

**Brookvale Westfield - AVAC Sewer pump
station**

145 Condamine Street, Brookvale NSW

**Prepared for Scentre Design &
Construction Pty Ltd**

Project 71015.55

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

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

Unexpected Finds Protocol

Brookvale Westfield - AVAC Sewer pump station

145 Condamine Street, Brookvale NSW

1. Introduction

This report prepared by Douglas Partners Pty Ltd (Douglas) presents a unexpected finds protocol prepared for proposed AVAC Sewer Pump Station (the site) at Westfield, Warringah Mall, 145 Condamine Street, Brookvale NSW. The unexpected finds protocol (UFP) was commissioned to proceed by email instruction dated 30 July 2023 from Micha Hinden of Scentre Design & Construction Pty Ltd and was undertaken in accordance with Douglas' proposal 71015.54.P.002.Rev0, dated 12 September

This UFP has been developed to provide guidance on processes to follow if contamination (or indicators of contamination), is encountered during the proposed works. Any such finds shall be surveyed and the location documented.

The following key guidelines were consulted in the preparation of this report:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013); and
- NSW EPA *Guidelines for Consultants Reporting on Contaminated Land* (NSW EPA, 2020).

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

2. Site information

Site address	Part of 145 Condamine Street, Brookvale NSW
Legal description	Part of Lot 103 Deposited Plan 1247294
Area	Approximately 200 m ²
Zoning	Zone E2 Commercial Centre
Local Council Area	Northern Beaches Council
Site Description	The site is generally occupied by an on-grade, asphaltic concrete (AC) carpark within the Warringah Mall Shopping Centre. Adjacent portions of the Warringah Mall Shopping Centre include a multi-storey shopping mall buildings and associated multi-level parking structures to the west. .
Site topography	The ground surface level is at approximately RL 9 m relative to the Australian Height Datum (AHD).

Soil landscape	The Sydney 1:100,000 Soil Landscape Sheet indicates that the site is underlain by disturbed terrain. Disturbed terrain can comprise fill soils of unknown origin and consistency.
Geology	Reference to the Sydney 1:100 000 Geology Series Sheet indicates that the subject site is underlain by stream alluvium and estuarine deposits comprising silty to peaty quartz sand, silt and clay with ferruginous and humic cementation in places and common shell layers. The alluvial deposits are underlain by Hawkesbury Sandstone.
Acid sulfate soils	<p>Reference to the Acid Sulfate Soil Risk mapping (data supplied by NSW Department of Environment and Climate Change based on published 1:25,000 Acid Sulfate Soil Risk Mapping, 1994-1998) indicates that the subject site is underlain by soil with “low probability of occurrence” of acid sulphate soil (ASS).</p> <p>Reference to the Northern Beaches Council “Warringah Acid Sulfate Soils Map WLEP 2000” indicates the site is located in an area of “Class 4” Acid Sulfate soil risk. Class 4 indicates Acid sulfate soils are likely to be found beyond 2 metres below the natural ground surface.</p> <p>Acid sulfate soil has previously been confirmed to be present at the site, as discussed herein.</p>
Groundwater and Surface water	<p>Brookvale Creek crosses through the Warringah Mall property (via a culvert in close proximity to the site), and surfaces in the Warringah Golf Course 50 m east of the property.</p> <p>Surface water and groundwater at the site is expected to discharge to Brookvale Creek and then Manly Lagoon.</p> <p>Groundwater levels have previously been measured at the Warringah Mall property, indicating that the groundwater surface is near-level to gently sloping towards Brookvale Creek with groundwater levels varying from RL 5 m AHD to 12 m AHD.</p> <p>Several registered groundwater bores are located in the region. Of note are three “domestic” bores located approximately 350 m east and south-east (down-gradient) of the site and one domestic well 350 m south-west (cross-gradient) of the site. The purpose of these wells is unknown but may include irrigation or drinking purposes</p>

The approximate site boundary is shown on Figure 1 and on Drawing 1, Appendix A.

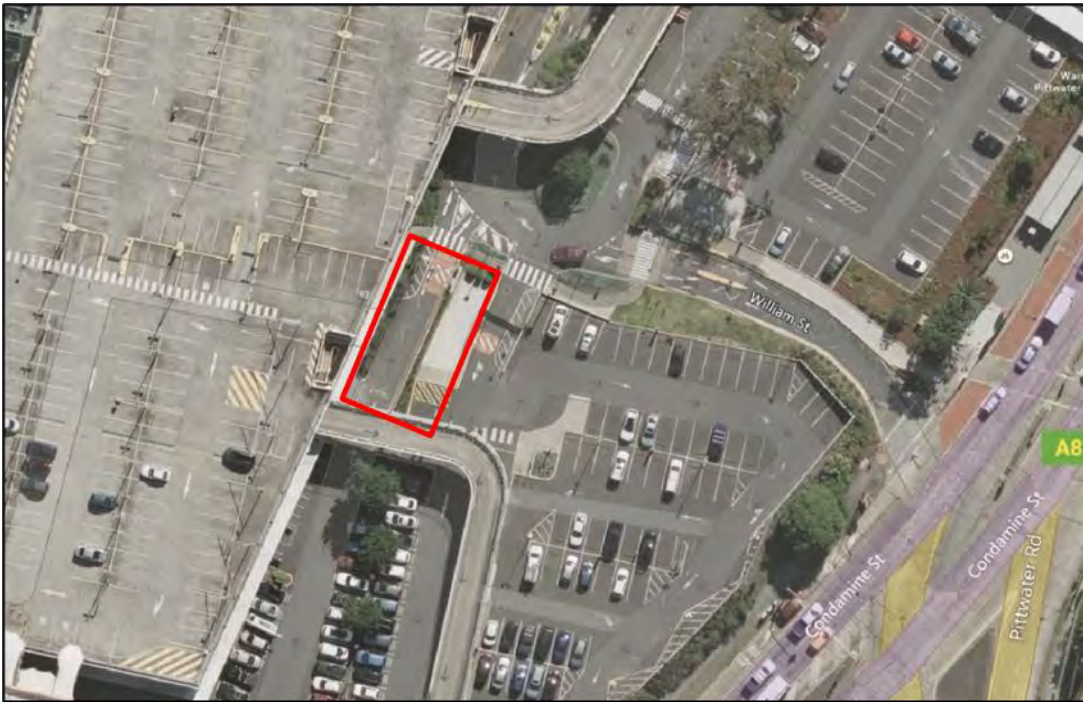


Figure 1: Site location

3. Proposed development

It is proposed to construct a new vacuum pump station to replace the existing temporary system. The design of the new system was still in development at the time of reporting but is understood to include an above ground sewer pump station and an underground holding tank with associated service connections. It is understood that the connection between the new system and existing sewer may involve trenches or possibly an under bore extending from the proposed tank location. The inground tank is understood to be about 6 m x 3 m with the total excavation area (including shoring) being approximately 28 m².

Based on this, the maximum excavation depth for the development expected to be about 6 m. The works are expected to require the drilling of piles to rock, installation of services (to a depth of approximately 3 m) and associated dewatering to facilitate the construction works.

The proposed development is located in the vicinity of a number of large stormwater culverts which cross the greater Warringah Mall site in a roughly northwest to southeast orientation. An extract from the provided drawings (SDC-42.0002, RevB dated 4.10.2024) is provided as Figure 1.

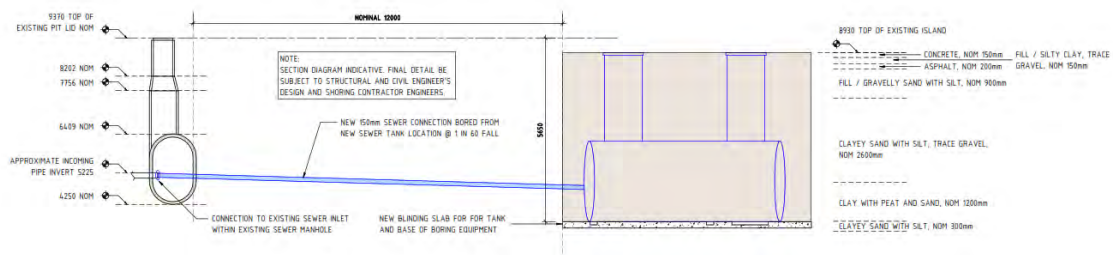
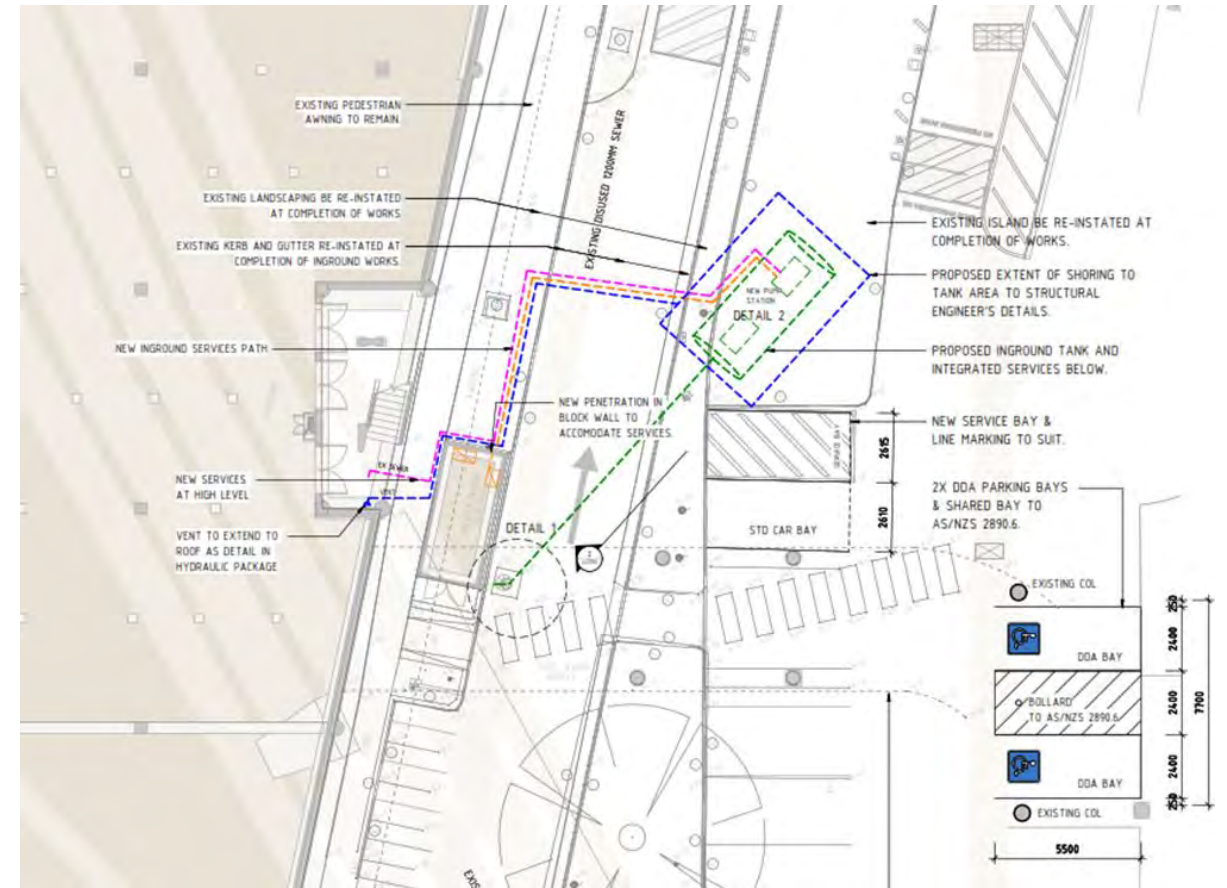


Figure 2: Extract of Sewer Pump Configuration from high level mark-up provided by Scentre Group

4. Previous investigations

4.1 Investigation of chlorinated ethene groundwater plume

Douglas has completed a number of previous investigations at the Warringah Mall Property (the property) which includes the site. The property was used primarily for market gardening and agricultural purposes and remained vacant up until the early 1960s when the shopping centre and some commercial / industrial properties were constructed. Extensions to the shopping centre and carpark have occurred over the past forty to fifty years. A dry cleaner (Littles Drycleaning) is located approximately 400 m west of the site at the western boundary of the Warringah Mall property.

Previous investigations have identified a chlorinated solvent groundwater plume below the Warringah Mall property. The plume has previously been identified beneath Littles Drycleaner and the shopping centre as well as the Ships Wheel, Starfish and Warringah Mall ChildCare Centre car parks. The concentrations of perchloroethene (PCE) and the daughter products trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride (VC) within the plume vary laterally and vertically.

Douglas undertook routine monitoring of the groundwater plume at the property between 2011 and 2014. The final round of groundwater monitoring under this programme was reported in *Douglas Report on Annual Groundwater Monitoring of July 2013, Warringah Mall, Old Pittwater Road, Brookvale*, Project 71015.29, dated October 2014 (Douglas, 2014).

The groundwater investigation included the installation of a number of groundwater wells throughout the Warringah Mall property to track the groundwater plume along its eastern trajectory from Littles Drycleaner approximately 400 m west of the current site (where PCE has been detected in groundwater a concentration of up to 6100 µg/L).

Approximately 150 m east of Little Drycleaner along the glide path of the plume the majority of the chlorinated ethene mass was in the form of Cis DCE with a concentration of up to 1500 µg/L (the result of natural attenuation) with little or no PCE present at that distance.

Sentry wells along the eastern boundary of the property were installed as part of the monitoring programme. The purpose of the sentry wells was to assess the potential advancement of the chlorinated ethene plume and whether the contaminated groundwater was close to migrating off site. Historically the leading edge of the chlorinated solvent plume was observed approximately 80 m west of the current site at monitoring well 512 (where VC was typically detected at a range of 5 to 48 µg/L and cis DCE at 3 to 14 µg/L).

The monitoring concluded that the plume was (and would continue) to attenuate naturally and therefore no active remediation of the groundwater plume was considered to be necessary at the time.

The sentry wells included previous groundwater well 510 (as shown on Drawing 1, Appendix B) located approximately 10 m south of the current site. PCE, TCE, DCE and VC were not detected at this location during the 3 year monitoring period. Therefore, there was no evidence to suggest that the chlorinated ethene plume had migrated to this location (and to the current site). It is noted however that further migration of the plume along its eastern trajectory towards the site

may have occurred since the completion of the monitoring programme and / or proposed (or previous) dewatering activities could have drawn the plume further east.

4.2 Targeted investigation of AVAC site

In addition to the investigations related to the groundwater plume, Douglas has undertaken targeted contamination investigation for the proposed AVAC system, reported in the *Report on Targeted Contamination Assessment, Brookvale Westfield - AVAC Sewer pump station, Warringah Mall, 145 Condamine Street, Brookvale NSW*, Report 71015.55.R.001 dated 10 July 2024 (Douglas, 2024a).

Douglas (2024a) included reference to a contamination investigation for the Stage 2 Warringah Mall redevelopment works reported in *Phase 2 Contamination Assessment, Proposed Stage 2 Warringah Mall Redevelopment, Corner Condamine Street & Old Pittwater Road, Brookvale* (Douglas, 2018).

The Stage 2 redevelopment area covered an irregularly shaped area of approximately 2.2 ha at Warringah Mall and includes: the Red car park (previously the Sand Castle) and Purple car park (previously the Crab car park); and southern portions of Dale Street and Green Street as well as adjacent vehicle access car parks and a loading dock, works which included two test locations within the current site (test locations 757 and 755, refer to Drawing 1, Appendix B).

Douglas (2024) included the drilling of two boreholes BH01 and BH02 and the sampling of groundwater from one new groundwater well BH02 and one pre-existing groundwater well 510D.

Soil and groundwater samples were analysed for the identified contaminants of concern (TRH - total petroleum hydrocarbon, BTEX - benzene, toluene, ethylbenzene, xylene, PAH - polycyclic aromatic hydrocarbons, PCB - polychlorinated biphenyls, OCP - organochlorine pesticides, OPP - organophosphorus pesticides, VOC - volatile organic compounds, PFAS - per- and poly-fluoroalkyl substances, Asbestos (AFFA, soil only), Iron (total and dissolved), and total dissolved and suspended solids (TDS and TSS, groundwater only). The investigation also included an acid sulfate soil (ASS) assessment.

The results were summarised as follows:

- Soils were within the adopted commercial / industrial land use criteria;
- The fill was classified as general solid waste (non-putrescible). Further testing of the fill was require to confirm the classification including acid sulfate soil testing;
- The natural soil was classified as general solid waste (non putrescible), untreated potential acid sulfate soil. Treatment and neutralisation of the PASS is required prior to disposal;
- Groundwater results were within the adopted assessment criteria with the following exceptions:
 - o Iron in sample BH2, total (24,000 µg/L) and dissolved (16,000 µg/L) exceeded the adopted screening level (of 300 µg/L); and
 - o PFOS (0.008 µg/L), in sample BH2 exceeded the adopted protection level (0.00023 µg/L).

- Chlorinated ethenes in groundwater (PCE, TCE, DCE and VC) were below the laboratory detection limit. Therefore, it was considered that there is no evidence that the chlorinated ethene plume has migrated to the proposed site of the AVAC system however the proposed dewatering could potentially draw the plume closer to the proposed AVAC system site.

The investigation concluded and recommended that:

- The Site is suitable for the proposed AVAC system subject to implementation of the following recommendations:
 - o Further *ex situ* waste classification of fill excavated during the works to confirm the classification prior to disposal;
 - o Preparation of an unexpected finds protocol to address potential unexpected contamination finds (such as asbestos) during redevelopment;
 - o Preparation and implementation of an acid sulfate soil management plan (ASSMP). The ASSMP will:
 - Outline the necessary protocols to treat (e.g. lime-dose) and manage the ASS upon excavation to mitigate the acid generating potential of the soils; and
 - Post-treatment verification testing requirements.

Successfully treated soils can typically be re-used on site. Any off-site disposal of treated ASS is subject to the requirements of NSW EPA *Waste Classification Guidelines, Part 1: Classifying Waste* (NSW EPA, 2014a) and NSW EPA *Waste Classification Guidelines, Part 4: Acid Sulfate Soils* (NSW EPA, 2014b).

- Appropriate treatment of groundwater extracted during dewatering for iron and PFAS prior to disposal. It was recommended that a dewatering management plan be prepared (per the recommendations of the geotechnical report that outlines an appropriate monitoring plan to assess potential draw of the chlorinated ethene plume towards the site). The dewatering plan should also consider the requirements of acid sulfate soil management (minimising the zone of influence to minimise the potential for acid sulfate soil generation outside the excavation area).

A separate acid sulfate soil management plan (ASSMP) has been prepared, namely the *Acid Sulfate Soil Management Plan, Brookvale Westfield - AVAC Sewer Pump Station, 145 Condamine Street, Brookvale NSW*, Report 71015.55.R.002.Rev0 dated 10 October 2024 (Douglas, 2024b).

5. Contingency plan

5.1 General

Although the site has been subject to previous investigation(s), there remains a potential for soil contamination to be present between sampled locations. In the event that signs of soil contamination, other than that included in the remediation strategy, are encountered during remediation e.g. evidence of asbestos containing material (ACM), petroleum, or other chemical odours which were not previously identified the following general protocols will apply:

- The Site Manager is to be notified and the affected area closed off by the use of barrier tape and warning signs;

- The Environmental Consultant is to be notified to inspect the area and assess the presence and significance of contamination and determine the required extent of remediation works (if deemed necessary). An assessment report and management plan detailing this information will be compiled by the Environmental Consultant and provided to the Principal's Representative;
- The assessment results together with a suitable management plan shall be provided by the Principal's Representative to the Consent Authority (if required by the development consent);
- The agreed management / remedial strategy, based on relevant guidelines (e.g. WA DoH (2021), for asbestos issues), shall be implemented; and
- All details of the assessment and remedial works are to be documented by the Environmental Consultant.

5.2 General unexpected finds protocol

All site personnel are to be inducted into their responsibilities under this UFP, which should be included or referenced in the Remediation Contractors Environmental Management Plan.

All site personnel are required to report unexpected signs of environmental concern to the Site Manager if observed during the course of their works e.g. presence of potential asbestos containing material (ACM), potential unexploded ordinance, unnatural staining, potential contamination sources (such as buried drums or tanks) or chemical spills.

Should signs of concern be observed, the Site Manager, as soon as practical, will:

- Stop work in the affected area and ensure the area is barricaded to prevent unauthorised access;
- Notify authorities needed to obtain emergency response for any health or environmental concerns (e.g. fire brigade);
- Notify the Principal's Representative of the occurrence;
- Notify any of the authorities that the Remediation Contractor is legally / contractually required to notify (e.g. EPA, Council); and
- Notify the Environmental Consultant.

The Principal's Representative is to notify any of the authorities which the Principal is legally / contractually required to notify (e.g. EPA, Council). Where appropriate the Principals Representative will also implement appropriate community consultation.

The Environmental Consultant will assess the extent and significance of the find and develop an investigation, remediation or management.

Any unexpected finds should be surveyed and the location documented by the Contractor.

5.3 Asbestos finds protocol

In the event that asbestos is encountered in the excavations the following protocol should be adopted:

- Upon discovery of suspected asbestos containing material, the site foreman is to be notified and the affected area closed off with the use of barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the Australian Standard 1319-1994 - Safety Signs for the Occupational Environment;
- The Environmental Consultant is to be notified to inspect the area and confirm the presence of asbestos and determine the extent of remediation works to be undertaken. Scentre will be informed of the works required; and
- The extent of the required remediation works may either be determined visually (e.g. length of discovered pipe) or analytically (e.g. asbestos in soils) or through a combination of both. A degree of investigation is likely to be required in order to ascertain the extent for remediation purposes.

If asbestos is identified in the fill at the site during redevelopment two options can be considered for the management / remediation of asbestos. The preferred method will be determined based on the extent of asbestos which is identified. The two potential options include:

- Off-site disposal where the quantities of asbestos impacted materials are within the area of excavation envelop, the volume of impacted material is small, or it is not practicable to retain the impacted fill on-site; or
- On-site containment (capping in place or within a designated containment cell).

5.4 Asbestos work health and safety plan

If asbestos contaminated soils are encountered the following health and safety plan shall be adopted.

5.4.1 Overview and required plans

All site work must be undertaken in a controlled and safe manner with due regard to potential hazards, training and safe work practices. To assist in achieving this goal the following plans, as a minimum, shall be developed by the Contractor (or the relevant subcontractors and provided to the Contractor for approval):

- Work Health and Safety Plan (WHSP): detailing the WHS procedures for the site, this may incorporate or include references to the below plans;
- Safe Works Method Statement (SWMS): which will be specific to individual tasks undertaken at the site;
- Asbestos Removal Control Plan (ARCP): as detailed further below; and
- Emergency Response Plan: detailing the procedures to be implemented in an emergency.

The above plans will all comply with regulatory requirements, including the WHS Regulation and SafeWork NSW requirements, including provision of notification of works to SafeWork NSW.

The ARCP must be provided to the person who commissioned the works. The ARCP must include:

- Details of how the asbestos removal will be carried out, including the method to be used and the tools, equipment and personal protective equipment to be used, and
- Details of the asbestos to be removed, including the location, type and condition of the asbestos.

The licensed asbestos contractor must keep the ARCP in accordance with the WHS Regulations.

Furthermore, consultation with site workers when drafting the above plans is to be undertaken to address issues which may be otherwise overlooked. Moreover, if issues are raised by workers during the works, then these plans should be reviewed and updated accordingly to take into consideration site conditions.

5.4.2 Licensed contractor and training

All asbestos works greater than 10 m² must be undertaken by an asbestos contractor with a Class B asbestos removal licence issued by SafeWork NSW. Any friable asbestos works must be undertaken by an asbestos contractor with a Class A asbestos removal licence issued by SafeWork NSW.

The asbestos contractor must ensure that the remedial work is adequately supervised and carried out in a safe manner. Supervisory personnel shall have a detailed knowledge of the precautions and procedures outlined in Code of Practice: How to Safely Remove Asbestos (Safe Work Australia July 2020) and shall, in light of this knowledge and experience, assume the responsibilities as detailed in the Code. These include planning, directing and monitoring asbestos removal works to ensure the required controls are implemented, in addition to ensuring that the consultant is reliably and regularly informed of the progress of the removal works.

Prior to engagement in the work, all asbestos remediation workers shall be instructed in the relevant aspects of asbestos health hazards, safe working procedures, and the wearing and maintenance of protective clothing and equipment.

The asbestos remediation contractor should keep a written record of all training provided to each of their asbestos removal workers and ensure these records are readily accessible.

The asbestos remediation contractor should also provide the following information to all of their asbestos removal workers and to all applicants for employment as an asbestos removal worker:

- The health risks associated with exposure to asbestos;
- The need for, and details of, health surveillance, including medical examinations in accordance with the Guidelines for Health Surveillance [NOHSC:7039 (1995)]; and
- Details of legislation and codes of practice relating to the control and safe removal of asbestos.

5.4.3 Notification

SafeWork NSW must be notified five days in advance of any asbestos works (or as otherwise required by SafeWork NSW for emergency works).

The Asbestos Contractor must, before commencing the licensed asbestos removal work, inform the following people that asbestos removal works are to be conducted and the date the work will commence:

- The person with management or control of the workplace and any adjacent occupied buildings; and
- The entity / person who commissioned the asbestos removal work.

The person with management or control of the workplace must inform workers and any other persons in the workplace.

5.4.4 Fencing and signage for asbestos areas

Prior to the commencement of the asbestos works, the area will be delineated from the rest of the site with the use of hazard tape and warning signage and shall be specific to Asbestos Hazards.

All warning signs must comply with AS 1319 Safety Signs for the Occupational Environment and the National Code of Practice How to Manage and Control Asbestos in the Workplace (Safe Work Australia 2020).

Appropriate fencing must also be placed around any deep excavations or unstable areas in accordance with WHS Regulations.

5.4.5 Restrictions of access to asbestos works areas

Access to the asbestos works site will be restricted to:

- Workers engaged in the asbestos removal work;
- Other persons associated with the asbestos removal work such as Occupational Hygienist or Asbestos Assessor; and
- Anyone allowed under the WHS Regulation or another law to be in the asbestos removal area.

5.4.6 Personal protective equipment

As a minimum, all personnel on site will be required to wear the following personal protective equipment (PPE) at all times during asbestos works involving friable asbestos. Some relaxing of the PPE requirements (at the discretion of the Occupational Hygienist) may be possible for bonded asbestos works based on a risk assessment:

- Steel-capped lace-less boots;
- Hard hat meeting AS1801-1981 and AS/NZS 1801:1997/Amdt 1:1999 requirements;
- High visibility clothing;
- Half-face P2 rated respirator or similar;
- Disposable full length body coveralls with elasticated hood and cuffs (Tyvek suit or equivalent); and
- Gloves.

Clothing made from wool or other materials that attract fibrous dusts should not be worn in the asbestos work area. Regardless of whether gloves are used, asbestos removal workers must clean their hands and fingernails thoroughly after work. The level of respiratory protection required (e.g. P1, P2 and P3 supplied air respirators) should be determined by a Competent Person in accordance with the asbestos remediation task to be undertaken. Appendix B of the Code provides for more information on the selection of suitable respiratory protection for particular removal tasks. This should be recorded on the Asbestos Removal Control Plan for the specific job and must be adhered to at all times. Workers in excavator cabs with recycled AC facilities may not require use of RPE but should have appropriate RPE and PPE on hand for emergency use.

The following additional PPE shall be used as considered necessary:

- Safety glasses or safety goggles;
- Hearing protection;
- Sunscreen;
- Sun visor / brim; and
- Long sleeve shirts and pants.

The Asbestos Contractor is to ensure that respirator, overalls and gloves are available at the entry / exit point to the exclusion area. The Asbestos Contractor must ensure that personal protective equipment used during the fill excavation and removal works is disposed of as asbestos waste or decontaminated in accordance with the WHS Regulations.

5.4.7 Asbestos remediation equipment

A constant low-pressure water supply is required for wetting down asbestos or asbestos containing soils. This can be achieved with a mains-supplied garden hose fitted with a pistol grip. If no water supply is readily available, a portable pressurised vessel, such as a pump-up garden sprayer or water tanker, may be suitable.

5.4.8 Airborne asbestos monitoring

Monitoring for airborne asbestos fibres is to be carried out by an independent Occupational Hygienist during the earthworks that disturb the asbestos contaminated soils. Monitoring must commence prior to commencement of earthworks in asbestos contaminated areas and monitors are to be positioned locations as nominated by the Occupational Hygienist. Where occupational exposure to asbestos materials is likely to occur, exposure is not to exceed half the occupational exposure standards for each hazardous building materials type or category as published by the National Occupational Health and Safety Commission (Safe Work Australia).

Asbestos air monitoring will be undertaken in accordance with Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC: 3003 (2005)] and sampling density and locations will be determined by the Occupational Hygienist. All filters will be submitted to a National Association of Testing Authorities, Australia (NATA) accredited laboratory for analysis. Air samples will be collected from the breathing zone of a person, over a minimum of four hours duration.

The current National Exposure Standards TWA for asbestos are:

- Chrysotile (white) asbestos - 0.1 fibres/ml;
- Amosite (brown) asbestos - 0.1 fibres/ml;
- Crocidolite (blue) asbestos - 0.1 fibres/ml; and
- Other forms of asbestos or a mixture of asbestos types - 0.1 fibres/ml.

Throughout the duration of the works, air test results should return results below 0.01 fibres/ml.

The following table shows the actions to be taken should the fibre levels exceed the action level of 0.01 fibres/ml.

Table 1: Allowable fibre levels

Action level (fibres/ml)	Control / Action
< 0.01	Continue with control measures
$\geq 0.01 \leq 0.02$	Review control measures, investigate cause and implement controls to minimise further release
≥ 0.02	Stop removal work and notify the regulator. Investigate cause including enclosure & equipment where present and clean immediate area. Do not recommence work until air test results return readings of < 0.01 fibres/ml

Given the sensitivity of the environment, it is recommended that air monitoring take place during all remediation and / or handling of involving known or suspected ACM.

Following the completion of the asbestos works, including associated clearance inspections, fibre monitoring can be discontinued.

5.4.9 Decontamination

When exiting the taped and sign-posted exclusion area, each person is to decontaminate at the entry / exit point. Personal decontamination involves the following:

- Rinsing boots in the bucket filled with detergent solution at the entry / exit point. Rinsing is to remove mud from the boots;
- Removing overalls, gloves and then respirator and placing in the plastic bags within the provided disposal bin located at the entry / exit point. For privacy this can be undertaken in the designated decontamination area surrounded by black plastic at the entry / exit point; and
- Thoroughly washing of hands (including under nails) with detergent.

A water supply for decontamination purposes is to be maintained at the entry / exit point at all times. The amount of potential waste water generated is liable to be minimal and can be lightly spread (not sprayed) periodically within the middle of the exclusion zone where asbestos impacted material is exposed. Any contaminated water collected as part of these works that

cannot be disposed of in this fashion is to be double bagged, placed in a leak proof drum or skip and disposed of as asbestos waste.

With respect to any plant or equipment used in the asbestos removal exclusion zone area, these are to be appropriately decontaminated at the edge of the area prior to leaving the exclusion zone. Vehicles, excavators, etc. are to be washed down and all mud removed, with particular attention given to tyres, tracks, underside of the vehicle's body and other areas which would have come in contact with the ACM impacted materials (e.g., excavator buckets). This is to be undertaken at the entry / exit gate to the exclusion zone and monitored by the removalist supervisor. The amount of water generated from these decontamination activities is not expected to be significant and hence will infiltrate into the surface within the exclusion zone. However, if sufficient water is used which would cause surface migration then the exclusion zone is to be bunded to prevent water migrating outside the exclusion zone.

Any other equipment leaving the exclusion zone is to be decontaminated. Where possible this should be done with a detergent solution (e.g. shovels) within the exclusion zone. If not possible (e.g. electrical equipment), the equipment is to be wiped down with a damp cloth and the cloth disposed of in the asbestos waste bin at the entry / exit point to the exclusion zone.

5.5 Unexpected UST find protocol

In the event that an underground storage tank (UST) is unexpectedly discovered during site excavation works the following procedure should be adopted:

- Works in the area should cease and the Site Manager informed. The area should be closed off by the use of barrier tape and warning signs that comply with the Australian Standard 1319-1994 - Safety Signs for the Occupational Environment;
- The decommissioning works shall be undertaken in general accordance with:
 - o Underground Petroleum Storage Systems - Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019. Doc Ref: EPA 2020P2700: NSW Environment Protection Authority. (NSW EPA, 2020);
 - o Australian Standard AS 1940-2017, The Storage and Handling of Flammable and Combustible Liquids;
 - o Australian Standard AS 4976-2008, The Removal and Disposal of Underground Petroleum Storage Tanks; and
 - o SafeWork NSW safety alert WC01188, Potential risks when removing underground storage tanks.
- Prior to the removal of a UST, any residual product (liquid / vapour) will be removed from the tank and disposed of appropriately;
- The UST will be exposed and examined for potential leaks and general condition. A suitably qualified environmental consultant should be engaged to inspect the UST prior to its removal;
- The UST will be removed, and the structures disposed of by a qualified contractor in accordance with AS 4976 - 2008. Disposal records should be provided to the environmental consultant for inclusion in the validation report;

- All associated infrastructure (i.e. the remnants including fuel lines etc) will be removed and disposed in a similar manner if present;
- Grossly contaminated soil will excavated and stockpiled (based on field observations) to the practical extent possible based on structural engineers' recommendations and materials backfilled around the tank for classification / assessment. If excavated soils exhibit signs of contamination during excavation (such as hydrocarbon odours or staining) then the soil should be segregated from soils that are not impacted into a separate stockpile and placed on impermeable surface (concrete or plastic) and banded to prevent leachate generation;
- Collection of validation samples by the environmental consultant from the tank pit with the assistance of plant provided by the Contractor. Sampling is to be conducted in accordance with the requirements of the EPA *Contamination Assessment of Service Station Sites, Minimum Sampling Requirements*, July 2023 (EPA, 2023), and is to include one location per side wall or one sample per soil type and at the depth of observed groundwater, whichever is the greater and at least one sample in the excavation base. Note that the actual number of samples may vary depending on the size of the tank pit excavation and the degree of contamination, the soil profile encountered and the presence of groundwater;
- Collection of validation samples by the environmental consultant below the fuel lines (following removal). Validation samples should be collected at a minimum rate of one sample per 5 m linear metres of the fuel lines;
- The validation samples will be analysed at a NATA accredited laboratory for the following analytical scope; TRH, PAH, BTEX, lead and VOC. Additional analysis may be required as advised by the environmental consultant based on the contents (or potential contents) of the tank;
- If water is encountered in the pit, a grab sample will be collected for analysis. The grab sample will be analysed for heavy metals, TPH, BTEX, PAH, VOC and hardness;
- Excavated stockpiled will be assessment for potential reuse and / or waste classification as appropriate. Stockpile samples will be analysed for heavy metals, PAH, TPH, BTEX, phenols, PCB, OCP and asbestos (to determine if the materials are suitable to be retained on-site and / or disposed to landfill. Materials which meet the site assessment criteria adopted in Douglas (2024a) can be retained on-site. Materials that exceed the site assessment criteria adopted in Douglas (2024a) will require off-site disposal to a licensed landfill unless otherwise advised by the environmental consultant. Land farming of impacted soils may be considered upon further advice from the environmental consultant based on the nature and extent of impacted soils, and the availability of suitable space on-site to conduct the work; and
- A validation report will be prepared by a suitably qualified environmental consultant in accordance with the requirements of NSW EPA (2020).

5.6 Chlorinated ethene plume contingency plan

As per Section 4.1 a chlorinated ethene plume has been detected at the Brookvale Mall property, however has not been detected at the location of the proposed AVAC system. Monitoring of VOC in groundwater will be required during excavation and dewatering, as described in the ASSMP (Douglas, 2024b) and to be required in the dewatering management plan (DMP), currently under preparation.

Evidence of the chlorinated ethene plume may include visible separate phase products, chemical odours (sweet odours) of detections of chlorinated ethenes in waters extracted from the excavation during dewatering or detections of chlorinated ethenes in the groundwater of the adjacent groundwater wells at BH2 and 510D.

In the event that evidence of the chlorinated ethene plume is detected the following contingency plan is to be adopted:

- Dewatering should cease subject to further evaluation;
- Collected groundwater from the excavation should be subject to further analysis of VOC to determine if additional treatment is required prior to disposal;
- Further groundwater samples shall be collected from BH2 and 510D and analysed for VOC to assess the significance of the event;
- Water samples shall be collected from Brookvale Creek and tested for VOC; and
- A review of the groundwater monitoring, dewatering and Brookvale Creek data shall be conducted to determine if further groundwater remediation and / or management actions are required.

5.7 Soil management plan of contaminated soils

If contaminated soils are encountered the following soil management plan should be followed.

5.7.1 Stockpiling of contaminated soils

If contaminated soils are encountered the material shall be excavated and stockpiled at a suitably segregated location(s) away from sensitive areas (e.g. water bodies, drainage lines, stormwater pits, etc.) and ongoing excavations, and in a manner that will not cause nuisance to the neighbouring properties. Soil stockpiles are to be managed as follows:

- An impermeable membrane such as plastic sheeting should be provided at the surface by the Remediation Contractor prior to stockpiling. Plastic sheeting should be taped at joins, as necessary;
- All stockpiles of contaminated material shall be surrounded by star pickets and marking tape or other suitable material to clearly delineate their boundaries;
- Stockpiles shall be lightly conditioned by sprinkler or covered by geotextile or similar cover to prevent dust generation;
- Stockpiles impacted, or potentially impacted, with asbestos must be covered by geotextile;
- Measures should be taken by the Contractor to prevent the migration of stockpile materials (i.e. perimeter bunds, hay bales, silt fences, etc.); and
- A record of stockpile locations (stockpile register), dimensions, descriptions, environmental controls, etc. should be maintained by the Remediation Contractor.

All movement of soil within the site and off-site is to be tracked by the Contractor, from cradle to grave. Copies of tracking records must be provided to the Environmental Consultant.

5.7.2 Transport of material off-site and on-site

Transport of contaminated material from the site and imported material to the site shall be via a clearly delineated haul route(s) and this route shall be used exclusively for entry and egress of vehicles used to transport contaminated materials within and away from the site, and onto and within the site. The proposed transport route(s) (to be determined by the Principal Contractor) will be notified to Council and truck dispatch shall be logged and recorded by the Contractor for each load leaving or arriving the site. A record of the truck dispatch will be provided to the Environmental Consultant.

All haulage routes for trucks transporting soil, materials, equipment or machinery to and from the site should be selected to meet the following objectives:

- Comply with all road traffic rules;
- Minimise noise, vibration and dust to adjacent premises; and
- Use State roads and minimise use of local roads as far as practicable.

The work will be conducted such that all vehicles:

- Conduct deliveries of soil, materials, equipment or machinery only during the specified hours in the development consent;
- Have securely covered loads to prevent any dust or odour emissions during transportation; and
- Exit the site in a forward direction.

In addition, measures will be implemented to ensure no contaminated material is spilled onto public roadways or tracked off-site on vehicle wheels. Roadways will be kept clean throughout the remediation works and will be swept, if necessary, to achieve a clean environment.

All loads will be securely covered and may be lightly wetted, if required, to ensure that no materials or dust are dropped or deposited outside or within the site. Prior to exiting the site each truck should be inspected by Contractor and either noted as clean (wheels and chassis) or swept prior to leaving the site. Any soil spilled onto surrounding streets will be cleaned by mechanical or hand methods, on a daily basis.

Removal of waste materials from the site shall only be carried out by contractors holding the appropriate license(s), consent or approvals to dispose the waste materials according to the waste classification and with the appropriate approvals obtained from the EPA, and under EPA tracking protocols, as required.

Materials imported onto the site shall only be carried out by Contractors holding the appropriate license(s), consent or approvals to transport the materials with the appropriate approvals obtained from the EPA, were required.

All movement of soil within the site is to be tracked by the Contractor, from cradle to grave. Copies of tracking records must be provided to the Environmental Consultant.

5.7.3 Noise and vibration control

All equipment and machinery should be operated in an efficient manner to minimise the emission of noise. The use of any plant and /or machinery should not cause unacceptable vibrations to nearby properties and should meet Council requirements.

5.7.4 Classification of wastes

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

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

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

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

For stockpiles comprising similar materials and a:

- Volume up to 200 m³: a recommended minimum frequency of one sample per 25 m³, with a minimum of three per stockpile (NSW EPA, 2022); or
- Volume greater than 200 m³: a recommended minimum frequency of one sample per 25 m³, with a minimum of 12 samples OR a minimum of 10 samples and calculation of the 95% upper confidence limit of the arithmetic mean for all applicable analytes (NSW EPA, 2022). Note that this does not apply to stockpiles impacted, or potentially impacted, by asbestos. For stockpiles greater than 200 m³ which are impacted, or potentially impacted, by asbestos the Environmental Consultant shall provide guidance in accordance with NSW EPA (2022).

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

5.7.5 Dust control

Dust emissions must be confined within the site boundary as far as is practicable. The following example dust control procedures could be employed to comply with this requirement, as necessary:

- Erection of dust screens around the perimeter of the site (as applicable);
- Securely covering all loads entering or exiting the site;

- Use of water sprays across the site to suppress dust;
- Covering of all stockpiles of contaminated soil remaining on site more than 24 hours;
- Include wheel wash (if applicable); and
- Keeping excavation and stockpile surfaces moist.

Regular checking of the fugitive dust issues is to be undertaken. Remedial measures are to be undertaken to rectify any cases of excessive dust.

5.8 Acid sulfate soils

Acid sulfate soil management requirements are provided in Douglas (2024b).

5.9 Water management plan

With respect to groundwater and water management reference should be made to Douglas (2024b) and the dewatering management plan (currently being prepared by Douglas).

6. Conclusion

This UFP has been developed to provide guidance on processes to follow if contamination (or indicators of contamination), is encountered during the proposed works. Any such finds shall be surveyed and the location documented.

7. References

Douglas. (2014). *Report on Annual Groundwater Monitoring of July 2014, Warringah Mall , Old Pittwater Road, Brookvale*. Project 71015.29 October 2014.

Douglas. (2018). *Phase 2 Contamination Assessment, Proposed Stage 2 Warringah Mall Redevelopment, Corner Condamine Street & Old Pittwater Road, Brookvale*. Project 71015.18.Rev1 dated 16 August 2018.

Douglas. (2024a). *Report on Targeted Contamination Assessment, Brookvale Westfield - AVAC Sewer pump station, Warringah Mall, 145 Condamine Street, Brookvale NSW*. Report 71015.55.R.001.Rev0 dated 10 July 2024.

Douglas. (2024b). *Acid Sulfate Soil Management Plan, Brookvale Westfield - AVAC Sewer Pump Station, 145 Condamine Street, Brookvale NSW*. Project 71015.55.R.002.Rev0 dated 10 October 2024.

EPA. (2023). *Contamination Assessment of Service Station Sites, Minimum Sampling Requirements*. NSW Environment Protection Authority.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2014a). *Waste Classification Guidelines, Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2014a). *Waste Classification Guidelines, Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2014b). *Waste Classification Guidelines, Part 2: Immobilisation of Waste*. NSW Environment Protection Authority.

NSW EPA. (2014b). *Waste Classification Guidelines, Part 4: Acid Sulfate Soils*. NSW Environment Protection Authority.

NSW EPA. (2014c). *Waste Classification Guidelines, Part 4: Acid Sulfate Soils*. NSW Environment Protection Authority.

NSW EPA. (2016). *Addendum to the Waste Classification Guidelines (2014) - Part 1: Classifying Waste*. NSW Environment Protection Authority.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

NSW EPA. (2020). *Underground Petroleum Storage Systems - Guidelines for implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*. Doc Ref: EPA 2020P2700: NSW Environment Protection Authority.

NSW EPA. (2022). *Sampling Design, Part 1: Application; Part 2: Interpretation*. NSW Environment Protection Authority.

8. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Warringah Mall, 145 Condamine St, Brookvale NSW in accordance with Douglas' proposal 71015.54.P.001.Rev2, dated 7 May 2024 and acceptance received from Micha Hinden dated 30 July 2023. The work was carried out under contract No.: 14635, dated 15 May 2024). This report is provided for the exclusive use of Scentre Design & Construction Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and / or their agents.

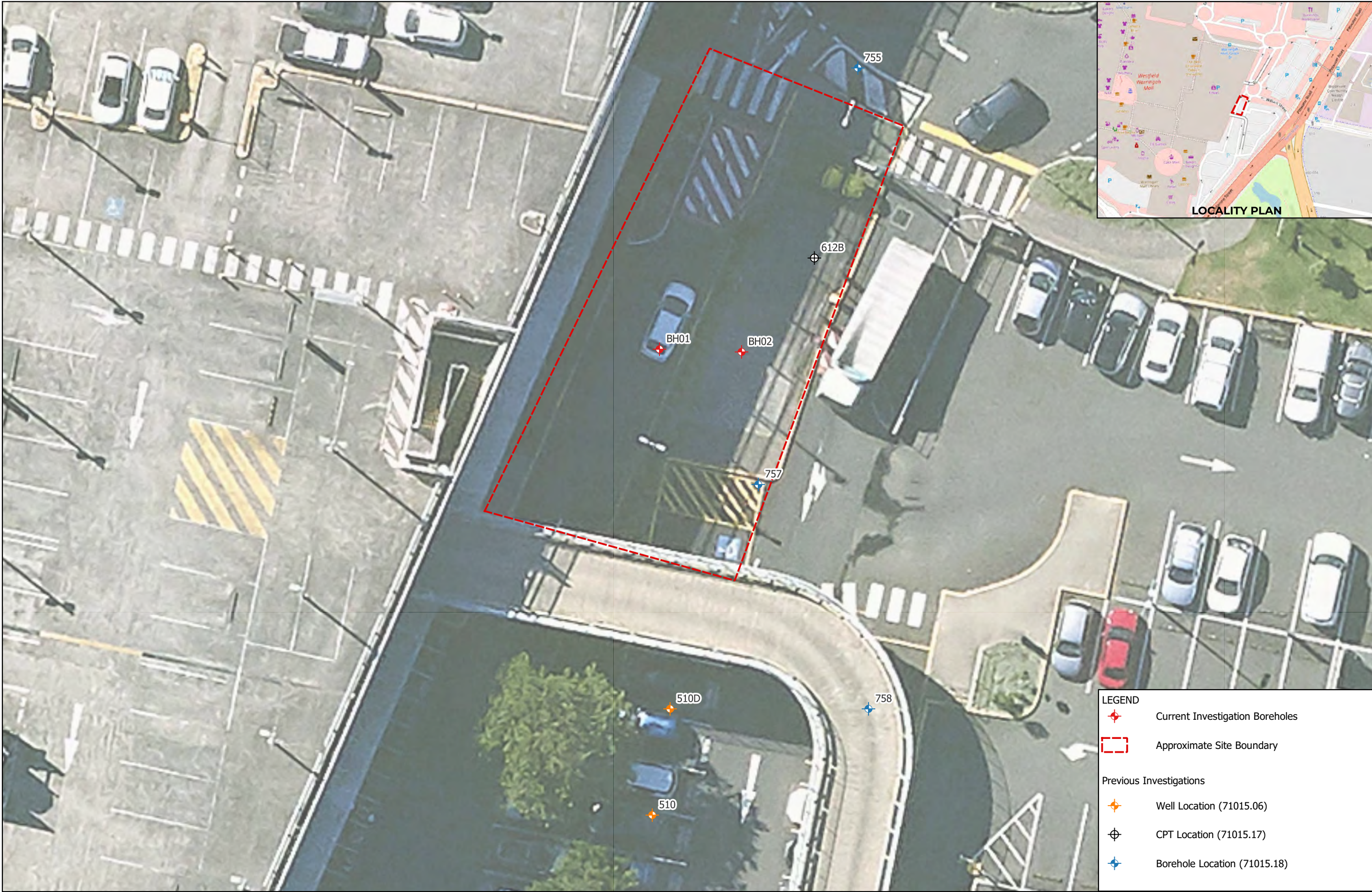
The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and / or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological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

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

The assessment of atypical safety hazards arising from this advice is restricted to the (geotechnical / environmental / groundwater) components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

Appendix A

Drawings



LEGEND

Current Investigation Boreholes



Approximate Site Boundary

Previous Investigations

Well Location (71015.06)

CPT Location (71015.17)

Borehole Location (71015.18)

REV		DESCRIPTION/COMMENT		DATE		DRAWN BY		<div><div>OFFICE: SYDNEY 96-98 Hermitage Rd, West Ryde NSW 2114 (02)9809 0666</div></div>	CLIENT: Scentre Design & Construction Pty Ltd	NOTE: 1: Basemap from Metromap (Dated 25.03.2024)	PROJECT NAME: Brookvale Westfield - AVAC Sewer Pump Station PROJECT ADDRESS: Warringah Mall 145 Condamine St, Brookvale	DRAWING TITLE: TEST LOCATION PLAN	PROJECT NO: 710015.54
O		INITIAL ISSUE		10.07.2024		EC							DRAWING NO: 1
													REVISION: 0
<div>SCALE: <div><div>0246810 m</div><div>1:200 @ A3</div></div></div>								<div></div>					

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

Appendix B

About this Report

Introduction

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

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

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

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

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

Groundwater

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

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at

the time of construction as are indicated in the report; and

- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

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

Reports

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

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

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

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

continued next page

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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

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