly including the Section 149 council planning certificate, land title or other appropriate statutory documentation, would be modified to note the presence of the contamination. This may impact upon development approval conditions, place restrictions on the use of the land and limit the future potential land value.	This option is considered to be a viable option should any fill material require retention on the site on completion of earthworks.
Option 4 Removal of contaminated material to an appropriate facility and reinstatement with clean material	Contaminated soils would be classified in accordance with NSW EPA guidelines for waste disposal, excavated and disposed of off-site to a suitably licensed landfill. The material would have to meet the requirements for landfill disposal. Landfill gate fees (which may be significant) would apply in addition to transport costs.	This is considered to be the most viable option for the site as the proposed earthworks for the site includes bulk excavation and disposal of fill soil.

5 REMEDIATION DETAILS

Prior to commencement of any demolition, site preparation or remediation work, a suitably qualified contaminated land consultant[7] should be engaged as the validation consultant to undertake the pre-remediation investigation and validate the implementation of the RAP. The site management plan for remediation works (see Section 8) should be reviewed and implemented by the remediation contractor. Subsequently, remediation can occur within the nominated remediation areas.

Geotechnical advice should be sought with regards to the stability of any proposed excavations and adjacent structures/features. Geotechnical advice should also be sought regarding the requirements of any backfill material used for the reinstatement (temporary or otherwise) of the remediation areas.

5.1 Rationale for Selection of Remedial Strategy

The most viable option for remediation of contaminated fill is excavation and off-site disposal to an appropriate facility (Option 4). It is understood that bulk excavation will be required for the development. The risk to future occupants is by direct exposure, and therefore the off-site disposal option will remove this risk due to the lack of an exposure pathway. The risk to site workers can be managed by wearing appropriate PPE.

5.2 Remediation Details (off-site disposal of asbestos impacted fill)

The specific remediation details for remediation of contaminated fill are described in the table below:

Table 5-1: Remediation Details (off-site disposal of asbestos impacted fill)

Step	Procedure
1.	Engage the Validation Consultant: Prior to commencement of any works, a suitably qualified contaminated land consultant should be engaged as the validation consultant. The validation consultant should be provided with a copy of this RAP.
2.	Establish Asbestos Related Controls and Arrange Licences and Tracking Requirements: Prior to commencement: • Notification of bonded asbestos removal should be submitted to SafeWork NSW by the remediation contractor (who must have a Class B asbestos removal licence); • An asbestos removal control plan should be prepared by the remediation contractor for the works required. This should include details for works health and safety (WHS) and personal protective equipment (PPE), which as a minimum should include requirements for wearing safety helmets and steel capped boots, disposable coveralls rated type 5 category 3 (prEN

[7] EIS recommend that the consultancy engaged for the work be a member of the Australian Contaminated Land Consultants Associated (ACLCA), and/or the individual managing the works (and writing the validation report) be certified under one of the NSW EPA endorsed certified practitioner schemes

Step	Procedure
	ISO13982–1) or equivalent and P2 masks conforming to the requirements of AS/NZS 1716:2009, and use of appropriate gloves.
3.	Site Preparation: Prior to the commencement of excavation, temporary wire mesh fencing should be installed along the boundary of the site and appropriate asbestos warning signage displayed.
3.	PPE and WHS: Check PPE and WHS requirements prior to commencement of remediation works. The minimum PPE required for the remediation includes the following: • Disposable gloves; • Eye protection; and • Hard hat, covered clothing and steel toed boots. Additional PPE may be required depending on the contamination being remediated. Asbestos fibre air monitoring should be undertaken in accordance with the asbestos removal control plan.
4.	Surface Clearance Prior to Commencement of Earthworks Prior to commencement of earthworks, an emu-bob for removal of FCF should be undertaken in the vicinity of BH31 (where the demountable building was removed) by a suitably licenced asbestos contractor/removalist and all FCF disposed of to a NSW EPA licenced facility.
5.	Address Stability Issues: Geotechnical advice should be sought regarding the stability of the adjacent structures and/or adjacent areas prior to commencing the excavation (as required).
6.	Removal of fill: The fill material has been impacted by FCF (containing asbestos). The remediation of this area will include the following: • Submit an application to dispose of the fill (in accordance with the assigned waste classification) to a licensed landfill and obtain authorisation to dispose. All fill is classified as general solid waste (non-putrescible) containing asbestos refer to Section 3; • The fill is impacted with asbestos, therefore registration with the NSW EPA WasteLocate tracking system must be undertaken to comply with the legislation in regards to transporting/movement of asbestos waste; • The contaminated fill should be excavated down to the surface of the underlying natural soil; • Load the fill onto trucks and dispose in accordance with the assigned waste classification. The receiving licenced landfill facility will also need to be registered with the NSW EPA WasteLocate system in order to receive asbestos impacted waste; • Following removal of the contaminated fill/soil, the excavation should be inspected to confirm there are no obvious indicators of contamination such as stained or odorous soil, or residual

Step	Procedure
	underground infrastructure. Any unexpected conditions should be considered in the validation sampling program which should be adjusted accordingly; • Following removal of all fill material, a surface clearance inspection should be undertaken by a SafeWork NSW licenced asbestos assessor; and • All documents including landfill dockets etc. should be retained and forwarded to the validation consultant for inclusion into the validation report.

5.3 Remediation Documentation

The remediation contractor must retain all documentation associated with the remediation, including but not limited to:

- Soil disposal dockets (and dockets for disposal of asbestos containing materials where relevant);
- Imported materials information;
- Photographs of remediation works;
- Asbestos removal documentation, including licences, removal control plans, air monitoring results (where relevant), and surface clearance inspections; and
- Waste tracking documentation (where relevant).

Copies of the above documentation must be forwarded to the validation consultant on completion of the remediation for inclusion in the final validation report.

5.4 Soil Disposal - Volume and Disposal Analysis

A soil volume analysis should be undertaken on completion of the works and reconciled with the quantities shown on the soil disposal dockets. A review of the disposal facility's licence issued under the Protection of the Environment Operations (POEO) Act (1997)[8] should also be undertaken to confirm whether or not each facility is appropriately licensed to receive the waste.

[8] NSW Government, (1997)). *Protection of Environment Operations Act.* (referred to as POEO Act 1997)

6 VALIDATION PLAN

Validation is necessary to demonstrate that remedial measures described in this RAP have been successful and that the site is suitable for the intended land use. The sampling program for the validation is outlined in Section 6.1. This is the minimum requirement based on the remedial strategies provided. Additional validation sampling may be required based on site observations made during remediation.

Site observations will also be used as a validation tool to assess the extent of site contamination. In particular visual and olfactory indicators such as petroleum odours and staining should be recorded.

6.1 Validation Sampling and Documentation

The table below outlines the validation requirements for the site.

Table 6-1: Validation Requirements

Remediation of Fill (off-site disposal)			
Excavation base (following fill removal)	Visual surface inspection of surface of natural underlying soils	Visible asbestos fibre cement fragments	Observations of fibre cement fragments. Observations of staining and odour to be recorded. Photographs to be taken. Disposal dockets to be retained.
Excavation walls (fill remaining below floor slab of site structure to be retained and site boundaries)	Visual inspection of excavation walls of fill and natural soils remaining in-situ	As above.	As above.
Imported Materials – relevant to all site works			
Imported VENM backfill	Minimum of three samples per source	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEX PAHs, OCP/OPP, PCBs and asbestos. Additional analysis may be required depending on site history.	VENM documentation/ report required (should include source site history to demonstrate analytes are appropriate). Material to be inspected upon importation to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation.

Imported engineering materials such as recycled aggregate, road base etc	Minimum of three samples per source/material type.	Heavy metals (as above), TRHs, BTEX, PAHs, OCP/OPP, PCBs and asbestos.	Documentation required to confirm material has been classified with reference to a relevant exemption and is fit for purpose on site. Material to be inspected upon importation to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation. Dockets for imported material to be provided.
Imported engineering materials comprising only natural quarried products such as blue metal etc	At the validation consultant's discretion based on supplier documentation.	At the validation consultant's discretion based on supplier documentation.	Documentation to be provided from the supplier confirming the material is a product comprising only VENM (i.e. quarried product). Review of quarry POEO licence. Material to be inspected upon importation to confirm it is free of anthropogenic materials, visible and olfactory indicators of contamination, and is consistent with documentation. Dockets for imported material to be provided.
Imported landscaping materials	Minimum of three samples per source/material type.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRHs, BTEX, PAHs, OCPs, OPPs, PCBs and asbestos.	Documentation required to confirm material has been produced under an appropriate standard and is fit for purpose on site. Material to be inspected upon importation to confirm it is free of visible/olfactory indicators of contamination and is consistent with documentation. Dockets for imported material to be provided.

6.2 Validation Assessment Criteria and Data Assessment

The VAC to be adopted for the validation assessment are outlined in the table below:

Table 6-2: VAC

Validation Aspect	Criteria
Waste classification (soil disposal)	In accordance with the procedures and criteria outlined in the NSW EPA Waste Classification Guidelines - Part 1: Classifying Waste (2014[9]).
Soil validation	No visible asbestos Aesthetics: soils to be free of staining and odours.
Imported materials	Heavy metal concentrations are to be less than the most conservative Added Contaminant Limit (ACL) concentrations for a commercial/industrial exposure setting presented in Schedule B1 of NPEM (2013). Organic compounds to be less than the laboratory PQLs and asbestos to be absent. Results for VENM and other imported materials will need to be consistent with expectations for those materials. Aesthetics: soils to be free of staining and odours

Data should initially be assessed as above or below the VAC. Statistical analysis may be applied if deemed appropriate by the consultant and undertaken in accordance with the NEPM (2013).

6.3 Validation Report

As part of the validation process, a site validation report will be prepared by the environmental/validation consultant. The report will outline the remediation work undertaken at the site and any deviations to the remediation strategy. The report will summarise the results of the validation assessment and will be prepared in accordance with the Reporting Guidelines 2011. The report should draw conclusions regarding the success of the remediation/validation and the suitability of the site for the proposed development (from a contamination viewpoint).

6.4 Data Quality

Appropriate QA/QC samples should be obtained during the validation and analysed for the contaminants of concern. As a minimum, QA/QC sampling should include duplicates (5% inter-laboratory and 5% intra-laboratory), trip spikes, trip blanks and rinsate samples.

[9] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs) should be clearly outlined and assessed as part of the validation process. A framework for the DQO and DQI process is outlined below and should be reflected in the validation report.

DQOs should be established for the validation with regards to the seven-step process outlined in the Site Auditor Guidelines 2006 and with reference to USEPA documents Data Quality Objectives Processes for Hazardous Waste Site Investigations (2000) and Guidance on Systematic Planning Using the Data Quality Objectives Process (2006). The seven steps include the following:

- State the problem;
- Identify the decisions/goal of the study;
- Identify information inputs;
- Define the study boundary;
- Develop the analytical approach/decision rule;
- Specify the performance/acceptance criteria; and
- Optimise the design for obtaining the data.

DQIs are to be assessed based on field and laboratory considerations for precision, accuracy, representativeness, completeness and comparability.

7 CONTINGENCY PLAN

A review of the proposed remediation works has indicated that the greatest risk that may affect the success of the remediation is an unexpected find. A contingency plan for unexpected finds is outlined below, in conjunction with a selection of other contingencies that may apply to this project.

7.1 Unexpected Finds

Residual hazards that may exist at the site would generally be expected to be detectable through visual or olfactory means. At this site, these types of hazards may include: friable asbestos in soil (i.e. potential asbestos containing material that can be crushed using hand pressure), and odorous or stained hydrocarbon impacted soils.

The procedure to be followed in the event of an unexpected find is presented below:

- In the event of an unexpected find, all work in the immediate vicinity should cease and the client should be contacted immediately;
- Temporary barricades should be erected to isolate the area from access to the public and workers;
- In the event potential friable asbestos material is encountered, a qualified occupational hygienist and/or asbestos consultant should be contacted (preferably the validation consultant will have an in-house hygienist or asbestos assessor);
- The client should engage a qualified environmental consultant to attend the site and assess the extent of remediation that may be required and/or adequately characterise the contamination in order to allow for cap and containment of the material;
- In the event remediation is required, the procedures outlined within this report should be adopted where appropriate, alternatively an addendum RAP should be prepared;
- An additional sampling and analytical rationale should be established by the consultant and should be implemented with reference to the relevant guideline documents; and
- Appropriate validation sampling should be undertaken and the results should be included in the validation report.

7.2 Continual Soil Validation Failure

In the event of a soil validation failure when validating fill removal, the excavation should be extended in the direction of the failure (in consultation with the validation consultant) and the area re-validated.

In the event that a batch of treated soil fails the validation, the batch should be re-treated and re-validated. Off-site disposal of the batch could also be considered.

7.3 Importation Failure for VENM or other Imported Materials

Where material to be imported onto the site does not meet the importation acceptance criteria detailed in Section 7, the only option is to not accept the material. Alternative material must be sourced that meets the importation requirements.

7.4 Disposal of Hazardous Waste

Material classed as 'Hazardous Waste' under the Waste Classification Guidelines (2014) may require further assessment and stabilisation prior to off-site disposal. Disposal approval may also be required from the NSW EPA and EPA licensed landfill facility. The presence of Hazardous Waste may result in significant delays and additional cost to the project.

8 SITE MANAGEMENT PLAN FOR REMEDIATION WORKS

The information outlined in this section of the RAP is for the remediation work only. The client should contact the local consent authority (council or certifier) for specific site management requirements for the overall development of the site.

8.1 Interim Site Management

The following interim measures should be adopted immediately:

- Maintain fence blocking off area of exposed fill soils in the vicinity of BH31 to prevent access to this area of the site;
- Construct boundary fences where necessary around the site; and
- Appropriate warning signage should be erected as required.

8.2 Project Contacts

Emergency procedures and contact telephone numbers should be displayed in a prominent position at the site entrance gate and within the main site working areas. The contact details of key project personnel are summarised below.

Table 8-1: Project Contacts

Task	Company	Contact Details
Project Manager	Capital Insight	9955 2300
Remediation Contractor	TBC	-
Environmental Consultant	EIS (at the time of the RAP preparation)	9888 5000
NSW EPA	Pollution Line	131 555
Emergency Services	Ambulance, Police, Fire	000

8.3 Security

Prior to the commencement of site works, fencing should be installed as required to secure the remediation areas. Warning signs should be erected, which outline the PPE required for remediation work. All excavations should be clearly marked and secured to reduce the risk to site personnel from injury by falling into open excavations.

8.4 Timing and Sequencing of Remediation Works

In general, all remedial works should be completed prior to the commencement of construction works for the proposed development. In the event that remedial works are undertaken in conjunction with

the development, all remediation areas should be clearly marked and covered with builder's plastic (or similar) in order to reduce the dust generation, surface water run-off and/or exposure to receptors.

In the event of unexpected delays, builder's plastic (or similar) should be used to cover the remediation areas in order to reduce the dust generation, surface water run-off and/or exposure to receptors.

8.5 Site Soil and Water Management Plan

The contractor should prepare a detailed soil and water management plan prior to the commencement of site works. Silt fences should be used to control the surface water runoff at all appropriate locations of the site. Reference should be made to the consent conditions for more details.

All stockpiled materials should be placed within an erosion containment boundary with silt fences and sandbags employed to limit sediment movement. The containment area should be located away from drainage lines, gutters, stormwater pits and inlets and the site boundary. No liquid waste or runoff should be discharged to the stormwater or sewerage system without the approval of the appropriate authorities.

8.6 Noise and Vibration Control Plan

The guidelines for minimisation of noise on construction sites outlined in AS-2460 (2002)[10] should be adopted. Other measures specified in the consent conditions should also be complied with. Noise producing machinery and equipment should only be operated between the hours approved by Council (refer to consent documents).

All practicable measures should be taken to reduce the generation of noise and vibration to within acceptable limits. In the event that short-term noisy operations are necessary, and where these are likely to affect residences, notifications should be provided to the relevant authorities and the residents by the project manager, specifying the expected duration of the noisy works.

8.7 Dust Control Plan

All practicable measures should be taken to reduce dust emanating from the site. Factors that contribute to dust production are:

- Wind over a cleared surface;
- Wind over stockpiled material; and
- Movement of machinery in unpaved areas.

Visible dust should not be present at the site boundary. Measures to minimise the potential for dust generation include:

- Use of water sprays on unsealed or exposed soil surfaces;

[10] Australian Standard, (2002). *AS2460: Acoustics - Measurement of the Reverberation Time in Rooms.*

- Covering of stockpiled materials and excavation faces (particularly during periods of site inactivity and/or during windy conditions) or alternatively the erection of hessian fences around stockpiled soil or large exposed areas of soil;
- Establishment of dust screens consisting of a 2m high shade cloth or similar material secured to a chain wire fence;
- Maintenance of dust control measures to keep the facilities in good operating condition;
- Concrete surfaces brushed or washed to remove dust;
- Stopping work during strong winds;
- Loading or unloading of dry soil as close as possible to stockpiles to prevent spreading of loose material around the site; and
- The expanse of cleared land should be kept to a minimum to achieve a clean and economical working environment.

If stockpiles are to remain on-site or an excavation remains open for a period of longer than several days, dust monitoring should be undertaken at the site. If excessive dust is generated all site activities should cease until either wind conditions are more acceptable or a revised method of excavation/remediation is developed.

Dust is also produced during the transfer of material to and from the site. All material should be covered during transport and should be properly disposed of on delivery. No material is to be left in an exposed, un-monitored condition.

All equipment and machinery should be brushed or washed down before leaving the site to limit dust and sediment movement off-site. In the event of prolonged rain and lack of paved areas all vehicles should be washed down prior to exit from the site, and any soil or dirt on the wheels of the vehicles removed. Water used to clean the vehicles should be collected and tested prior to appropriate disposal under the Waste Classification Guidelines.

8.8 Air Monitoring

Requirements for air monitoring should be considered by the asbestos contractor/removalist for any asbestos-related works.

8.9 Odour Control Plan

All activities undertaken at the site should be completed in a manner that minimises emissions of smoke, fumes and vapour into the atmosphere and any odours arising from the works or stockpiled material should be controlled. Control measures may include:

- Maintenance of construction equipment so that exhaust emissions comply with the Clean Air Regulations issued under the POEO Act;
- Demolition materials and other combustible waste should not be burnt on site;
- The spraying of a suitable proprietary product to suppress any odours that may be generated by excavated materials; and

- Use of protective covers (e.g. tarpaulins or builder's plastic).

All practicable measures should be taken to reduce fugitive emissions emanating from the site so that associated odours do not constitute a nuisance and that the ambient air quality is not adversely impacted.

Disturbance of any hydrocarbon contaminated soils may result in odorous conditions. The following odour management plan should be implemented to limit the exposure of site personnel and surrounding residents to unpleasant odours:

- Excavation and stockpiling of material should be scheduled during periods with low winds if possible;
- A suitable proprietary product could be sprayed on material during excavation and following stockpiling to reduce odours;
- All complaints from workers and neighbours should be logged and a response provided. Work should be rescheduled as necessary to minimise odour problems;
- The site foreman should consider the following odour control measures as outlined in NEPM:
  - reduce the exposed surface of the odorous materials;
  - time excavation activities to reduce off-site nuisance (particularly during strong winds); and
  - cover exposed excavation faces overnight or during periods of low excavation activity.
- If continued complaints are received, alternative odour management strategies should be considered and implemented.

8.10 Health and Safety Plan

A site specific WHS plan should be prepared by the contractor for all work to be undertaken at the site. The WHS plan should meet all the requirements outlined in SafeWork NSW WHS regulations.

As a minimum requirement, personnel must wear appropriate protective clothing, including long sleeve shirts, long trousers and steel cap boots. Gloves and dust masks should be worn when working on remediation activities (additional asbestos-related PPE may also be required for asbestos remediation work). Washroom and lunchroom facilities should also be provided to allow workers to remove potential contamination from their hands and clothing prior to eating or drinking.

8.11 Waste Management

Prior to commencement of remedial works and excavation for the proposed development, the contractor should develop a waste management or recycling plan to minimise the amount of waste produced by the site. This should, as a minimum, include measures to recycle and re-use natural excavated material wherever possible.

8.12 Incident Management Contingency

The environmental consultant engaged to undertake the validation assessment should be contacted if any unexpected conditions are encountered at the site. This should enable the scope of remedial/validation works to be adjusted as required. Similarly if any incident occurs on site, the environmental consultant should be advised to assess potential impacts on site contamination conditions and the remediation/validation timetable.

8.13 Hours of Operation

Hours of operation should be between those approved by Council under the development approval process. Reference should also be made to any specific conditions imposed by other consent authority/regulatory bodies.

9 CONCLUSION

EIS are of the opinion that the site can be made suitable for the proposed development provided this RAP is implemented accordingly. A site validation report should be prepared on completion of remediation activities and should be submitted to the consent authority.

9.1 Remediation Category

Site remediation can fall under the following two categories outlined in SEPP55:

Table 9-1: Remediation Category

Category	Details
Category 1	Category 1 remediation works are those undertaken in the following areas specified under Clause 9 of SEPP55: A designated development; • Carried out on land declared to be a critical habitat; • Development for which another SEPP or REP requires a development consent; or • Carried out in an area or zone classified as: ➢ Coastal Protection; ➢ Conservation or heritage conservation; ➢ Habitat protection, or habitat or wildlife corridor; ➢ Environmental protection; ➢ Escarpment, escarpment protection or preservation; ➢ Floodway or wetland; ➢ Nature reserve, scenic area or scenic protection; etc. • Work that is not carried out in accordance with the site management provisions contained in the consent authority Development Control Plan (DCP)/Local Environmental Plan (LEP) etc. Approval is required from the consent authority for Category 1 remediation work. The RAP needs to be assessed and determined either as part of the existing DA or as a new and separate DA. Category 1 remediation work is identified as advertised development work unless the remediation work is a designated development or a state significant development (Part 6 of EPAA Regulation 1994).
Category 2	Remediation works which do not fall under the above category are classed as Category 2. Development consent is not required for Category 2 remediation works, however the consent authority should be given 30 days' notice prior to commencement of works.

Considering the above, EIS understand that the remediation work is Category 2 remediation. However, it is noted that the RAP is likely to be assessed by Council as part of the development application/consent process.

9.2 Regulatory Requirements

The regulatory requirements applicable for the site are outlined in the following table:

Table 9-2: Regulatory Requirement

Guideline	Applicability
Duty to Report Contamination (2015)[11]	At this stage, EIS consider that there is no requirement to notify the NSW EPA of the site contamination. This requirement should be reassessed following review of the validation results.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner. Appropriate waste tracking is required for all relevant waste that is disposed off-site. Asbestos waste must be tracked using WasteLocate.
WHS Code of Practice 2016[12]	Sites with asbestos become a 'workplace' when work is carried out there and require a register and asbestos management plan. Appropriate SafeWork NSW notification will be required for asbestos removal works or handling. Contractors are also required to be appropriately licensed for the asbestos works undertaken (i.e. bonded or friable asbestos works).

[11] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under the Contamination Land Management Act 1997.* (referred to as Duty to Report Contamination 2015)

[12] Safe Work Australia, (2016). *Code of Practice – How to Manage and Control Asbestos in the Workplace.*

10 LIMITATIONS

The report limitations are outlined below:

- EIS accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the EIS proposal; and terms of contract between EIS and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated in the report;
- EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- EIS accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- EIS have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. EIS should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

LIST OF IN-TEXT TABLES

IMPORTANT INFORMATION ABOUT THIS REPORT

These notes have been prepared by EIS to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the EIS proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

EIS/J&K will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by EIS to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Assessment Limitations
Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Assessment Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

REPORT FIGURES

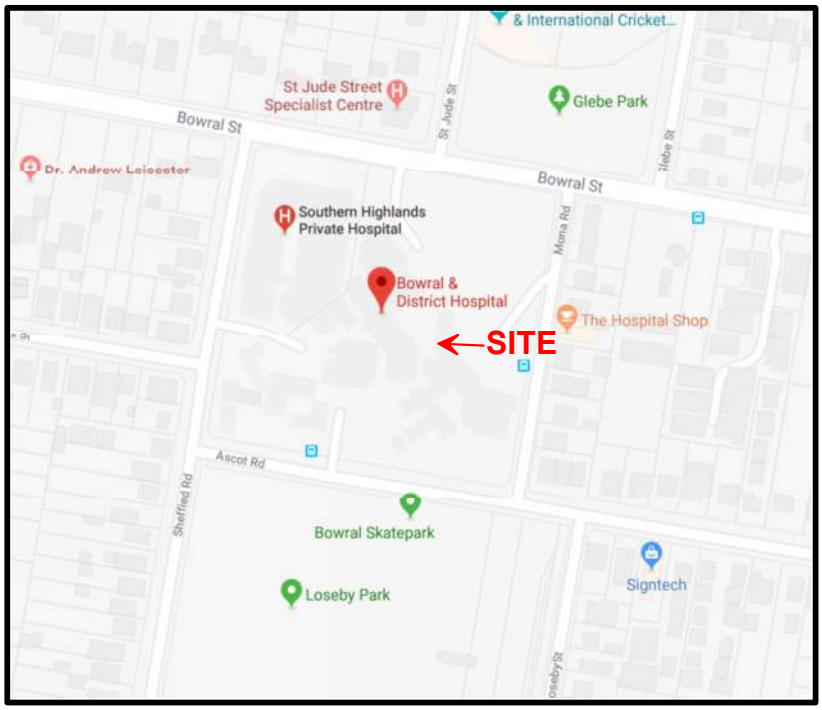
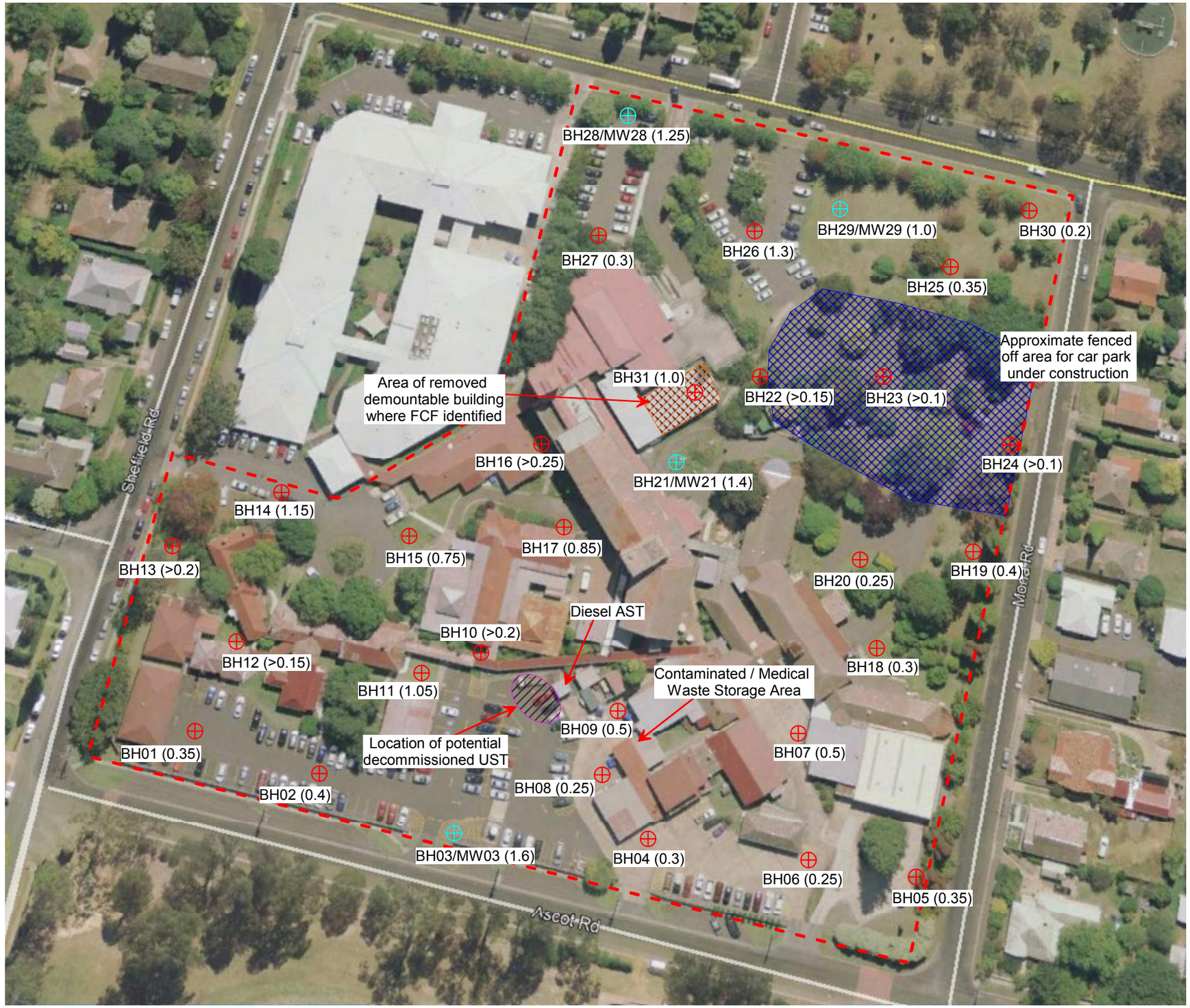


Image Sources:
https://maps.six.nsw.gov.au/
https://www.google.com.au/maps/

Title:	**SITE LOCATION PLAN**
Location:	97-103 BOWRAL ROAD BOWRAL, NSW
Report No: E31452Krpt	Figure No: 1
ENVIRONMENTAL INVESTIGATION SERVICES	



LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL
- BOREHOLE/GROUNDWATER WELL LOCATION, NUMBER AND DEPTH OF FILL

0 20 40 60 80 100 Metres
Scale

Notes: scale is approximate. This plan should be read in conjunction with the EIS report.

Title: **SAMPLE LOCATION & SITE FEATURES PLAN**

Location: 97-103 BOWRAL ROAD, BOWRAL, NSW

Report No: E31452Krpt

Figure No: 2

ENVIRONMENTAL INVESTIGATION SERVICES

LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (EIS MAY 2018 INVESTIGATION)
- BOREHOLE/GROUNDWATER WELL LOCATION, NUMBER AND DEPTH OF FILL (EIS MAY 2018 INVESTIGATION)

0 20 40 60 80 100
Scale Metres

Notes: scale is approximate. This plan should be read in conjunction with the EIS report.

Title: **RAP SITE BOUNDARY**

Location: 97-103 BOWRAL ROAD, BOWRAL, NSW

Report No: E31452Krpt (RAP)

Figure No: 3

ENVIRONMENTAL INVESTIGATION SERVICES

Proposed Development Plan

ISSUE	DATE	SUBJECT	AUTH
1	26/03/18	PRELIMINARY FOR COORDINATION	EC
2	19/04/18	PRELIMINARY FOR COORDINATION	EC
3	26/05/18	PRELIMINARY FOR COORDINATION	EC
4	19/06/18	FOR EIS	EC

AMENDMENTS

ARCHITECT

CLIENT

NSW GOVERNMENT Health Infrastructure

PROJECT MANAGER

capital insight

PROJECT

BOWRAL & DISTRICT HOSPITAL REDEVELOPMENT

97-103 BOWRAL ST.,
BOWRAL NSW 2576

DRAWING NUMBER
130443-MSJ-AR-DWG-MW00002

DRAWING NAME
SITE PLAN 1

REV
4

N

0m 4m 8m 12m 16m 20m

SCALE 1:200 @ B1

ISSUE DATE
19/06/18