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Report on
Detailed Site Investigation for Contamination

Proposed Sydney Swans HQ & Community Centre
Royal Hall of Industries, 1 Driver Avenue, Moore Park

Prepared for
Sydney Swans Limited

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	Signature	Date
Author	pp: T. Beaven	13 May 2019
Reviewer		13 May 2019

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Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au
96 Hermitage Road
West Ryde NSW 2114
PO Box 472
West Ryde NSW 1685
Phone (02) 9809 0666

Executive Summary

This report presents the results of a Detailed Site Investigation (DSI) for contamination undertaken for the proposed Sydney Swans HQ & Community Centre Project at the Royal Hall of Industries (RHI), 1 Driver Avenue, Moore Park. The investigation was undertaken to address the NSW Planning and Environment, Secretary's Environmental Assessment Requirements (SEARs) for application number SSD 9627. The investigation was commissioned in a letter dated 25 February 2019 by APP Corporation Pty Limited on behalf of the Sydney Swans Ltd and was undertaken with reference to Douglas Partners Pty Ltd (DP) proposal SY190086.P.001.Rev2 dated 21 February 2019.

Previous investigations by DP and other consultants had indicated the presence of fill material on-site which included building rubble. Limited laboratory testing had indicated that these chemical levels were within the health investigation levels (HIL), health screening levels (HSL) and management limits for a commercial / industrial site (land use 'D') sourced from National Environment Protection Council (NEPC), *National Environment Protection (Assessment of Site Contamination) Amendment Measure,* 2013 (NEPC, 2013). Furthermore, no asbestos had been identified in previous investigations.

The site history review identified that the RHI was constructed in 1913 and had various uses over its history including for events and exhibitions, festivals and also as a morgue in 1919. The site has had various modifications of it such as including gardens in the 1930s/1940s, bomb shelters and trenches in 1943, small structures and sheds an electrical kiosk next to the southern wall of the building. It appears that off-site industry was present to the east and north-east from (at least) the 1930s to 1980s (according to aerial photographs). Much of this land previously used for industry is up-hydrogeological gradient from the site. A contaminated site, noted on the NSW EPA website (off-site) parkland on the western side of Driver Avenue, is downgradient of the site.

Based on the site history and previous information a preliminary conceptual site model was prepared which identified potential contamination sources such as imported fill, hazardous building materials, spills or leaks of chemicals, pesticides beneath concrete slabs and oil leaks from the substation.

The intrusive investigation indicated that the site is underlain by filling (including building rubble, coal and charcoal) to variable depths overlying some natural sands and clayey sands. Natural soils are underlain by sandstone. Water levels measured in monitoring wells ranged between depths of 2.6 m and 6.0 m below ground surface and were below the top of sandstone bedrock.

Results of laboratory testing indicated that the concentrations of tested contaminants in soil are at levels which are not considered to pose a risk to human health, terrestrial ecology or in-ground structures for the proposed development. Concentrations of contaminants in groundwater are considered to not pose a human health risk at the site for the proposed development.

Based on the results of the investigation, it is considered that remediation (and a Remediation Action Plan) is not required for the proposed development, however, the following is recommended for the proposed development:

- Given the variable fill at the site, an Unexpected Finds Protocol (UFP) should be prepared for site development. The UFP would detail the requirements and procedures for encountering contamination, or signs of contamination, during excavation works; and
- Soils requiring off-site disposal will need to be given a waste classification in accordance with NSW EPA, *Waste Classification Guidelines*, 2014 (EPA, 2014) and disposed of accordingly.

If dewatering is required (e.g. at localised excavations), based on the results, there is a reasonable likelihood that groundwater will not be suitable to discharge to the stormwater system without treatment. It may be appropriate to dispose of the water as liquid waste by a liquid waste contractor.

Based on the findings of this DSI which included an assessment of soil and groundwater, it is considered that the site is suitable for the proposed development from a contamination perspective.

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Report on Detailed Site Investigation for Contamination
Proposed Sydney Swans HQ & Community Centre
Royal Hall of Industries, 1 Driver Avenue, Moore Park

1. Introduction

This report presents the results of a Detailed Site Investigation (DSI) for contamination undertaken for the proposed Sydney Swans HQ & Community Centre Project at the Royal Hall of Industries, 1 Driver Avenue, Moore Park. The investigation was undertaken to address the NSW Planning and Environment, Secretary's Environmental Assessment Requirements (SEARs) for application number SSD 9627. The investigation was commissioned in a letter dated 25 February 2019 by APP Corporation Pty Limited on behalf of the Sydney Swans Ltd and was undertaken with reference to Douglas Partners Pty Ltd (DP) proposal SY190086.P.001.Rev2 dated 21 February 2019.

The objectives of the DSI were to:

- Identify potential sources of contamination and associated potential contaminants from historical information (i.e. undertake a Preliminary Site Investigation);
- Identify potential receptors to contamination;
- Establish a preliminary conceptual site model (CSM);
- Collect and analyse soil and groundwater samples to assess the contamination status of the site; and
- Determine if the site of the proposed development is suitable or can be made suitable for the proposed development from a contamination perspective.

2. Scope of Work

The scope of work for the DSI is as follows:

- Review proposed development plans;
- Conduct a site walkover to identify site and surrounding features and current uses as well as indicators and potential sources of contamination;
- Review previous geotechnical and contamination reports pertaining to the site;
- Review published soil, geological, acid sulfate soils and topography maps;
- Review registered groundwater bore data held by WaterNSW;
- Conduct an internet search for information on the Royal Hall of Industries;
- Obtain and review historical aerial photographs;
- Obtain and review historical title deeds records;
- Obtain and review one of the Section 10.7 certificates for the site;

- Review the NSW EPA website for published records under the *Protection of the Environment Operations Act 1997* and the *Contaminated Land Management Act 1997;*
- Obtain and review SafeWork NSW database records pertaining to hazardous chemicals;
- Drill 16 boreholes for the collection of soil samples;
- Log the soil and rock profile at each borehole;
- Install groundwater monitoring wells at three borehole locations;
- Develop the groundwater monitoring wells;
- Collect groundwater samples from each groundwater monitoring well;
- Laboratory analysis on selected soil samples for:
    - Eight priority metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
    - Total recoverable hydrocarbons (TRH);
    - Benzene, toluene, ethylbenzene and xylene (BTEX);
    - Polycyclic aromatic hydrocarbons (PAH);
    - Total phenols;
    - Polychlorinated biphenyls (PCB);
    - Organochlorine pesticides (OCP);
    - Organophosphorus pesticides (OPP);
    - Volatile organic compounds (VOC);
    - Asbestos;
    - pH; and
    - Cation exchange capacity (CEC);
- Laboratory analysis of groundwater samples for eight priority metals, TRH, BTEX, PAH, total phenols, PCB, OCP, OPP, VOC and hardness;
- Laboratory analysis of replicate samples, trip spikes and trip blanks for QA/QC purposes; and
- Preparation of this report.

3. Site Identification and Proposed Development

The site covers approximately 1.0 ha and is located in the southern part of Lot 3 Deposited Plan 861843 and a small portion of Lot 52 Deposited Plan 1041134 (at the south-eastern part of the site) and has the street address of 1 Driver Avenue, Moore Park. The site is part of a larger property of 1.9 ha that includes the Horden Pavillion to the north. The site location and boundary are shown on Drawing 1, Appendix A. The local government authority is City of Sydney.

The proposed development is for a high-performance sport and community facility which will include renovation of the existing Royal Hall of Industries building and construction of new structures at the

south of the site. Two levels (ground floor and level 1) are proposed for both the renovation of the hall and the new structures. Proposed features include:
A multi-purpose indoor facility for community use and public events and functions;

- An indoor netball court;
- Player change/locker rooms;
- A player lounge;
- Pools and a spa (for hot/cold hydrotherapy);
- A gymnasium and exercise room;
- A museum, media centre and auditorium;
- A café and canteen;
- Retail/shop units;
- Offices and meeting rooms;
- A blood bank;
- Plant and store rooms;
- Rooms for rehabilitation, massage, physiotherapy and sport science;
- A laundry; and
- A creche (child minding facility).

External areas will be sealed (with concrete, asphalt and/or tiles) except to accommodate a small number of trees at the south of the site. Although bulk excavation is not proposed, it is understood that there are proposed excavations for pools (at the south-west part of the site), modification of the existing basement toilets (into plant room, switchboard and storage rooms) and services tunnel, lift pits and new services.

4. Site Walkover

A site walkover was conducted on 5 March 2018 by a DP Environmental Engineer. The findings are summarised below. External site features are shown on Drawing 1, Appendix A.

More than half of the site area is covered by the Royal Hall of Industries building which is used for exhibitions (or similar). The ground floor level comprises a concrete slab (Photograph 1, Appendix A). A basement level for toilets is at the south-western part of the building. A services tunnel runs south to north across the centre of the building and then along the northern wall of the building to the north-west corner. A kitchen and café are at the eastern part of the building with an office/meeting room above. It was understood from site personnel that a grease trap was associated with the kitchen.

The eastern part of the site, next to the Royal Hall of Industries building, is used for vehicle access and has an asphalt surface (Photograph 2, Appendix A).

A shed is present at the south-eastern part of the site. It is noted that the eastern part of the shed is beyond the site boundary. The shed was used for equipment storage and for a small workshop

(Photograph 3, Appendix A). Paint cans were observed in the shed. The floor of the shed is a concrete slab and was observed to be in good condition.

The exterior area to the south, next to the shed and the Royal Hall of Industries building, was used for general storage of equipment and has a concrete surface (Photograph 4, Appendix A). A substation (kiosk) and air conditioning plant were next to the Royal Hall of Industries building.

The site includes a narrow strip of land, exterior to the western wall of the Royal Hall of Industries building. This area is used for pedestrian access and is asphalt covered. It is noted that this area steps down approximately 1 to 2 m from the ground level of the hall with the greatest step-down at the southern end. There is a brick wall along the site boundary at the south which acts as a retaining wall.

The adjacent land uses include:

- East: Errol Flynn Boulevard then a multi-level car park and commercial buildings;
- South: Lang Road then a sports centre including parkland and tennis courts;
- West: Driver Avenue then parkland; and
- North: An external concrete and asphalt forecourt then the Hordern Pavilion (concert hall).

No vegetation was present within the site boundary. Trees alongside the eastern and southern site boundaries were observed to be in good condition.

5. Previous Reports

The following reports were reviewed:

- DP, *Investigation Report Summary, Hordern Pavilion and Royal Hall of Industries Refurbishment and Modification, Driver Avenue, Moore Park,* 22 April 1998, Project 24967 (DP, 1998a);
- DP, *Investigation Report Summary, Royal Hall of Industries, Driver Avenue, Moore Park,* 21 July 1998, Project 24967-1 (DP, 1998b);
- DP, *Investigation Report Summary, Hordern Pavilion and Royal Hall of Industries External Pavements, Driver Avenue, Moore Park,* 29 July 1998, Project 24967-2 (DP, 1998c);
- DLA Environmental Services Pty Ltd (DLA), *Hazardous Building Materials Survey, Royall Hall of Industries & Hordern Pavilion, 1 Driver Ave, Moore Park NSW 2021*, March 2017, Project DL4062 (DLA, 2017); and
- ERM Services Australia Pty Ltd (ERM), *Environmental Due Diligence Report, Sydney Swans Limited – Royal Hall of Industries*, October 2018, Project 0478061 (ERM, 2018).

Each report is summarised below.

5.1 DP, 1998a

DP, 1998a details the results of a geotechnical investigation undertaken for proposed modifications and refurbishment of the Hordern Pavilion and Royal Hall of Industries. In March 2018, Cone

Penetration Tests (CPT), 6 and 6A, were undertaken at one location at the northern part of the Royal Hall of Industries building. Beneath the concrete slab, fill comprising mainly sand and gravel was encountered to a depth of 3.3 m. Fill was underlain by sandstone to a depth of 3.66 m, at which depth the test was discontinued. The approximate location of CPT 6 and 6A is shown on Drawing 1, Appendix A. Other test locations were beyond the subject site boundary. CPT logs are shown in Appendix B.

5.2 DP, 1998b

DP, 1998b details the results of a geotechnical investigation undertaken within the Royal Hall of Industries building for proposed structural alterations and modifications to the building. The investigation comprised drilling of four boreholes (1 to 4) using a truck-mounted rig in June and July 1998. The approximate locations of the boreholes are shown on Drawing 1, Appendix A. Borehole logs are provided in Appendix B.

Borehole 1 was drilled at the south-eastern part of the building. Beneath a 0.25 m thick concrete slab, dark brown sand and gravel fill was encountered to a depth of 1.5 m. Fill was underlain by dark grey sandy clay to a depth 1.6 m, then grey and grey-brown sandstone to a depth of 4.7 m, at which depth the borehole was discontinued. Free groundwater was not encountered whilst augering.

Borehole 2 was drilled at the south-western part of the building. Beneath a 0.25 m thick concrete slab, fill comprising sand and concrete rubble, dark grey clayey sand, and dark grey clayey sand with gravel was encountered to a depth of 2.8 m. Fill was underlain by grey and light brown sand to a depth of 4.1 m, then grey, brown and red-brown sandstone to a depth of 7.15 m, at which depth the borehole was discontinued. Free groundwater was not encountered whilst augering.

Borehole 3 was drilled at the north-western part of the building. Beneath a 0.15 m thick concrete slab, brown sand with gravel fill, glass and rubble was encountered to a depth of 2.8 m. Fill was underlain by dark brown sand to a depth of 3.75 m, then grey, brown and red-brown sandstone to a depth of 8.75 m, at which depth the borehole was discontinued. Free groundwater was observed at a depth of 3.5 m to 4.0 m.

Borehole 4 was drilled at the north-eastern part of the building. Beneath a 0.175 m thick concrete slab, brown sand fill with gravel, glass and rubble was encountered to a depth of 0.8 m. Fill was underlain by grey-brown sandstone to a depth of 4.3 m, at which depth the borehole was discontinued. Free groundwater was not encountered whilst augering.

5.3 DP, 1998c

DP, 1998c details the results of a geotechnical investigation undertaken in areas surrounding the Hordern Pavilion and Royal Hall of Industries for proposed new pavements. The investigation comprised drilling eight boreholes (5 to 12) using a truck mounted rig in June and July 1998. Boreholes 6, 7 and 8 were drilled within the subject site boundary and Borehole 9 was drilled slightly beyond the northern subject site boundary. The approximate locations of these boreholes are shown in Drawing 1, Appendix A. Borehole logs are provided in Appendix B.

Borehole 6 was drilled at the eastern part of the site though bituminous pavement (0.1 m thick). Roadbase (sandy crushed rock) was encountered to a depth of 0.4 m and then grey-brown sandstone to a depth of 0.8 m. No free groundwater was observed whilst drilling.

Borehole 7 was drilled though bituminous pavement (0.04 m thick) at the southern part of the site. Roadbase (sandy crushed rock) was encountered to a depth of 0.5 m. Grey brown gravelly sand fill, then sand, sandy clay, gravel, coke and ash fill was encountered to a depth of 1.7 m. Fill was underlain by grey-brown sandstone to a depth of 1.75 m. No free groundwater was observed whilst drilling.

Borehole 8 was drilled through bituminous pavement (0.04 m thick) at the south-eastern part of the site. Roadbase (sandy crushed rock) was encountered to a depth of 0.2 m. Fill was encountered to a depth of 0.8 m and comprised sandy clay, sand gravel, coke, crushed sandstone, ash and glass. Fill was underlain by grey-brown sandstone to a depth of 1.3 m. No free groundwater was observed whilst drilling.

Borehole 9 was drilled through bituminous pavement (0.15 m thick). Roadbase (sandy crushed rock) was encountered to a depth of 0.4 m. Fill was encountered to a depth of 0.7 m and comprised crushed sandstone, sandy clay, clayey sand, gravel and ash to a depth of 0.7 m. Fill was underlain by grey sandstone to a depth of 1.2 m. No free groundwater was observed whilst drilling.

5.4 DLA, 2017

DLA, 2017 includes the findings of a hazardous building materials survey of building structures including the Royal Hall of Industries and the Hordern Pavilion.

Materials were tested for asbestos, however, asbestos-containing materials were not identified in the survey.

Lead paint testing was not conducted. The likelihood of paints containing a significant amount of lead was considered by DLA to be relatively low.

It was considered unlikely that PCB containing capacitors were present given the ongoing use of the site as well as maintenance and renovation works.

5.5 ERM, 2018

ERM, 2018 included a site walkover and soil sampling from ten boreholes (numbered 1 to 10) across a larger site area (covering approximately 2 ha). Eight of the boreholes (1 to 8) were drilled at the subject site. The approximate locations of boreholes 1 to 8 are shown on Drawing 1, Appendix A and borehole logs are provided in Appendix B.

A site walkover was conducted on 18 September 2018. Site conditions were described by ERM to be similar to those described in Section 4.

Soil sampling was undertaken on 20 and 21 September 2018. Fill and natural soil/rock were encountered beneath a concrete slab in all boreholes drilled at the site. Observed fill depths (at the site) ranged up to 5.5 m. Various fill materials were encountered including brown gravelly sand; brown and black sand; brown sandy gravel; and yellow-orange sandstone. Glass, brick and metal was observed in the fill at borehole 4 (depth 1.2 – 4 m). Brick and terracotta were observed in the fill at borehole 4 (depth 0. 2- 0.7 m), borehole 5 (depth 0.15 – 1.5 m) and borehole 6 (depth 0.2 – 1.4 m). Foreign materials were observed in fill at borehole 8 (depth 2.5 – 4.5 m). Potential asbestos-containing materials (ACM) were not observed during drilling. It was noted by ERM that drilling is not ideal for the positive identification of ACM in sub surface soils, and, therefore, additional observation for asbestos should be made during excavation works.

Natural yellow sand was encountered at borehole 5 (depth 1.5 – 1.8 m) and borehole 6 (depth 1.4 – 1.7 m). Fill was underlain by white-yellow sandstone at boreholes 1 to 4, borehole 7 and borehole 8. The top of sandstone was encountered at depths ranging from 1.2 m (borehole 1 at the north-east) to 5.5 m (borehole 3 at the north-west).

Groundwater was not encountered during drilling at boreholes 1 to 8.

From boreholes 1 to 8, 18 primary soil samples and four duplicate soil samples were analysed for different suites of potential contaminants. These samples were analysed for different suites of potential contaminants including eight priority metals, TRH, BTEX, PAH, OCP, OPP, PCB and asbestos. Results are summarised in Table 12 in Section12.2.

Concentrations of chemical contaminants were compared to health investigation levels (HIL), health screening levels (HSL) and management limits for a commercial / industrial site (land use 'D') sourced from National Environment Protection Council (NEPC), *National Environment Protection (Assessment of Site Contamination) Amendment Measure,* 2013 (NEPC, 2013). Concentrations of metals, TRH, BTEX, OCP, OPP and PCB were within the adopted assessment criteria. Asbestos was not detected at the reporting limit in analysed (40 g) soil samples. Results are further discussed in Section 12.3.

Further testing (leachability analysis) was recommended for waste classification purposes.

6. Topography, Geology and Hydrogeology

The site is at an elevation of approximately 37 m AHD and the surrounding land is relatively level with slight slopes down to the south and south-east. Most of the rainfall at the site is expected to run off into the local stormwater system.

The Sydney 1: 100 000 Geology Sheet indicates that the site is underlain by transgressive dunes which comprise medium to fine-grained marine sand with podsols. The Sydney 1: 100 000 Soils Landscape Sheet indicates the site is in the Tuggerah soil landscape which has gently undulating to rolling coastal dune fields.

According to Ian Acworth & Jerzy Jankowski, *Hydrogeochemical zonation of groundwater in the Botany Sands aquifer, Sydney,* 1993, the site is within the Botany Basin which occupies an erosional depression formed in the Triassic Hawkesbury Sandstone. The Lakes Valley was a deeply incised valley in the sandstone (formed in the Tertiary) which was filled by sands, silts, clays and peats (during the Pleistocene and Holocene) and ran southwards from Moore Park and Centennial Park to enter Botany Bay at Banksmeadow. Groundwater in the Moore Park and Centennial Park area migrates towards the Lakes Valley’s axis of Hawkesbury Sandstone where the depth to sandstone bedrock is greatest. The nearest part of this axis is located approximately 350 m to the west of the site. Groundwater migrating from the Moore Park and Centennial Park area may discharge at Lachlan Ponds which are located approximately 3.7 km to the south of the site, or at Botany Bay (near Banksmeadow) which is approximately 7.4 km to the south of the site.

Based on the sandstone bedrock profile encountered in previous investigations (see Section 5) which indicates that the depth to bedrock is greatest at the western part of the site, as well as the regional hydrogeology of Lakes Valley, it was anticipated that groundwater at the site would migrate to the west or south-west and then follow axis of Hawkesbury Sandstone to the south and discharge at Lachlan Ponds or Botany Bay.

According to NSW Department of Environment and Climate Change, Acid Sulfate Soil Risk Mapping data (1994-1998), the site is an area of no known occurrences of acid sulfate soils. The nearest mapped areas associated with possible occurrences of acid sulfate soils are more than 1.5 km from the site.

A search of registered groundwater bore information held by WaterNSW revealed six registered groundwater bores within 300 m of the site:

- Bore GW101640 which is located approximately 175 m to the north-northwest. The bore was installed to a depth of 17.9 m in 1993 for recreation purposes. The standing water level was recorded at a depth of 7 m. The soil profile was logged as topsoil with fill to a depth of 4.3 m, underlain by sand and silty sand to a depth of 16.6 m and then sandstone;
- Bore GW100293 which is located approximately 260 m to the south-west. The bore was installed to a depth of 20 m in 1994 for recreation purposes. The standing water level was recorded at a depth of 6.9 m. The salinity was described as good. The soil profile was logged as fill to a depth of 0.8 m, underlain by sand and silty sand to a depth of 19 m and then sandstone;
- Bore GW106328 which is located approximately 270 m to the west. The bore was installed to a depth of 9.5 m in 2004 for domestic purposes. The soil profile was logged as sand;
- Bore GW103691 which is located approximately 280 m to the south. The bore was installed to a depth of 9 m in 2001 for domestic purposes. The soil profile was logged as sand;
- Bore GW106913 which is located approximately 285 m to the south-west. The bore was installed to a depth of 9.5 m in 2005 for domestic purposes. The soil profile was logged as sand; and
- Bore GW105695 which is located approximately 290 m to the south. The bore was installed to a depth of 9.5 m in 2004 for domestic purposes. The soil profile was logged as sand.

These search results are included in Appendix C. It is noted that the are more than 100 registered groundwater bores located between the site and Lachlan Ponds (located approximately 3.6 km to the south), many of which were installed for domestic purposes. (The bores registered for domestic purposes which are closest to the site are listed above).

The site is not located within one of the Zones in the Botany Bay Sands Aquifer Area where restrictions on groundwater use have been imposed by NSW Government.

7. Site History Information

7.1 Internet Search Results

Playbill Venues manage the site and according to their website:

- The Royal Hall of Industries building had been constructed by February 1913;
- When the Royal Hall of Industries first opened to the public the Sydney Morning Herald reported on numerous exhibits including for motor cycles, insecticides, photographic equipment, jewellery, novelties and musical instruments;
- In 1919, the building was commandeered by the government for use as a morgue during the 1919 influenza epidemic;
- During the 1920s, the hall was known as the Palais Royale and was used for dances, grand balls, roller skating and ice skating;
- During the 1930s, the building was used as a boxing venue;
- During World War II, the army took over the use of the building;
- The building was previously used as the Showbag Pavilion for the Royal Easter Show, and
- Currently, the Royal Hall of Industries is used for events and festivals including award ceremonies and the annual Mardi Gras party.

7.2 Aerial Photographs

Aerial photographs from 1930, 1943, 1961, 1978, 1986, 1994, 2009 and 2019 were obtained and reviewed. Extracts of the aerial photographs are provided in Appendix D. As it was constructed by 1913, the Royal Hall of Industries building is present in each aerial photograph. The following summarises site features and the surrounding land shown in the aerial photographs:

- **1930:** It is difficult to determine from the low quality of the image, however, apart from the Royal Hall of Industries building, structures may have been present at the south-east and north-east of the site in 1930. Trees appear to have been present at the south of the site. At adjacent land, Lang Road (south) and Driver Avenue (west) had been constructed as well as the Hordern Pavilion (north). A garden area occupied the land between the site and the Hordern Pavilion. Land to the west and south appears to have been used for parkland or sporting facilities. Land to the east and north-east appear to have been used for industrial and commercial purposes;
- **1943:** The eastern part of the site appears to have been used for vehicle access (and pedestrian access) and the southern part of the site appears to have been used as a garden area. The only structure at the site appears to have been the Royal Hall of Industries building. Wartime bomb shelters/trenches were at the south-eastern part of the site as well as at adjacent land to the east and at the parkland to the west. Nearby land to the south appears to have been used for parkland or sporting facilities. Land to the east and north-east appear to have been used for industrial and commercial purposes as in 1930;
- **1961:** It is difficult to determine from the low quality of the image, however, there may have been a structure at the southern part of the site in 1961. Trees had been removed from this part of the site since 1943. Adjacent land to the east appears to have been subject to commercial and industrial development since 1943;

- **1978:** It appears that a garden with trees had been established at the south-eastern part of the site by 1978. Structures were present between the site and the Hordern Pavilion, at the area that was previously a garden. Some commercial or industrial buildings at adjacent land to the east had appear to have been modified since 1961;
- **1986:** It appears that a structure at the southern part of the site had been removed since 1978. Some buildings at adjacent land to the east had been demolished;
- **1994:** The site and surrounding land appears to have been similar to that in 1986, although there may have been a narrow structure established at the southern site boundary (possibly a billboard);
- **2009:** Errol Flynn Boulevard had been established at the adjacent land to the east of the site. The southern part of the site appears to have been used for external storage. A shed had been established at the south-eastern corner of the site. Land on the opposite side of Errol Flynn Boulevard had been redeveloped with establishment of a multi-level car park and commercial buildings; and
- **2019:** The site and surrounding land appear to be similar to that in 2009.

7.3 Title Deeds

A historical title deeds search was conducted for the site to determine possible previous site uses. The search results are provided in Appendix E and are summarised in Table 1.

Table 1: Summary of Historical Title Deeds

Date of Acquisition & Term Held	Registered Proprietor(s)
1911 (1911 to 1998)	Vested in Royal Agricultural Society of New South Wales pursuant to Royal Agricultural Society Act 1911
28.01.1998 (1998 to date)	Centennial Park and Moore Park Trust

Notes: Numerous subleases were found from 1998 but were not investigated. A lease to FSAT Pty Limited (from 05.02.1998) expires on 21.04.2036.

The registered proprietors suggest that the site has not been used for purposes other than for an exhibitions and events venue.

7.4 Section 10.7 Certificate

The Planning Certificate under Section 10.7 of the *Environmental Planning and Assessment Act 1979* for Lot 3 Deposited Plan 861843 (the Lot which covers the majority of the site) was obtained and reviewed. A copy of the certificate is provided in Appendix F. According to the certificate:

- The Lot is zoned State Environmental Planning Policy No. 47 – Moore Park Showground;

- The land to which the certificate relates is not declared to be significantly contaminated land within the meaning of the *Contaminated Land Management Act 1997* as at the date when the certificate was issued;
- The land to which the certificate relates is not subject to a management order within the meaning of the *Contaminated Land Management Act 1997* as at the date when the certificate was issued;
- The land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of the *Contaminated Land Management Act 1997* at the date when the certificate was issued;
- The land to which the certificate relates is not the subject of an ongoing maintenance order within the meaning of the *Contaminated Land Management Act 1997* as at the date when the certificate was issued;
- As at the date when the certificate was issued, Council has not identified that a site audit statement within the meaning of the *Contaminated Land Management Act 1997* has been received in respect of the land that is subject of the certificate; and
- Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of the certificate, to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

7.5 EPA Records

A search of the NSW EPA website on 7 March 2018 indicated that:

- No Licenses, applications, Notices, audits or pollution studies and reduction programs are listed for the site under the *Protection of the Environment Operations Act 1997.* Between 2004 and 2006, a licence and subsequent licence variations were issued to Fox Studios Australia Pty Ltd for waste generation and storage at the Fox Studios Australia (Professional Studios) premises. In 2008, a Notice of Preventive Action was issued to Fox Studios Australia Pty Ltd to prevent odour impacts from chemical products used at the Professional Studios. The Professional Studios premises is located approximately 400 m to the north-east of the site;
- Area 2 at Driver Avenue, Moore Park is on the list of contaminated sites notified to the EPA under Section 60 of the *Contaminated Land Management Act 1997*. According to the coordinates, Area 2 is the parkland on the western side of Driver Avenue. The contamination activity type for Area 2 was listed as unclassified and the EPA site management class was listed as *regulation under the Contaminated Land Management Act 1997 was not required*. The site is not on the list of contaminated sites; and
- No orders, voluntary management proposals or site audit statements have been issued for the site or properties within the suburb of Moore Park under the *Contaminated Land Management Act 1997*.

Given that the Professional Studios premises is located approximately 400 m to the north-east of the site, the generation and storage of waste and chemical usage are considered to not likely pose a contamination risk to the site.

7.6 SafeWork NSW Records

A search of the SafeWork NSW database for the storage of hazardous chemicals was conducted for the address of 1 Driver Avenue, Moore Park. The search returned documents pertaining to licence number 35/037146, a copy of which is provided in Appendix G. One depot is listed under the licence to Red Sun Productions Pty Ltd for the storage of detonators. A map indicates that the depot was located at the corner of Moore Park Road and Bert Bailey Street which is approximately 650 m to the north-northeast of the site. The nature of the site use was listed as film and video production. A request to revoke the licence was made in August 2005.

The storage of detonators at the Red Sun Productions Pty Ltd depot is not considered to pose a contamination risk to the site.

8. Potential Contamination Sources and Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages.

8.1 Potential Contamination Sources

Based on site history, previous investigations and observations, the potential sources of contamination and associated contaminants are as follows:

- (S1) Imported fill to level the site. The majority of fill at the site would have been imported prior to construction of the Royal Hall of Industries building in 1913. The contaminants associated with fill prior to 1913 are considered to include: metals, total petroleum hydrocarbons (TPH), BTEX, PAH and phenols. Fill may have also been imported to site after 1913 for relatively minor construction works (e.g. for pavements or buried utilities). Therefore, the potential contaminants associated with fill at the site are also considered to include OCP, OPP, PCB and asbestos;
- (S2) Hazardous building materials from a previous structure(s) that was demolished. Based on aerial photographs, there was a structure at the southern part of the site in the 1960s.and 1970s and hazardous building materials from this structure may have impacted surface soils when it was demolished. Potential contaminants associated with hazardous building materials include lead, asbestos and PCB;
- (S3) Spills or leaks of chemicals. Although considered unlikely, there may have been chemicals used at the site in the past, particularly at the workshop at the south-eastern part of the site. Potential contaminants associated with chemical usage include VOC, TPH and BTEX;
- (S4) Pesticide use beneath concrete slabs. Pesticides (including OCP and OPP) may have been used as pest control beneath concrete slabs;
- (S5) Leaks of oil (if present) from the substation (kiosk). Based on aerial photographs, it appears that the existing substation was probably established next to the south of the building between

1994 and 2009, so PCB is not likely to be a potential contaminant associated with the substation. TPH is a potential contaminant (assuming that insulating oil is present in the substation); and

- (S6) Previous off-site industry. There may be residual contamination sourced from previous off-site industry which, from aerial photographs, appears to have been at its most prevalent in the 1960s and 1970s. Potential contaminants include metals, TPH, BTEX, PAH, OCP, OPP, PCB, phenols and VOC.

It is noted that the Royal Hall of Industries building may have been used for exhibits which included the showing of chemicals such as insecticides. Given that these chemicals were on exhibit and not in use at the site, it is considered that the chemicals previously on exhibit are not a potential source of contamination.

It is understood that there is a grease trap in the kitchen. Given that the grease trap is associated with kitchen waste (e.g. waste cooking oils), it is considered that the grease trap is not a potential source of chemical contaminants that would pose a health of ecological risk.

8.2 Potential Receptors

Potential receptors of contamination for the proposed development have been identified to include:

- (R1) Future site users (workers and visitors);
- (R2) Construction workers (for the proposed development);
- (R3) Future maintenance workers (post-construction);
- (R4) Adjacent land users (including pedestrians, park users and neighbouring site workers and visitors);
- (R5) Down-gradient users of groundwater. Registered groundwater bore information (see Section 6) indicates that there may be existing groundwater bores used for domestic purposes (more than 250 m) to the south of the site. Groundwater from the site may feed into the aquifer which is being utilised by use of these bores;
- (R6) Surface water bodies. Lachlan Ponds is a potential receiving (fresh) water body for groundwater from the site. Otherwise Botany Bay is the likely receiving (marine) water body for groundwater from the site;
- (R7) Groundwater;
- (R8) Terrestrial ecology; and
- (R9) In ground building structures.

It is noted that terrestrial ecology (R8) for the proposed development is limited to a small number of trees at the southern part of the site. A small number of trees may also be present on land immediately adjacent to the site.

8.3 Potential Pathways

Potential pathways for contamination to impact receptors include:

- (P1) Ingestion and dermal contact;
- (P2) Inhalation of dust;
- (P3) Inhalation of vapours;
- (P4) Surface water runoff;
- (P5) Leaching of contaminants and vertical migration into groundwater;
- (P6) Lateral migration of groundwater;
- (P7) Contact with contaminated ground with terrestrial ecology; and
- (P8) Contact with contaminated ground with in ground structures.

8.4 Preliminary Conceptual Site Model

A 'source-pathway-receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources via exposure pathways (complete pathways). The possible pathways between the above listed sources and receptors are provided in Table 2.

Table 2: Preliminary Conceptual Site Model

Source	Transport Pathway	Receptor	Notes
S1 - Imported fill S3 - Spills or leaks of chemicals S5 - Leaks of oil from the substation	P1 - Ingestion and dermal contact P2 – Inhalation of dust P3 – Inhalation of vapours	R1 – Future site users R2 – Construction workers R3 – Maintenance workers	Soil and groundwater sampling have been undertaken as part of this DSI to assess these source-pathway-receptor linkages. The assessment of vapour intrusion has been determined from soil and groundwater samples as no soil vapour sampling has been undertaken.
	P2 – Inhalation of dust P3 – Inhalation of vapours	R4 – Adjacent site users	
	P6 – Lateral migration of groundwater	R5 – Down-gradient users of groundwater	
	P4 – Surface water runoff P6 – Lateral migration of groundwater	R6 – Surface water bodies	
	P5 – Leaching of contaminants and vertical migration into groundwater	R7 - Groundwater	
	P7 – Contact of contaminated ground	R8 – Terrestrial ecology	
	P8 – Contact of contaminated ground	R9 – In ground building structures	

Source	Transport Pathway	Receptor	Notes
S2 - Hazardous building materials from previous structure(s) S4 - Pesticide use beneath concrete slabs	P1 - Ingestion and dermal contact P2 – Inhalation of dust	R1 – Future site users R2 – Construction workers R3 – Maintenance workers	Soil and groundwater sampling have been undertaken as part of this DSI to assess these source-pathway-receptor linkages.
	P2 – Inhalation of dust	R4 – Adjacent site users	
	P6 – Lateral migration of groundwater	R5 – Down-gradient users of groundwater	
	P4 – Surface water runoff P6 – Lateral migration of groundwater	R6 – Surface water bodies	
	P5 – Leaching of contaminants and vertical migration into groundwater	R7 - Groundwater	
	P7 – Contact of contaminated ground	R8 – Terrestrial ecology	
S6 - Previous off-site industry	P3 – Inhalation of vapours	R1 – Future site users R2 – Construction workers R3 – Maintenance workers	The assessment of vapour intrusion has been determined from groundwater samples obtained as part of this DSI as no soil vapour sampling has been undertaken.

Note: Off-site receptor(s) of contamination from off-site source(s) have been excluded as these are not part of the aims of the objectives of this investigation.

9. Field Work and QA/QC

9.1 Sample Locations and Rationale

The site covers approximately 1.0 ha. According to NSW EPA, *Sampling Design Guidelines*, 1995, a minimum of 29 systematic sampling points is recommended to characterise a site of this size. ERM, 2018 provides the results of soil sampling from eight sample points. The current investigation included 16 soil sampling points (boreholes 101 to 116) which were positioned to complement the sampling points from ERM, 2018 and to provide site coverage. It is noted that boreholes 7 and 8 from ERM, 2018 were in similar positions to boreholes 108 and 109 (which were positioned for the purpose of groundwater sampling), respectively, from the current investigation and, therefore, may be counted as (effectively) the same sampling points. Therefore, the total of 24 boreholes, or a total of 22 (effective) sampling points, were adopted to exceed the recommended minimum number of sampling points (21) for site characterisation.

Borehole 116 was located in close proximity to the substation (kiosk). Boreholes 108 and 114 were located as close as possible to the shed.

The locations of boreholes were limited to areas accessible to a track-mounted drilling rig, so drilling was not undertaken at the kitchen and café (inside the hall), basement toilets, services tunnel, inside the shed (in operational use), or certain exterior areas to the south which were used for storage. Sample locations were also positioned to avoid damage to buried services (as well as the basement toilets and services tunnel). Sample locations were cleared for underground services using a services locator.

Boreholes 101, 108 and 109 were designated as groundwater monitoring wells in order to test groundwater along the southern and western site boundaries which were estimated to be at (somewhat) down-gradient hydrogeological locations. In addition, borehole 108 was positioned down-gradient of the shed (workshop) which was considered to be a potential source of contamination.

Borehole locations are shown on Drawing 1, Appendix A.

9.2 Soil Sampling Procedures

Soil samples were collected from the solid flight auger at regular depth intervals (at least one sample per metre depth) using a track-mounted drilling rig. Each borehole was extended to the top of bedrock. All sampling data was recorded on DP's borehole logs provided in Appendix B. The general sampling procedure adopted for the collection of soil samples for chemical analysis was:

- Collect soil samples directly from the auger using disposable gloves (to avoid the need for equipment decontamination);
- Transfer samples into laboratory-prepared glass jars with Teflon lined lids, filled to minimise the headspace within the sample jar, and capping immediately to minimise loss of volatiles;
- Label sample containers with individual and unique identification, including project number, sample location and sample depth; and
- Place the glass jars into a cooled, insulated and sealed container for transport to the laboratory.

Replicate samples were collected in zip-lock bags for volatile screening using a calibrated PID and asbestos analysis.

9.3 Groundwater Monitoring Well Installation and Development

NMLC-coring was undertaken at boreholes 101, 108 and 109 to extend each borehole to a depth of 10 m for installation of groundwater monitoring wells. Well construction details are provided on the borehole logs in Appendix B.

The wells were constructed of 50 mm diameter acid washed, class 18, PVC casing and machine slotted well screen intervals. Joints were screw threaded, thereby avoiding the use of glues and solvents which may contaminate the groundwater. The wells were completed with a gravel pack extending above the well screen and then a bentonite plug. A Gatic cover and concrete was used to at the ground surface to complete the installation.

For each well, the slotted well screen and base of the bentonite plug were within the natural soil and rock profile.

Each groundwater monitoring well was developed (on 8 March 2019) by using a plastic pump and bailer. Groundwater levels were measured prior to sampling using an electronic interface probe which can detect the presence of separate phase liquid in the water column [such as light non-aqueous phase liquids (LNAPL) including petroleum hydrocarbons].

9.4 Groundwater Sampling

Groundwater sampling was undertaken (on 11 March 2019) using a low-flow geo-pump (peristaltic pump) and disposable tubing, following stabilisation (or near stabilisation) of field parameters. Field parameters were obtained using a calibrated TPS 90FLMV Water Quality Meter with probes placed inside a flow-through cell. The field parameters included temperature, dissolved oxygen (DO), electrical conductivity (EC), pH and oxidation reduction potential (redox). Disposable sampling equipment (tubing) was used between collection of samples to avoid the need for decontamination.

Samples were collected in laboratory prepared bottles and vials. The groundwater samples collected for metals testing were filtered in the field through a 45 µm membrane filter into nitric acid preserved bottles. Sample containers were labelled with individual and unique identification, including project number and sample number. Samples were placed in cooled, insulated and sealed containers for transport to the laboratory.

9.5 Quality Assurance and Quality Control

The field QC procedures for sampling were undertaken as prescribed in Douglas Partners' *Field Procedures Manual* and included the use of trip spikes and trip blanks as well as the collection of blind replicate samples. The results of field QA/QC procedures as well as a discussion of Data Quality Objectives (DQO) and Data Quality Indicators (DQI) for the assessment are provided in Appendix H.

The analytical laboratories, accredited by NATA, are required to conduct in-house QA/QC procedures. These are normally incorporated into every analytical run and include reagent blanks, spike recovery, surrogate recovery and duplicate samples. These results are included in the laboratory certificates in Appendix I and discussed in Appendix H.

10. Assessment Criteria

10.1 Soil

The assessment criteria applied to soils are informed by the preliminary CSM which identified receptors to potential contamination at the site. Analytical results were assessed (as a Tier 1 assessment) against the assessment criteria comprising the investigation levels, screening levels and management limits of Schedule B1, *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013 (NEPC, 2013). The investigation levels, screening levels and management limits are applicable to generic land use settings and include consideration of, where relevant, the soil type and the depth of contamination. The investigation levels, screening levels and management limits are not intended to be used as clean up levels. Rather, they establish concentrations above which further appropriate investigation (e.g. Tier 2 assessment) should be undertaken. They are intentionally conservative and are based on a reasonable worst-case scenario.

The assessment criteria for soil adopted for this investigation are listed in the following sub-sections.

10.1.1 Health Investigation Levels

Health Investigation Levels (HIL) are applicable to assessing health risk arising via all relevant pathways of exposure for a range of metals and organic substances. The HIL are generic to all soil types and apply generally to a depth of 3 m below the surface.

Given that the proposed development includes buildings essentially used for commercial purposes and external areas that have minimal access to soil (see Section 3 for list of proposed uses and site features), the generic HIL (D) for a commercial/industrial site have been adopted and are summarised in Table 3. It is noted that a creche is proposed for level 1 of the building. Even though children are likely to be regular visitors to the creche, both the duration and frequency of child exposures are generally lower than that of a full-time adult employee and so it is considered that HIL for a more sensitive land use need not be applied for the creche. It is also noted that the proposed creche is on level 1 where ingestion and dermal contact transport pathways for contaminants will not be present.

Table 3: Health Investigation Levels

Contaminant		HIL D (mg/kg)
Metals	Arsenic	3000
	Cadmium	900
	Chromium (VI)	3600
	Copper	240 000
	Lead	1500
	Mercury (inorganic)	730
	Nickel	6000
	Zinc	400 000
PAH	Benzo(a)pyrene TEQ[1]	40
	Total PAH	4000
Phenol	Pentachlorophenol	660
	Phenol	240 000
	Cresols	25 000
OCP	Aldrin + Dieldrin	45
	Chlordane	530
	DDT+DDE+DDD	3600
	Endosulfan	2000
	Endrin	100
	Heptachlor	50
	HCB	80
	Methoxychlor	2500
OPP	Chlorpyrifos	2000
Other Organics	PCB[2]	7

Notes: [1] sum of carcinogenic PAH
[2] non dioxin-like PCB only

10.1.2 Health Screening Levels for Vapour Intrusion

Health Screening Levels (HSL) for vapour intrusion are applicable to selected petroleum compounds and fractions to assess the risk to human health via the inhalation pathway. HSL have been developed for different land uses, soil types and depths to contamination.

Given that the proposed development includes buildings essentially used for commercial purposes (see Section 3 for the list of proposed uses and site features), the generic HSL (D) for a commercial/industrial site have been adopted. It is noted that a creche is proposed for level 1 of the proposed development. Given that the creche (child minding facility) is not at ground level, it is considered that HSL for a more sensitive land use need not be applied.

The adopted HSL D are shown in Table 4. The HSL shown are for contamination at a depth of 0 m to <1 m and are the most conservative values for sand, silt and clays given that various soil types are present at the site. Less conservative HSL may be applicable depending on the contamination depth and soil profile.

Table 4: Health Screening Levels for Vapour Intrusion

Contaminant		HSL D for Vapour Intrusion (mg/kg)
PAH	Naphthalene	NL
TPH	TPH C_6-C_{10} (less BTEX)	250
	TPH >C10-C16 (less Naphthalene)	NL
BTEX	Benzene	3
	Toluene	NL
	Ethylbenzene	NL
	Xylenes	230

Note: The soil saturation concentration is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour that is in equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level that would results in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'.

10.1.3 Ecological Investigation Levels

Ecological Investigation Levels (EIL) have been derived for selected metals and organic compounds and are applicable for assessing risk to terrestrial ecosystems (NEPC, 2013). EIL depend on specific soil physiochemical properties and land use scenarios and generally apply to the top 2 m of soil, which corresponds to the root zone and habitation zone of many species. The EIL is determined for a contaminant based on the sum of the ambient background concentration (ABC) and an added contaminant limit (ACL). The ABC of a contaminant is the soil concentration in a specific locality that is the sum of naturally occurring background levels and the contaminants levels that have been introduced from diffuse or non-point sources (e.g. motor vehicle emissions). The ACL is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required.

The EIL is calculated using the following formula:

EIL = ABC + ACL,

The ABC is determined through direct measurement at an appropriate reference site or through the use of methods defined by Olszowy et al, *Trace element concentrations in soils from rural and urban areas of Australia*, Contaminated Sites monograph no. 4, South Australian Health Commission, Adelaide, Australia 1995 (Olszowy, 1995) or Hamon et al, *Geochemical indices allow estimation of heavy metal background concentrations in soils*, Global Biogeochemical Cycles, vol. 18, GB1014, (Hamon, 2004). ACL is based on soil characteristics.

An *Interactive (Excel) Calculation Spreadsheet* may be used for calculating site-specific EIL and has been provided in the ASC NEPM Toolbox available on the NEPC website.

The adopted EIL, derived from the *Interactive (Excel) Calculation Spreadsheet* are shown in Table 5. The following site-specific data and assumptions have been used to determine the EIL:

- The site is used for commercial or industrial purposes;
- Given the site history, the contamination is considered as "aged" (>2 years);
- NSW is the state;
- The traffic volume is high;
- A pH of 8.7 given that this is the average of the two site specific pH results (see laboratory certificate 213316, Appendix I, for pH results for fill samples from borehole 115 and 116);
- A CEC of 9.0 meq/100g given that this is the (rounded) average of the two site specific CEC results (see laboratory certificate 213316, Appendix I, for CEC results for fill samples from borehole 115 and 116);
- An organic carbon content of 1% has been used as a conservative value in the absence of site-specific test results; and
- A clay content of 1% has been has been used as a conservative value in the absence of site-specific test results.

Table 5: Ecological Investigation Levels

Contaminant		EIL – Commercial/Industrial (mg/kg)
Metals	Arsenic	160
	Copper	280
	Nickel	230
	Chromium III	320
	Lead	1800
	Zinc	700
PAH	Naphthalene	370
OCP	DDT	640

EIL are considered to be applicable to locations where trees are proposed at the southern part of the site (i.e. EIL need not be applied to proposed building footprints, driveway and pavement areas as these areas will have very limited ecological value).

10.1.4 Ecological Screening Levels

Ecological Screening Levels (ESL) are used to assess the risk of selected hydrocarbon compounds to terrestrial ecosystems. ESL generally apply to the top 2 m of the soil profile as for EIL. ESL have been derived in NEPC (2013) for petroleum fractions as well as BTEX and benzo(a)pyrene. The adopted ESL are shown in Table 6 and are for a generic commercial/industrial land use scenario. The more conservative ESL for coarse and fine soil textures are shown given that various soil types are present at the site. Less conservative ESL may be applicable depending on the soil type. ESL are considered to be applicable to locations where trees are proposed at the southern part of the site (i.e.

ESL need not be applied to the proposed building footprints, driveway and pavement areas as these areas will have very limited ecological value).

Table 6: Ecological Screening Levels

Contaminant		ESL - Commercial and Industrial (mg/kg)
TPH	C_6-C_{10} (less BTEX)	215*
	>C_{10}-C_{16}	170*
	>C_{16}-C_{34}	1700*
	>C_{34}-C_{40}	3300
BTEX	Benzene	75
	Toluene	135
	Ethylbenzene	165
	Xylenes	95
PAH	Benzo(a)pyrene	1.4

Note: ESL are low reliability apart from those marked with * which indicates that the ESL is of moderate reliability

10.1.5 Management Limits

In addition to appropriate consideration and application of the health-based and ecological assessment criteria, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

Management Limits to avoid or minimise these potential effects have been adopted in NEPC (2013) as Tier 1 guidance. The adopted Management Limits are shown in Table 7 and are for a generic commercial/industrial land use scenario. The more conservative values for coarse and fine soil textures are shown given that various soil types are present at the site. Less conservative Management Limits may be applicable depending on the soil type. Management Limits may apply to any depth within the soil profile.

Table 7: Management Limits

Analyte		Management Limit – Commercial and Industrial (mg/kg)
TPH	C_6 – C_{10}	700
	>C_{10}-C_{16}	1000
	>C_{16}-C_{34}	3500
	>C_{34}-C_{40}	10 000

10.1.6 Asbestos in Soil

A detailed asbestos assessment has not been undertaken as part of this investigation. Visual observations for possible asbestos-containing materials (ACM) and the presence/absence of asbestos at a limit of reporting of 0.1 g/kg have been adopted as assessment criteria for this investigation (as an initial screen).

10.2 Groundwater

The assessment criteria used for contamination in groundwater are based on the potential uses or risks posed by contaminated groundwater at or down-gradient of the site. The potential receptors (informed by the preliminary CSM) are considered to be:

- Surface water body ecosystems including Lachlan Ponds (freshwater) or Botany Bay (marine water);
- Down-gradient users of groundwater via bores. Extracted groundwater may be being used for domestic purposes and recreation purposes; and
- Human receptors (site users, construction workers, maintenance workers and adjacent site users) via the vapour inhalation pathway.

The adopted assessment criteria for groundwater based on the above potential receptors are listed in the following sub-sections.

10.2.1 Groundwater Investigation Levels

The adopted groundwater investigation levels (GIL) for the Lachlan Ponds, as the nearest potential receiving water body ecosystem, and down-gradient users of groundwater are:

- Freshwater default guideline values (DGV) for a slightly to moderately disturbed ecosystem from *Australian and New Zealand Governments (ANZG), Australian and New Zealand Guidelines for Fresh and Marine Water Quality,* 2018 (ANZG, 2018); and
- National Health and Medical Research Council (NHMRC) and Natural Resource Management Ministerial Council (NRMMC), *Australian Drinking Water Guidelines 6*, Version 3.5 Updated August 2018, (NHMRC & NRMMC, 2018).

At the time of preparing this report, it was noted in the ANZG website that *several errors and inconsistencies in the toxicant DGV's database have been identified, and a process is underway to review and correct the information* and *it is advised that DGV search results are checked against Table 3.4.1 and Section 8.3.7 of the ANZECC/ARMCANZ (2000) Guidelines for Fresh and Marine Water Quality to ensure accuracy.* Due to this statement, freshwater trigger values for a slightly to moderately disturbed ecosystem from Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), *Guidelines for Fresh and Marine Water Quality*, 2000 (ANZECC & ARMCANZ, 2000) have been used where there is an inconsistency between DGV and trigger values.

It is noted that the NHMRC, *Guidelines for Management of Risks in Recreational Water,* 2008 (NHMRC, 2008) adopts guideline values from NHMRC & NRMMC, 2018 for assessing chemicals in recreational waters. It is stated, however, that guideline values from NHMRC & NRMMC, 2018 are based on the daily consumption of 2 L and when applying these values to recreational water exposure, consumption of 0.1 to 0.2 L per day should be taken into consideration.

The GIL are shown in Table 8.

Table 8: Groundwater Investigation Levels

Contaminant		GIL		
		Freshwater DGV (µg/L)	Australian Drinking Water Guideline (µg/L)	
			Health	Aesthetic
Metals	Arsenic (total)	-	10	-
	Arsenic (III)	24	-	-
	Arsenic (V)	13	-	-
	Cadmium	0.7 [#]	2	-
	Chromium (III)	10 [#]	-	-
	Chromium (VI)	1.0	50	-
	Copper	1.4	2000	1000
	Lead	11 [#]	10	-
	Mercury	0.06	1	-
	Nickel	36 [#]	20	-
	Zinc	47 [#]	-	3000
PAH	Anthracene	0.01	-	-
	Naphthalene	16	-	-
	Fluoranthene	1	-	-
	Benzo(a)pyrene	0.1	0.01	-
	Phenanthrene	0.6	-	-
BTEX & VOC	Benzene	950	1	-
	Toluene	180	800	-
	Ethylbenzene	80	300	3
	Xylene (total)	-	600	20
	m-xylene	75	-	-
	o-xylene	350	-	-
	p-xylene	200	-	-
	Isopropylbenzene	30	-	-
	Tetrachloroethene	70	50	-
	Trichloroethene	330	-	-
	1,1-Dichloroethene	700	30	-
	1,2-Dichloroethene	-	60	-
	1,3-Dichloropropene	0.8	100	-
	Chloroethene (vinyl chloride)	100	0.3	-
	Chlorobenzene	55	300	10
	Trichorobenzene (total)	-	30	5
	1,2,3-Trichlorobenzene	3	-	-
	1,2,4-Trichlorobenzene	85	-	-
	1,2-Dichlorobenzene	160	1500	1
	1,3-Dichlorobenzene	260	-	20
	1,4-Dichlorobenzene	60	40	0.3
	1,1,2,2-Tetrachloroethane	400	-	-
	1,1,1--Trichloroethane	270	-	-
	1,1,2-Trichloroethane	6500	-	-
	1,2-Dichloroethane	1900	3	-
	Carbon tetrachloride	240	3	-
	Chloroform	370	-	-
	Chloromethane	4000	-	-
	1,2-Dichloropropane	900	-	-
	1,3-Dichloropropane	1100	-	-
	Trihalomethanes (total)	-	250	-
	Styrene	-	30	4
	Hexachlorobutadiene	-	0.7	-

Contaminant		**GIL**		
		Freshwater DGV (µg/L)	**Australian Drinking Water Guideline (µg/L)**	
			Health	**Aesthetic**
OCP	Aldrin	0.001	-	-
	Chlordane	0.03	2	-
	DDE	0.03	-	-
	DDT	0.006	9	-
	Dieldrin	0.01	-	-
	Aldrin & Dieldrin (combined)	-	0.3	-
	Endosulfan	0.03	20	-
	Endrin	0.01	-	-
	Heptachlor	0.01	-	-
	Heptachlor & Heptachlor Epoxide	-	0.3	-
	Lindane	0.2	10	-
	Methoxychlor	0.005	300	-
	Mirex	0.04	-	
OPP	Azinphos methyl	0.01	30	-
	Chlorpyrifos	0.01	10	-
	Diazinon	0.01	4	-
	Dichlorovos	-	5	-
	Dimethoate	0.15	7	-
	Fenitrothion	0.2	7	-
	Malathion	0.05	70	-
	Parathion	0.004	20	-
	Methyl Parathion	-	0.7	-
	Bromophos ethyl	-	10	-
	Ethion	-	4	
PCB	Aroclor 1242	0.3	-	-
	Aroclor 1254	0.01	-	-

Note: $^{\#}$ Value adjusted for hardness of 120 mg $CaCO_3$ / L which is the (rounded) average of hardness results (see laboratory certificate 213320, Appendix I, for hardness results for groundwater samples from boreholes 101, 108 and 109). Calculations for hardness were sourced from ANZG, *Revised method for deriving Australian and New Zealand water quality guideline values for toxicants*, September 2018.

10.2.2 Health Screening Levels for Vapour Intrusion

The generic HSL for vapour intrusion from NEPC (2013) are considered appropriate for the assessment of contamination at the site. Given that the proposed development includes buildings essentially used for commercial purposes and commercial uses are at the ground floor (see Section 3 for the list of proposed uses and site features), the generic HSL (D) for a commercial/industrial site have been adopted. Given that the proposed creche (child minding facility) is on level 1, it is considered that HSL for a more sensitive land use need not be applied.

The adopted HSL D are shown in Table 9. The HSL are shown for groundwater at a depth of 2m to <4m and are the most conservative values for sand, silt and clays given that various soil types are present that the site. Less conservative HSL may be applicable depending on the actual groundwater depth and soil profile.

Table 9: Health Screening Levels for Vapour Intrusion

Contaminant		HSL D for Vapour Intrusion (µg/L)
PAH	Naphthalene	NL
TPH	TPH C_6-C_{10} (less BTEX)	6000
	TPH >C10-C16 (less Naphthalene)	NL
BTEX	Benzene	5000
	Toluene	NL
	Ethylbenzene	NL
	Xylenes	NL

Note: The solubility limit is defined as the groundwater concentration at which the water cannot dissolve any more of an individual chemical based on a petroleum mixture. The soil vapour which is in equilibrium with the groundwater will be at its maximum. If the derived groundwater HSL exceeds the water solubility limit, a soil-vapour source concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for a given scenario. For these scenarios no HSL is presented for these chemicals. These are denoted as not limiting 'NL'.

10.2.3 Other Guidelines

Where there are insufficient Australian guideline values, alternative international references will be used as appropriate. These references include:

- Groundwater Intervention Values from the Dutch *Soil Remediation Circular* 2013. The intervention values are used to assess the risk of a contaminant to both ecology and human health; and
- United States Environmental Protection Agency (USEPA), Regional Screening Levels (RSL) for Residential Tap Water (target hazard quotient of 1.0), November 2018. The RSL are used to assess the risk of a contaminant to human health.

11. Field Work Results

11.1 Soil Observations and Field Results

Boreholes 101 to 107 were drilled inside the Royal Hall of Industries Building through a concrete slab floor 0.15 m to 0.18 m thick. The observed fill depth ranged from 0.6 m at boreholes 105 and 107 which were at the eastern half of the building, to 5.2 m at borehole 101 which was at the western side of the building. Buried concrete was observed at borehole 103 (depth 0.4–0.6 m), borehole 104 (depth 0.4-0.5 m), borehole 105 (depth 0.18-0.4 m) and borehole 107 (depth 0.3–0. 6 m). Observed fill materials included sand and clayey, which were yellow, brown, red brown, orange brown, yellow brown, yellow white and grey in colour; and contained varying proportions of sandstone gravel and silt. Observed anthropogenic materials included:

- Metal, steel, ceramic tile fragments and glass at borehole 101 (depth 2-4 m);
- Ash at borehole 101 (depth 4–5.2 m), borehole 102 (depth 3–4.5 m) and borehole 104 (depth 0.5–1.5 m);
- Tiles and glass at borehole 104 (depth 1.5-3 m);

- Ash and coke at borehole 105 (depth 0.4-0.5 m), and borehole 106 (depth 1.6-2.2 m);
- Plastic, charcoal, coke and glass at borehole 106 (depth 0.3-1.6 m); and
- Glass and ceramic at borehole 107 (depth 0.15-0.3 m).

Boreholes 110 to 113 were drilled through an asphaltic concrete surface to the east of the hall. Fill was encountered to a depth of 0.5 m and included sand, gravelly sand and sandy gravel which were yellow, yellow-brown, brown and grey-black.

Boreholes 108, 109, 115 and 116 were drilled at the southern part of the site through a concrete slab 0.18 m thick. Borehole 114 was also drilled at the southern part of the site, but though an asphalt surface. The observed fill depth ranged from 0.7 m at borehole 114 which was at the east, to 3 m at borehole 109 which was at the west. Observed fill materials included sand and clayey sand which were brown, grey and brown grey in colour; and had varying proportions of gravel. Observed anthropogenic materials included:

- Glass, plastic, plastic and ceramic fragments at borehole 108 (depth 0.18-1.1 m);
- Metal and coke at borehole 109 (depth 0.18–2 m);
- Glass at borehole 109 (depth 2-3 m);
- Coal at borehole 115 (depth 1.3-1.5 m); and
- Coke / charcoal / coal at borehole 116 (depth 0.5–2.8 m).

Observed natural soils (beneath fill) at the site included:

- Yellow sand at borehole 103 (depth 3.5–4.5 m), borehole 108 (depth 1.1–1.5 m); and
- Yellow brown and grey clayey sand (possibly extremely low strength sandstone) at borehole 109 (depth 3–3.6 m).

Fill was observed to be underlain by sandstone bedrock at most boreholes. The depth to the top of sandstone varied from 0.5 m at boreholes 110 to 113 which were at the east of the site, to a depth of 5.2 m at borehole 101 which was at the west. Each borehole was discontinued in sandstone bedrock at depths ranging between 0.9 m and 10 m. Sandstone was observed to be grey brown, red brown, grey, yellow, pink, grey white, yellow white, orange brown, purple brown, yellow brown and white.

PID results were all less than 1 ppm, indicating a low potential for the presence of volatile organic compounds. No odours were associated with the soil samples.

Overall, soil observations were similar with findings in previous investigations (see Section 4).

11.2 Groundwater Observations and Field Results

Free groundwater was not observed whilst drilling at each borehole, although NMLC coring precludes making groundwater observations.

Well development and sampling field data is shown on the Groundwater Field Sheets in Appendix J. Each groundwater monitoring well was developed by the removal of brown, cloudy water until dry. The sampled groundwater from boreholes 101 and 109 was observed to be slightly cloudy and brown.

The sampled groundwater at borehole 108 was clear and colourless. No odours or separate phase liquids were observed during well development or groundwater sampling.

Table 10 shows the measured groundwater levels at each monitoring well prior to sampling on 11 March 2019. The groundwater levels indicate that groundwater at the site flows towards the west-southwest. It is noted that groundwater levels were within the natural soil/rock profile at each groundwater monitoring well.

Table 10: Groundwater Levels Prior To Sampling

Borehole	Ground Surface Level (m AHD)	Groundwater Level (11 March 2019)	
		Depth to Water (m bgl)	Water Level (m AHD)
101	37.6	5.98	31.6
108	37.3	2.64	34.7
109	37.3	6.03	31.3

Notes:		
Notes:	m bgl	metres below ground level
	m AHD	metres Australian Height Datum

The field parameter readings obtained prior to groundwater sampling are presented in Table 11. Note that 'stabilised' field parameter readings were obtained for sampling at boreholes 108 and 109. As it was known that there was a limited volume of groundwater available for sampling in borehole 101, collection of field parameters was terminated prior to stabilisation, however, it was considered that field parameter readings were nearly stabilised.

Table 11: Stabilised Field Parameters (Final Readings)

Borehole	pH	Dissolved Oxygen (ppm)	Redox (mV)	Temperature (ºC)	Electrical Conductivity (µS/cm)
101	6.30	0.33	38	22.6	592
108	5.07	1.06	70	24.8	441
109	6.42	2.62	35	22.9	760

Notes:	ppm	parts per million
	mV	millivolts
	ºC	degrees centigrade
	µS/cm	micro-Siemens per centimetre

12. Laboratory Analytical Rationale and Results

12.1 Analytical Rationale

Soil samples were selected for analysis based on field observations and the preliminary conceptual site model. Almost all selected samples for analysis were from fill given that fill is a potential source of contamination and signs of contamination were not associated with natural soil. At least one sample from each borehole was analysed for eight priority metals, TRH, BTEX, PAH, OCP, OPP, PCB and total phenols to obtain data for each sample point (i.e. to provide site coverage). Additional fill samples were selected for chemical analysis from boreholes where fill was encountered to greater depths (at boreholes 101 to 104, 106 to 109, 115 and 116). Analysis for asbestos was undertaken on selected samples which were identified to have anthropogenic materials including samples from boreholes 101 to 109 and boreholes 115 to 116.

A natural soil sample from borehole 108 (depth 2.9–3 m) was analysed for VOC as this sample location was near and down-gradient of the workshop.

A total of two fill samples from boreholes 115 and 116 were analysed for pH and CEC as these boreholes were in the vicinity of the proposed (minor) tree planting.

Primary groundwater samples from each groundwater monitoring well were analysed for a suite of potential contaminants comprising eight priority metals, TRH, BTEX, PAH, OCP, OPP, PCB, total phenols and VOC to provide data for each groundwater sampling point. Each primary sample was also analysed for hardness.

12.2 Summary of Analytical Results

Results for analysis of soil samples are summarised in Table 12. Results from ERM, 2018 are also summarised in the table. Laboratory certificates and chain of custody for the current investigation are provided in Appendix I.

Results for analysis of groundwater samples are summarised in Table 13. Laboratory certificates and chain of custody are provided in Appendix I.

Table 12: Summary of Results of Soil Analysis (All results in mg/kg unless otherwise stated)

Sample Identification	Sample Location (Borehole)	Sample Depth (m)	Soil Type	Metals								Polycyclic Aromatic Hydrocarbons				Total Recoverable Hydrocabons, BTEX and other Volatile Organic Compounds											Organochlorine Pesticides														Organophophorus Pesticides		PCB (total)	Phenols (total)	Asbestos (fibres)
				Arsenic	Cadmium	Chromium (III + VI)	Copper	Lead	Mercury	Nickel	Zinc	Benzo(a)pyrene	Benzo(a)pyrene TEQ	Naphthalene	Total PAHs	TRH C6-C10 less BTEX	TRH >C10-C16 less Naphthalene	TRH C6-C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	Total Xylene	Other VOC	DDT	DDT+DDE+DDD	Aldrin	Dieldrin	Gamma-chlordane	Alpha-chlordane	Endosulfan I	Endosulfan II	Endosulfan Sulphate	Endrin	Heptachlor	HCB	Methoxychlor	Other OCP	Chlorpyriphos	Other OPP			
Results for Curent Investigation (Samples collected in March 2019)																																													
101	101	0.4-0.5	Fill	<4	<0.4	5	<1	4	<0.1	<1	5	0.06	<0.5	<0.1	0.06	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD1/20190306	101	0.4-0.5	Fill	<4	<0.4	7	<1	3	<0.1	<1	4	-	-	<1	-	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	101	0.9-1.0	Fill	<4	<0.4	6	40	270	1.5	2	160	1.3	1.9	0.1	16	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
101 - [TRIPLICATE](40)	101	0.9-1.0	Fill	7	1	6	58	370	1.4	5	**1100**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101 - [TRIPLICATE](41)	101	0.9-1.0	Fill	<4	<0.4	7	81	370	1.7	2	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	101	2.9-3.0	Fill	4	<0.4	28	46	290	1.6	3	330	1.3	1.9	<0.1	15	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
102	102	2.9-3.0	Fill	8	<0.4	8	83	460	2.7	5	250	**2.3**	3.3	0.2	27	<25	<50	<25	<50	120	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
102	102	3.9-4.0	Fill	<4	<0.4	4	22	190	1	2	82	0.71	0.9	<0.1	8.4	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	103	0.2-0.3	Fill	<4	<0.4	15	20	46	0.2	2	98	0.75	0.99	<0.1	8.6	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	103	1.9-2.0	Fill	7	<0.4	13	210	570	3.6	12	390	**4.5**	6.5	0.2	52	<25	<50	<25	<50	330	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
103 - [TRIPLICATE]	103	1.9-2.0	Fill	8	<0.4	14	240	710	4.3	15	440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	104	0.9-1.0	Fill	<4	<0.4	1	<1	3	<0.1	<1	4	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	104	1.9-2.0	Fill	4	0.5	8	93	650	3.5	6	350	**6**	8.5	0.2	68	<25	<50	<25	<50	300	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
105	105	0.4-0.5	Fill	<4	<0.4	2	10	19	<0.1	<1	310	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
106	106	0.4-0.5	Fill	<4	<0.4	5	29	150	0.8	3	130	**2.9**	4.1	0.1	32	<25	<50	<25	<50	140	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
106	106	1.9-2.0	Fill	<4	<0.4	13	35	110	1.3	2	160	0.91	1.3	<0.1	11	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	107	0.2-0.3	Fill	<4	<0.4	9	65	230	0.7	3	580	**1.9**	2.8	0.1	23	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
107	107	0.9-1.0	Fill	<4	<0.4	2	4	10	<0.1	<1	10	0.1	<0.5	<0.1	0.88	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BD2/20190307	107	0.9-1.0	Fill	<4	<0.4	3	5	12	<0.1	<1	14	-	-	<1	-	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	108	0.4-0.5	Fill	<4	<0.4	8	44	200	1	14	110	**7.9**	11	0.6	89	<25	<50	<25	<50	550	160	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
108	108	2.7-2.8	Natural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.2	<0.5	<1	<1	<PQL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	109	0.9-1.0	Fill	<4	<0.4	7	3	10	<0.1	<1	9	2	2.7	<0.1	15	<25	<50	<25	<50	140	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
109	109	2.9-3.0	Fill	<4	<0.4	8	23	68	0.4	3	39	**11**	15	0.4	100	<25	<50	<25	<50	370	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	110	0.4-0.5	Fill	<4	<0.4	8	4	3	<0.1	3	4	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
111	111	0.4-0.5	Fill	<4	<0.4	10	4	2	<0.1	2	3	0.08	<0.5	<0.1	0.88	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
112	112	0.4-0.5	Fill	<4	<0.4	2	<1	1	<0.1	<1	2	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
BD2/20190308	112	0.4-0.5	Fill	<2	<0.4	<5	<5	<5	<0.1	<5	<5	-	-	<0.5	-	<20	<50	<20	<50	<100	<100	<0.1	<0.1	<0.1	<0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	113	0.4-0.5	Fill	<4	<0.4	1	1	3	<0.1	<1	3	0.4	<0.5	<0.1	4.2	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	-
114	114	0.4-0.5	Fill	<4	<0.4	3	<1	4	<0.1	<1	9	0.09	<0.5	<0.1	0.77	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
115	115	0.4-0.5	Fill	<4	<0.4	5	62	150	2.8	7	100	**9.7**	14	0.2	86	<25	<50	<25	<50	630	190	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	115	1.4-1.5	Fill	<4	<0.4	5	19	90	0.5	2	59	**6.1**	8.6	0.1	66	<25	<50	<25	<50	440	130	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
116	116	0.4-0.5	Fill	<4	<0.4	11	62	120	0.6	46	87	**8.5**	12	0.3	82	<25	<50	<25	<50	560	180	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116 - [TRIPLICATE]	116	0.4-0.5	Fill	<4	<0.4	10	57	110	0.6	45	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116	116	1.9-2.0	Fill	<4	<0.4	9	53	260	1.1	13	170	**7.5**	11	0.4	74	<25	<50	<25	<50	430	120	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	<5	NAD
Results for ERM, 2018 (Samples collected in September 2018)																																													
TP1-0.5	1 (ERM)	0.5	Fill	9	<0.4	8	11	65	0.4	2	79	1.1	1.6	<0.1	12	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP1-1.0	1 (ERM)	1.0	Fill	5	<0.4	11	170	370	1.9	5	290	**4.1**	6	0.2	48	<25	<50	<25	<50	300	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP1-1.0a	1 (ERM)	1.0	Fill	6	<0.4	11	100	310	2.3	6	270	**3.2**	4.8	0.1	34	<25	<50	<25	<50	320	150	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	-
TP1-1.0B	1 (ERM)	1.0	Fill	7	<0.3	9.8	99	330	2.6	4.2	310	**3.9**	5.6	0.2	41	<25	<25	<25	<25	140	<120	<0.1	<0.1	<0.3	<0.1	-	<PQL	<PQL	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<PQL	<0.2	<PQL	<1	-	-
TP1-1.0 - [TRIPLICATE]	1 (ERM)	1.0	Fill	5	<0.4	9	110	300	1.8	4	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP2-0.7	2 (ERM)	0.7	Fill	<4	<0.4	5	9	32	<0.1	1	7	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP2-2.0	2 (ERM)	2.0	Fill	5	<0.4	11	170	930	2.2	10	290	**2.6**	3.9	0.1	27	<25	<50	<25	<50	180	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP3-0.5	3 (ERM)	0.5	Fill	<4	<0.4	6	7	34	<0.1	2	33	0.2	<0.5	<0.1	1.9	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP3-0.5a	3 (ERM)	0.5	Fill	<4	<0.4	7	6	18	<0.1	2	17	0.2	<0.5	<0.1	1.6	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	-
TP3-5.0	3 (ERM)	5.0	Fill	<4	<0.4	2	2	7	<0.1	<1	27	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP4-0.5	4 (ERM)	0.5	Fill	<4	<0.4	10	6	17	<0.1	2	24	0.1	<0.5	<0.1	1.1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP4-1.0	4 (ERM)	1.0	Fill	<4	<0.4	12	22	45	0.2	2	39	0.91	1.3	<0.1	9.1	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP4-6.0	4 (ERM)	6.0	Natural	<4	<0.4	4	<1	3	<0.1	<1	<1	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP5-1.0	5 (ERM)	1.0	Fill	<4	<0.4	5	7	18	<0.1	<1	61	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP5-2.0	5 (ERM)	2.0	Fill	<4	<0.4	5	6	81	0.1	<1	16	0.08	<0.5	<0.1	0.9	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP5-2.0a	5 (ERM)	2.0	Fill	<4	<0.4	7	7	86	0.2	<1	18	0.09	<0.5	<0.1	0.92	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP6-0.5	6 (ERM)	0.5	Fill	<4	<0.4	14	27	130	0.4	3	97	**3.4**	4.9	0.1	30	<25	<50	<25	<50	270	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP6-1.0	6 (ERM)	1.0	Fill	<4	<0.4	7	74	210	1	4	130	**9.8**	15	0.5	93	<25	<50	<25	<50	350	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP6-1.5	6 (ERM)	1.5	Fill	<4	<0.4	7	2	6	<0.1	<1	7	0.06	<0.5	<0.1	0.3	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP7-0.5	7 (ERM)	0.5	Fill	5	<0.4	14	30	290	0.7	5	86	**2.2**	3.2	0.2	27	<25	<50	<25	<50	160	<100	<0.2	<0.5	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	<0.1	-	NAD
TP7-1.0	7 (ERM)	1.0	Fill	<4	<0.4	11	2	6	0.3	<1	1	<0.05	<0.5	<0.1	<0.05	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP8-4.0	8 (ERM)	4.0	Fill	<4	<0.4	6	11	24	<1.0	1	16	1.2	1.7	<0.1	14	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NAD
TP8-5.0	8 (ERM)	5.0	Natural	<4	<0.4	18	<1	3	<0.1	<1	<1	0.06	<0.5	<0.1	0.3	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Assessment Criteria																																													
HIL D				3000	900	3600 for Cr(VI)	240000	1500	730	6000	400000	-	40	-	4000	-	-	-	-	-	-	-	-	-	-	-	-	3600	45		530		2000			100	50	80	2500	-	2000	-	7	660*	-
HSL D for Vapour intrusion				-	-	-	-	-	-	-	-	-	-	NL	-	250	NL	-	-	-	-	3	NL	NL	230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EIL - Commercial & Industrial				160	-	320	280	1800	-	230	700	-	-	370	-	-	-	-	-	-	-	-	-	-	-	-	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ESL - Commercial & Industrial				-	-	-	-	-	-	-	-	1.4	-	-	-	215	-	-	170	1700	3300	75	135	165	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limit - Commercial & Industrial				-	-	-	-	-	-	-	-	-	-	-	-	-	-	700	1000	3500	10000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

BD1/20190306 is blind field replicate of sample from borehole 101, depth 0.4-0.5m

101 - [TRIPLICATE](40) is laboratory triplicate of sample from borehole 101, depth 0.9-1.0m

101 - [TRIPLICATE](41) is laboratory quadruplicate of sample from borehole 101, depth 0.9-1.0m

103 - [TRIPLICATE] is laboratory triplicate of sample from borehole 103, depth 1.9-2.0m

BD2/20190307 is blind field replicate of sample from borehole 107, depth 0.9-1.0m

BD2/20190308 is blind field replicate of sample from borehole 112, depth 0.4-0.5m

116 - [TRIPLICATE] is laboratory triplicate of sample from borehole 116, depth 0.4-0.5m

TP1-1.0a is field replicate of sample from ERM borehole 1, depth 0.5m

TP1-1.0B is field triplicate of sample from ERM borehole 1, depth 0.5m

TP1-1.0 - [TRIPLICATE is laboratory triplicate of sample from ERM borehole 1, depth 1.0m

TP3-0.5a, field replicate of sample from ERM borehole 3, depth 0.5m

TP5-2.0a, field replicate of sample from ERM borehole 5, depth 2.0m

BOLD	Exceedance of ecological criterion
NAD	No asbestos detected at limit of reporting (0.1g/kg)
PQL	Practical quantitation limit
*	Value for pentachlorophenol
-	Not tested / Not applicable
TEQ	Toxicity Equivalent Quotient

Table 13: Summary of Results of Groundwater Analysis (All results inμg/L)

Sample Identification	Sample Location (Borehole)	Metals (dissolved)								Polycyclic Aromatic Hydrocarbons										Total Recoverable Hydrocarbons, BTEX and Volatile Organic Compounds																																												
		Arsenic	Cadmium	Chromium (III + VI)	Copper	Lead	Mercury	Nickel	Zinc	Naphthalene	Anthracene	Fluoranthene	Benzo(a)pyrene	Phenanthrene	Acenaphthylene	Acenaphthene	Fluorene	Pyrene	Other PAH	TRH C6-C10 less BTEX	TRH >C10-C16 less Naphthalene	TRH C6-C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toulene	Ethylbenzene	o-xylene	m+p-xylene	Isopropylbenzene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	cis-1,3-Dichloropropene	Vinyl chloride	Tetrachloroethene	Trichloroethene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Chlorobenzene	1,1,2,2-tetrachloroethane	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,2-Dichloroethane	Carbon tetrachloride	Chloroform	Bromodichloromethane	Dibromochloromethane	Bromoform	1,2-Dichloropropane	1,3-Dichloropropane	Styrene	1,3,5-trimethyl benzene	1,2,4-trimethyl benzene	Other VOC
Results for Curent Investigation (Samples collected on 11 March 2019)																																																												
101	101	1	0.2	**4**	**9**	4	<0.05	18	**130**	<1 & 1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<10	410	<10	410	460	<100	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	6	<1	<1	<1	<1	<1	<1	<1	<1	<PQL
108	108	<1	0.2	<1	**34**	<1	<0.05	**46**	**220**	2 & 2.9	**0.3**	0.7	<0.1	**3.1**	1.5	0.4	0.9	0.6	<PQL	<10	<50	<10	<50	220	<100	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<PQL
BDA	108	<1	0.1	<1	**34**	<1	<0.05	**45**	**230**	3	-	-	-	-	-	-	-	-	-	<10	65	<10	68	290	<100	<1	<1	<1	<1	<2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	109	<1	<0.1	<1	**6**	<1	<0.05	13	**70**	1 & 2	<0.1	0.1	<0.1	0.4	0.2	<0.1	0.1	0.2	<PQL	25	200	40	200	300	<100	<1	<1	<1	5	9	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1	<1	6	9	<PQL
Assessment Criteria																																																												
Freshwater DGV (or trigger value)		24 for As(III) 13 for As(V)	0.7	10 for Cr(III) 1.0 for Cr(VI)	1.4	11	0.06	36	47	16	0.01	1	0.1	0.6	-	-	-	-	-	-	-	-	-	-	-	950	180	80	350	75 for m-xylene 200 for p-xylene	30	700	-	-	0.8		100	70	330	3	85	160	260	60	55	400	270	6500	1900	240	370	-	-	-	900	1100	-	-	-	-
HSL D for Vapour Intrusion - Commerical & Industrial		-	-	-	-	-	-	-	-	NL	-	-	-	-	-	-	-	-	-	NL	NL	-	-	-	-	5000	NL	NL	NL		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Australian Drinking Water Guideline	Health	10	2	50 for Cr(VI)	2000	10	1	20	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	1	800	300	600		-	30	60		100		0.3	50	-	30		1500	-	40	300	-	-	-	3	3	250				-	-	30	-	-	-
	Aesthetic	-	-	-	1000	-	-	-	3000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	20			-	-		-			-	-	5			20	0.3	10	-	-	-	-	-	-				-	-	4	-	-	-

Notes:

PQL	Practical Quantitation Limit
🟩 **BOLD**	Exceeds DGV
🟧 **BOLD**	Exceeds DGV and Australian Drinking Water Guideline - Health
BDA	Blind replicate sample from borehole 108
-	not defined/ not analysed/ not applicable

Table 13 (continued): Summary of Results of Groundwater Analysis (All results inμg/L)

Sample Identification	Sample Location (Borehole)	Organochlorine Pesticides														Organophosphorus Pesticides												Polychlorinated Biphenyls			
		Aldrin	Dieldrin	gamma-Chlordane	alpha-Chlordane	pp-DDE	pp-DDT	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Methoxychlor	Mirex	Other OCP	Azinphos-methyl	Bromophos-ethyl	Chlorpyrifos	Diazinon	Dichlorovos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Methyl Parathion	Other OPP	Aroclor 1242	Aroclor 1254	Other PCB	Total Phenols
Results for Curent Investigation (Samples collected on 11 March 2019)																															
101	101	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<PQL	<0.02	<0.2	<0.009	<0.01	<0.2	<0.15	<0.2	<0.2	<0.05	<0.004	<0.2	<PQL	<0.01	<0.01	<PQL	<50
108	108	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<PQL	<0.02	<0.2	<0.009	<0.01	<0.2	<0.15	<0.2	<0.2	<0.05	<0.004	<0.2	<PQL	<0.01	<0.01	<PQL	<50
BDA	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	109	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.002	<PQL	<0.02	<0.2	<0.009	<0.01	<0.2	<0.15	<0.2	<0.2	<0.05	<0.004	<0.2	<PQL	<0.01	<0.01	<PQL	<50
Assessment Criteria																															
Freshwater DGV (or trigger value)		0.001	0.01	0.03		0.03	0.006	0.03		0.01	0.01	-	0.005	0.04	-	0.01	-	0.01	0.01	-	0.15	-	0.2	0.05	0.004	-	-	0.3	0.01	-	-
HSL D for Vapour Intrusion - Commerical & Industrial		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Australian Drinking Water Guideline	Health	0.3		2		-	9	20		-	0.3		300	-	-	30	10	10	4	5	7	4	7	70	20	0.7	-	-	-	-	-
	Aesthetic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

PQL	Practical Quantitation Limit
🟩 **BOLD**	Exceeds DGV
🟧 **BOLD**	Exceeds DGV and Australian Drinking Water Guideline - Health
BDA	Blind replicate sample from borehole 108
-	not defined/ not analysed/ not applicable

12.3 Soil Contaminants

12.3.1 Metals

Soil concentrations of arsenic, chromium, copper, lead and nickel were within the respective HIL and EIL for both the current investigation and ERM, 2018. Concentrations of cadmium and mercury were also within the respective HIL.

Soil concentrations of zinc were within the HIL for both the current investigation and ERM, 2018. Concentrations of zinc were within the EIL (700 mg/kg) except for the concentration of zinc (1100 mg/kg) in the laboratory triplicate sample (101 – [TRIPLICATE]) from borehole 101, depth 0.9-1.0 m. It is noted that this borehole was located within the Royal Hall of Industries building, where the EIL need not be applied given that there will be very limited ecological value within the building footprint. It is also noted that analysis of the primary sample and the quadruplicate sample recorded lower zinc concentrations (160 mg/kg and 210 mg/kg) which were within the EIL.

12.3.2 PAH

Soil concentrations of total PAH and benzo(a)pyrene TEQ were within the respective HIL for both the current investigation and ERM, 2018. Concentrations of naphthalene were within the HSL and EIL.

Concentrations of benzo(a)pyrene exceeded the low reliability ESL (1.4 mg/kg) in numerous samples from both the current investigation and ERM, 2018. It is noted that CRC CARE, *Technical Report No. 39, Risk-based management and remediation guidance for benzo(a)pyrene*, 2017 provides a high reliability ecological guideline of 172 mg/kg for fresh benzo(a)pyrene for commercial and industrial sites (and the bioavailability and bio-accessibility of aged benzo(a)pyrene tends to be less than that of fresh benzo(a)pyrene which means that the ecological guideline is conservative for aged benzo(a)pyrene). The concentrations of benzo(a)pyrene were well within the ecological guideline.

Concentrations of naphthalene were within the HSL and ESL for both the current investigation and ERM, 2018.

12.3.3 TRH, BTEX and VOC

Concentrations of TRH C_6-C_{10} and TRH >C_{10}-C_{16} were less than the laboratory practical quantitation limits for both the current investigation and ERM, 2018 and, therefore, within the respective HSL, ESL and management limits. Concentrations of TRH >C_{16}-C_{34} and TRH >C_{34}-C_{40} were within the respective HSL, ESL and management limits.

Concentrations of BTEX were less than the laboratory practical quantitation limits for both the current investigation and ERM, 2018 and, therefore, within the respective HSL and ESL. Concentrations of other VOC in the sample from borehole 108, depth 2.7-2.8 m, were less than the laboratory practical quantitation limits.

12.3.4 OCP, OPP and PCB

For the current investigation, a dieldrin concentration of 0.3 mg/kg was recorded in the sample from borehole 107, depth 0.2-0.3 m. For ERM, 2018, dieldrin concentrations of either 0.1 mg/kg or 0.2 mg/kg were recorded for samples from borehole 1, depth 1.0 m; borehole 4, depth 1.0 m; and borehole 6, depth 0.5 m. Otherwise, concentrations of dieldrin were less than the laboratory practical quantitation limit. Concentrations of other OCP were less than the laboratory practical quantitation limits in all analysed samples and, hence, concentrations of DDT were within the EIL and concentrations of DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, HCB and methoxychlor were within the HIL.

Concentrations of OPP and PCB were less than the laboratory practical quantitation limits for both the current investigation and ERM, 2018 and, hence, concentrations of chlorpyriphos and PCB were within the HIL.

12.3.5 Total Phenols

Concentrations of total phenols were less than the laboratory practical quantitation limits for the current investigation. Phenols were not tested in ERM, 2018.

12.3.6 Asbestos

Asbestos was not detected at the limit of reporting in any analysed sample.

12.4 Groundwater Contaminants

12.4.1 Metals

Concentrations of mercury were less than the laboratory practical quantitation limit for all analysed groundwater samples and, hence, were within the DGV and drinking water guideline value. Concentrations of arsenic, cadmium and lead were also within the DGV and drinking water guideline values.

The concentration of chromium (4 mg/kg) in the sample from borehole 101 was above the DGV (1 mg/kg) for chromium (VI) but less than the DGV (10 mg/kg) for chromium (III) and the drinking water guideline (50 mg/kg for chromium (VI)). It is considered that this concentration is likely a background concentration given that elevated concentrations of chromium were not identified in the soil and a possible point source of chromium was not identified from the review of site history and the site walkover. Concentrations of chromium in other analysed samples were less than the laboratory practical quantitation limits and, thus, within the DGV and drinking water guideline value.

Copper concentrations ranging between 6 µg/L and 34 µg/L were recorded for all groundwater samples and were above the DGV (1.4 µg/L) but within the drinking water guideline values (2000 µg/L for health and 1000 µg/L for aesthetic). These concentrations are considered to be consistent with background concentrations, particularly given that copper materials are common in an urban setting.

Concentrations of nickel (46 µg/L and 45 µg/L) were above the DGV (36 µg/L) and the drinking water guideline for health (20 µg/L) in the analysed samples from borehole 108. Concentrations of nickel in the samples from borehole 101 (18 µg/L) and borehole 109 (13 µg/L) were within the DGV and drinking water guidelines. All the recorded nickel concentrations are considered to be consistent with background concentrations given that elevated concentrations of nickel were not identified in the soil and a possible point source of nickel was not identified from the review of site history.

Concentrations of zinc ranging between 70 µg/L and 230 µg/L were recorded for all groundwater samples and were above the DGV (47 µg/L) but within the aesthetic drinking water guideline value (3000 µg/L). These concentrations are considered to be at background ranges, particularly given that highest concentrations were encountered at the most up-gradient groundwater monitoring well (borehole 108) where zinc concentrations in soil were relatively low.

12.4.2 PAH

Recorded concentrations of naphthalene in samples were <1 µg/L and 1 µg/L for groundwater from borehole 101; 2 µg/L, 2.9 µg/L and 3 µg/L for groundwater from borehole 108; and 1 µg/L and 2 µg/L for groundwater from borehole 109. These concentrations were within the DGV (16 µg/L) and HSL for vapour intrusion (not limiting). These concentrations were also within the Dutch intervention value of 70 µg/L and the USEPA noncarcinogenic RSL of 6.1 µg/L. Concentrations of naphthalene from each groundwater monitoring borehole exceed the USEPA carcinogenic RSL for naphthalene of 0.17 µg/L. (It is noted that although there is no human evidence that shows naphthalene is a carcinogen, the USEPA considers naphthalene to be a possible carcinogen).

Concentrations of anthracene were less than the practical quantitation limit in the samples from borehole 101 and 109. The concentration of anthracene (0.3 µg/L) was above the DGV (0.01 µg/L) in the sample from borehole 108. It is noted that this DGV is the recommended low reliability trigger value from ANZECC & ARMCANZ, 2000 and it is unconfirmed by ANZG that the recommended DGV has changed to 0.4 µg/L as it is listed on the ANZG website. Anthracene concentrations were within this unconfirmed DGV. It is also noted that the groundwater concentration in the sample from borehole 108 is within the Dutch intervention value of 5 µg/L and the USEPA RSL of 1800 µg/L.

The concentration of fluoranthene was below the practical quantitation limit in the sample from borehole 101. Concentrations of fluoranthene of 0.7 µg/L and 0.1 µg/L were recorded for samples from boreholes 108 and 109, respectively. All concentrations of fluoranthene were within the DGV. Concentrations were also with the Dutch intervention value of 1 µg/L and USEPA RSL of 800 µg/L.

Concentrations of benzo(a)pyrene were less than the laboratory practical quantitation limit for all analysed groundwater samples.

The concentration of phenanthrene was below the practical quantitation limit in the sample from borehole 101 and, hence, was within the DGV (0.6 µg/L). The concentration of phenanthrene in the sample from borehole 109 (0.4 µg/L) was within the DGV, however, the concentration of phenanthrene in the sample from borehole 108 (3.1 µg/L) was above the DGV. It is noted that all concentrations of phenanthrene were within the Dutch intervention value of 5 µg/L. There is no USEPA RSL for phenanthrene.

The concentration of acenaphthylene was below the practical quantitation limit in the sample from borehole 101. Concentrations of 1.5 µg/L and 0.2 µg/L for acenaphthylene were recorded for the samples from boreholes 108 and 109, respectively. There is no Dutch intervention value or USEPA RSL for acenaphthylene.

Concentrations of acenaphthene were less than the laboratory practical quantitation limit for samples from borehole 101 and borehole 109. The concentration of acenaphthene in the sample from borehole 108 was 0.4 µg/L. This concentration is within the USEPA RSL of 530 µg/L. There is no Dutch intervention value for acenaphthene.

The concentration of fluorene was below the practical quantitation limit in the sample from borehole 101. Concentrations of 0.9 µg/L and 0.1 µg/L for fluorene were recorded for the samples from boreholes 108 and 109, respectively. These concentrations are within the USEPA RSL of 290 µg/L. There is no Dutch intervention value for fluorene.

The concentration of pyrene was below the practical quantitation limit in the sample from borehole 101. Concentrations of 0.6 µg/L and 0.2 µg/L for pyrene were recorded for the samples from boreholes 108 and 109, respectively. These concentrations of pyrene were within the USEPA RSL of 120 µg/L. There is no Dutch intervention value for pyrene.

Concentrations of PAH other than those discussed above were below the laboratory practical quantitation limits.

12.4.3 TRH, BTEX and VOC

Concentrations of benzene, toluene and ethylbenzene were below the practical quantitation limits in all analysed groundwater samples and, hence, within the respective HSL for vapour intrusion, DGV and drinking water guideline values.

Concentrations of xylenes were below the practical quantitation limits in the samples from borehole 101 and 108. The concentrations of o-xylene and m+p-xylene were 5 µg/L and 9 µg/L, respectively. These concentrations were within the DGV, HSL for vapour intrusion and drinking water guideline values.

Chloroform concentrations in groundwater ranged between 2 µg/L and 6 µg/L. These concentrations were within the DGV and drinking water guideline value. It is noted that chloroform is found in drinking water as it is formed from the chlorination process.

Concentrations of 6 µg/L for 1,3,5-trimethyl benzene and 9 µg/L for 1,2,4-trimethyl benzene were recorded for the sample from borehole 109. These concentrations were within the USEPA RSL of 60 µg/L and 56 µg/L, respectively. There are no Dutch intervention values for these chemicals. These chemicals were below the laboratory practical quantitation limits in the samples from borehole 101 and 108.

VOC other than xylenes, chloroform, 1,3,5-trimethyl benzene and 1,2,4-trimethyl benzene were not reported above the practical quantitation limits.

Concentrations of TRH C_6-C_{10} were below the practical quantitation limit in the samples from boreholes 101 and 108. A TRH C_6-C_{10} concentration of 40 µg/L was recorded for the sample from borehole 109. Of this concentration, 6 µg/L may be attributed to 1,3,5-trimethyl benzene and 3 µg/L may be attributed to chloroform (discussed above). Concentrations of TRH C_6-C_{10} (less BTEX) in all samples were within the HSL (not limiting).

The concentration of TRH >C_{10}-C_{16} was below the practical quantitation limit for the primary sample from borehole 108, however, the replicate sample (BDA) had a concentration of 68 µg/L. The concentrations of TRH >C_{10}-C_{16} in the samples from boreholes 101 and 109 were 410 µg/L and 200 µg/L, respectively. All concentrations of TRH >C_{10}-C_{16} (less naphthalene) were within the HSL (not limiting). It is noted that the 1,2,4-trimethyl benzene concentration at borehole 109 forms part of the recorded TRH >C_{10}-C_{16} concentration at this location.

Concentrations of TRH >C_{16}-C_{34} ranged between 220 µg/L and 460 µg/L. Concentrations of TRH >C_{34}-C_{40} were less than the practical quantitation limit for all samples.

12.4.4 OCP, OPP and PCB

Concentrations of OCP, OPP and PCB were within the practical quantitation limits for all samples and hence, within the respective DGV and drinking water guideline values.

12.4.5 Total Phenols

Concentrations of total phenols were within the practical quantitation limits for all samples.

13. Discussion and Recommendations

13.1 Site History Summary

According to historical title deeds, the site was vested in Royal Agricultural Society of New South Wales pursuant to Royal Agricultural Society Act 1911 between 1911 and 1998. Centennial Park and Moore Park Trust have been the site owners since 1998.

According to the Playbill Venues site, the Royal Hall of Industries building was constructed by 1913 and has been used for exhibitions; as a morgue (during the 1919 influenza epidemic); for dances and grand balls; for roller-skating; as an ice-skating rink; a boxing venue; for army purposes (during World War II); a showbag pavilion; and for events and festivals. These uses of the building are not considered to be contaminating in nature, however, significant volumes of fill (a potential source of contamination) would have been used to level the ground surface across the site for the building construction.

In 1930, structures may have been present at the eastern part of the site, next to the Royal Hall of Industries building (according to the aerial photograph). This part of the site appears to have been used for vehicle and pedestrian access since (at least) 1943.

The southern part of the site was a garden area in the 1930s and 1940s with bomb shelters/trenches present in 1943 (according to aerial photographs). By 1961, a structure appears to have been present at this part of the site and was then removed by 1986. A shed and external (concrete slab) storage area were established at this part of the site by 2009. The site walkover revealed that there was a small workshop in the shed, however, no (significant) chemical stores were observed. The existing substation (kiosk), next to the southern wall of the building, was probably established between 1994 and 2009 (according to aerial photographs).

It appears that off-site industry was present to the east and north-east from (at least) the 1930s to 1980s (according to aerial photographs). Much of this land previously used for industry is up-hydrogeological gradient from the site.

According to the NSW EPA website, the (off-site) parkland on the western side of Driver Avenue is on the list of contaminated sites notified to the EPA under Section 60 of the *Contaminated Land Management Act 1997* and regulation under Act is not required. This parkland is down-hydrogeological gradient from the site.

13.2 Contaminants in Soil and Groundwater

Although metals, PAH, TRH and dieldrin have been identified in the soil, it is considered that concentrations of tested contaminants in soil are at levels which do not pose a risk to human health, terrestrial ecology or in-ground structures for the proposed development.

Concentrations of contaminants in groundwater are considered to not pose a human health risk at the site for the proposed development.

Although chromium, copper, nickel and zinc in groundwater were identified at concentrations above the DGV and nickel was identified at a concentration above the drinking water guideline (at borehole 108), concentrations of the tested metals in groundwater are considered to be at background ranges.

It is noted that groundwater concentrations of naphthalene at down-gradient boreholes are above the USEPA carcinogenic tap water RSL (which is a conservative value given that it is not known if naphthalene is a human carcinogen) which may be perceived as a risk to downgradient human receptors (via groundwater extraction bores). The source of naphthalene in groundwater is not known given that only relatively low concentrations of naphthalene were identified in the fill; groundwater levels indicate that groundwater is beneath the fill and, therefore, contact of groundwater with contaminated fill is likely to be minimal; infiltration of rain water through fill at the site would be minimal given an absence of unsealed surfaces; and no point sources were identified from the site history review and walkover. These reasons, as well as the samples from the upgradient monitoring well (borehole 108) having the highest naphthalene concentrations, suggest that the source of naphthalene in groundwater is from off-site, possibly where there was previous industry, and, therefore, any remediation of the soil conditions at the site is considered not likely to improve the overall groundwater quality with respect to naphthalene.

It is considered that the groundwater concentration of xylenes at borehole 109 does not pose an ecological risk or a human health risk to downgradient users. [It is noted that the total xylenes concentration is significantly less than HSL for vapour intrusion shown in Schedule B1 of NEPC, 2013 for any generic land use]. The concentrations of 1,3,5-trimethyl benzene and 1,2,4-trimethyl benzene at borehole 109 are also considered to not pose a human health risk to downgradient users of groundwater. A possible source of the xylenes, 1,3,5-trimethyl benzene and 1,2,4-trimethyl benzene (petroleum hydrocarbons) was not identified from soil sampling or identification of site features. Tap water is considered to be the likely source of the chloroform identified in the groundwater.

It is considered that groundwater concentrations of TRH C_6-C_{10} and TRH >C_{10}-C_{16} do not pose a vapour intrusion risk to downgradient adjacent site users. [It is noted that the TRH C_6-C_{10} and TRH >C_{10}-C_{16} concentrations are significantly less than HSL for vapour intrusion shown in Schedule B1 of NEPC, 2013 for any generic land use]. As with 1,3,5-trimethyl benzene, 1,2,4-trimethyl benzene and xylenes, the possible source of TRH C_6-C_{10} at borehole 109 was not identified from soil sampling or identification of site features. Similarly, the source of TRH >C_{10}-C_{16} in groundwater at each monitoring well was not identified from soil sampling or site features which indicates that the TRH >C_{10}-C_{16} is sourced from off-site (possibly where there was previous off-site industry). Relatively low concentrations of TRH >C_{16}-C_{34} were identified in soil at the site, however, like TRH >C_{10}-C_{16}, the source of the TRH >C_{16}-C_{34} is considered to probably be off-site as TRH >C_{16}-C_{34} was present in groundwater at the most upgradient borehole (108). Given that the source of TRH in groundwater is not likely to be associated with soil at the site, it is considered that any remediation of soil conditions at the site is not likely to improve the overall groundwater quality with respect to TRH.

14. Conclusion and Recommendations

The Royal Hall of Industries building has been at the site for more than 100 years and has mainly been used for exhibition purposes.

Based on the results of the investigation (and the discussion in Section 13.2), it is considered that remediation (and a Remediation Action Plan) is not required for the proposed development, however, the following is recommended for the proposed development:

- Given the variable fill at the site, an Unexpected Finds Protocol (UFP) should be prepared for site development. The UFP would detail the requirements and procedures for encountering contamination, or signs of contamination, during excavation works; and
- Soils requiring off-site disposal will need to be given a waste classification in accordance with NSW EPA, *Waste Classification Guidelines*, 2014 (EPA, 2014) and disposed of accordingly.

If dewatering is required (e.g. at localised excavations), based on the results, there is a reasonable likelihood that groundwater will not be suitable to discharge to the stormwater system without treatment. It may be appropriate to dispose of the water as liquid waste by a liquid waste contractor.

Based on the findings of this DSI which included an assessment of soil and groundwater, it is considered that the site is suitable for the proposed development from a contamination perspective.

15. Limitations

Douglas Partners (DP) has prepared this report for this project at the Royal Hall of Industries, 1 Driver Avenue, Moore Park with reference to DP's proposal SY190086.P.001.Rev2 dated 21 February 2019 and acceptance letter received from by APP Corporation Pty Limited on behalf of the Sydney Swans Ltd dated 25 February 2019. The work was carried out under the conditions listed in the acceptance letter. This report is provided for the exclusive use of Sydney Swans Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

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

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

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

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

Asbestos has not been detected by observation or by laboratory analysis of the fill materials at the test locations sampled and analysed. Building demolition materials, such as metal, glass, tile and ceramic, were, however, located in previous below-ground fill and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to parts of the site being inaccessible and not available for inspection/sampling. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

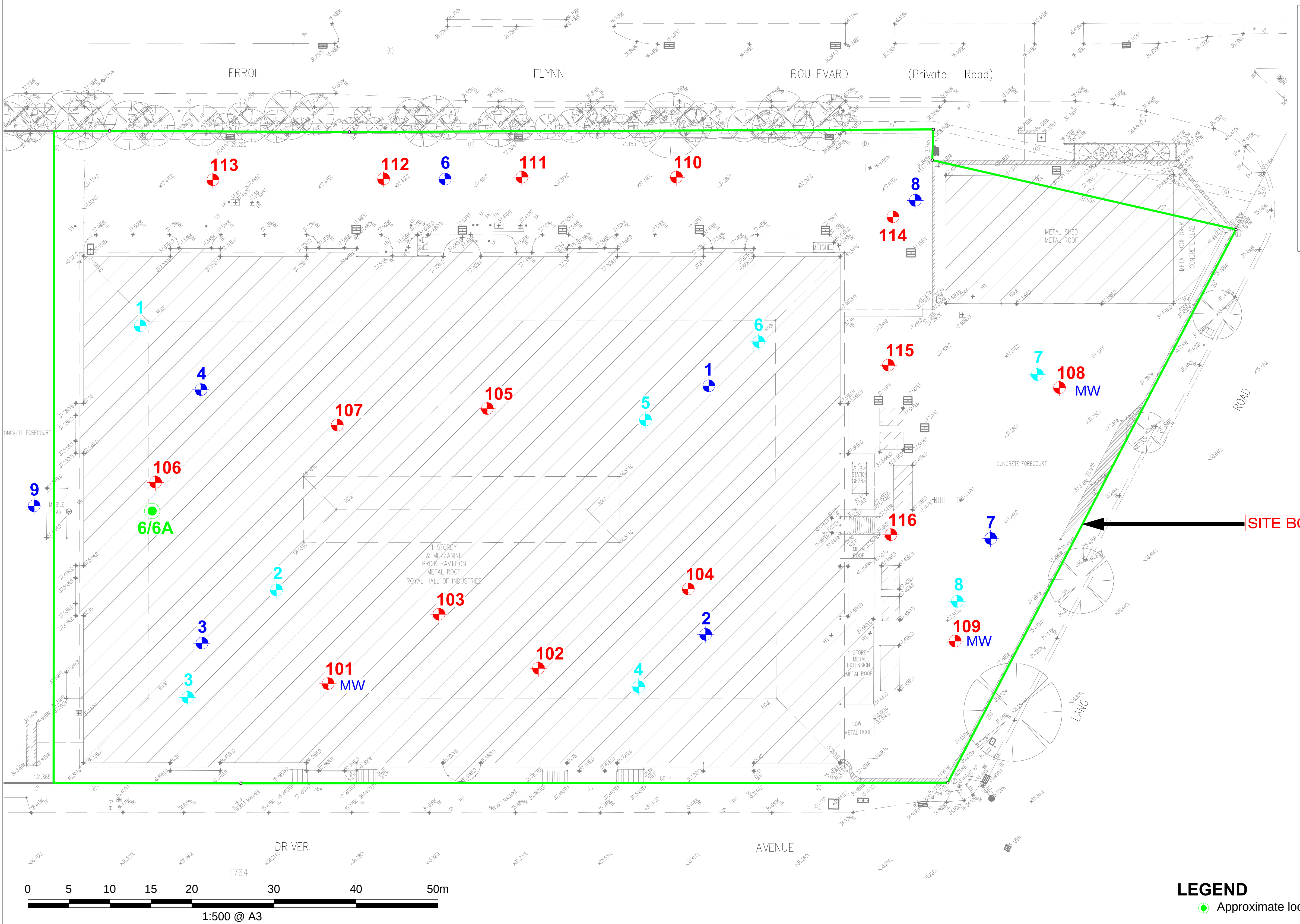
The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life.

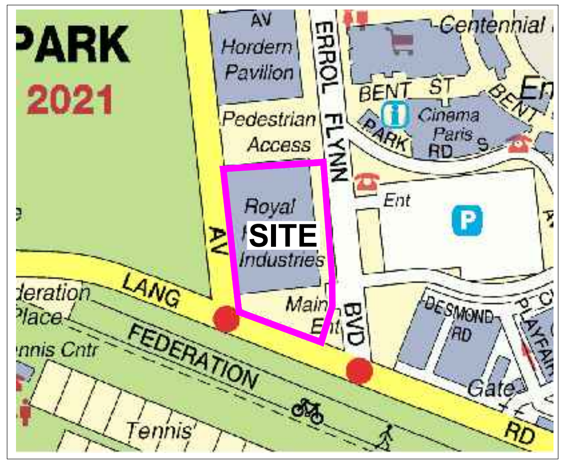
This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the (geotechnical / environmental / groundwater) components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawing and Site Phtographs





Locality Plan

LEGEND

- 🟢 Approximate location of DP cone penetration test (CPT), March 1998
- 🔵 Approximate location of DP borehole, June 1998
- 🔵 Approximate location of ERM borehole, September 2018
- 🔴 DP borehole location, March 2019
- MW Groundwater monitoring well

NOTE:
1: Base drawing from Veris Australia Pty Ltd
(Ref 201062A, dated 12.12.2018)
2: Test locations are approximate only and
are shown with reference to existing features.

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Sydney Swans Limited
OFFICE: Sydney
DRAWN BY: PSCH
SCALE: 1:500 @ A3
DATE: 14.3.2019

TITLE: **Site Features and Test Locations**
Proposed Sydney Swans HQ and Community Centre
Royal Hall of Industries, 1 Driver Avenue, MOORE PARK

PROJECT No: 86724.00
DRAWING No: 1
REVISION: 0

Photograph 1 - Inside Royal Hall of Industries Building

Photograph 2 - Vehicle access at eastern side of hall

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT:	86724.00
	Proposed Sydney Swans HQ & Community Centre	PLATE No:	A1
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	12-Apr-19

Photograph 3 - Inside shed

Photograph 4 - Southern end of site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT:	86724.00
	Proposed Sydney Swans HQ & Community Centre	PLATE No:	A2
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	12-Apr-19

Appendix B

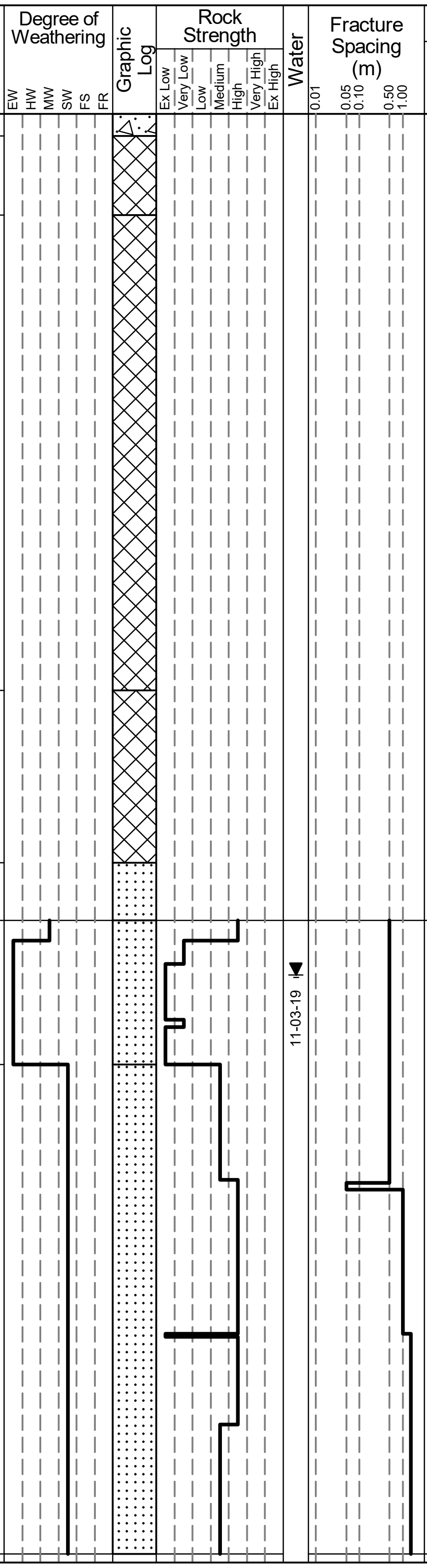
Borehole Logs, CPT logs
& Notes About This Report

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335783
NORTHING: 6248069
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 86724.00
DATE: 6/3/2019
SHEET 1 OF 1



RL	Depth (m)	Description of Strata	Discontinuities B - Bedding J - Joint S - Shear F - Fault	Type	Core Rec. %	RQD %	Test Results & Comments
	0.15	CONCRETE SLAB					
37	0.7	FILL: yellow sand fill with a trace of sandstone gravel		A			PID<1
	1	FILL: dark brown sand fill with a trace of silt and sandstone gravel		A			PID<1
36		- brown from 1.5 m					
	2	- metal obstruction, steel, ceramic tile fragments, glass from 2.0 m		A			PID<1
35	3			A			PID<1
34	4 4.0			A			PID<1
33	5	FILL: red brown sand fill with trace of ash		A			PID<1
	5.2	SANDSTONE: apparently extremely low strength, pale grey brown sandstone		A			PID<1
32	5.6 6	SANDSTONE: extremely low strength, extremely weathered, slightly fractured, red brown and light grey, medium grained sandstone with some high strength ironstone bands	5.6m: J,30°,pl,ro,cly 1mm 5.9-6.5m: J,85°,un,ro,cly 1 mm	C	100	59	PL(A) = 0.08
31	6.6 7	SANDSTONE: medium and high strength, slightly weathered, slightly fractured and unbroken, medium grained sandstone	6.6m: B,0°,pl,ro,cly 5mm				PL(A) = 0.84
30			7.42-7.47m: B(x2),0°,pl,ro,cly 1 mm				PL(A) = 1.5
29	8 9		8.47m: J,70°,pl,ro,cly 5 mm	C	100	100	PL(A) = 1.9
28	10 10.0	Bore discontinued at 10.0m Target depth reached					PL(A) = 0.82

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** Uncased**

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 5.5m, NMLC to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 5.98 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. **uncased due to metal obstruction at 2.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

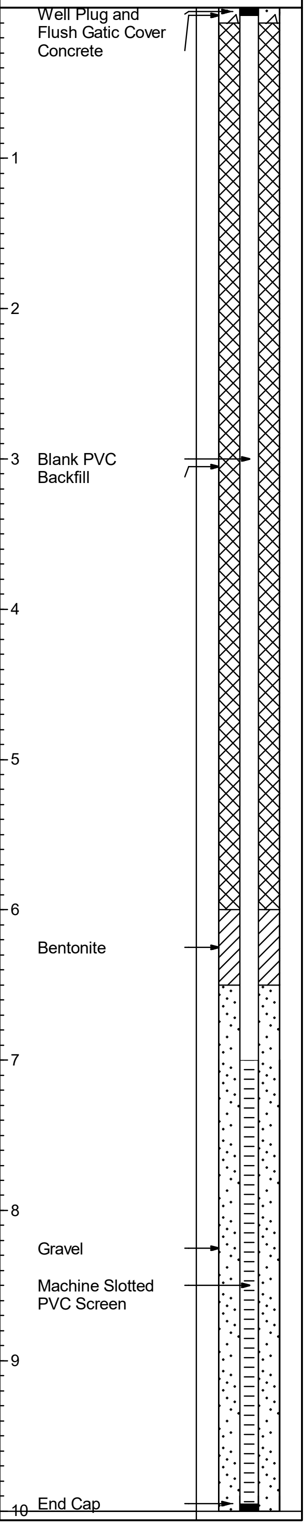
CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335783
NORTHING: 6248069
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 86724.00
DATE: 6/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Graphic Log	Type	Depth	Sample	Results & Comments	Water
	CONCRETE SLAB	△					
0.15	FILL: yellow sand fill with a trace of sandstone gravel	▨	A	0.4 0.5		PID<1	
0.7	FILL: dark brown sand fill with a trace of silt and sandstone gravel	▨	A	0.9 1.0		PID<1	
	- brown from 1.5 m	▨					
		▨	A	1.9 2.0		PID<1	
	- metal obstruction, steel, ceramic tile fragments, glass from 2.0 m	▨					
		▨	A	2.9 3.0		PID<1	
		▨	A	3.9 4.0		PID<1	
4.0	FILL: red brown sand fill with trace of ash	▨					
		▨	A	4.9 5.0		PID<1	
5.2	SANDSTONE: apparently extremely low strength, pale grey brown sandstone	⁘	A	5.4 5.5		PID<1	
5.6	SANDSTONE: extremely low strength, extremely weathered, slightly fractured, red brown and light grey, medium grained sandstone with some high strength ironstone bands	⁘	C	5.6 5.8 5.9		PL(A) = 0.08	11-03-19
6.6	SANDSTONE: medium and high strength, slightly weathered, slightly fractured and unbroken, medium grained sandstone	⁘	C	6.9 6.94		PL(A) = 0.84	
		⁘		7.44		PL(A) = 1.5	
		⁘		7.7			
		⁘	C	8.82		PL(A) = 1.9	
	Bore discontinued at 10.0m	⁘		9.69		PL(A) = 0.82	
10.0	Target depth reached			10.0			

Well Construction Details



RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** Uncased**

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 5.5m, NMLC to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 5.98 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. **uncased due to metal obstruction at 2.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: 101 PROJECT: MOORE PARK (86724.00) MARCH 2019

5.60 – 10.00m

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335789
NORTHING: 6248041
DIP/AZIMUTH: 90°/--

BORE No: 102
PROJECT No: 86724.00
DATE: 6/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Type	Depth	Sample	Results & Comments	Water	Well Construction Details
0.15	CONCRETE SLAB						
1.0	FILL: pale yellow brown clayey sand fill with trace sandstone gravel	A	0.4 0.5		PID<1		
		A	0.9 1.0		PID<1		
3.0	FILL: dark brown clayey sand fill with sandstone gravel - dark brown mottled light grey from 1.8m to 2.2m	A	1.9 2.0		PID<1		
	- trace of metal at 3.0m	A	2.9 3.0		PID<1		
4.5	FILL: pale grey mottled dark grey sand fill with trace silt and ash	A	3.4 3.5		PID<1		
	- brown from 3.9m	A	3.9 4.0		PID<1		
5.4	SANDSTONE: apparently extremely low to very low strength, pale grey sandstone	A	4.9 5.0		PID<1		
6.0	SANDSTONE: apparently low to medium strength, yelllow sandstone	A	5.9 6.0		PID<1		
	Bore discontinued at 6.0m Refusal on sandstone bedrock, target stratum encountered						

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** AD **CASING:** Uncased
TYPE OF BORING: Diacore to 0.15m, solid flight auger to 6.0m
WATER OBSERVATIONS: No free groundwater observed
REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335794
NORTHING: 6248055
DIP/AZIMUTH: 90°/--

BORE No: 103
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Type	Depth	Results & Comments
0.15	CONCRETE SLAB			
0.4	FILL: yellow brown slightly clayey sand fill with trace of silt	A	0.2 0.3	PID<1
0.6	CONCRETE	A	0.4 0.5	PID<1
1.1	FILL: yellow mottled white sand fill	A	0.9 1.0	PID<1
2.2	FILL: dark brown clayey sand fill with some charcoal, ash, coke, trace of shell and glass	A	1.9 2.0	PID<1
2.6	FILL: pale grey sand fill with ash	A	2.3 2.4	PID<1
3.5	FILL: yellow brown sand fill with trace of ash	A	2.9 3.0	PID<1
4.5	SAND: pale yellow fine to medium sand	A	3.9 4.0	PID<1
5.0	SANDSTONE: apparently extremely low to low strength, pale grey sandstone	A	4.9 5.0	PID<1
	Bore discontinued at 5.0m Refusal on sandstone bedrock, target stratum encountered			

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 5.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335801
NORTHING: 6248026
DIP/AZIMUTH: 90°/--

BORE No: 104
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Sampling & In Situ Testing				Water	Well Construction Details
		Type	Depth	Sample	Results & Comments		
0.15	CONCRETE SLAB	A	0.15 0.2		PID<1		
0.2	FILL: dark yellow slightly clayey sand fill	A	0.4 0.5		PID<1		
0.5	CONCRETE						
	FILL: yellow white sand fill with trace of ash	A	0.9 1.0		PID<1		
1.5	FILL: dark brown sand fill with trace of tiles and glass	A	1.9 2.0		PID<1		
		A	2.9 3.0		PID<1		
3.0	FILL: yellow and orange-brown sand fill with trace of gravel	A	3.4 3.5		PID<1		
3.6	SANDSTONE: apparently extremely low to very low strength, pale grey and pink sandstone with some medium and high strength ironstone bands 4.0m-4.2m: ironstone band	A A	3.9 4.0 4.1		PID<1 PID<1		
	4.4m: becoming apparently low to medium strength	A	4.4 4.5		PID<1		
		A*	4.9 5.0		PID<1		
5.0	Bore discontinued at 5.0m Refusal on sandstone bedrock, target stratum encountered						

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 5.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD1/20190307 taken from 4.9-5.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.7 AHD
EASTING: 335819
NORTHING: 6248052
DIP/AZIMUTH: 90°/--

BORE No: 105
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details
				Type	Depth	Sample	Results & Comments		
	0.18	CONCRETE SLAB							
	0.4	CONCRETE							
	0.6	FILL: yellow-brown medium sand fill with trace of gravel, ash and coke		A	0.4 0.5		PID<1		
	1.4	SANDSTONE: apparently very low to low strength, pale grey-white sandstone		A	0.9 1.0		PID<1		
		Bore discontinued at 1.4m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 1.4m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.6 AHD
EASTING: 335807
NORTHING: 6248094
DIP/AZIMUTH: 90°/--

BORE No: 106
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	CONCRETE SLAB						
0.15	FILL: dark yellow sand fill with some clay and trace of siltstone and clay	A	0.2 0.3		PID<1		
0.3	FILL: dark brown slightly clayey sand fill with trace of siltstone gravel, plastic, charcoal, coke and glass	A	0.4 0.5		PID<1		
		A	0.9		PID<1		
1.6	FILL: grey sand fill with some coke and ash	A	1.9 2.0		PID<1		
2.2	SANDSTONE: apparently very low to low strength, pale grey-white sandstone	A	2.4 2.5		PID<1		
2.5	Bore discontinued at 2.5m Refusal on sandstone bedrock, target stratum encountered						

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 2.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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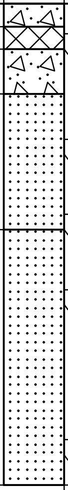
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.7 AHD
EASTING: 335818
NORTHING: 6248069
DIP/AZIMUTH: 90°/--

BORE No: 107
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1



Depth (m)	Description of Strata	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
0.15	CONCRETE SLAB						
0.3	FILL: brown, clayey fine sand fill with sandstone gravel, trace of glass, ceramic and clay	A	0.2 0.3		PID<1		
0.6	CONCRETE						
	SANDSTONE: apparently extremely low to very low strength, pale yellow sandstone 1.1m: becoming brown	A* A	0.9 1.0 1.4 1.5		PID<1 PID<1		
1.5	SANDSTONE: apparently very low to low strength, yellow sandstone 2.2m: becoming apparently low to medium strength and pale yellow-white	A A	1.9 2.0 2.9 3.0		PID<1 PID<1		
3.2	Bore discontinued at 3.2m Refusal on sandstone bedrock, target stratum encountered						

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.15m, solid flight auger to 3.2m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD2/20190307 taken from 0.9-1.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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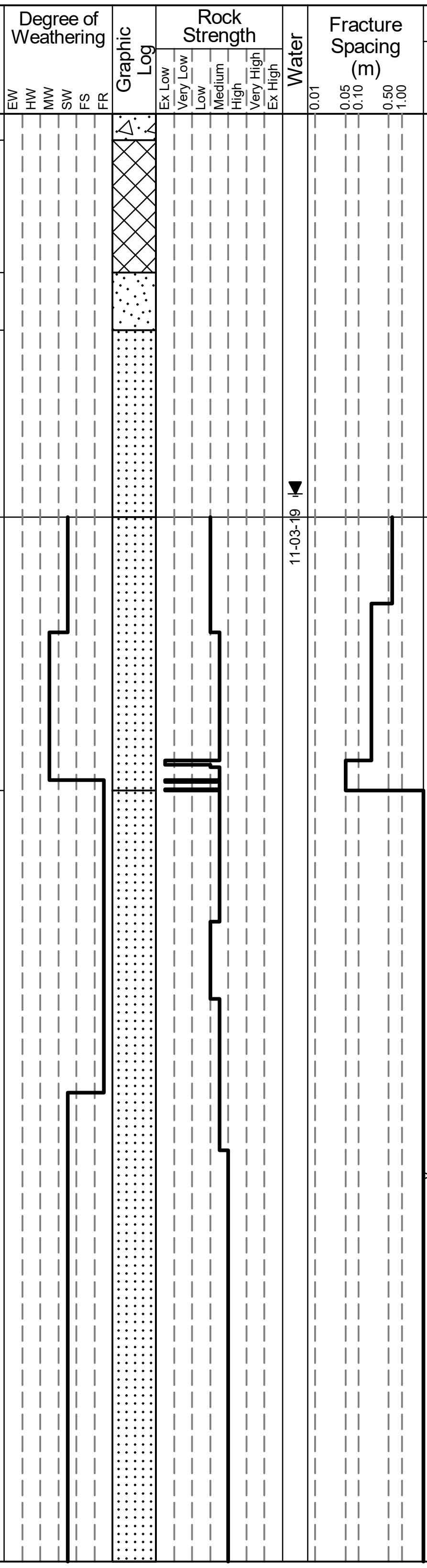
BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue,
Moore Park

SURFACE LEVEL: 37.3 AHD
EASTING: 335830
NORTHING: 6247983
DIP/AZIMUTH: 90°/--

BORE No: 108
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata	Discontinuities (B - Bedding, J - Joint, S - Shear, F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
0.18	CONCRETE SLAB					
1.1	FILL: brown sand fill with some sandstone and igneous gravel, and clay with trace of glass, plastic and ceramic fragments - dark brown from 0.5m		A A			PID<1 PID<1
1.5	SAND: pale yellow medium to coarse sand					
2.8	SANDSTONE: apparently extremely low to very low strength, pale yellow sandstone 2.1m: becoming apparently very low to low strength		A* A			PID<1 PID<1
4.7	SANDSTONE: low to medium and medium strength, moderately and slightly weathered, fractured and slightly fractured, orange brown and purple brown, medium grained sandstone	3.4-4.4m: B(x4),0°,pl,ro,fe/cly 1mm 4.47-4.70m: cs(x3), 20mm	C	100	88	PL(A) = 0.36 PL(A) = 0.56
10.06	SANDSTONE: medium and medium to high strength, slightly weathered and fresh, unbroken, grey brown, medium grained sandstone 5.60-6.15m: low to medium strength band Bore discontinued at 10.06m Target depth reached		C C	100 100	100 100	PL(A) = 0.64 PL(A) = 0.28 PL(A) = 0.61 PL(A) = 1.1 PL(A) = 1 PL(A) = 0.89



RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** HW to 3.0m; HQ to 10.0m

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 3.0m, NMLC to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 2.64 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD3/20190307 taken from 1.9-2.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.3 AHD
EASTING: 335830
NORTHING: 6247983
DIP/AZIMUTH: 90°/--

BORE No: 108
PROJECT No: 86724.00
DATE: 7/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		CONCRETE SLAB							Well Plug and Flush Gatic Cover Concrete
	0.18	FILL: brown sand fill with some sandstone and igneous gravel, and clay with trace of glass, plastic and ceramic fragments - dark brown from 0.5m		A	0.4 0.5		PID<1		
				A	0.9 1.0		PID<1		
	1.1	SAND: pale yellow medium to coarse sand							Backfill
	1.5	SANDSTONE: apparently extremely low to very low strength, pale yellow sandstone		A*	1.9 2.0		PID<1		Blank PVC
		2.1m: becoming apparently very low to low strength							
				A	2.7 2.8		PID<1	▼ 11-03-19	
	2.8	SANDSTONE: low to medium and medium strength, moderately and slightly weathered, fractured and slightly fractured, orange brown and purple brown, medium grained sandstone			2.9		PL(A) = 0.36		Bentonite
				C	3.83		PL(A) = 0.56		
	4.7	SANDSTONE: medium and medium to high strength, slightly weathered and fresh, unbroken, grey brown, medium grained sandstone			4.9		PL(A) = 0.64		
					5.55				
		5.60-6.15m: low to medium strength band			5.87		PL(A) = 0.28		
									Gravel
				C	6.91		PL(A) = 0.61		Machine Slotted PVC Screen
					7.51		PL(A) = 1.1		
					8.5 8.6		PL(A) = 1		
				C	9.24		PL(A) = 0.89		
	10.06	Bore discontinued at 10.06m Target depth reached			10.06				End Cap

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** HW to 3.0m; HQ to 10.0m

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 3.0m, NMLC to 10.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 2.64 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD3/20190307 taken from 1.9-2.0m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BORE: 108 PROJECT: MOORE PARK (86724.00) MARCH 2019

2.80 – 7.00m

BORE: 108 PROJECT: MOORE PARK (86724.00) MARCH 2019

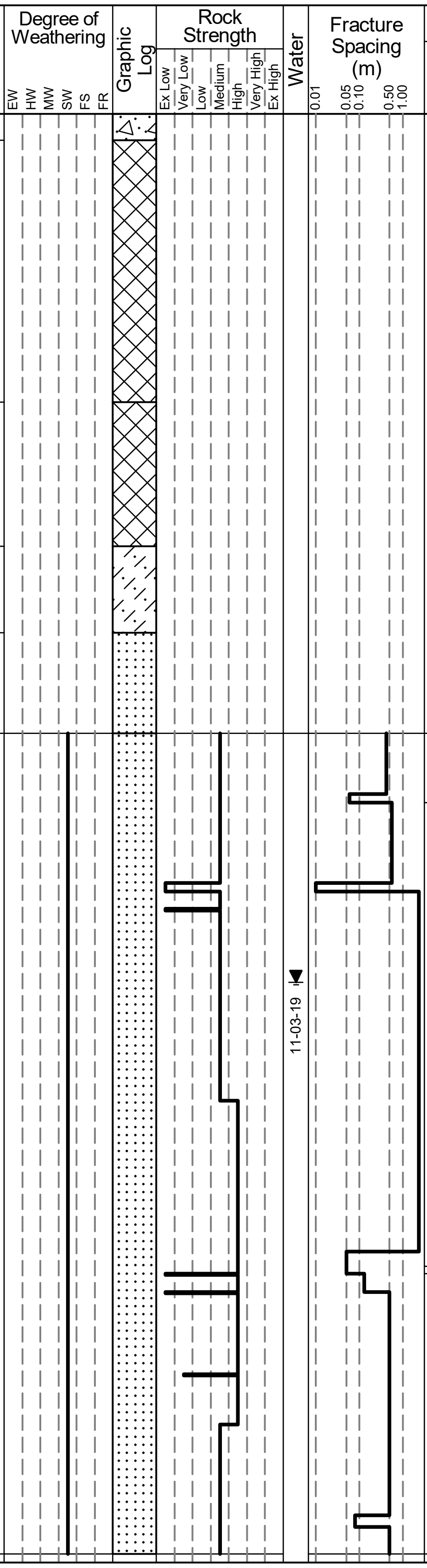
7.00 – 10.06m

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.3 AHD
EASTING: 335798
NORTHING: 6247992
DIP/AZIMUTH: 90°/--

BORE No: 109
PROJECT No: 86724.00
DATE: 11/3/2019
SHEET 1 OF 1



Depth (m)	Description of Strata	Discontinuities (B - Bedding, J - Joint, S - Shear, F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
0.18	CONCRETE SLAB					
2.0	FILL: pale grey clayey sand fill with some sandstone gravel, metal and trace of coke - pale grey pink from 0.6m - mottled brown grey from 1.0m		A A A			PID<1 PID<1 PID<1
3.0	FILL: dark brown clayey sand fill with trace clay and glass fragments		A			PID<1
3.6	CLAYEY SAND: yellow brown mottled grey clayey sand with trace root fibres, damp (possibly extremely low strength sandstone)		A*			PID<1
4.3	SANDSTONE: apparently very low to low strength, yellow sandstone		A			PID<1
10.0	SANDSTONE: medium and high strength, slightly weathered, slightly fractured and unbroken, yellow brown and light grey, medium grained sandstone	4.72m: B,0°,pl,ro,cly 1mm 4.78m: J,30°-40°,un,ro,cly vn 5.34m-5.4m: cs, 60mm	C	100	96	PL(A) = 0.42 PL(A) = 0.58 PL(A) = 0.66
		7.90-7.96m: B(x2),0°,pl,ro,cly 1mm 8m: J,45°&20°, st,ro,fe 8.05-9.73m: B(x4),0°,pl,ro,cly 1-7mm 9.73-9.81m: B(x2) B,0°,pl,ro,cly 1-4mm	C	100	92	PL(A) = 1.3 PL(A) = 1.5 PL(A) = 0.86

Bore discontinued at 10.0m
Target depth reached

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** HW to 4.3m; HQ to 10.0m

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 4.3m, NMLC to 10.06m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 6.03 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD1/20190308 taken from 3.4-3.5m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.3 AHD
EASTING: 335798
NORTHING: 6247992
DIP/AZIMUTH: 90°/--

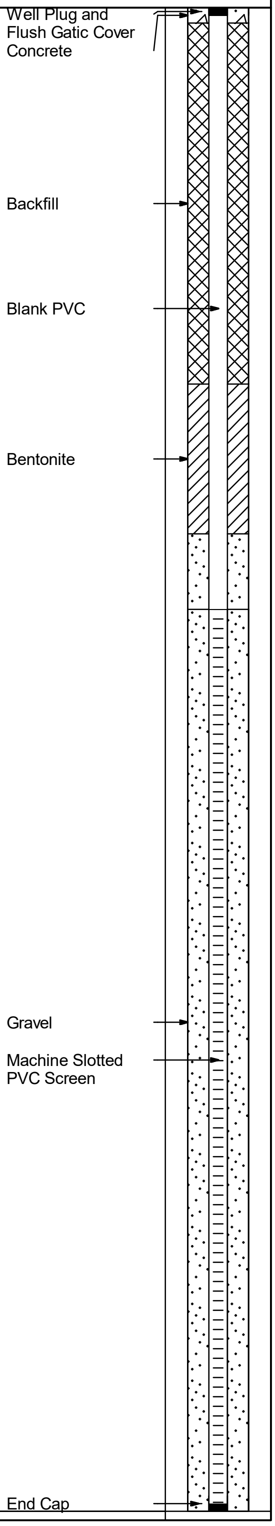
BORE No: 109
PROJECT No: 86724.00
DATE: 11/3/2019
SHEET 1 OF 1

Depth (m)	Description of Strata
0.18	CONCRETE SLAB
2.0	FILL: pale grey clayey sand fill with some sandstone gravel, metal and trace of coke - pale grey pink from 0.6m - mottled brown grey from 1.0m
3.0	FILL: dark brown clayey sand fill with trace clay and glass fragments
3.6	CLAYEY SAND: yellow brown mottled grey clayey sand with trace root fibres, damp (possibly extremely low strength sandstone)
4.3	SANDSTONE: apparently very low to low strength, yellow sandstone
10.0	SANDSTONE: medium and high strength, slightly weathered, slightly fractured and unbroken, yellow brown and light grey, medium grained sandstone Bore discontinued at 10.0m Target depth reached

Type	Depth	Sample	Results & Comments
A	0.4 0.5		PID<1
A	0.9 1.0		PID<1
A	1.9 2.0		PID<1
A	2.9 3.0		PID<1
A*	3.4 3.5		PID<1
A	3.9 4.0		PID<1
	4.3		
	4.53		PL(A) = 0.42
C	5.75		PL(A) = 0.58
	6.42		PL(A) = 0.66
	7.2		
	7.47		PL(A) = 1.3
C	8.62		PL(A) = 1.5
	9.25		PL(A) = 0.86
	10.0		

Water: 11-03-19 (approx. 6.0 m)

Well Construction Details



RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT/LS **CASING:** HW to 4.3m; HQ to 10.0m

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 4.3m, NMLC to 10.06m

WATER OBSERVATIONS: No free groundwater observed whilst augering, groundwater measured at 6.03 m depth in standpipe on 11/03/19

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD1/20190308 taken from 3.4-3.5m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BORE: 109 PROJECT: MOORE PARK (86724.00) MARCH 2019

4.30 – 9.00m

BORE: 109 PROJECT: MOORE PARK (86724.00) MARCH 2019

9.00 – 10.00m

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.3 AHD
EASTING: 335854
NORTHING: 6248031
DIP/AZIMUTH: 90°/--

BORE No: 110
PROJECT No: 86724.00
DATE: 8/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.05	ASPHALTIC CONCRETE							
37	0.1	FILL: yellow-brown sand fill, humid		A	0.4 0.5				
	0.5	FILL: yellow, fine to medium gravelly sand fill, sandstone gravel, humid							
	1	SANDSTONE: apparently very low to low strength, yellow sandstone		A	0.9 1.0				1
36	1.1	Bore discontinued at 1.1m Refusal on sandstone bedrock, target stratum encountered							
	2								2
35	3								3
34	4								4
33	5								5
32	6								6
31	7								7
30	8								8
29	9								9
28	10								10

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.1m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics | Environment | Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.4 AHD
EASTING: 335852
NORTHING: 6248049
DIP/AZIMUTH: 90°/--

BORE No: 111
PROJECT No: 86724.00
DATE: 8/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02	ASPHALTIC CONCRETE	☒	A A	0.05 0.1 0.2		PID<1		
	0.25	FILL: brown, gravelly sand fill, 5-15mm igneous and sandstone gravel, humid	☒	A	0.4 0.5		PID<1		
	0.5	FILL: yellow, fine to medium gravelly sand fill, sandstone gravel, humid	⁙						
	1.1	SANDSTONE: apparently very low to low strength, yellow sandstone	⁙	A	0.9 1.0		PID<1		
		Bore discontinued at 1.1m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.1m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue,
Moore Park

SURFACE LEVEL: 37.4 AHD
EASTING: 335850
NORTHING: 6248065
DIP/AZIMUTH: 90°/--

BORE No: 112
PROJECT No: 86724.00
DATE: 8/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02 0.15	ASPHALTIC CONCRETE	▨	A	0.05 0.1		PID<1		
37	0.5	FILL: dark grey-black sandy gravel fill with some silt, 5-20mm igneous and sandstone gravel	▨	A*	0.4 0.5		PID<1		
		FILL: yellow, fine to medium gravelly sand fill, sandstone gravel, humid	⠿	A	0.9 1.0		PID<1		
	1.0	SANDSTONE: apparently very low to low strength, white and pale grey sandstone							
36		Bore discontinued at 1.0m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD2/20190308 taken at 0.4-0.5m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.5 AHD
EASTING: 335847
NORTHING: 6248086
DIP/AZIMUTH: 90°/--

BORE No: 113
PROJECT No: 86724.00
DATE: 8/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02	ASPHALTIC CONCRETE							
	0.2	FILL: dark grey-black, sandy gravel fill with some silt, 5-20mm igneous and sandstone gravel		A	0.4 0.5		PID<1		
	0.5	FILL: yellow, fine to medium gravelly sand fill, sandstone gravel, humid		A	0.8 0.9		PID<1		
	0.9	SANDSTONE: apparently very low to low strength, white sandstone							
		Bore discontinued at 0.9m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 0.9m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.2 AHD
EASTING: 335849
NORTHING: 6248003
DIP/AZIMUTH: 90°/--

BORE No: 114
PROJECT No: 86724.00
DATE: 8/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.02	ASPHALTIC CONCRETE							
		FILL: dark brown-grey sand fill with some clay, igneous gravel, moist	☒	A	0.4 0.5		PID<1		
	0.7	SANDSTONE: apparently extremely low to very low strength, grey sandstone 1.0m: becoming apparently very low to low strength and pale yellow-brown	⁘	A	0.9 1.0		PID<1		
				A	1.4 1.5		PID<1		
	1.5	Bore discontinued at 1.5m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Solid flight auger to 1.5m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.4 AHD
EASTING: 335832
NORTHING: 6248003
DIP/AZIMUTH: 90°/--

BORE No: 115
PROJECT No: 86724.00
DATE: 11/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.18	CONCRETE SLAB							
37	1.3	FILL: dark brown, clayey sand fill with igneous and sandstone gravel, moist		A A	0.4 0.5 0.9 1.0		PID<1 PID<1		
36	1.5	FILL: grey, fine to medium sand fill with some coal, moist		A	1.4 1.5		PID<1		
	2.1	SANDSTONE: apparently extremely low to very low strength, yellow-brown sandstone 1.9m: becoming apparently low strength		A* A	1.7 1.8 1.9 2.0		PID<1 PID<1		
35		Bore discontinued at 2.1m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 2.1m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery. *Blind replicate sample BD1/20190311 taken from 1.7-1.8m.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Sydney Swans Limited
PROJECT: Sydney Swans HQ & Community Centre
LOCATION: Royal Hall of Industries, 1 Driver Avenue, Moore Park

SURFACE LEVEL: 37.4 AHD
EASTING: 335813
NORTHING: 6248000
DIP/AZIMUTH: 90°/--

BORE No: 116
PROJECT No: 86724.00
DATE: 11/3/2019
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Sampling & In Situ Testing: Depth	Sampling & In Situ Testing: Sample	Sampling & In Situ Testing: Results & Comments	Water	Well Construction Details
	0.18	CONCRETE SLAB	△						
37	0.3	FILL: dark brown clayey sand fill with igneous and sandstone gravel, moist	▩	A	0.2 0.3		PID<1		
	0.5	FILL: grey mottled dark brown, clayey sand fill, moist	▩	A	0.4 0.5		PID<1		
36 35	2.8	FILL: dark brown, fine sand with some clay, igneous, ironstone and sandstone gravel, trace of coke/charcoal/coal, moist	▩	A A	0.9 1.0 1.9 2.0		PID<1 PID<1		
	3.0	SANDSTONE: apparently very low to low strength, pale yellow and grey-white sandstone	⁙	A	2.9 3.0		PID<1		
		Bore discontinued at 3.0m Refusal on sandstone bedrock, target stratum encountered							

RIG: Hanjin DB8 **DRILLER:** BG Drilling **LOGGED:** LT **CASING:** Uncased

TYPE OF BORING: Diacore to 0.18m, solid flight auger to 3.0m

WATER OBSERVATIONS: No free groundwater observed

REMARKS: Surface level interpolated from survey drawing by Veris Australia Pty Ltd, Ref:201062A. 12/12/18. Location coordinates are in MGA94 Zone 56 and were estimated from aerial imagery.

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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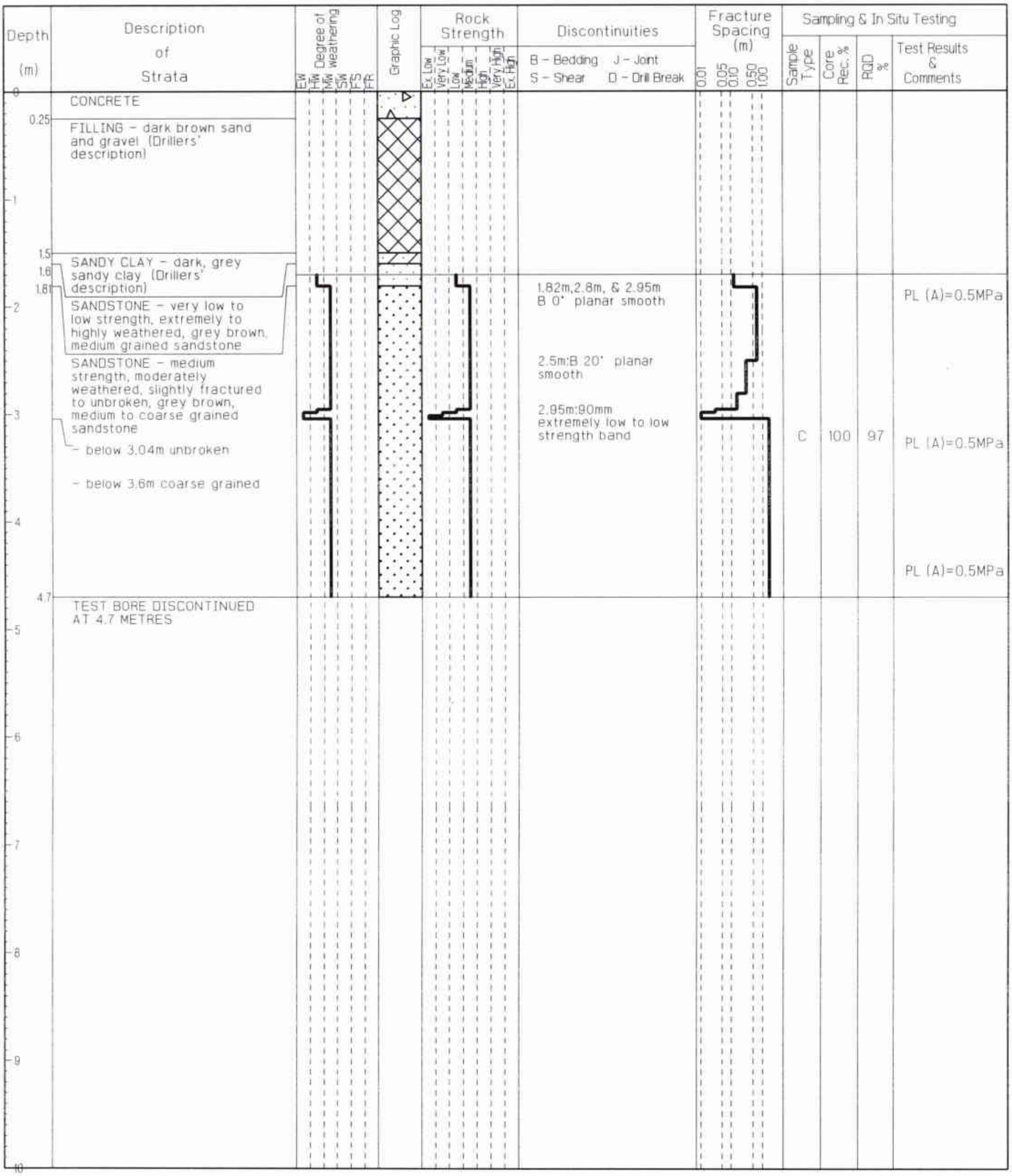
TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: ROYAL HALL OF INDUSTRIES
LOCATION: DRIVER AVE, MOORE PARK

PROJECT No: 24967
SURFACE LEVEL:
DIP OF HOLE: 90°

BORE No: 1
DATE: 13 JULY 98
SHEET 1 **OF** 1
AZIMUTH:



Depth (m)	Description of Strata	Discontinuities B - Bedding J - Joint S - Shear D - Drill Break	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	CONCRETE					
0.25	FILLING - dark brown sand and gravel (Drillers' description)					
1.5	SANDY CLAY - dark, grey sandy clay (Drillers' description)					
1.6	SANDSTONE - very low to low strength, extremely to highly weathered, grey brown, medium grained sandstone					
1.81	SANDSTONE - medium strength, moderately weathered, slightly fractured to unbroken, grey brown, medium to coarse grained sandstone - below 3.04m unbroken - below 3.6m coarse grained	1.82m,2.8m, & 2.95m B 0° planar smooth 2.5m:B 20° planar smooth 2.95m:90mm extremely low to low strength band	C	100	97	PL (A)=0.5MPa PL (A)=0.5MPa PL (A)=0.5MPa
4.7	TEST BORE DISCONTINUED AT 4.7 METRES					

RIG: SCOUT
DRILLER: DRIVER
LOGGED: HOLY
CASING: NW TO 1.7m
TYPE OF BORING: ROLLER BIT - 0.25m, SFA - 1.7m, NMLC CORING - 4.7m
WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	auger sample	PL	point load strength I_s (50)MPa
B	bulk sample	S	standard penetration test
C	core drilling	Ux	x mm dia. tube
pp	pocket penetrometer (kPa)	V	Shear Vane (kPa)

CHECKED:
Initials:
Date:

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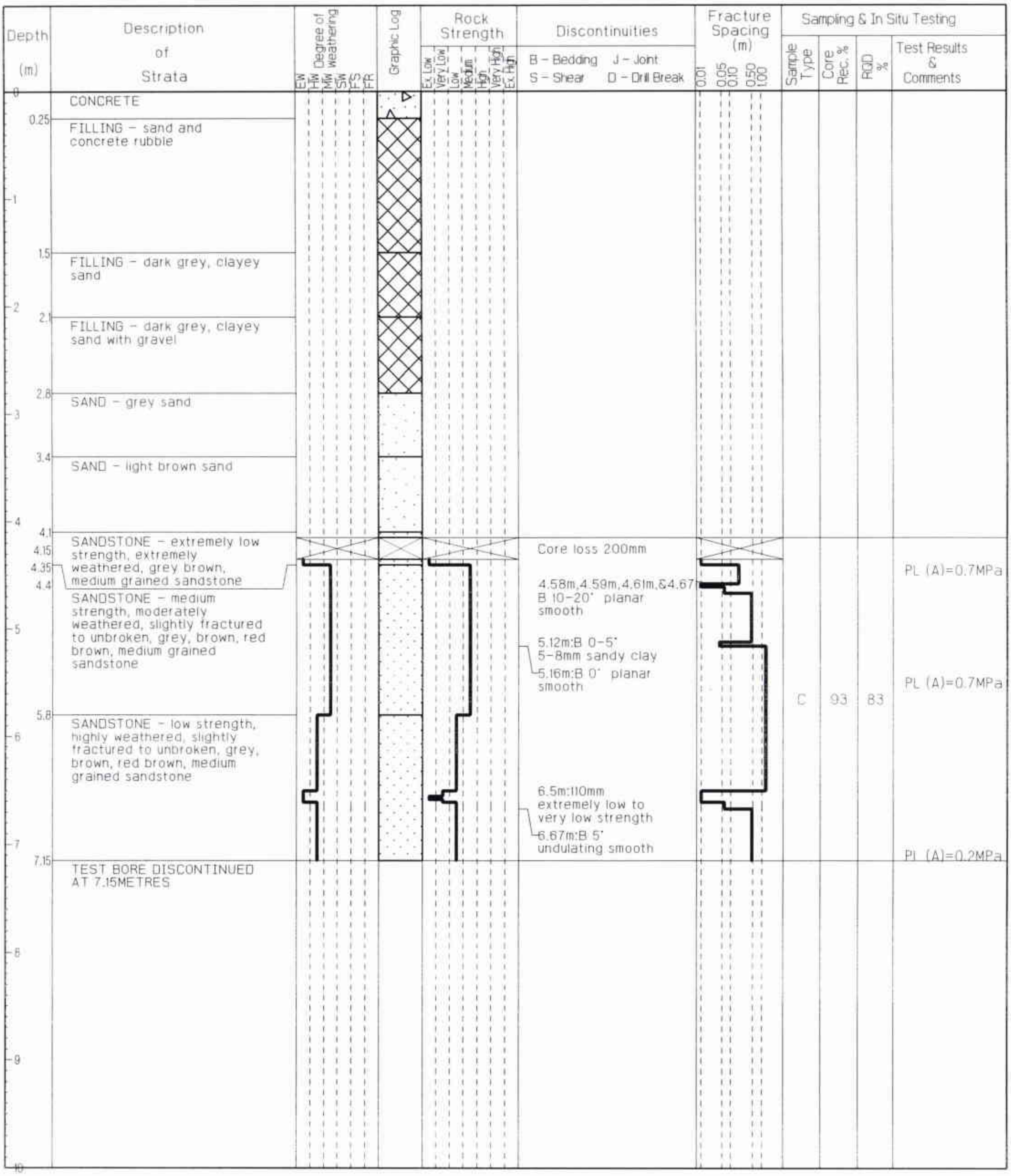
TEST BORE REPORT

BORE No: 2
DATE: 13 JULY 98
SHEET 1 **OF** 1
AZIMUTH:

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: ROYAL HALL OF INDUSTRIES
LOCATION: DRIVER AVE, MOORE PARK

PROJECT No: 24967
SURFACE LEVEL:
DIP OF HOLE: 90˚



Depth (m)	Description of Strata	Degree of weathering	Graphic Log	Rock Strength	Discontinuities B – Bedding J – Joint S – Shear D – Drill Break	Fracture Spacing (m)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	CONCRETE									
0.25	FILLING – sand and concrete rubble									
1.5	FILLING – dark grey, clayey sand									
2.1	FILLING – dark grey, clayey sand with gravel									
2.8	SAND – grey sand									
3.4	SAND – light brown sand									
4.1 4.15 4.35	SANDSTONE – extremely low strength, extremely weathered, grey brown, medium grained sandstone				Core loss 200mm					PL (A)=0.7MPa
4.4	SANDSTONE – medium strength, moderately weathered, slightly fractured to unbroken, grey, brown, red brown, medium grained sandstone				4.58m,4.59m,4.61m,&4.67 B 10–20˚ planar smooth 5.12m:B 0–5˚ 5–8mm sandy clay 5.16m:B 0˚ planar smooth		C	93	83	PL (A)=0.7MPa
5.8	SANDSTONE – low strength, highly weathered, slightly fractured to unbroken, grey, brown, red brown, medium grained sandstone				6.5m:110mm extremely low to very low strength 6.67m:B 5˚ undulating smooth					PL (A)=0.2MPa
7.15	TEST BORE DISCONTINUED AT 7.15METRES									

RIG: SCOUT **DRILLER:** DRIVER **LOGGED:** HOLY **CASING:** NW TO 4.15m

TYPE OF BORING: ROLLER BIT – 0.25m,SFA – 4.15m,NMLC CORING – 7.15m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date:

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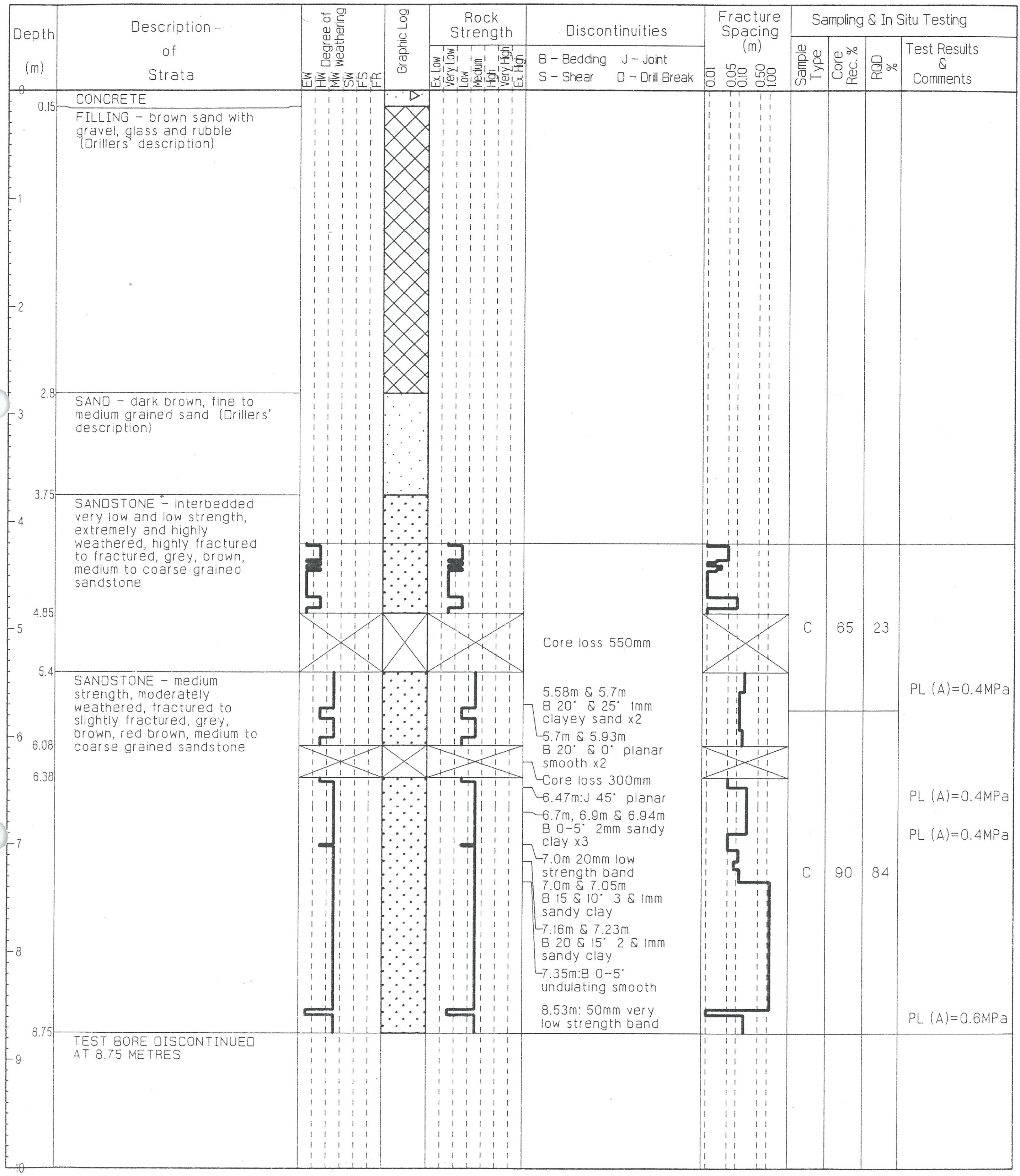
TEST BORE REPORT

BORE No: 3

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT No: 24967
DATE: 29 JUNE 98
PROJECT: ROYAL HALL OF INDUSTRIES
SURFACE LEVEL:
SHEET 1 **OF** 1
LOCATION: DRIVER AVE, MOORE PARK
DIP OF HOLE: 90˚
AZIMUTH:



Depth (m)	Description of Strata	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0.15	CONCRETE					
2.8	FILLING - brown sand with gravel, glass and rubble (Drillers' description)					
3.75	SAND - dark brown, fine to medium grained sand (Drillers' description)					
4.85	SANDSTONE - interbedded very low and low strength, extremely and highly weathered, highly fractured to fractured, grey, brown, medium to coarse grained sandstone		C	65	23	
5.4		Core loss 550mm				
6.08	SANDSTONE - medium strength, moderately weathered, fractured to slightly fractured, grey, brown, red brown, medium to coarse grained sandstone	5.58m & 5.7m B 20˚ & 25˚ 1mm clayey sand x2 5.7m & 5.93m B 20˚ & 0˚ planar smooth x2				PL (A)=0.4MPa
6.38		Core loss 300mm				
8.75		6.47m:J 45˚ planar 6.7m, 6.9m & 6.94m B 0-5˚ 2mm sandy clay x3 7.0m 20mm low strength band 7.0m & 7.05m B 15 & 10˚ 3 & 1mm sandy clay 7.16m & 7.23m B 20 & 15˚ 2 & 1mm sandy clay 7.35m:B 0-5˚ undulating smooth 8.53m: 50mm very low strength band	C	90	84	PL (A)=0.4MPa PL (A)=0.4MPa PL (A)=0.6MPa
	TEST BORE DISCONTINUED AT 8.75 METRES					

RIG: SCOUT
DRILLER: PACKMAN
LOGGED: HOLY
CASING: NW TO 4.2m
TYPE OF BORING: DIA TUBE TO 0.15m,SFA TO 4.2m,NMLC CORING TO 8.75m
WATER OBSERVATIONS: FREE GROUNDWATER OBSERVED AT 3.5-4.0m
REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample	PL point load strength I_s (50)MPa
B bulk sample	S standard penetration test
C core drilling	Ux x mm dia. tube
pp pocket penetrometer (kPa)	V Shear Vane (kPa)

CHECKED:
Initials:
Date:

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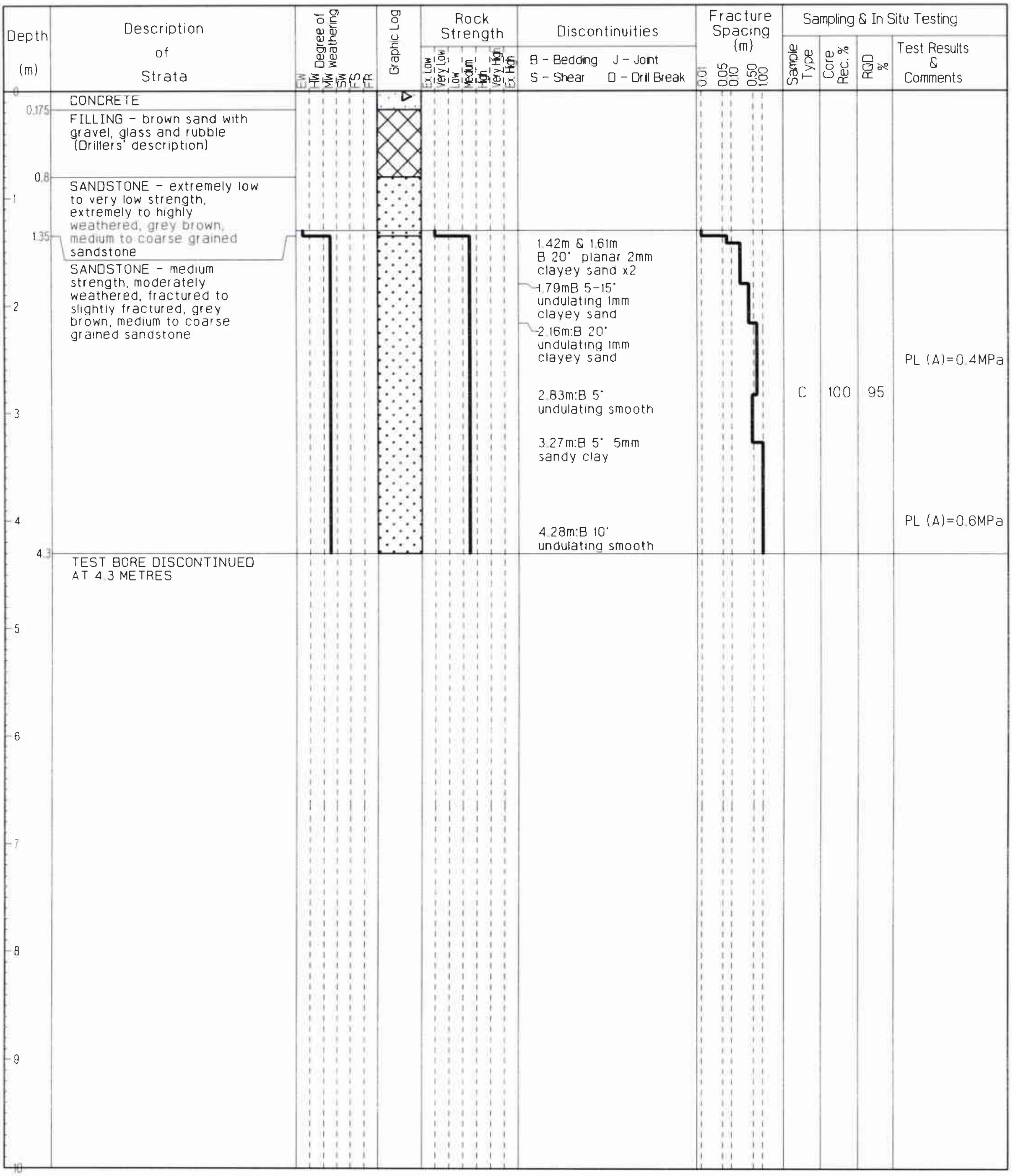
TEST BORE REPORT

BORE No: 4

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT No: 24967
DATE: 29 JUNE 98

PROJECT: ROYAL HALL OF INDUSTRIES
SURFACE LEVEL:
SHEET 1 **OF** 1

LOCATION: DRIVER AVE, MOORE PARK
DIP OF HOLE: 90°
AZIMUTH:



Depth (m)	Description of Strata	Discontinuities B - Bedding J - Joint S - Shear D - Drill Break	Sample Type	Core Rec. %	RQD %	Test Results & Comments
0	CONCRETE					
0.175	FILLING - brown sand with gravel, glass and rubble (Drillers' description)					
0.8	SANDSTONE - extremely low to very low strength, extremely to highly weathered, grey brown, medium to coarse grained sandstone					
1.35	SANDSTONE - medium strength, moderately weathered, fractured to slightly fractured, grey brown, medium to coarse grained sandstone	1.42m & 1.61m B 20° planar 2mm clayey sand x2 1.79mB 5-15° undulating 1mm clayey sand 2.16m:B 20° undulating 1mm clayey sand 2.83m:B 5° undulating smooth 3.27m:B 5° 5mm sandy clay 4.28m:B 10° undulating smooth	C	100	95	PL (A)=0.4MPa PL (A)=0.6MPa
4.3	TEST BORE DISCONTINUED AT 4.3 METRES					

RIG: SCOUT
DRILLER: PACKMAN
LOGGED: HOLY
CASING: NW TO 1.3m

TYPE OF BORING: DIA TUBE TO 0.175m,SFA TO 1.3m,NMLC CORING TO 4.3m

WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED WHILST AUGERING

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A auger sample
B bulk sample
C core drilling
pp pocket penetrometer (kPa)
PL point load strength I_s (50)MPa
S standard penetration test
Ux x mm dia. tube
V Shear Vane (kPa)

CHECKED:
Initials:
Date:

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Borehole Log

Location **TP1**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 1.6m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2	▨		Concrete Slab	D	D		
	1.2	▨		Gravelly SAND: Brown/dark brown with inclusions of rock (Gravels)		L	0.5 1.0 (A+B)	Filling materials
	1.6	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D	1.5	Natural Bedrock
				Refusal 1.6m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP2**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 4.0m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2	▨		Concrete Slab	D	D	0.7	
	0.5	▨		Second Conrete Slab				
	2	▨		SAND: Brown/dark brown		L	2	Filling materials
	4	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D	2.5 3	Natural Bedrock
				Terminated 4.0m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP3**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 6.0m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.3	▨		Concrete Slab		D		
	0.7	▨		Sandy FILL: Brown		L	0.5	Filling Materials
	5.5	▨		Sandy FILL: Dark brown/black		L	1 2 3 4 5	
	6	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D		Natural Bedrock
				Terminated 6.0m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP4**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 5.5m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2			Concrete Slab	D	D		
	0.7			Sandy Gravelly FILL: Brown with inclusions of Brick, Terracotta		L	0.5	Filling Materials
	1.2			Sandy Gravelly FILL: Dark brown, fine to coarse gravels			1	
	4			SAND: Black with trace amounts of glass, brick, metal			2 3 4	
	6			SANDSTONE: White/yellow with minor amounts of clay, Harder towards 5.5m		D	5 6	Natural Bedrock
				Terminated 6.0m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP5**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 2.1m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
	0.15	▨		Concrete Slab	D	D	1	
	1.5	▨		Sandy Gravelly FILL: Brown with inclusions of Brick, Terracotta		L		Filling Material
	1.8	▨		SAND: Yellow, coarse grained				Natural
	2.1	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D	2.0 (A+B)	Natural Bedrock
				Terminated 2.1m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP6**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	20.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 2.0m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2			Concrete Slab	D	D		
	1.4			Sandy Gravelly FILL: Brown with inclusions of Brick, Terracotta, Fine to coarse gravels		L	0.5	Filling Materials
	1.7			SAND: Yellow, coarse grained			1.5	Natural
	2			SANDSTONE: White/yellow coarse grained, Medium hardness.		D	2	Natural Bedrock
				Terminated 2.0m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP7**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	21.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 2.0m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2	▩		Concrete Slab	D	D		
	0.4	▩		Second Concrete Slab				
	0.6	▩		Sandy FILL: Brown		L	0.5	Filling Materials
	1.1	▩		Sandstone FILL: Yellow/ orange			1	
	1.5	▩		Sandy FILL: Brown				
	2	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D		Natural Bedrock
				Terminated 2.0m				

Notes:

Sheet 1 of 1

Test Pit Log

Location **TP8**

Client:	Sydney Swans Limited	Job Type:	Land Suitabilty
Project No:	0478061	Address:	1 Driver Avenue, Moore Park
Date:	21.9.2018	Logged By:	AR + MJ
Contractor:	BG Drilling	Method:	100mm Augar
Hole Size	100mm$^{\varnothing}$ X 5.0m	Co-ordinates:	N/A

Method	Depth (m)	Graphic Log	USCS Classification	**Material Description**	Moisture	Density / Stiffness	Sampling	**Comments**
Solid Flight Auger	0.2	▨		Concrete Slab	D	D		
	2.5	▨		Sandy FILL: Brown		L	1 2.0 (A)	Filling Materials
	4.5	▨		Sandy FILL: Brown with inclusions of white sand. Increased amounts of foreign materials			3 4	
	5	▨		SANDSTONE: White/yellow coarse grained, Medium hardness.		D	5	Natural Bedrock
				Terminated 5.0m				

Notes:

Sheet 1 of 1

TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: ROYAL HALL OF INDUSTRIES
LOCATION: DRIVE AVE, MOORE PARK

DATE: 14 JULY 98
PROJECT No.: 24967
SURFACE LEVEL:

BORE No. 6
SHEET 1 **OF** 1

Depth m	Description of Strata		Sampling & In Situ Testing			
			Type	Depth (m)	Test Results	Core Recovery %
0	BITUMINOUS PAVEMENT	■				
0.1	ROADBASE - sandy crushed rock with maximum particle size 20mm	○	B	0.3		
0.4	SANDSTONE - extremely low to very low strength, extremely weathered, grey brown, medium grained sandstone	∴	S	0.5 0.6	25/100mm ref	
0.8	TEST BORE DISCONTINUED AT 0.8 METRES - auger refusal		A	0.8		
1						
2						

RIG: SCOUT **DRILLER:** DRIVER **LOGGED:** HOLY **CASING:** -

TYPE OF BORING: SPIRAL FLIGHT AUGER TO 0.8m

GROUND WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED

REMARKS: S = STANDARD PENETRATION TEST

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plasitc limit (%)

CHECKED:
Initials:
Date: 7/98

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TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: ROYAL HALL OF INDUSTRIES
LOCATION: DRIVE AVE, MOORE PARK

DATE: 14 JULY 98
PROJECT No.: 24967
SURFACE LEVEL:

BORE No. 7
SHEET 1 **OF** 1

Depth m	Description of Strata	Sampling & In Situ Testing Type	Depth (m)	Test Results	Core Recovery %
0 0.04	BITUMINOUS PAVEMENT				
	ROADBASE – sandy crushed rock with maximum particle size 20mm	B	0.3		
0.5	FILLING – grey, brown, gravelly clayey sand		0.5	2,3,3 N=6	
0.6	FILLING – sand, sandy clay, gravel, coke and ash	S			
			0.95		
1		A	1.2		
			1.5	2,25/100mm ref	
		S			
1.7	SANDSTONE – extremely low strength, extremely weathered, grey brown sandstone				
1.75	TEST BORE DISCONTINUED AT 1.75 METRES		1.75		
2					

RIG: SCOUT **DRILLER:** DRIVER **LOGGED:** HOLY **CASING:** -
TYPE OF BORING: SPIRAL FLIGHT AUGER TO 1.75m
GROUND WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED
REMARKS: S = STANDARD PENETRATION TEST

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plasitc limit (%)

CHECKED:
Initials: AGT
Date: 7/98

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TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
PROJECT: ROYAL HALL OF INDUSTRIES
LOCATION: DRIVE AVE, MOORE PARK

DATE: 14 JULY 98
PROJECT No.: 24967
SURFACE LEVEL:

BORE No. 8
SHEET 1 **OF** 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	BITUMINOUS PAVEMENT				
0.04	ROADBASE - sandy crushed rock with maximum particle size 20mm				
0.2	FILLING - sandy clay, sand, gravel and coke				
0.3	FILLING - crushed sandstone (Drillers' description)	B	0.3		
0.5	FILLING - sandy clay, sand, gravel, ash and glass	S	0.5	4,25/150mm ref	
0.8	SANDSTONE - extremely low to very low strength, extremely weathered, grey brown, medium grained sandstone		0.8		
		A	1.2		
1.3	TEST BORE DISCONTINUED AT 1.3 METRES				
2					

RIG: SCOUT **DRILLER:** DRIVER **LOGGED:** HOLY **CASING:** -

TYPE OF BORING: SPIRAL FLIGHT AUGER TO 1.3m

GROUND WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED

REMARKS: S = STANDARD PENETRATION TEST

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plasitc limit (%)

CHECKED:
Initials: AG
Date: 7/98

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TEST BORE REPORT

CLIENT: HUGHES TRUEMAN REINHOLD
DATE: 14 JULY 98
BORE No. 9
PROJECT: ROYAL HALL OF INDUSTRIES
PROJECT No.: 24967
SHEET 1 **OF** 1
LOCATION: DRIVE AVE, MOORE PARK
SURFACE LEVEL:

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	BITUMINOUS PAVEMENT				
0.15	ROADBASE - sandy crushed rock with maximum particle size 20mm	B	0.3		
0.4	FILLING - crushed sandstone (Drillers' description)				
0.5	FILLING - sandy clay/clayey sand, sand, gravel and ash		0.5	4,3,14 N=17	
0.7	SANDSTONE - extremely low strength, extremely weathered, grey, medium grained sandstone	S			
			0.95		
1					
1.2	TEST BORE DISCONTINUED AT 1.2 METRES - auger refusal				
2					

RIG: SCOUT
DRILLER: DRIVER
LOGGED: HOLY
CASING: -
TYPE OF BORING: SPIRAL FLIGHT AUGER TO 1.2m
GROUND WATER OBSERVATIONS: NO FREE GROUNDWATER OBSERVED
REMARKS: S = STANDARD PENETRATION TEST

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plasitc limit (%)

CHECKED:
Initials:
Date: 7/98

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CONE PENETRATION TEST

CLIENT HUGHES TRUEMAN REINHOLD PTY LTD

PROJECT HORDERN PAVILION/RHI

LOCATION DRIVER AVENUE, MOORE PARK

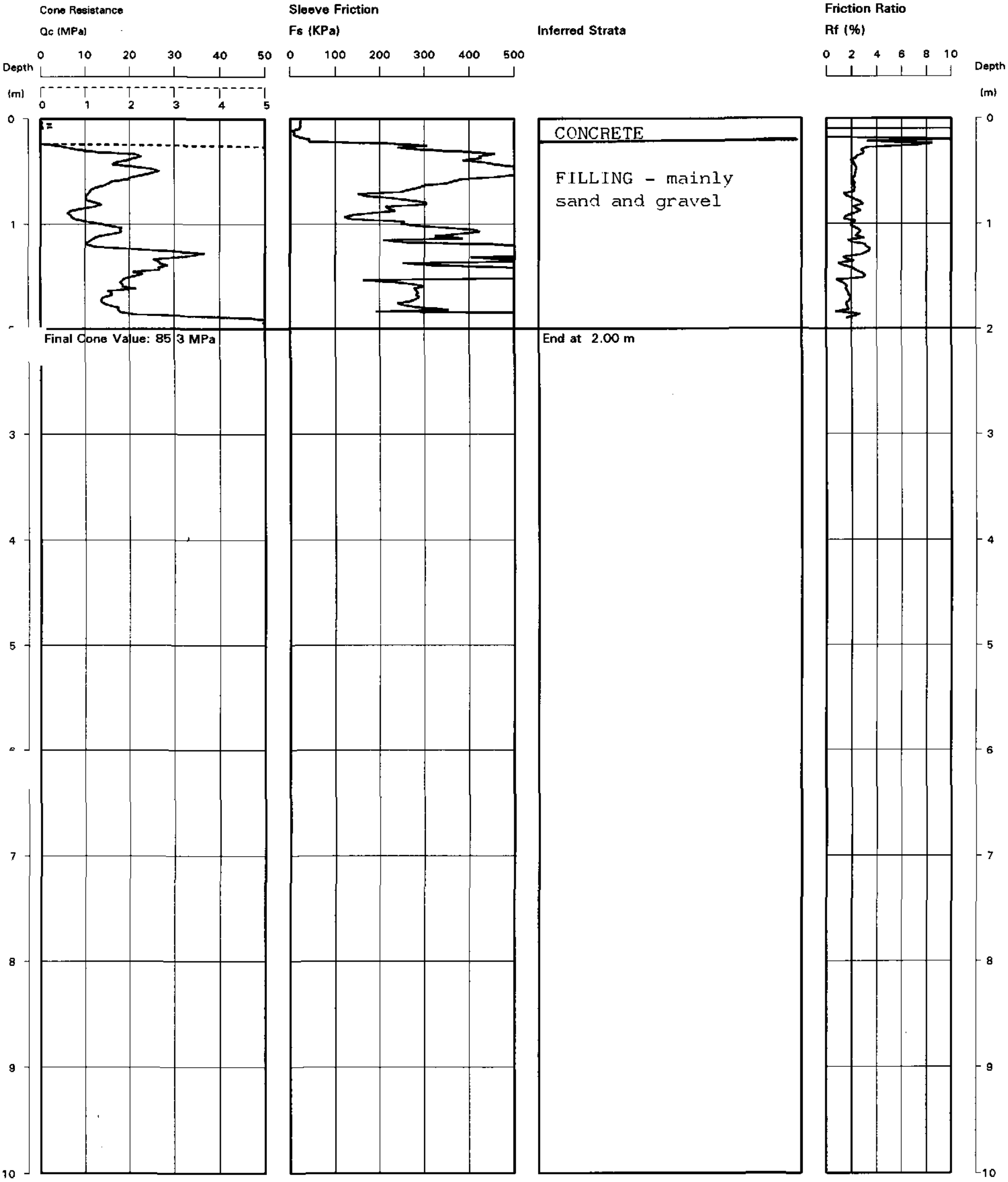
PROJECT No 24967

CPT 6

Page 1 of 1

DATE 6 MAR 1998

37.5
SURFACE RL



REMARKS: HOLE COLLAPSE AT 1.9 METRES DEPTH
REFUSAL ON OBSTRUCTION

File: A:\24967-06.CPT
Cone ID: CONE-903 **Type:** Standard

Date	3-98
Plotted	GAK
Checked	

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CONE PENETRATION TEST

CLIENT HUGHES TRUEMAN REINHOLD

PROJECT HORDERN PAVILION/RHI

LOCATION DRIVER AVENUE, MOORE PARK

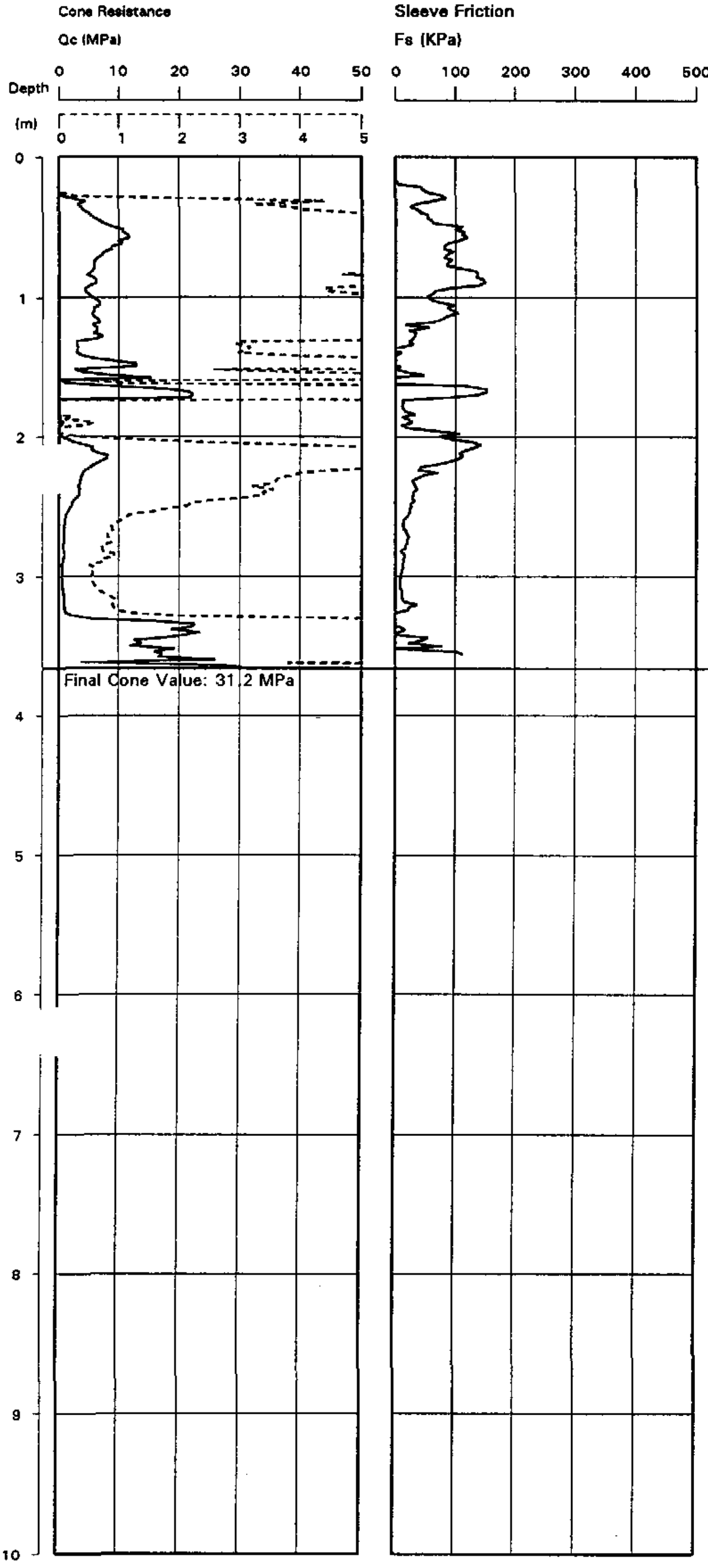
PROJECT No 24967

CPT 6 A

Page 1 of 1

DATE 17 MAR 1998

37.5
SURFACE RL



Inferred Strata

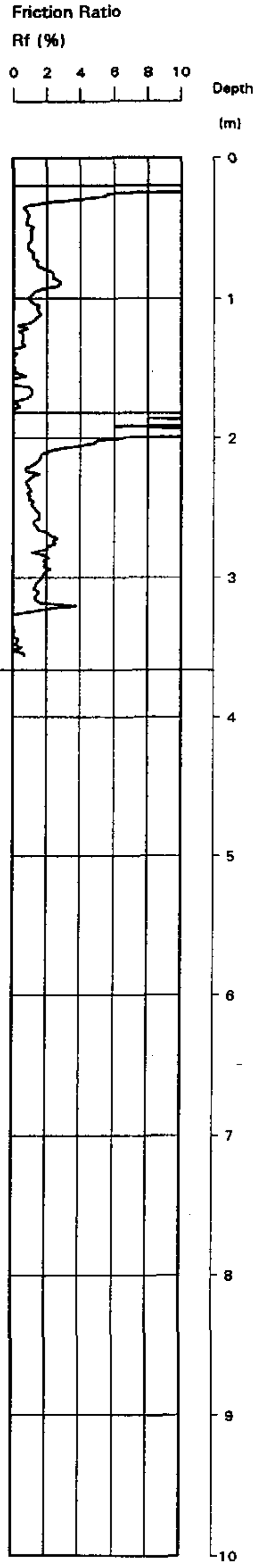
CONCRETE

FILLING - mainly sand and gravel

FILLING - very loose silty sand and gravel

SANDSTONE - very low strength

End at 3.66 m



REMARKS: HOLE COLLAPSE AT 2.7 METRES DEPTH
DUMMY CONE FROM 1.7-2.2 METRES DEPTH

File: A:\24967-6A.CPT
Cone ID: CONE1010 **Type:** Standard

Date	3-98
Plotted	GAK
Checked	AWT

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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.

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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.

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.

Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

- In the case where full penetration is obtained with successive blow counts for each 150 mm of, say, 4, 6 and 7 as:

  4,6,7
  N=13

- In the case where the test is discontinued before the full penetration depth, say after 15 blows for the first 150 mm and 30 blows for the next 40 mm as:

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Soil Descriptions

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are based on Australian Standard AS 1726-1993, Geotechnical Site Investigations Code. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	20 - 63
Medium gravel	6 - 20
Fine gravel	2.36 - 6
Coarse sand	0.6 - 2.36
Medium sand	0.2 - 0.6
Fine sand	0.075 - 0.2

The proportions of secondary constituents of soils are described as:

Term	Proportion	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	20 - 35%	Sandy Clay
Slightly	12 - 20%	Slightly Sandy Clay
With some	5 - 12%	Clay with some sand
With a trace of	0 - 5%	Clay with a trace of sand

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	vs	<12
Soft	s	12 - 25
Firm	f	25 - 50
Stiff	st	50 - 100
Very stiff	vst	100 - 200
Hard	h	>200

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	SPT N value	CPT qc value (MPa)
Very loose	vl	<4	<2
Loose	l	4 - 10	2 -5
Medium dense	md	10 - 30	5 - 15
Dense	d	30 - 50	15 - 25
Very dense	vd	>50	>25

Soil Descriptions

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Transported soils - formed somewhere else and transported by nature to the site; or
- Filling - moved by man.

Transported soils may be further subdivided into:

- Alluvium - river deposits
- Lacustrine - lake deposits
- Aeolian - wind deposits
- Littoral - beach deposits
- Estuarine - tidal river deposits
- Talus - scree or coarse colluvium
- Slopewash or Colluvium - transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

Rock Descriptions

Rock Strength

Rock strength is defined by the Point Load Strength Index ($Is_{(50)}$) and refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects. The test procedure is described by Australian Standard 4133.4.1 - 2007. The terms used to describe rock strength are as follows:

Term	Abbreviation	Point Load Index $Is_{(50)}$ MPa	Approximate Unconfined Compressive Strength MPa*
Extremely low	EL	<0.03	<0.6
Very low	VL	0.03 - 0.1	0.6 - 2
Low	L	0.1 - 0.3	2 - 6
Medium	M	0.3 - 1.0	6 - 20
High	H	1 - 3	20 - 60
Very high	VH	3 - 10	60 - 200
Extremely high	EH	>10	>200

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$. It should be noted that the UCS to $Is_{(50)}$ ratio varies significantly for different rock types and specific ratios should be determined for each site.

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Extremely weathered	EW	Rock substance has soil properties, i.e. it can be remoulded and classified as a soil but the texture of the original rock is still evident.
Highly weathered	HW	Limonite staining or bleaching affects whole of rock substance and other signs of decomposition are evident. Porosity and strength may be altered as a result of iron leaching or deposition. Colour and strength of original fresh rock is not recognisable
Moderately weathered	MW	Staining and discolouration of rock substance has taken place
Slightly weathered	SW	Rock substance is slightly discoloured but shows little or no change of strength from fresh rock
Fresh stained	Fs	Rock substance unaffected by weathering but staining visible along defects
Fresh	Fr	No signs of decomposition or staining

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with some fragments
Fractured	Core lengths of 40-200 mm with some shorter and longer sections
Slightly Fractured	Core lengths of 200-1000 mm with some shorter and longer sections
Unbroken	Core lengths mostly > 1000 mm

Rock Descriptions

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq 100 \text{ mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or better. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

Douglas Partners

Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

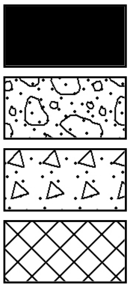
Other

fg	fragmented
bnd	band
qtz	quartz

Symbols & Abbreviations

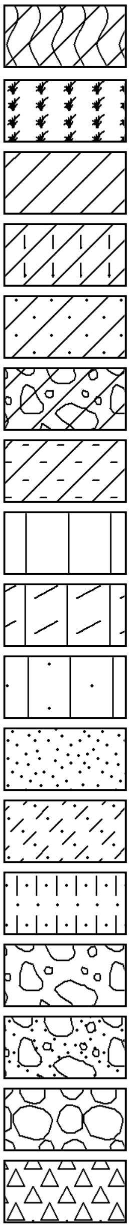
Graphic Symbols for Soil and Rock

General



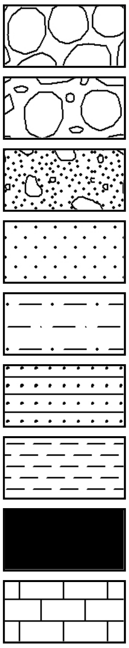
Asphalt
Road base
Concrete
Filling

Soils



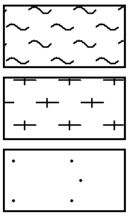
Topsoil
Peat
Clay
Silty clay
Sandy clay
Gravelly clay
Shaly clay
Silt
Clayey silt
Sandy silt
Sand
Clayey sand
Silty sand
Gravel
Sandy gravel
Cobbles, boulders
Talus

Sedimentary Rocks



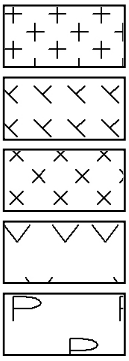
Boulder conglomerate
Conglomerate
Conglomeratic sandstone
Sandstone
Siltstone
Laminite
Mudstone, claystone, shale
Coal
Limestone

Metamorphic Rocks



Slate, phyllite, schist
Gneiss
Quartzite

Igneous Rocks

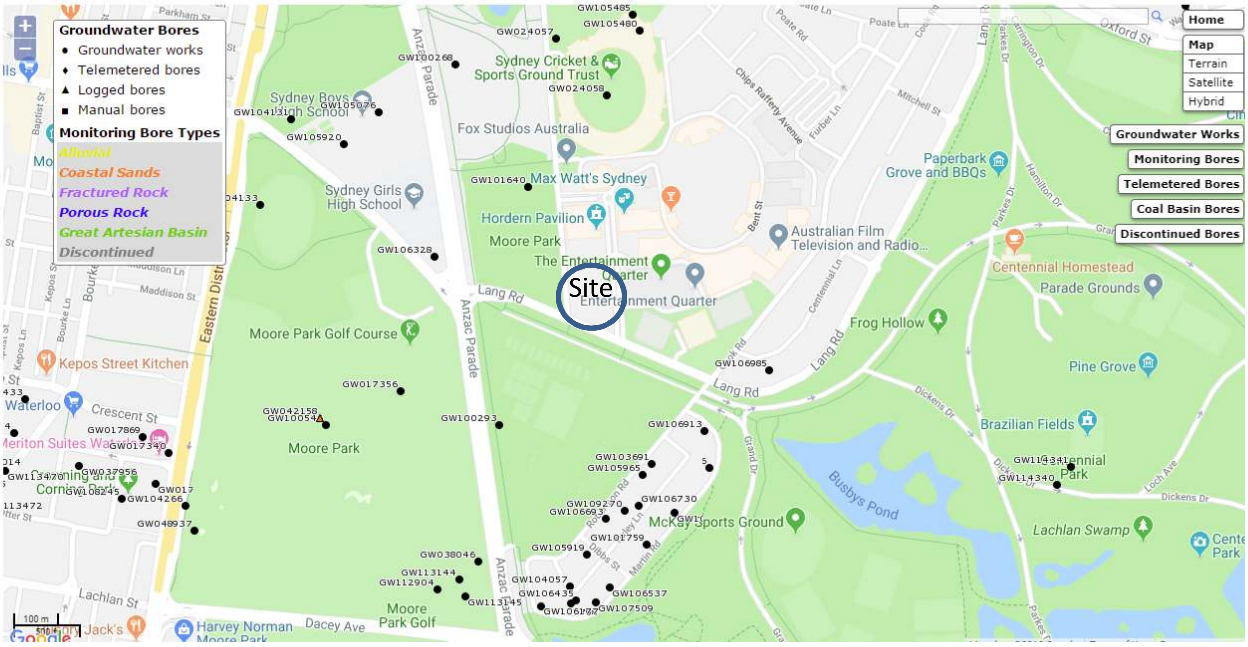


Granite
Dolerite, basalt, andesite
Dacite, epidote
Tuff, breccia
Porphyry

Appendix C

Results of Registered Groundwater Bore Search

Results of Registered Groundwater Bore Search (28 February 2019)



Source: https://realtimedata.waternsw.com.au/

WaterNSW
Work Summary
GW100293

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): RECREATION (GROUNDWATER), IRRIGATION

Work Type: Bore

Work Status: Supply Obtained

Construct.Method: Cable Tool

Owner Type: Private

Commenced Date:

Completion Date: 23/02/1994

Final Depth: 18.00 m

Drilled Depth: 20.00 m

Contractor Name: B & B DRILLING INC

Driller: Michael Gerard Barrett

Assistant Driller:

Property:

GWMA:

GW Zone:

Standing Water Level (m): 6.900

Salinity Description: Good

Yield (L/s): 7.500

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	1771//821362
Licensed:			

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Elevation Source: Unknown

Northing: 6247770.000

Easting: 335640.000

Latitude: 33°53'51.5"S

Longitude: 151°13'20.8"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Annulus	Waterworn/Rounded	8.00	18.00				Graded, Q:1.000m3
1	1	Casing	P.V.C.	0.00	12.00	218			Seated on Bottom, Screwed
1	1	Opening	Screen - Wire Wound	12.00	18.00	218		1	Stainless Steel, Screwed, A: 20.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
6.90	18.00	11.10	Unknown	6.90	10.70	7.50	18.00	12:00:00	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.80	0.80	FILL	Fill	
0.80	12.80	12.00	YELLOW SAND	Sand	
12.80	15.20	2.40	WHITE SILTY SAND	Sand	
15.20	18.00	2.80	YELLOW SAND W.B.	Sand	
18.00	19.00	1.00	YELLOW SILTY SAND	Sand	
19.00	20.00	1.00	DECOMPOSED SANDSTONE	Sandstone	

Remarks

24/01/2013: Nat Carling, 24-Jan-2013; Added rock type codes to driller's log & added missing information (based on existing data).

***** End of GW100293 *****

WaterNSW
Work Summary
GW101640

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): RECREATION (GROUNDWATER)

Work Type: Bore

Work Status: Supply Obtained

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 30/07/1993

Final Depth: 17.90 m

Drilled Depth: 17.90 m

Contractor Name: (None)

Driller:

Assistant Driller:

Property:

Standing Water Level (m): 7.000

GWMA:

GW Zone:

Salinity Description:

Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	1763//821362
Licensed:			

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Elevation Source: Unknown

Northing: 6248243.000

Easting: 335689.000

Latitude: 33°53'36.2"S

Longitude: 151°13'23.0"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	17.90	0			(Unknown)
1	1	Opening	Slots	13.20	15.40			0	

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	4.30	4.30	Topsoil with Fill	Topsoil	
4.30	6.50	2.20	Light Grey Sand	Sand	
6.50	7.00	0.50	Brown Sand	Sand	
7.00	9.60	2.60	Yellow Silty Sand	Sand	
9.60	10.50	0.90	Light Brown Sand WB	Sand	
10.50	14.80	4.30	White Sand WB	Sand	
14.80	16.60	1.80	Yellow Silty Sand	Sand	
16.60	17.90	1.30	Decomposed Sandstone	Sandstone	

Remarks

30/07/1993: Form A Remarks:
COMMENTS ON FORM A
DETAILS BY HYDRO-PLAN PTY. LTD

***** End of GW101640 *****

WaterNSW
Work Summary
GW106328

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): DOMESTIC

Work Type: Bore

Work Status:

Construct.Method:

Owner Type:

Commenced Date:

Completion Date: 12/06/2004

Final Depth: 9.50 m

Drilled Depth: 9.50 m

Contractor Name: (None)

Driller: Rosario Fedele

Assistant Driller:

Property:

Standing Water Level (m):

GWMA:

Salinity Description:

GW Zone:

Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	1744 820527
Licensed:			

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST - GEORGES RIVER

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Elevation Source: (Unknown)

Northing: 6248103.000

Easting: 335504.000

Latitude: 33°53'40.7"S

Longitude: 151°13'15.7"E

GS Map: -

MGA Zone: 56

Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.50	100			Auger
1	1	Casing	Lining	0.00	9.50				

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.50	9.50	SAND	Sand	

Remarks

16/08/2005: Previous Lic No:162970
11/01/2010: Previous Lic No:10BL162972

***** End of GW106328 *****

WaterNSW
Work Summary
GW103691

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): DOMESTIC

Work Type: Bore

Work Status: Supply Obtained

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 03/05/2001

Final Depth: 9.00 m

Drilled Depth: 9.00 m

Contractor Name: (None)

Driller: Rosario Fedele

Assistant Driller:

Property:

Standing Water Level (m):

GWMA:

Salinity Description:

GW Zone:

Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	LT13/2/ DP4598
Licensed:			

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST - GEORGES RIVER

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Northing: 6247699.000

Latitude: 33°53'54.0"S

Elevation Source: (Unknown)

Easting: 335944.000

Longitude: 151°13'32.6"E

GS Map: -

MGA Zone: 56

Coordinate Source: Map Interpre

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.00	90			Other
1	1	Casing	Lining	0.00	9.00				

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.00	9.00	SAND	Sand	

***** End of GW103691 *****

WaterNSW
Work Summary
GW105965

Licence:

Licence Status:

Authorised Purpose(s):

Intended Purpose(s): DOMESTIC

Work Type:

Work Status:

Construct.Method: Auger

Owner Type: Private

Commenced Date:

Completion Date: 17/03/2004

Final Depth: 9.50 m

Drilled Depth: 9.50 m

Contractor Name:

Driller: Rosario Fedele

Assistant Driller:

Property:

Standing Water Level (m):

GWMA:

Salinity Description:

GW Zone:

Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	11/2/4598
Licensed:			

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST - GEORGES RIVER

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Northing: 6247677.000

Latitude: 33°53'54.7"S

Elevation Source: (Unknown)

Easting: 335927.000

Longitude: 151°13'31.9"E

GS Map: -

MGA Zone: 56

Coordinate Source: GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.00	100			Auger
1	1	Casing	Lining	0.00	0.00				

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.50	9.50	SAND	Sand	

Remarks

19/11/2009: updated from original form A

***** End of GW105965 *****

WaterNSW
Work Summary
GW106913

Licence:		**Licence Status:**	
		Authorised Purpose(s):	
		Intended Purpose(s):	DOMESTIC

Work Type: Spear
Work Status: Supply Obtained
Construct.Method: Auger
Owner Type: Private

Commenced Date:		**Final Depth:**	9.50 m
Completion Date:	10/04/2005	**Drilled Depth:**	9.50 m

Contractor Name: (None)
Driller: Rosario Fedele
Assistant Driller:

Property:		**Standing Water Level (m):**	
GWMA:		**Salinity Description:**	
GW Zone:		**Yield (L/s):**	

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	CUMBERLAND	ALEXANDRIA	19//4598
Licensed:			

Region:	10 - Sydney South Coast	**CMA Map:**	9130-3S		
River Basin:	213 - SYDNEY COAST - GEORGES RIVER	**Grid Zone:**		**Scale:**	
Area/District:					
Elevation:	0.00 m (A.H.D.)	**Northing:**	6247765.000	**Latitude:**	33°53'51.9"S
Elevation Source:	Unknown	**Easting:**	336048.000	**Longitude:**	151°13'36.7"E
GS Map:	-	**MGA Zone:**	56	**Coordinate Source:**	GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.50	100			Auger

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	9.50	9.50	Sand	Sand	

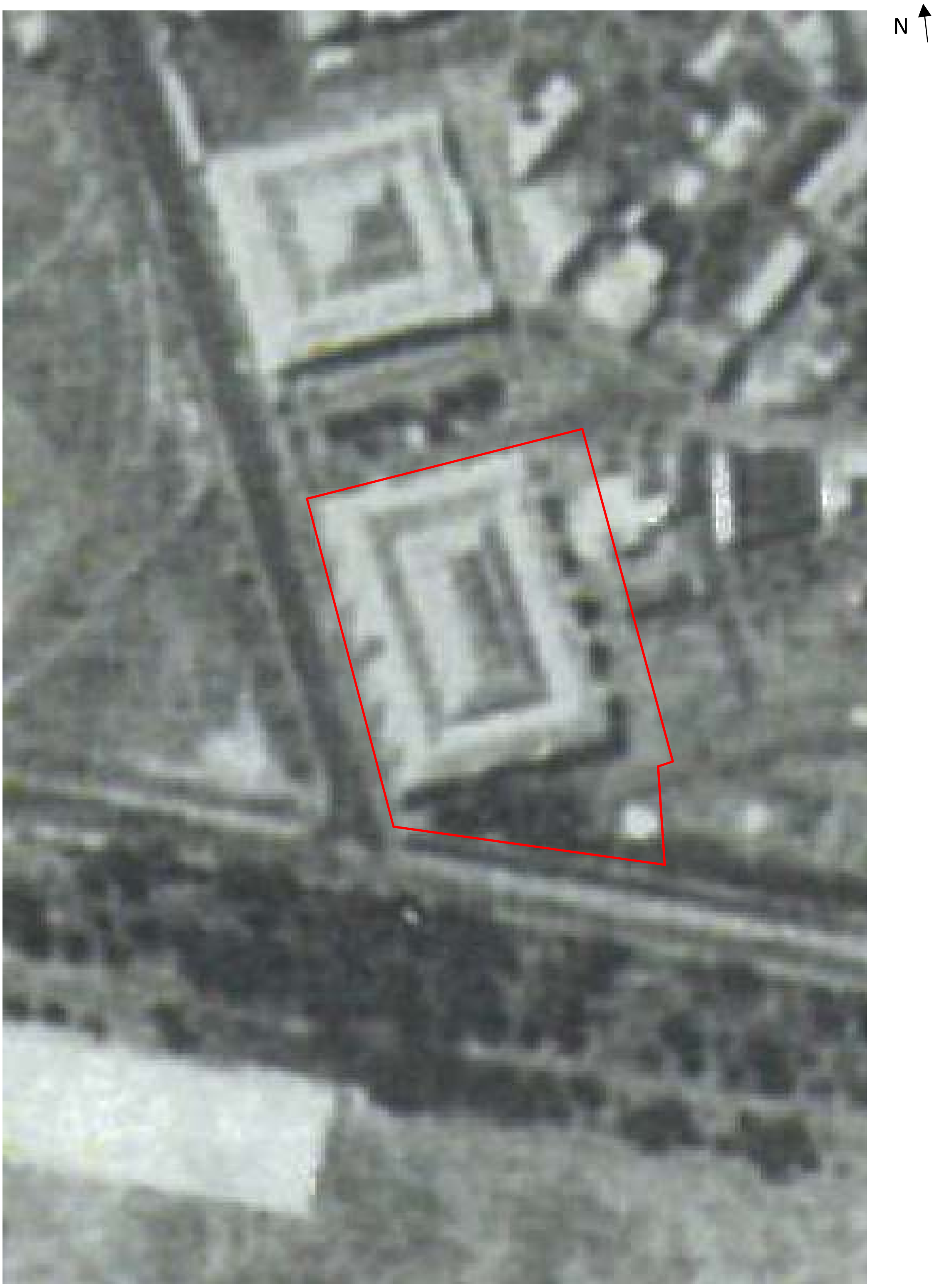
Remarks

05/02/2010: updated from original form A

***** End of GW106913 *****

Appendix D

Aerial Photographs



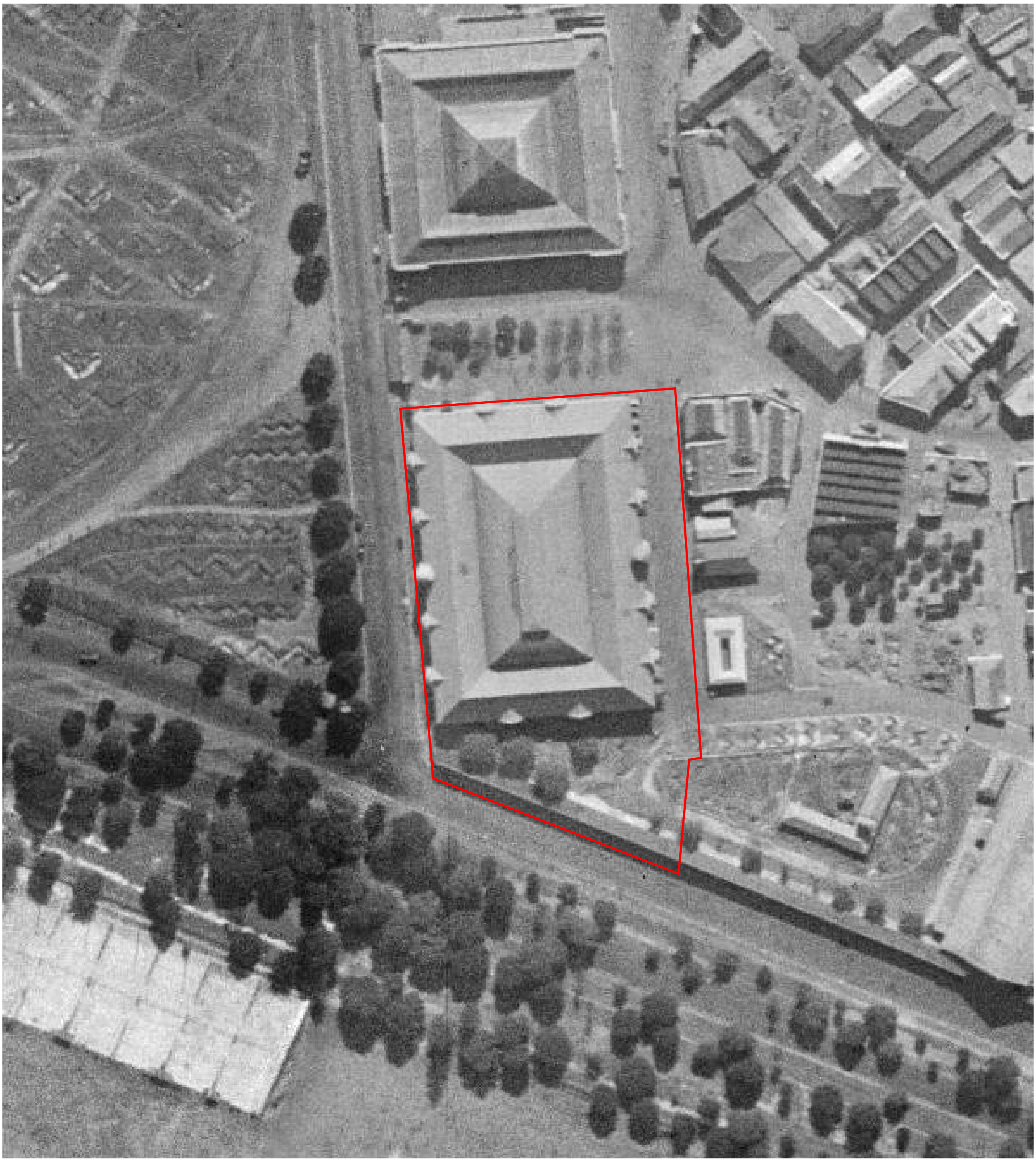
Legend

Approximate site boundary

Source: NSW Spatial Services

Douglas Partners Geotechnics / Environment / Groundwater	**1930 Aerial Photograph**	PROJECT:	86724.00
	Royal Hall of Industries	PLATE No:	D1
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	28-Feb-19

N ↑



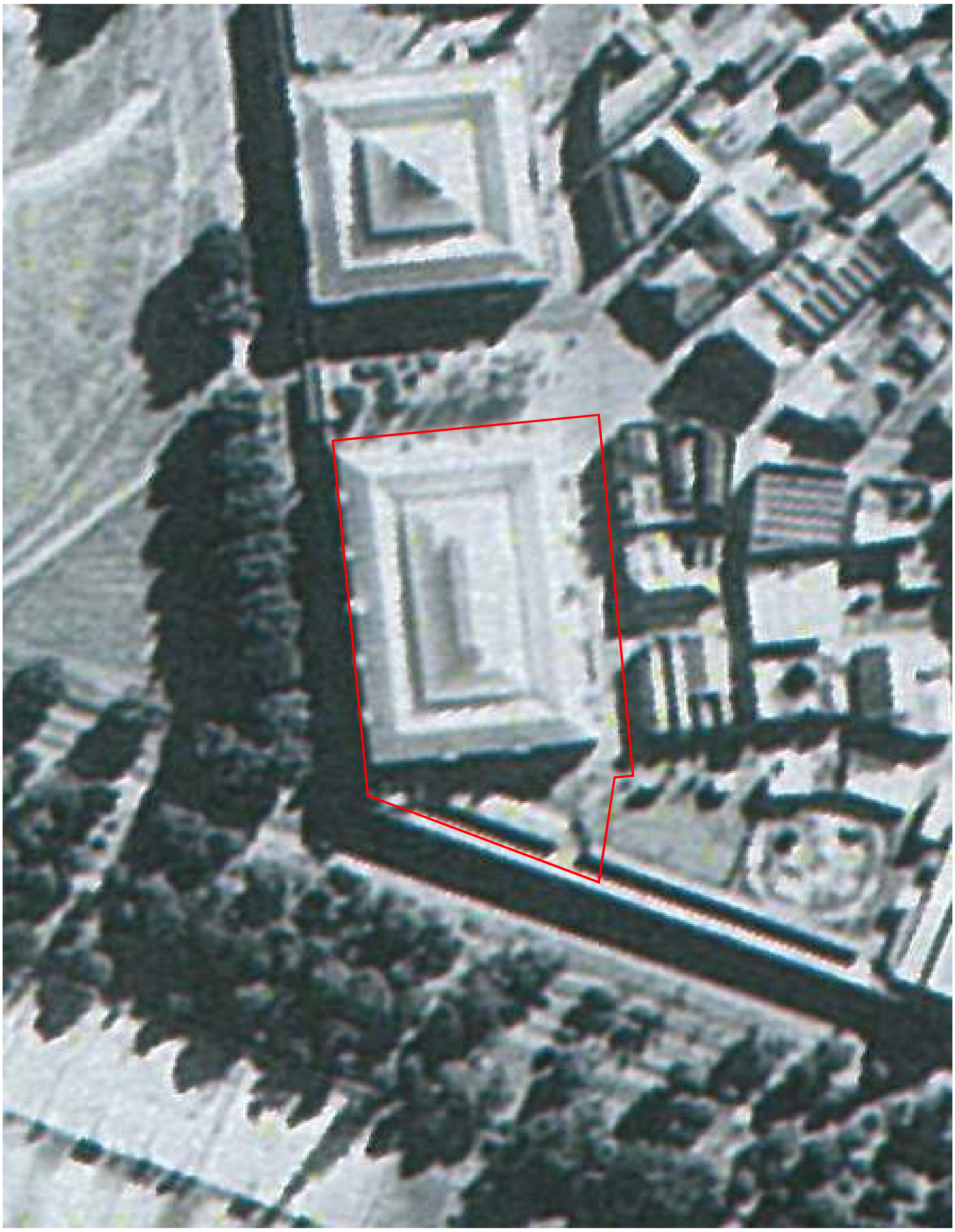
Legend

🟥 Approximate site boundary

Source: NSW Spatial Services, Sixmaps

Douglas Partners Geotechnics / Environment / Groundwater	**1943 Aerial Photograph**	PROJECT:	86724.00
	Royal Hall of Industries	PLATE No:	D2
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	28-Feb-19

N ↑



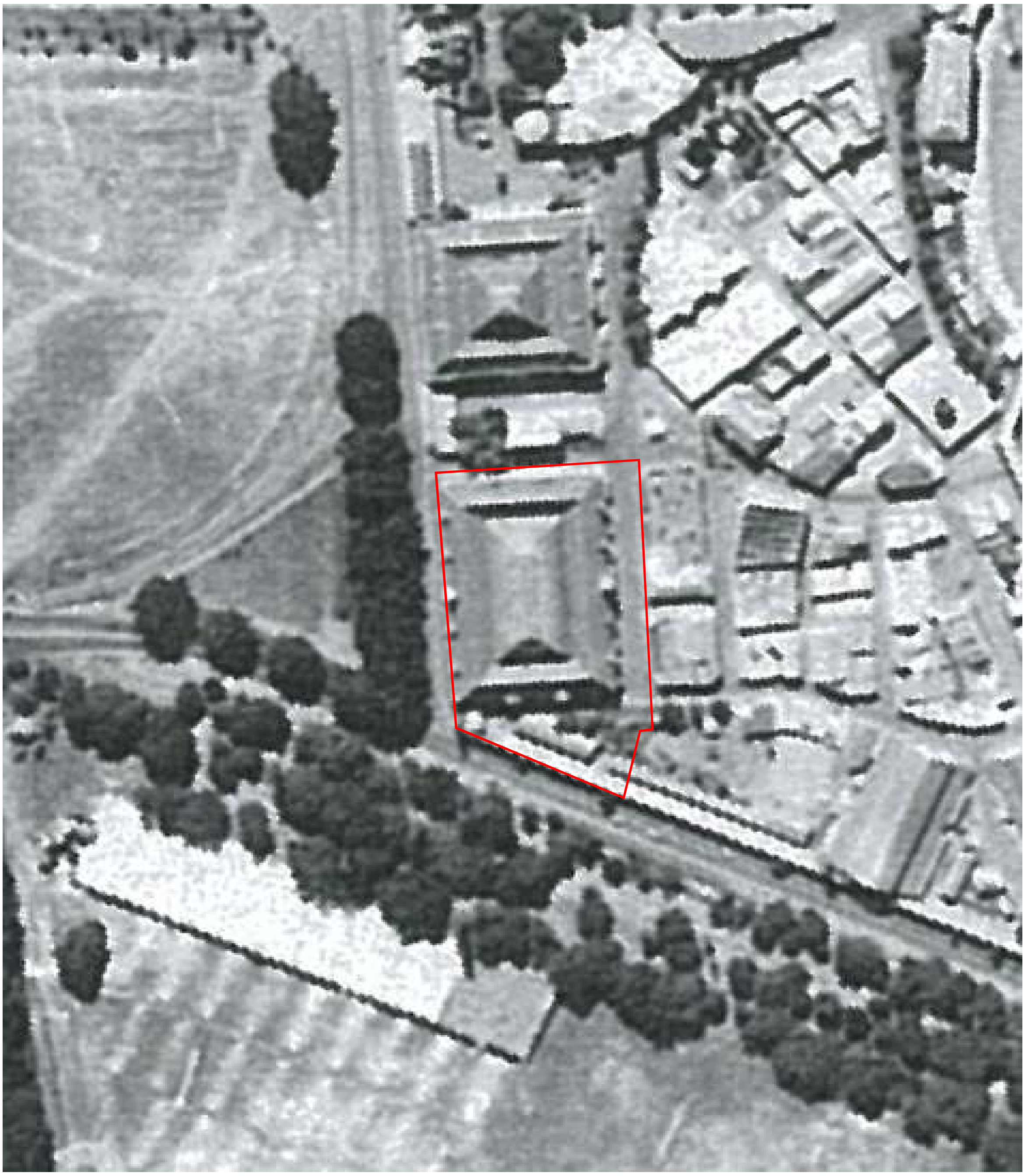
Legend

🟥 Approximate site boundary

Source: NSW Spatial Services

Douglas Partners Geotechnics / Environment / Groundwater	**1961 Aerial Photograph**	PROJECT:	86724.00
	Royal Hall of Industries	PLATE No:	D3
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	28-Feb-19

N ↑



Legend

🟥 Approximate site boundary

Source: NSW Spatial Services

Douglas Partners
Geotechnics / Environment / Groundwater

1978 Aerial Photograph

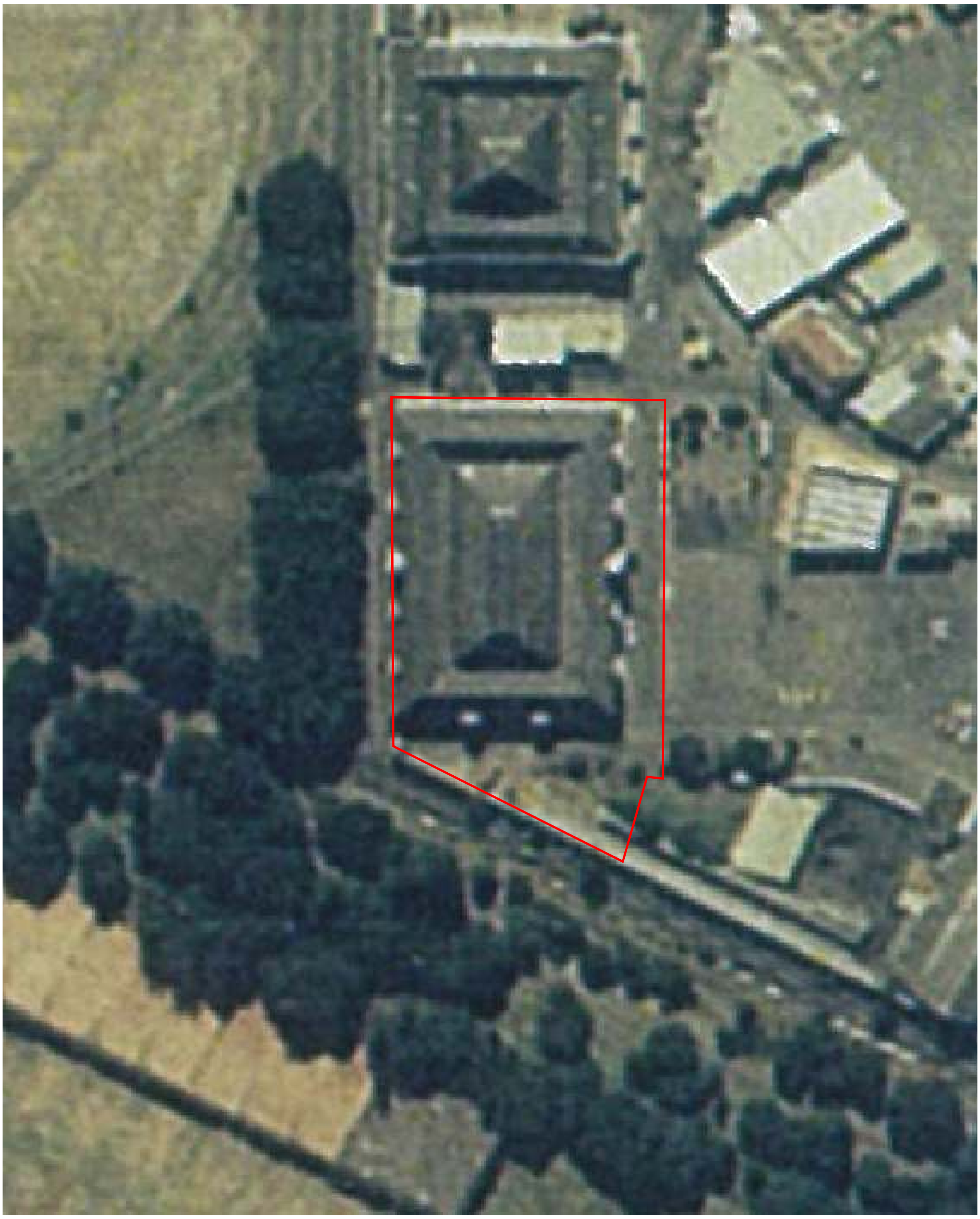
Royal Hall of Industries

1 Driver Avenue, Moore Park

CLIENT: Sydney Swans Limited

PROJECT:	86724.00
PLATE No:	D4
REV:	0
DATE:	28-Feb-19

N ↑



Legend

Approximate site boundary

Source: NSW Spatial Services

Douglas Partners
Geotechnics / Environment / Groundwater

1986 Aerial Photograph		PROJECT:	86724.00
Royal Hall of Industries		PLATE No:	D5
1 Driver Avenue, Moore Park		REV:	0
CLIENT:	Sydney Swans Limited	DATE:	28-Feb-19

N ↑

Legend

Approximate site boundary

Source: NSW Spatial Services

Douglas Partners Geotechnics / Environment / Groundwater	**1994 Aerial Photograph**	PROJECT:	86724.00
	Royal Hall of Industries	PLATE No:	D6
	1 Driver Avenue, Moore Park	REV:	0
	CLIENT: Sydney Swans Limited	DATE:	28-Feb-19

N

Legend

🟥	Approximate site boundary

Source: Nearmap

Douglas Partners
Geotechnics / Environment / Groundwater

2009 Aerial Photograph

Royal Hall of Industries

1 Driver Avenue, Moore Park

CLIENT: Sydney Swans Limited

PROJECT:	86724.00
PLATE No:	D7
REV:	0
DATE:	28-Feb-19

N ↑

Legend

🟥 Approximate site boundary

Source: Nearmap

Douglas Partners
Geotechnics / Environment / Groundwater

2019 Aerial Photograph	PROJECT:	86724.00
Royal Hall of Industries	PLATE No:	D8
1 Driver Avenue, Moore Park	REV:	0
CLIENT: Sydney Swans Limited	DATE:	28-Feb-19

Appendix E

Historical Title Deeds

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

LRS NSW **Sydney**

Address: - Royal Hall of Industries, Moore Park

Description: - Lot 3 in D.P. 861843 and part Lot 52 in D. P. 1041134

Note: -the early title to this land is Crown Title. We are aware of the following events: -

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
1911 (1911 to 1998)	Vested in Royal Agricultural Society of New South Wales pursuant to Royal Agricultural Society Act 1911	Legislation – see also Crown Plan 3472-3000 Now 1/861843 & 3/861843
28.01.1998 (1998 to date)	# Centennial Park and Moore Park Trust	1/861843 Now 52/1041134 Also 3/861843

# Denotes current registered proprietor

Easements: -

- Easements noted on both titles are not located within the lands subject to the scope of this investigation

Leases: -

- During the course of our investigation numerous subleases were found from 5th February 1998. Theses have not been investigated
- 14.11.1996 (2610596), which affects lot 52 D. P. 1041134 was surrendered 02.10.1997 – not investigated
- 05.02.1998 (3750891) Lease to FSAT Pty Limited – expires 21.04.2036 with an option to renew of 10 years – no further investigation has been conducted

Yours Sincerely,
Matthew Hillerman
(Checked by Mark Groll)
11 March 2019

Email: mark.groll@infotrack.com.au

NSW LAND REGISTRY SERVICES

Cadastral Records Enquiry Report : Lot 3 DP 861843

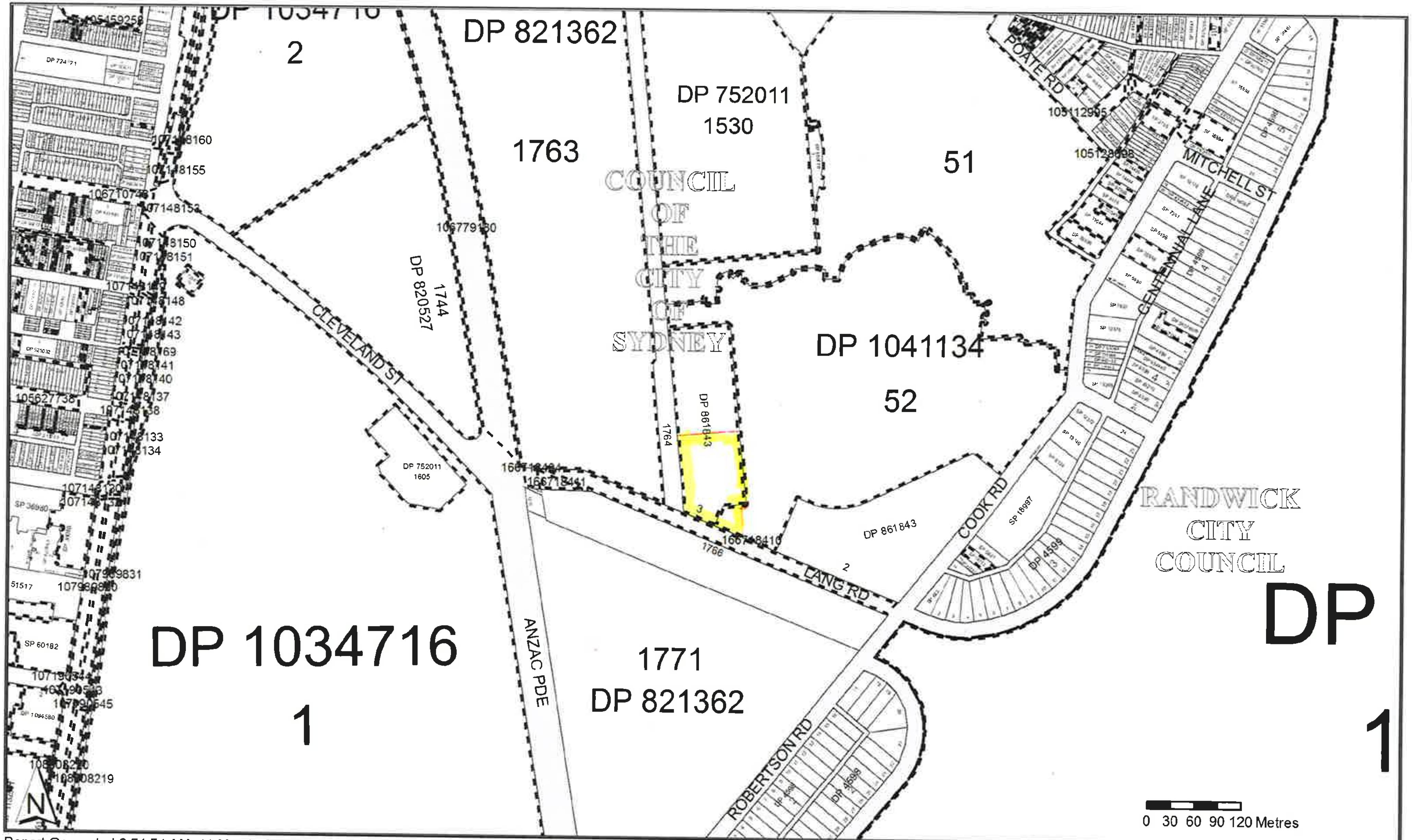
Locality : MOORE PARK

LGA : SYDNEY

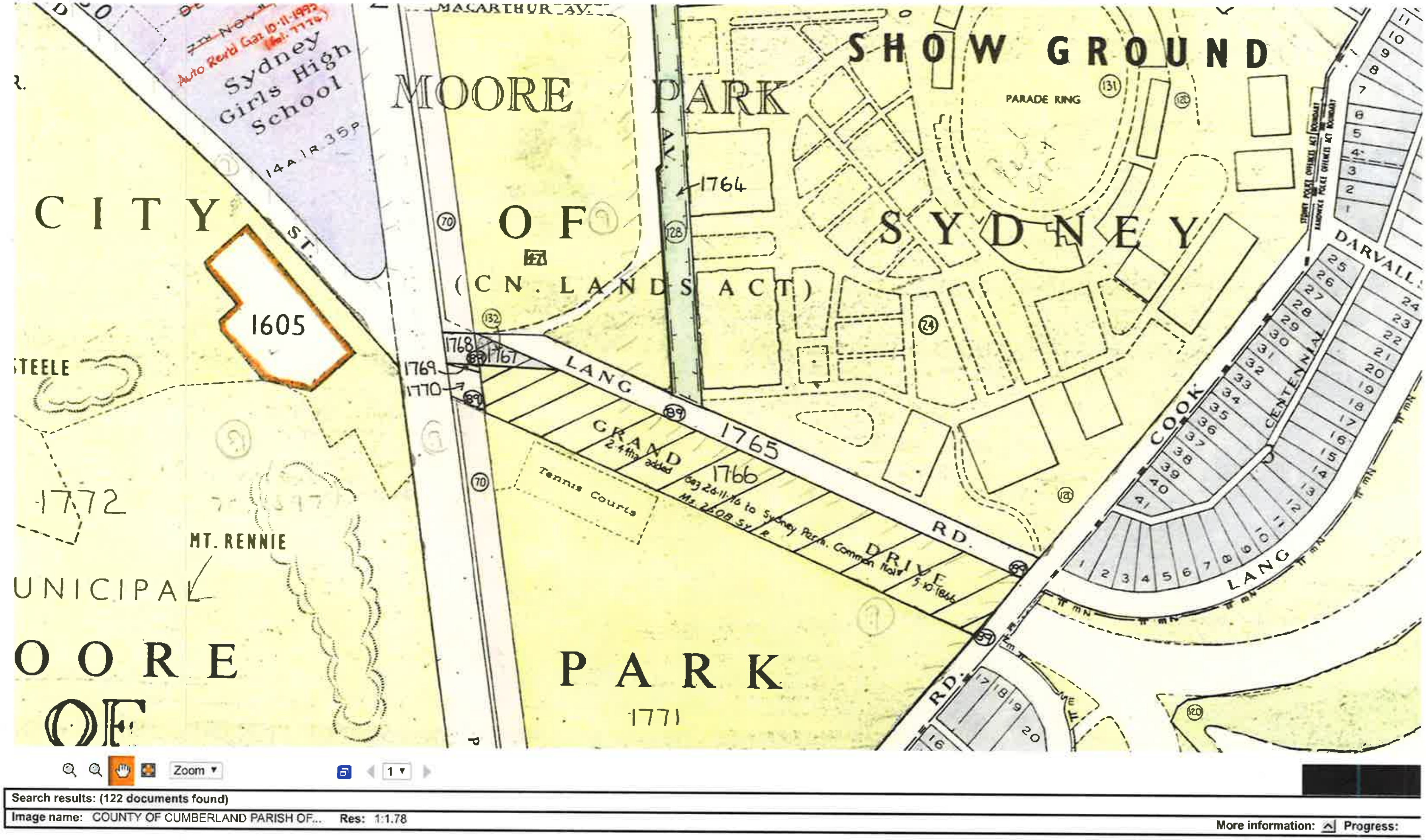
Parish : ALEXANDRIA

County : CUMBERLAND

Ref : NOUSER



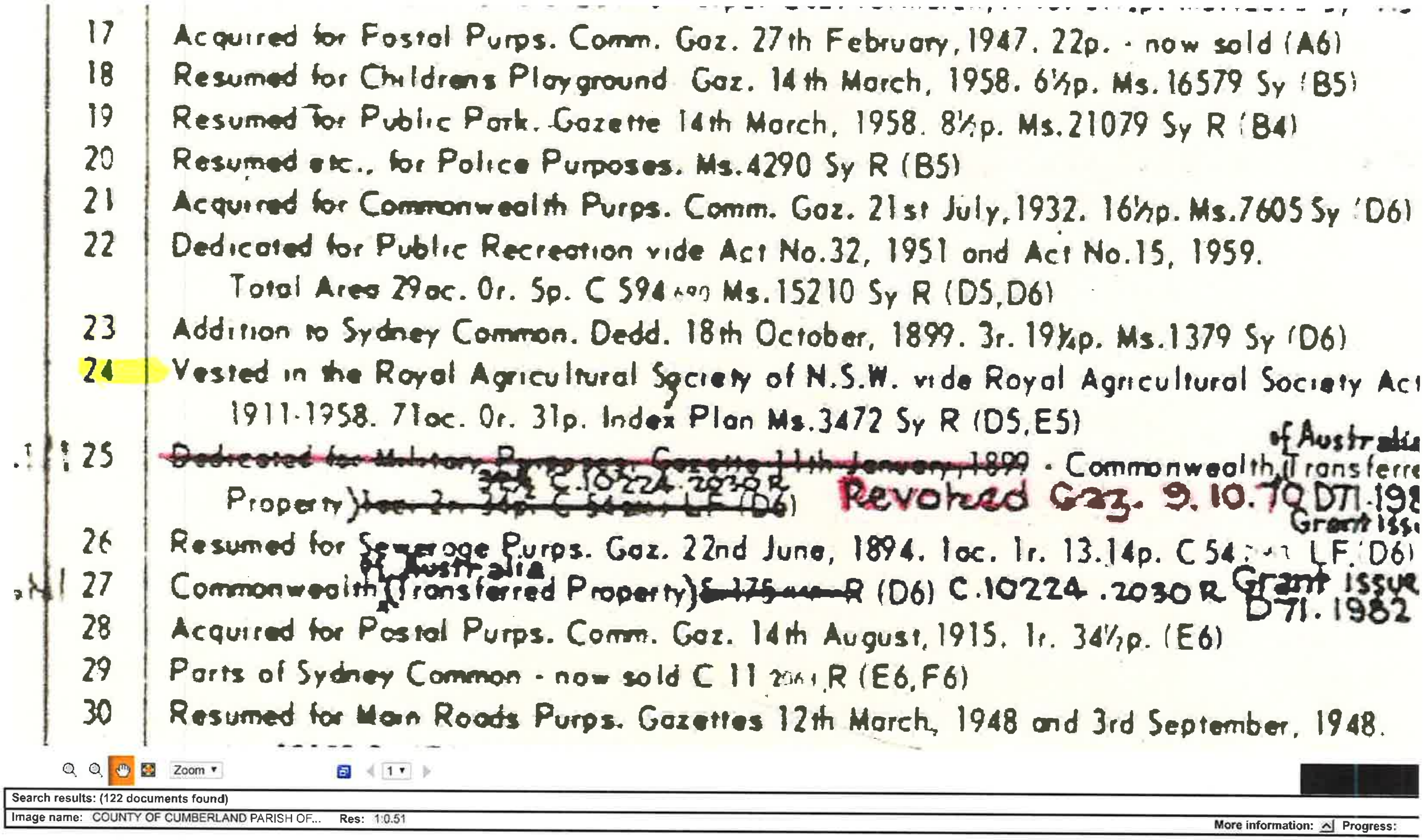
Report Generated 9:54:54 AM, 11 March, 2019



Search results: (122 documents found)

Image name: COUNTY OF CUMBERLAND PARISH OF... Res: 1:1.78

More information: Progress:



17 Acquired for Postal Purps. Comm. Gaz. 27th February, 1947. 22p. - now sold (A6)

18 Resumed for Childrens Playground Gaz. 14th March, 1958. 6½p. Ms.16579 Sy (B5)

19 Resumed for Public Park. Gazette 14th March, 1958. 8½p. Ms.21079 Sy R (B4)

20 Resumed etc., for Police Purposes. Ms.4290 Sy R (B5)

21 Acquired for Commonwealth Purps. Comm. Gaz. 21st July, 1932. 16½p. Ms.7605 Sy (D6)

22 Dedicated for Public Recreation vide Act No.32, 1951 and Act No.15, 1959.
Total Area 29ac. 0r. 5p. C 594 ·690 Ms.15210 Sy R (D5,D6)

23 Addition to Sydney Common. Dedd. 18th October, 1899. 3r. 19¼p. Ms.1379 Sy (D6)

24 Vested in the Royal Agricultural Society of N.S.W. vide Royal Agricultural Society Act
1911-1958. 71ac. 0r. 31p. Index Plan Ms.3472 Sy R (D5,E5)

25 ~~Dedicated for Military Purposes. Gazette 11th January, 1899~~ - Commonwealth of Australia (Transferre
Property) ~~loc. 2r. 34p. C 54 LF (D6)~~ 3r 34p C.10224.2030 R Revoked Gaz. 9.10.70 DTI.198 Grant Issu

26 Resumed for Sewerage Purps. Gaz. 22nd June, 1894. 1oc. 1r. 13.14p. C 54 LF (D6)

27 Commonwealth of Australia (Transferred Property) ~~C 175 R~~ (D6) C.10224.2030 R Grant issue D71.1982

28 Acquired for Postal Purps. Comm. Gaz. 14th August, 1915. 1r. 34½p. (E6)

29 Parts of Sydney Common - now sold C 11 2061 R (E6,F6)

30 Resumed for Main Roads Purps. Gazettes 12th March, 1948 and 3rd September, 1948.

PLAN FORM 2

Plan Drawing only to appear in this space

SIGNATURE AND SEALS ONLY

THE COMMON SEAL OF THE ROYAL AGRICULTURAL SOCIETY OF NEW SOUTH WALES WAS AFFIXED HERETO THIS THIRTEENTH DAY OF AUGUST 1996 AND IN THE PRESENCE OF:

Member of Council

Member of Council

Chief Executive Officer

*OFFICE USE ONLY

DP 861843

Registered 4·9·1996

CA N°. 45/96 of 18·7·1996

Title System TORRENS

Purpose SUBDIVISION

Ref. Map PARISH * U1845-531#, U1845-533 *

Last Plan DP 860678

PLAN OF SUBDIVISION OF LOT 1 D.P. 860678

Lengths are in metres Reduction Ratio 1: 2500

LGA SOUTH SYDNEY

Locality: MOORE PARK

Parish: ALEXANDRIA

County: CUMBERLAND (1 SHTB)

This is sheet 1 of my plan in 3 sheets
(Delete if inapplicable)

I, ANDREW P. MASON
FRANK M. MASON & CO PTY LTD
of 2 WINSLOW ST, MILSONS POINT 2061

a surveyor registered under the Surveyors Act 1929 hereby certify that the survey represented in this plan is accurate has been made in accordance with the Survey Practice Regulation 1990 and was completed on 6 JUNE 1996

Andrew P. Mason
(Signature).
Surveyor registered under the surveyors Act 1929

Datum Line of Azimuth
SSM 60273 - SSM 66135
(SEE SHEET 2)

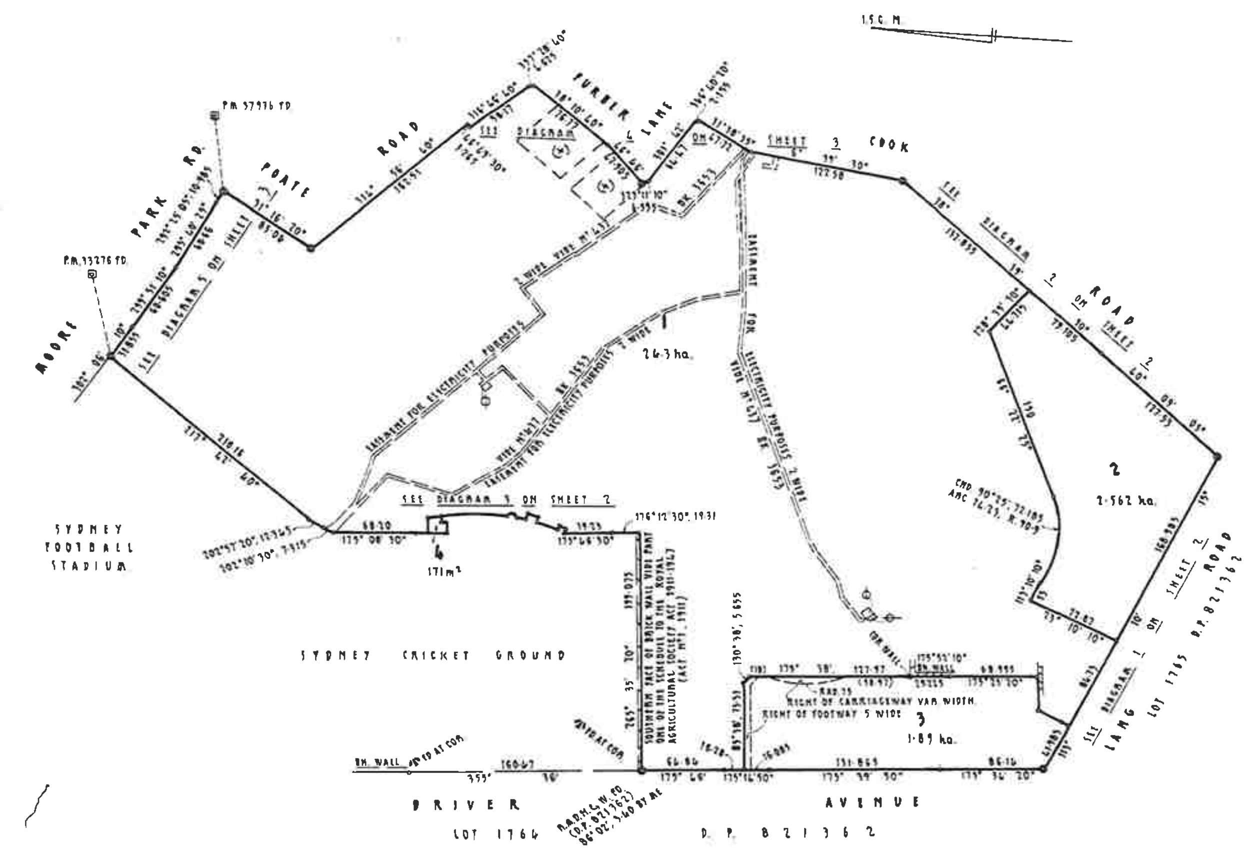
Plans used in preparation of survey/compilation

D.P.'s	6599	621684	7281-3000
	663081	634807	3472-3000
	665117	737068	FIELD BOOKS
	502156	975255	890-65
	593353	10150-1403	890-66 & 67
	555152	1012-3000	15397-3000

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants

PURSUANT TO SEC. 88B OF THE CONVEYANCING ACT, 1919, IT IS INTENDED TO CREATE :-

1. RIGHT OF CARRIAGEWAY VARIABLE WIDTH
2. RIGHT OF FOOTWAY 5 WIDE



⌽ DENOTES EASEMENT FOR SUBSTATION PREMISES (Nº 3077) VIDE Nº 437 BK 3653
–⊖– DENOTES RIGHT OF WAY 3·66 WIDE VIDE Nº 437 BK 3653
⌽ DENOTES EASEMENT FOR SUBSTATION PREMISES (Nº 618) VIDE Nº 437 BK 3653
(x) 8761215 - LAND EXCLUDES MINERALS - SEC 141 PUBLIC WORKS ACT, 1912

SURVEY PRACTICE REGULATION 1990 - CLAUSE 33(2)

I.S.G. CO-ORDINATES

MARK	EASTING	NORTHING	ZONE	ACC
S.S.M. 60273	320 580·227	1 247 933·051	561	2
S.S.M. 66135	320 889·938	1 247 784·227	561	2
S.S.M. 66136	321 049·171	1 248 001·719	561	2
S.S.M. 66133	321 115·167	1 248 178·047	561	2
S.S.M. 66132	321 188·562	1 248 107·005	561	2
P.M. 57936	321 046·996	1 248 596·890	561	2
P.M. 33276	320 920·905	1 248 670·871	561	2
SOURCE :- DEPT. OF C.A.L.M. 26.6.95, LINE SCALE FACTOR = 0·99993				

Crown Lands Office Approval

PLAN APPROVED ......
Authorised Officer
Land District ......
Paper No. ......
Field Book ...... *Pages* ......

Council's Certificate

I hereby certify that –

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and

**(b) the requirements of † Part 3 Division 2 of the Water Board Act 1987, ~~or † Part 5 Division 7 of the Hunter Water Board (Corporatisation) Act 1991.~~*

have been complied with by the applicant in relation to the proposed SUBDIVISION
(Insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. 45/96

Date 18 JULY 1996

(Signature)
General Manager/Authorised Person

Council File No. 2012555

**This part of certificate to be deleted where the application is only for a consolidated lot or the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Water Board and the Hunter Water Corporation Ltd.*

†Delete if inapplicable

SURVEYOR'S REFERENCE 28563 A.M.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

*OFFICE USE ONLY

DP 861843

Registered: 4-9-1996

This is sheet 2 of my plan in 3 sheets dated 6 JUNE 1996

Andrew P. Mason

Surveyor registered under Surveyors Act 1929

This is sheet 2 of the plan of 3 sheets covered by my Certificate No. 45/96

Authorised Person

For use where space is insufficient in any panel on Plan Form 2.

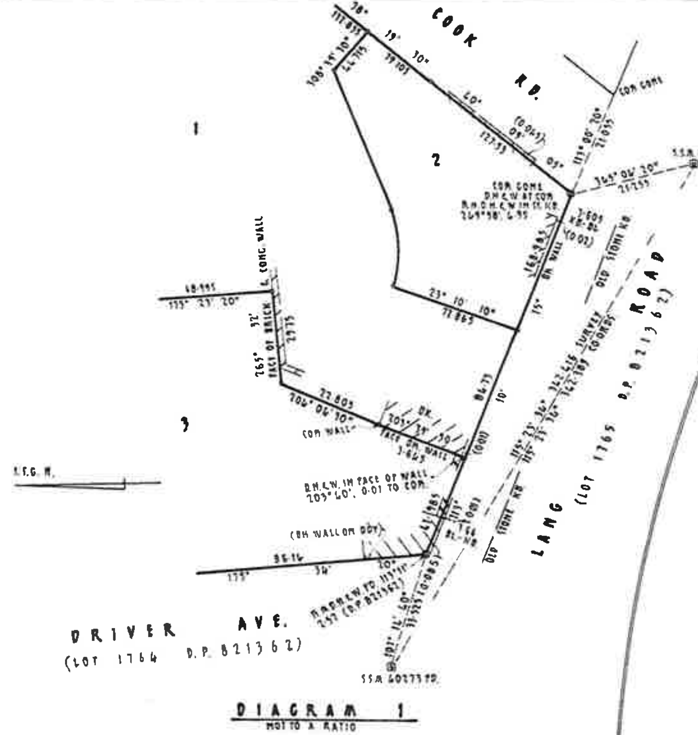


DIAGRAM 1
NOT TO A RATIO

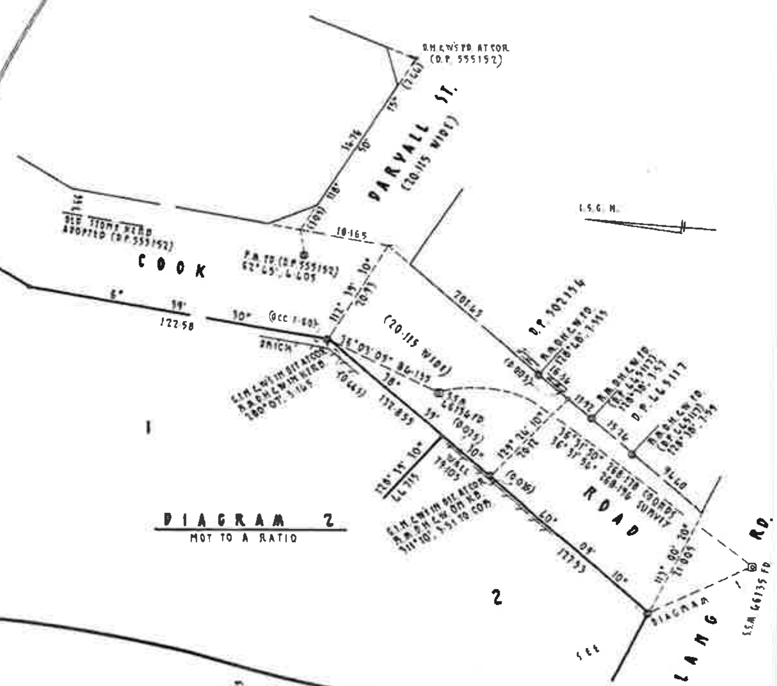


DIAGRAM 2
NOT TO A RATIO

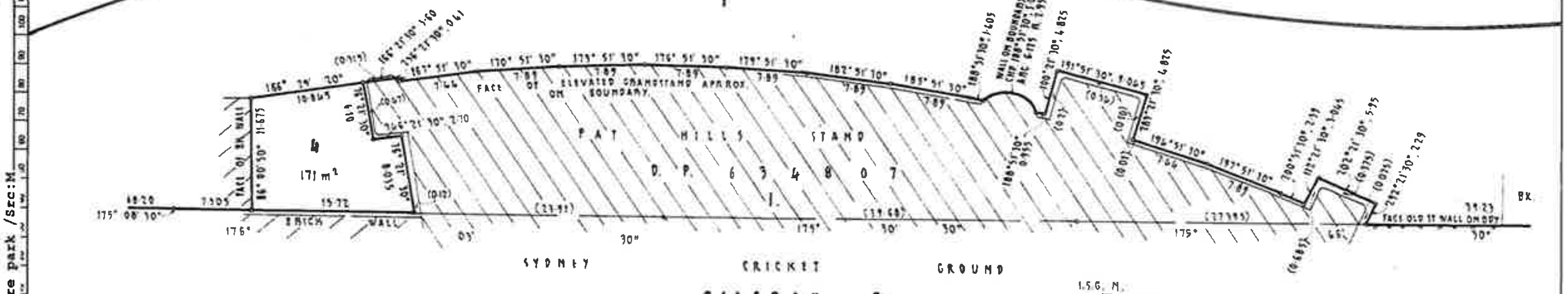


DIAGRAM 3
NOT TO A RATIO

Reduction Ratio 1: NOT TO A RATIO

Plan Drawing only to appear in this space

SURVEYOR'S REFERENCE 28543 A-R.

PLAN FORM 3

To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

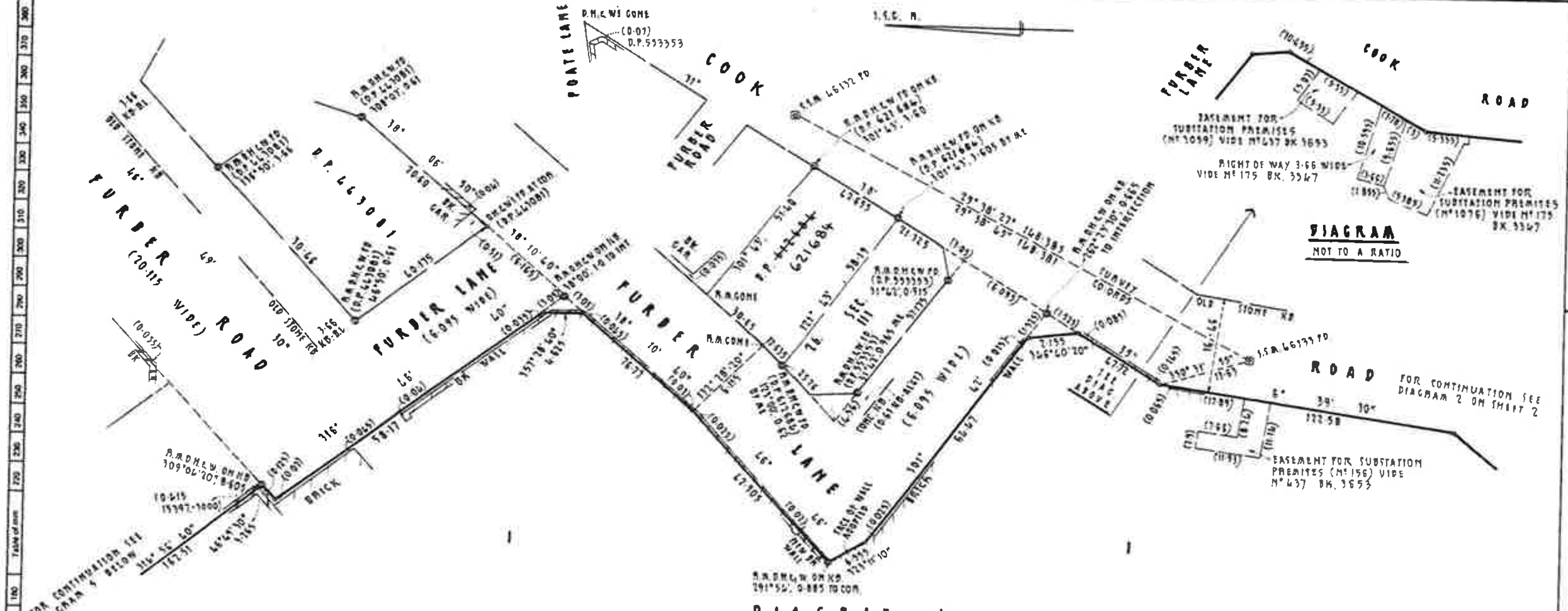


DIAGRAM 4
NOT TO A RATIO

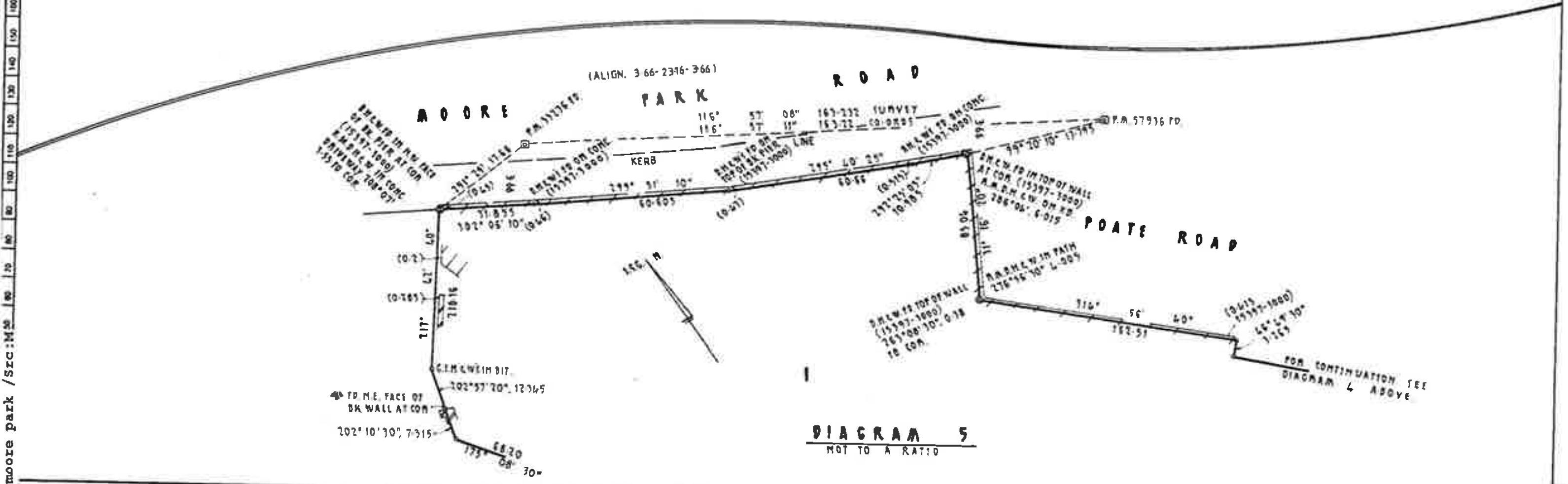


DIAGRAM 5
NOT TO A RATIO

Plan Drawing only to appear in this space

*OFFICE USE ONLY

DP 861843

Registered: 4·9·1996

This is sheet 3 of my plan in 3 sheets dated 6 JUNE 1996

Andrew P. Mason

Surveyor registered under Surveyors Act 1929

This is sheet 3 of the plan of 3 sheets covered by my Certificate No 45/96

~~General Manager~~/Authorised Person

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: NOT TO A RATIO

PLAN FORM 2

Plan Drawing only to appear in this space

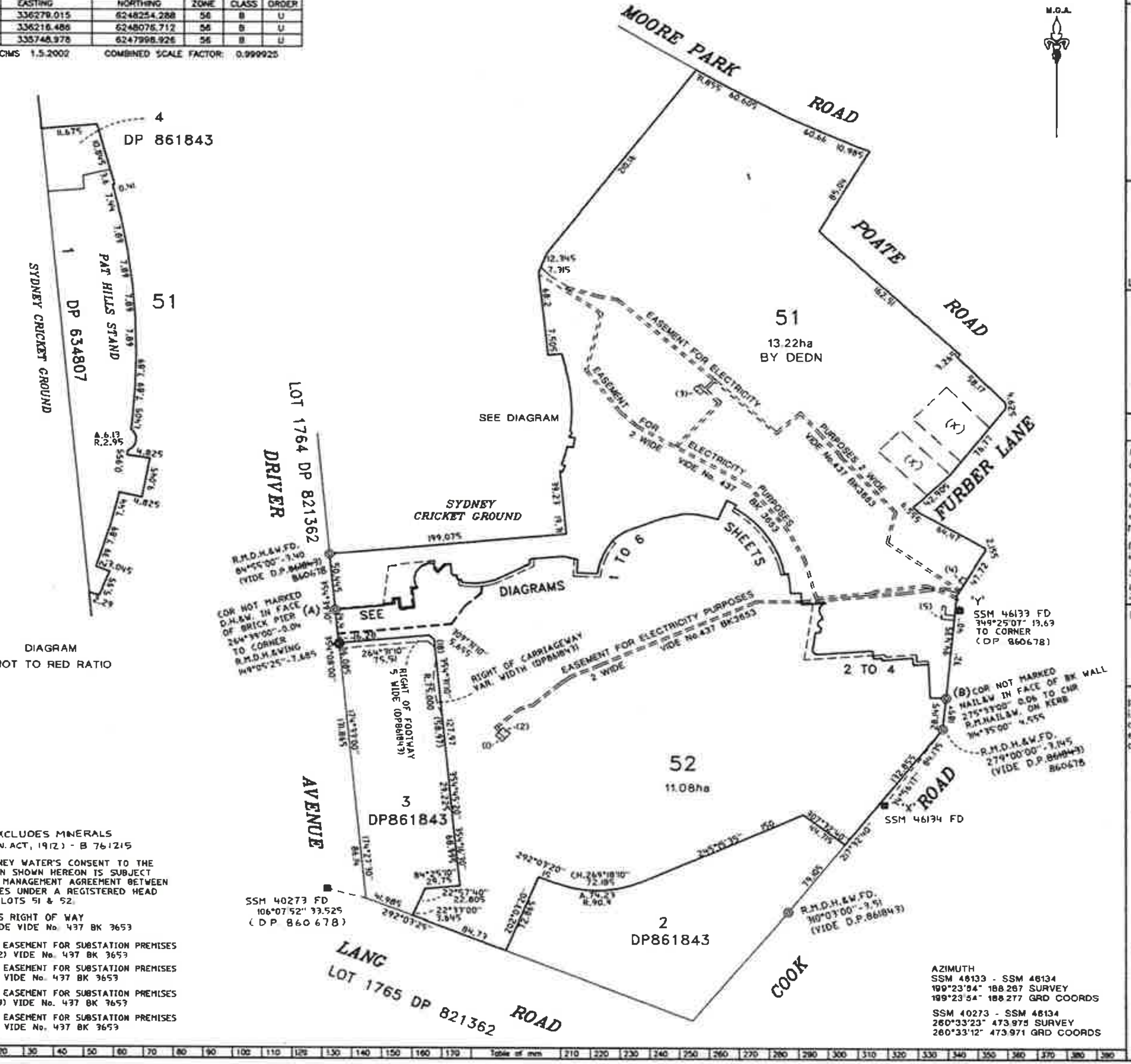
SIGNATURE AND SEALS ONLY

JOHN NILAND
TRUSTEE

PETER DUNCAN
DIRECTOR

SURVEYORS (PRACTICE) REGULATION 1996 CLAUSE 32(2)					
	M.G.A. CO-ORDINATES				
MARK	EASTING	NORTHING	ZONE	CLASS	ORDER
SSM 46133	336279.015	6248254.288	56	B	U
SSM 46134	336216.486	6248076.712	56	B	U
SSM 40273	335748.978	6247998.926	56	B	U

SOURCE: SCIMS 1.5.2002 COMBINED SCALE FACTOR: 0.999925



(X) LAND EXCLUDES MINERALS
(S.141 P.W. ACT, 1912) - B 761215

NOTE: SYDNEY WATER'S CONSENT TO THE SUBDIVISION SHOWN HEREON IS SUBJECT TO A SITE MANAGEMENT AGREEMENT BETWEEN THE LESSEES UNDER A REGISTERED HEAD LEASE OF LOTS 51 & 52.

(1) DENOTES RIGHT OF WAY 3.66 WIDE VIDE No. 437 BK 3653
(2) DENOTES EASEMENT FOR SUBSTATION PREMISES (No 3072) VIDE No. 437 BK 3653
(3) DENOTES EASEMENT FOR SUBSTATION PREMISES (No 618) VIDE No. 437 BK 3653
(4) DENOTES EASEMENT FOR SUBSTATION PREMISES (No 3059) VIDE No. 437 BK 3653
(5) DENOTES EASEMENT FOR SUBSTATION PREMISES (No 156) VIDE No. 437 BK 3653

AZIMUTH
SSM 46133 - SSM 46134
199°23'64" 188.267 SURVEY
199°23'54" 188.277 GRD COORDS

SSM 40273 - SSM 46134
260°33'23" 473.975 SURVEY
260°33'12" 473.971 GRD COORDS

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 Table of mm 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390

Crown Land Office Approval

PLAN APPROVED ....
Authorised Officer
Land District ....
Paper No ....
Field Book .... pages ....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed subdivision set out herein
(insert 'subdivision' or 'new road')
Robert Black
* Authorised Person/~~General Manager/Accredited Certifier~~
Consent Authority Minister for Planning
Date of endorsement 21 June 2002
Accreditation no. ....
Subdivision Certificate no. 333-11-2001
File no. S01/02355 Pt2

When the plan is to be lodged electronically in the Land Titles Office it should include a signature in an electronic or digital format approved by the Registrar General.

* Delete whichever is inapplicable

SURVEYOR'S REFERENCE: 28543-21

MPR PERM

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

DP1041134

Registered: GJ 26.6.2002

CA: SEE CERTIFICATE

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: PARISH#
U1845-531#, 533#

Last Plan: DP 861843

PLAN OF SUBDIVISION OF
LOT 1 DP 861843

Lengths are in metres. Reduction Ratio 1:2500

L G A SOUTH SYDNEY

Suburb/Locality: MOORE PARK

Parish: ALEXANDRIA

County: CUMBERLAND (1)

This is sheet 1 of my plan in 4 sheets
(Delete if inapplicable)

I, ANDREW. P. MASON
of FRANK M. MASON & CO. PTY LTD
DX 3511 MILSON'S POINT
a surveyor registered under the Surveyors Act, 1929, hereby certify that the survey represented in this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 1996 and was completed on 5.5.2002
The survey relates to BOUNDARY A-B AND CONNECTIONS
(here specify the land actually surveyed, or specify any land shown in the plan that is not the subject of the survey)
Signature Andrew Mason
Datum Line: X Y
Zone: Suburban/Country
Surveyor registered under the Surveyors Act 1929

Plans used in preparation of survey/compilation.
DP 861843

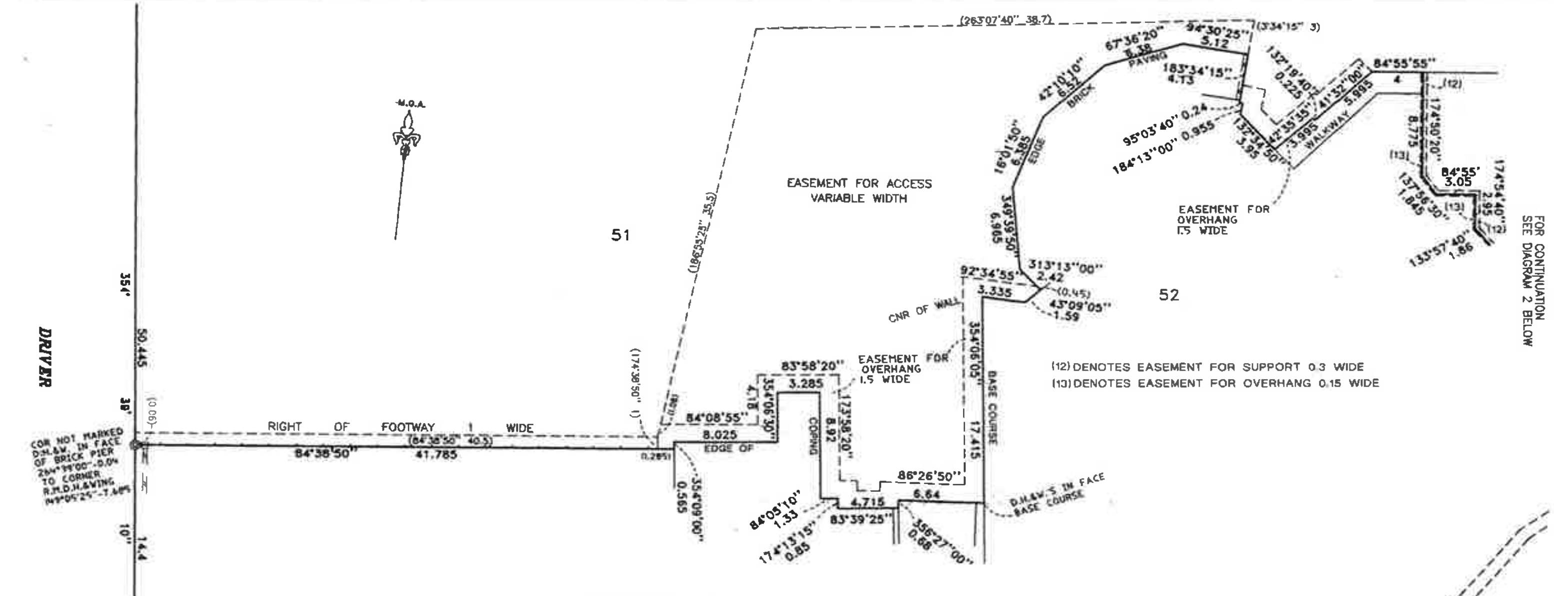
PANEL FOR USE ONLY for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

PURSUANT TO SECTION 88B OF THE CONVEYANCING ACT,1919
IT IS INTENDED TO CREATE

1. RIGHT OF FOOTWAY 1 WIDE
2. EASEMENT FOR OVERHANG 1.5 WIDE
3. EASEMENT FOR ACCESS VARIABLE WIDTH
4. EASEMENT FOR OVERHANG 3 WIDE AND VARIABLE WIDTH
5. RIGHT OF ACCESS 3 WIDE AND VARIABLE WIDTH
6. EASEMENT FOR LIGHT & AIR 3 WIDE
7. EASEMENT FOR LIGHT AND AIR VARIABLE WIDTH
8. RIGHT OF ACCESS VARIABLE WIDTH
9. EASEMENT FOR OVERHANG VARIABLE WIDTH
10. EASEMENT FOR OVERHANG 3 WIDE
11. RIGHT OF ACCESS 3 WIDE
12. EASEMENT FOR SUPPORT 0.3 WIDE
13. EASEMENT FOR OVERHANG 0.15 WIDE

PLAN FORM 3 To be used in conjunction with Plan Form 2

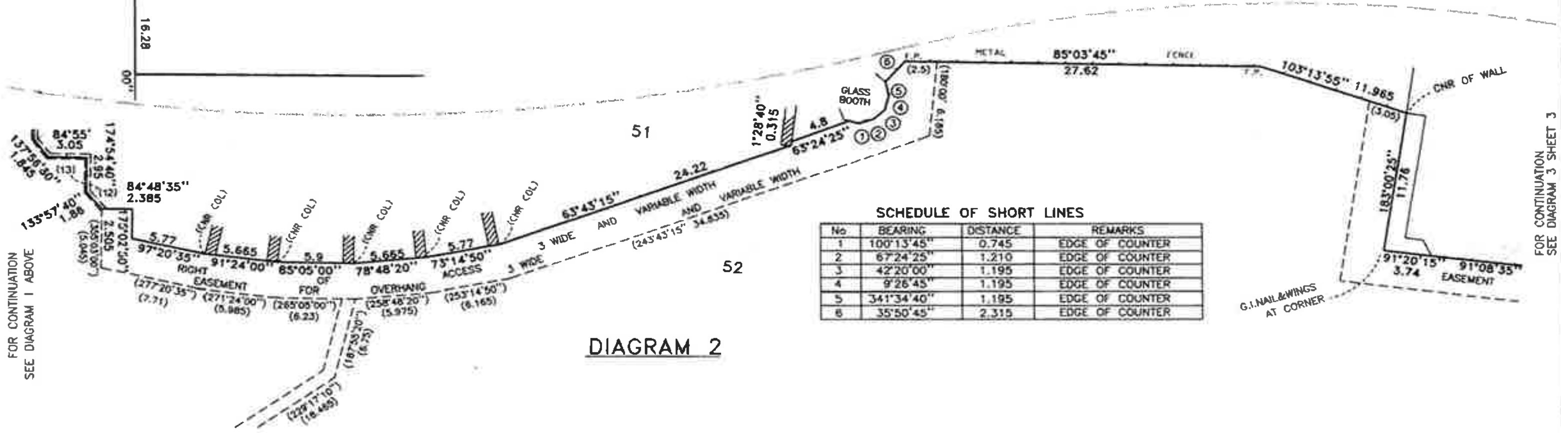
~~WARNING~~: ~~CREASING~~ ~~OR~~ ~~FOLDING~~ ~~WILL~~ ~~LEAD~~ TO REJECTION



(12) DENOTES EASEMENT FOR SUPPORT 0.3 WIDE
(13) DENOTES EASEMENT FOR OVERHANG 0.15 WIDE

FOR CONTINUATION SEE DIAGRAM 2 BELOW

DIAGRAM 1



FOR CONTINUATION SEE DIAGRAM 1 ABOVE

FOR CONTINUATION SEE DIAGRAM 3 SHEET 3

SCHEDULE OF SHORT LINES

No	BEARING	DISTANCE	REMARKS
1	100°13'45"	0.745	EDGE OF COUNTER
2	67°24'25"	1.210	EDGE OF COUNTER
3	42°20'00"	1.195	EDGE OF COUNTER
4	9°26'45"	1.195	EDGE OF COUNTER
5	341°34'40"	1.195	EDGE OF COUNTER
6	35°50'45"	2.315	EDGE OF COUNTER

DIAGRAM 2

DP1041134

Registered CW 26-6-2002

This is sheet 2 of my plan in 4 sheets dated 6 May 2002

Andrew Lezon

Surveyor registered under Surveyors Act 1929

This is sheet 2 of the plan of 4 sheets covered by my Certificate No. 333-11-2002 of 21-6-2002

Robert Black

~~Council Clerk~~

For use where space is insufficient in any panel on Plan Form 2

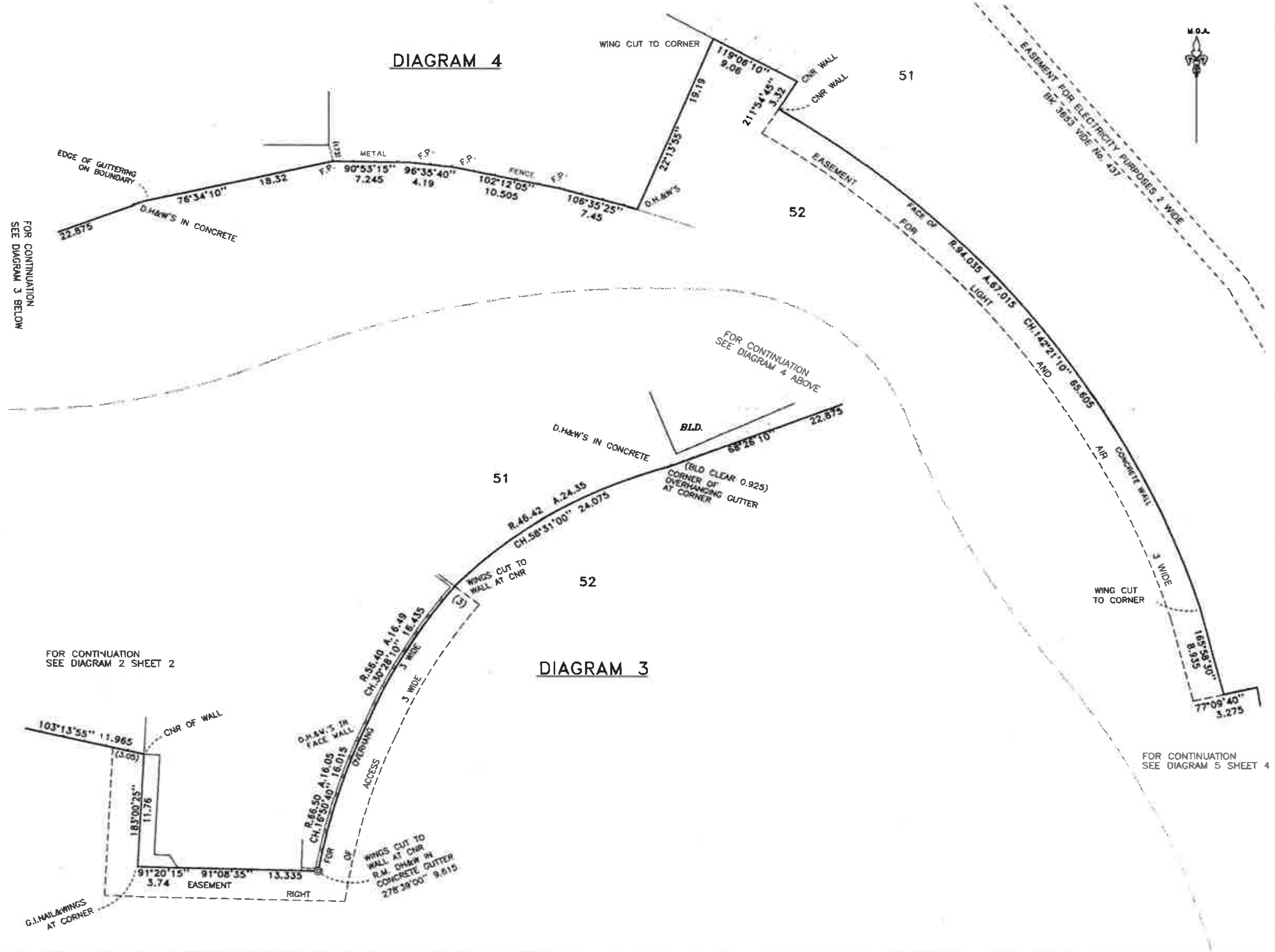
Reduction Ratio 1: 250

Plan Drawing only to appear in this space

SURVEYORS REFERENCE: 28543-21

PLAN FORM 3 To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION



Plan Drawing only to appear in this space

DP1041134

Registered CW 26-6-2002

This is sheet 3 of my plan in 4 sheets dated 6 May 2002

Surveyor registered under Surveyors Act 1929

This is sheet 3 of the plan of 4 sheets covered by my Certificate No. 333-11-2001 of 21-6-2002

~~Council Clerk~~

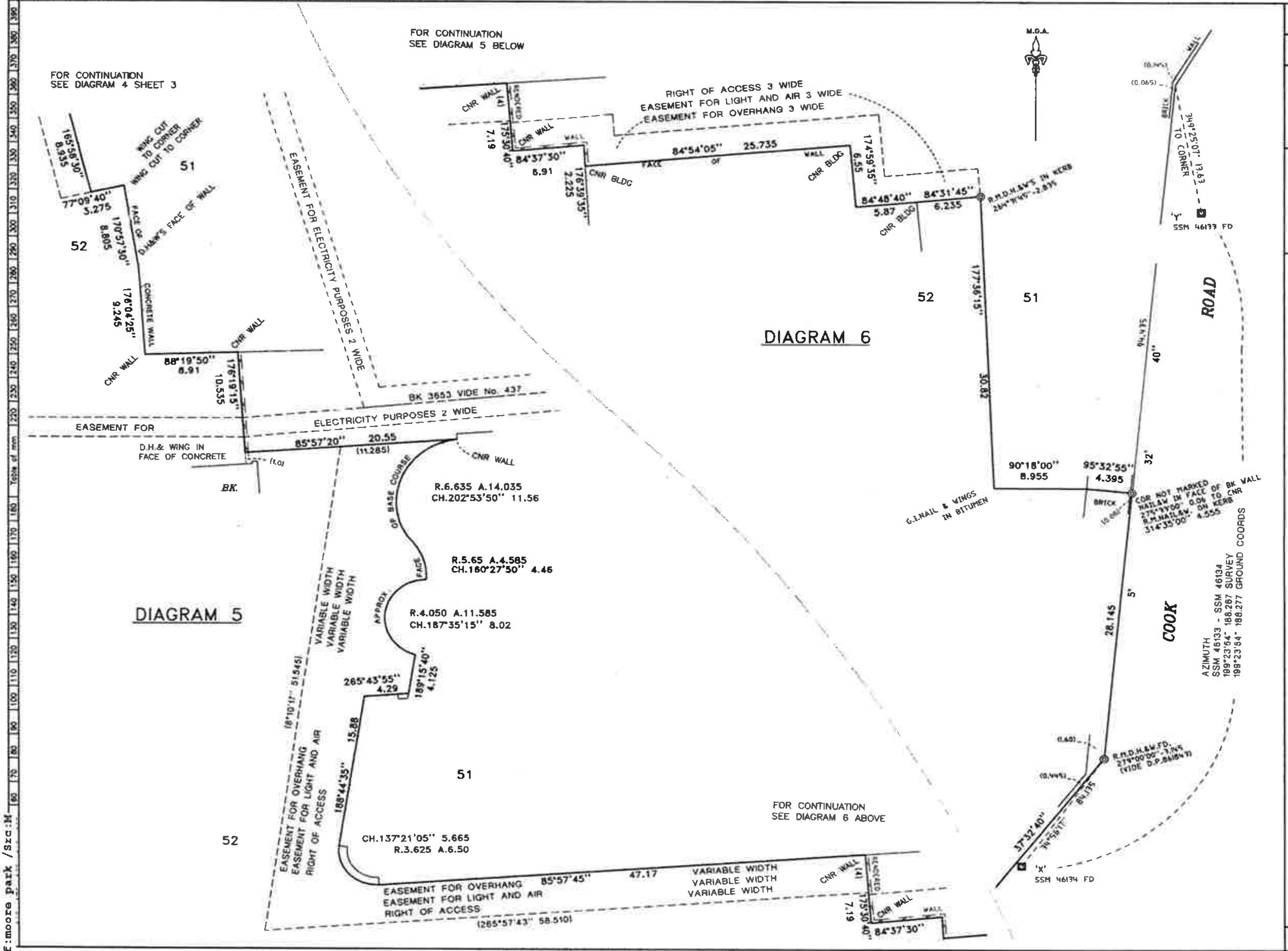
For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: 250

SURVEYORS REFERENCE: 28543-21

PLAN FORM 3 To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION



Plan Drawing only to appear in this space

DP1041134

Registered cw 26-6-2002

This is sheet 4 of my plan in 4 sheets
dated 6 May 2002

Surveyor registered under Surveyors Act 1929

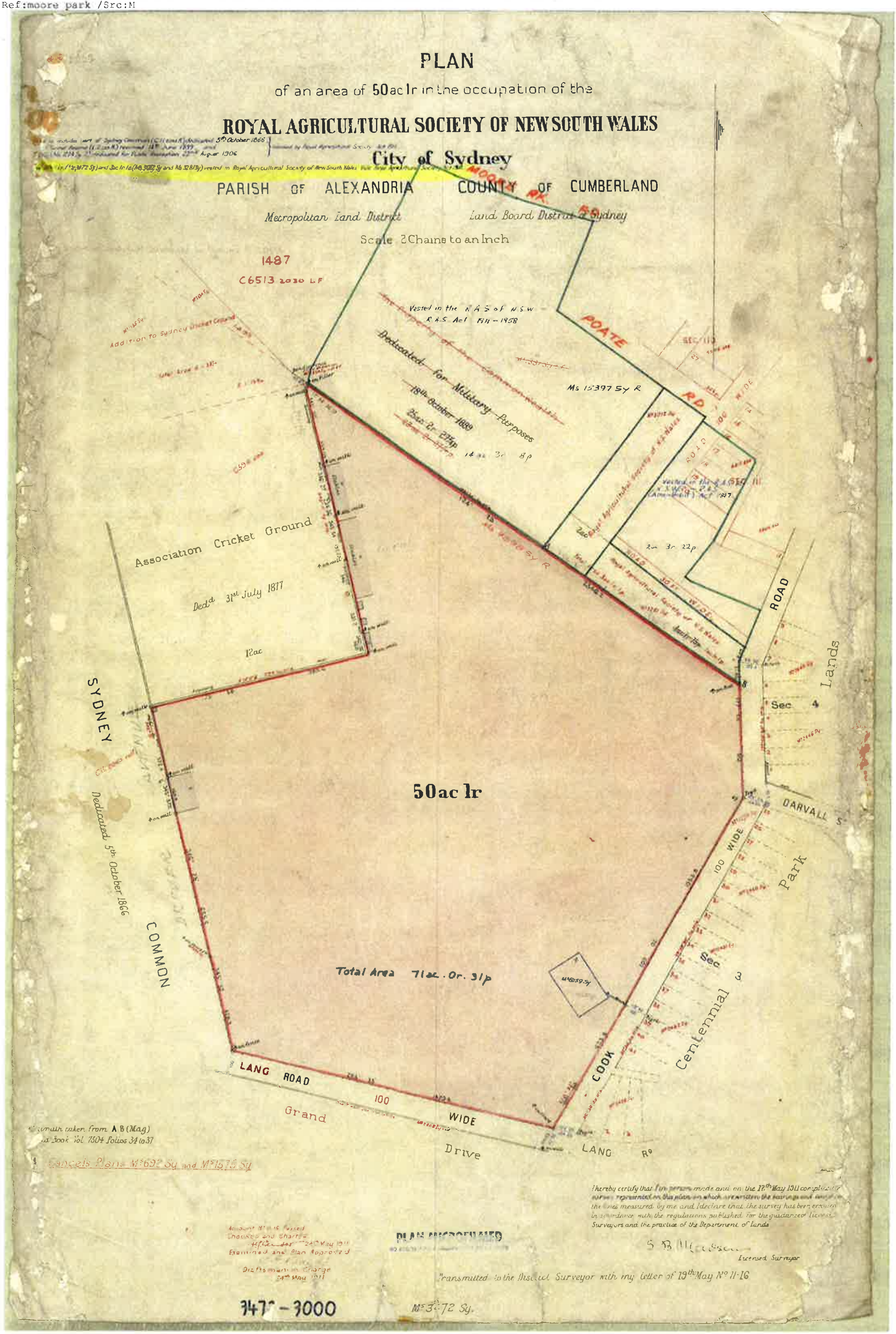
This is sheet 4 of the plan of 4
sheets covered by my Certificate No. 333-11-2001
of 21-6-2002

~~Council Clerk~~

For use where space is insufficient in any panel on Plan Form 2

Reduction Ratio 1: 250

SURVEYORS REFERENCE: 28543-21



PLAN

of an area of 50ac 1r in the occupation of the

ROYAL AGRICULTURAL SOCIETY OF NEW SOUTH WALES

City of Sydney

PARISH OF ALEXANDRIA COUNTY OF CUMBERLAND

Metropolitan Land District *Land Board District of Sydney*

Scale 2 Chains to an Inch

1487

C6513 2030 LF

5th October 1866

August 1906

Sec 1r 1a (Ms 3072 Sy) and Sec 1r 1a (Ms 3082 Sy and Ms 32813y) vested in Royal Agricultural Society of New South Wales

Azimuth taken from A B (Mag)
Book Vol 7304 Folios 34 to 37

Cancels Plans Ms 692 Sy and Ms 1575 Sy

Examined and Plan Approved
Draftsman in Charge
24th May 1911

PLAN MICROFILMED

I hereby certify that I in person made and on the 12th May 1911 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of Licensed Surveyors and the practice of the Department of Lands

S B

Licensed Surveyor

Transmitted to the District Surveyor with my letter of 19th May No 11-16

347 – 3000

Ms 3472 Sy.

NSW LAND REGISTRY SERVICES

Historical Title

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/3/2019 10:00AM

FOLIO: 1/860678

First Title(s): OLD SYSTEM VOL 2373 FOL 183
VOL 1822 FOL 27 VOL 2308 FOL 94
VOL 2668 FOL 117
Prior Title(s): ~~18-20/111/975255 VOL 2668 FOL 117~~
CA68479

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1996	DP860678	DEPOSITED PLAN	FOLIO CREATED EDITION 1
5/9/1996	DP861843	DEPOSITED PLAN	FOLIO CANCELLED
14/3/2004	AA472866	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

moore park PRINTED ON 11/3/2019

Received: 11/03/2019 10:00:27

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
11/3/2019 2:03PM

FOLIO: 3/861843

First Title(s): OLD SYSTEM
Prior Title(s): 1/860678

Recorded	Number	Type of Instrument	C.T. Issue
5/9/1996	DP861843	DEPOSITED PLAN	FOLIO CREATED EDITION 1
25/2/1998	3799210	REQUEST	EDITION 2
14/3/2004	AA472866	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

moore park PRINTED ON 11/3/2019

Received: 11/03/2019 14:03:57

Form: 97-11R
Licence: 599D/0824/97

REQUEST

New South Wales
Real Property Act 1900

3799210 B
the Land Titles Office

(A) **STAMP DUTY** if applicable.

Office of State Revenue use only

(B) **TITLE**

Folio Identifiers 1/861843
2/861843
3/861843
4/861843
2/860678

(C) **REGISTERED DEALING** if applicable

(D) **LODGED BY**

LTO Box	Name, Address or DX and Telephone	Dealing Code
599D	MINTER ELLISON 44 Martin Place, SYDNEY DX 117 Sydney Telephone: (02) 9210 4444 REFERENCE (max. 15 characters): GLC 10674454	

(E) **APPLICANT**

CENTENNIAL PARK AND MOORE PARK TRUST

(F) **REQUEST**

Registration of applicant as registered proprietor pursuant to vesting order published in New South Wales Government Gazette (No. 11), Wednesday 28 January 1998 pursuant to proclamation of P R Sinclair Govenor made in Government Gazette No. 80 of 17 June 1992 under the Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act of 1992.

S_MATT13983_1

Checked by (LTO use)......

(G)

STANDARD EXECUTION

Certified correct for the purposes of the Real Property Act 1900.

DATE 11th February, 1998

Signed in my presence by the applicant who is personally known to me.

GLACohen

Signature of Witness

G L A Cohen

Name of Witness (BLOCK LETTERS)

44 Martin Place, Sydney

Address of Witness

R.M. Grimwade

Signature of Applicant

Robin Michael Grimwade
Director of Centennial Park
and Moore Park ~~Trust~~
Trust

EXECUTION INCLUDING STATUTORY DECLARATION

I make this solemn declaration conscientiously believing the same to be true by virtue of the Oaths Act 1900, and I certify this Application correct for the purposes of the Real Property Act 1900. Made and subscribed at *#7#* in the State of *#8#* on *#9#* 19*#10#* in the presence of

....
Signature of Witness

....
Name of Witness (BLOCK LETTERS)

....
Address and Qualification of Witness

....
Signature of Applicant

Checked by (LTO use).........

CENTENNIAL PARK AND MOORE PARK TRUST (MACQUARIE SYDNEY COMMON) AMENDMENT ACT 1992 No. 114

[Assented to, 8 December 1992]

UP TO DATE AS AT 18 MARCH 1994

INCLUDES AMENDMENTS (SINCE DATE OF ASSENT) BY:
Centennial Park and Moore Park Trust (Royal Easter Show) Amendment Act 1993 No. 43

NOTE: At the date of this update the Act was uncommenced except for section 5 and Schedule 2.

CENTENNIAL PARK AND MOORE PARK TRUST (MACQUARIE SYDNEY COMMON) AMENDMENT ACT 1992 No. 114

UP TO DATE AS AT 18 MARCH 1994

NEW SOUTH WALES

[STATE ARMS]

TABLE OF PROVISIONS

1. Short title

2. Commencement

3. Amendment of Centennial Park and Moore Park Trust Act 1983 No. 145

5. Assessment of funding alternatives to sale of Sydney Showground to fund Sydney 2000 Olympic Bid

SCHEDULE 1 -AMENDMENTS RELATING TO MACQUARIE SYDNEY COMMON

SCHEDULE 2 -AMENDMENTS RELATING TO THE CONSTITUTION OF CENTENNIAL PARK AND MOORE PARK TRUST

CENTENNIAL PARK AND MOORE PARK TRUST (MACQUARIE SYDNEY COMMON) AMENDMENT ACT 1992 No. 114

UP TO DATE AS AT 18 MARCH 1994

NEW SOUTH WALES

[STATE ARMS]

An ACT to amend the Centennial Park and Moore Park Trust Act 1983 to vest in the Centennial Park and Moore Park Trust the Sydney Showground being part of the Sydney Common granted by Governor Macquarie to the people of Sydney, to make further provision for plans of management, to widen representation on that Trust and to repeal the Royal Agricultural Society Act 1911; and for other purposes.

TOP 1992-114 CURRENCY

1. Short title

This Act may be cited as the Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992.

TOP 1992-114 CURRENCY

2. Commencement

(1) Except as provided by subsection (2), this Act commences on a day or days to be appointed by proclamation.

(1A) The date or dates of commencement of section 4 and items (1), (3) and (4) of Schedule 1 (and section 3 in its application to those items) are not to be earlier than the date on which the Minister certifies, by instrument in writing, that the Minister has consulted with the Royal Agricultural Society of New South Wales and that the Society has vacated or substantially vacated the Sydney Showground (being the land described in the Schedule to the Royal Agricultural Society Act 1911).

(2) Section 5 commences on the date of assent to this Act.

TOP 1992-114 CURRENCY

3. Amendment of Centennial Park and Moore Park Trust Act 1983 No. 145

The Centennial Park and Moore Park Trust Act 1983 is amended in the in Schedules 1 and 2.

TOP 1992-114 CURRENCY

4. Repeal of Royal Agricultural Society Act 1911 No. 1

The Royal Agricultural Society Act 1911 is repealed.

TOP 1992-114 CURRENCY

5. Assessment of funding alternatives to sale of Sydney Showground to fund Sydney 2000 Olympic Bid

(1) Before the commencement of sections 3 and 4, the Treasurer must cause an assessment to be made of funding sources for the Sydney 2000 Olympic Bid, other than funds from the sale of any of the land described in Schedule 4 as proposed to be inserted by this Act in the Centennial Park and Moore Park Trust Act 1983.

(2) Nothing in this Act, or in the Centennial Park and Moore Park Trust Act 1983 as amended by this Act, prevents any anticipated funds from the sale of any of that land from being included in any proposed budget or other financial estimates prepared for or in connection with the Sydney 2000 Olympic Bid before the assessment referred to in subsection (1) is carried out.

SCHEDULE 1 -AMENDMENTS RELATING TO MACQUARIE SYDNEY COMMON (Sec. 3)

(1)Section 4 (

Definitions):
In the definitions of ''original land'' and ''supplementary land'' in section 4 (1), after ''section'' wherever occurring, insert ''18B or''.
(2)Section 12E:
After section 12D, insert-

Plans of management required for all Trust land
12E. The Minister is to take such action as may be necessary under this Part to ensure that all the land that comprises Trust land from time to time is the subject of a plan or plans of management.
(3)Part 4A:-
After Part 4, insert:-

PART 4A-MACQUARIE SYDNEY COMMON

Definition of ''RAS''
18A. In this Part:
''RAS'' means the Royal Agricultural Society of New South Wales.

Sydney Showground vests in Trust
18B. (1) The land described in Schedule 4 is by this Act vested in the Trust for an estate in fee simple.
(2) The land is vested subject to any lease, licence, easement or other estate or interest to which it was subject immediately before the commencement of this Part. A reference in any such lease, licence or easement, or in the instrument

uch estate or interest, to the RAS is to be read as a reference to the Trust.
(3) The vesting of land effected by this section does not operate to vest in the Trust any pipeline, cable or related apparatus owned by a person other than the RAS and used for the conveyance of gas, electricity, water, drainage or sewage and lawfully situated on the land immediately before the commencement of this Part.

(4)Schedule 4-
After Schedule 3, insert-

SCHEDULE 4-SYDNEY SHOWGROUND
(Sec. 18B)
All the land described in the Schedule to the Royal Agricultural Society Act 1911 immediately before the repeal of that Act by the Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992.

SCHEDULE 2 -AMENDMENTS RELATING TO THE CONSTITUTION OF CENTENNIAL AND MOORE PARK TRUST (S

(1)Section 7 (Appointment and procedure):
Omit section 7 (1), insert instead:
(1) The Trust is to consist of-
(a)7 trustees appointed by the Governor on the recommendation of the Minister; and
(b)1 trustee appointed by the Governor on the recommendation of a majority of the members of the Community Consultative Committee established under section 7A, being a person who is a member of that Committee.
(2)Section 7A:-
After section 7, insert:-
Community consultation
7A. (1) It is the duty of the Trust to establish an effective procedure for community consultation concerning the activities and policies pursued by the Trust from time to time.
(2) The procedure for community consultation is to include the establishment of a Community Consultative Committee whose members are to be appointed by the Trust on the recommendation of e Director.
(3) The membership and procedure of the Committee is (subject to this section) to be as provided by the regulations.
(4) The regulations may make provision for or with respect to the number of members, their appointment, term of office and removal and the filling of vacancies.
(5) The Committee is to meet at least once in each quarter starting on 1 January, 1 April, 1 July and 1 October. (3)Schedule 1 (Provisions relating to trustees and procedure of the Trust):
From clause 9 (3), omit ''Four trustees'', insert instead ''A majority of the number of trustees for the time being holding office''.
(4)Schedule 2 (Transitional provisions)-
After Part 2 of Schedule 2, insert-

PART 2A-TRUST RECONSTITUTION
Existing trustees continue in office
10A. A person holding office as trustee under section 7 (1) immediately before the substitution of that subsection by the Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992 is taken to have been appointed under section 7 (1) (a), as so substituted, for the remainder of the person's term of office.

NOTES

Table of Acts

Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992 No. 114. Assented to, 8.12.1992. Date of commencement, sec. 5 and Sch. 2 excepted: not in force; date of commencement of sec. 5, assent, sec. 2 (2); date of commencement of Sch. 2, 20.12.1993, sec. 2 (1) and Gazette No. 138 of 17.12.1993, p. 7389. This Act is updated as amended by:

Centennial Park and Moore Park Trust (Royal Easter Show) Amendment Act 1993 No. 43. Assented to, 15.6.1993. Date of commencement, 7.6.1993, sec. 2.Table of Amendments

Sec. 2-Am. 1993 No. 43, Sch. 1 (1).

Sch. 1-Am. 1993 No. 43, Sch. 1 (2).

Sch. 2-Am. 1993 No. 43, Sch. 1 (3).

ORTA RECENS QUAM PURA NITES

Government Gazette

OF THE STATE OF
NEW SOUTH WALES

Number 11
Wednesday, 28 January 1998

Published under authority by the Government Printing Service

SPECIAL SUPPLEMENT

CENTENNIAL AND MOORE PARK TRUST (MACQUARIE SYDNEY COMMON) AMENDMENT ACT 1992 No 114

I, the Honourable Pamela Diane Allan, in pursuance of section 2 (1A) of the *Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992*, certify that I have consulted with the Royal Agricultural Society of New South Wales and that the Society has vacated or substantially vacated the Sydney Showground (being the land described in the Schedule to the Royal Agricultural Society Act 1911).

Signed at Sydney, this 28th day of January 1998.

Pam Allan

Minister for the Environment.

Note. The Governor has, by proclamation published in the Gazette on 17 June 1994, appointed the day that is 14 days after a copy of this certificate is published in the Gazette as the date of commencement of section 4 and items (1), (3) and (4) of Schedule 1 to the *Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992* (and section 3 of that Act in its application to those items). The commencement of those provisions will vest the land that is the Sydney Showground in the Trust.

CENTENNIAL PARK AND MOORE PARK TRUST (MACQUARIE SYDNEY COMMON) AMENDMENT ACT 1992 No. 114—PROCLAMATION

P. R. SINCLAIR, Governor.

I, Rear Admiral PETER ROSS SINCLAIR, A.C., Governor of the State of New South Wales, with the advice of the Executive Council, and in pursuance of the Centennial Park and Moore Park Trust (Macquarie Sydney Common) Amendment Act 1992, do, by this my Proclamation, appoint as the date of commencement of section 4 of that Act and items (1), (3) and (4) of Schedule 1 to that Act (and section 3 of that Act in its application to those items) the day that is fourteen days after the date on which the Minister publishes in the Gazette a copy of the instrument referred to in section 2 (1A) of that Act, certifying that the Minister has consulted with the Royal Agricultural Society of New South Wales and that the Society has vacated or substantially vacated the Sydney Showground.

Signed and sealed at Sydney, this 15th day of June 1994.

By His Excellency's Command,

CHRIS HARTCHER, M.P.
Minister for the Environment.

GOD SAVE THE QUEEN!

CREDIT (AMENDMENT) ACT 1993 No. 71—PROCLAMATION

P. R. SINCLAIR, Governor.

I, Rear Admiral PETER ROSS SINCLAIR, A.C., Governor of the State of New South Wales, with the advice of the Executive Council, and in pursuance of section 2 of the Credit (Amendment) Act 1993, do, by this my Proclamation, appoint 1 July 1994 as the day on which that Act commences.

Signed and sealed at Sydney, this 15th day of June 1994.

By His Excellency's Command,

IAN ARMSTRONG, MP
Acting Minister for Consumer Affairs.

GOD SAVE THE QUEEN!

LAND REGISTRY SERVICES Title Search

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 3/861843

SEARCH DATE	TIME	EDITION NO	DATE
11/3/2019	12:20 PM	2	25/2/1998

LAND

LOT 3 IN DEPOSITED PLAN 861843
AT MOORE PARK
LOCAL GOVERNMENT AREA SYDNEY
PARISH OF ALEXANDRIA COUNTY OF CUMBERLAND
TITLE DIAGRAM DP861843

FIRST SCHEDULE

CENTENNIAL PARK AND MOORE PARK TRUST (R 3799210)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 DP861843 RIGHT OF CARRIAGEWAY VARIABLE WIDTH AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM
2 DP861843 RIGHT OF FOOTWAY 5 WIDE AFFECTING THE PART SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS

NOTE: THE CERTIFICATE OF TITLE FOR THIS FOLIO OF THE REGISTER DOES NOT INCLUDE SECURITY FEATURES INCLUDED ON COMPUTERISED CERTIFICATES OF TITLE ISSUED FROM 4TH JANUARY, 2004. IT IS RECOMMENDED THAT STRINGENT PROCESSES ARE ADOPTED IN VERIFYING THE IDENTITY OF THE PERSON(S) CLAIMING A RIGHT TO DEAL WITH THE LAND COMPRISED IN THIS FOLIO.

UNREGISTERED DEALINGS: DP1246842.

*** END OF SEARCH ***

moore park PRINTED ON 11/3/2019

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Received: 11/03/2019 12:20:29

LAND
REGISTRY
SERVICES

Historical Title

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/3/2019 1:49PM

FOLIO: 1/861843

First Title(s): OLD SYSTEM VOL 2373 FOL 183
VOL 1822 FOL 27 VOL 2308 FOL 94
VOL 2668 FOL 117

Prior Title(s): 1/860678

Recorded	Number	Type of Instrument	C.T. Issue
5/9/1996	DP861843	DEPOSITED PLAN	FOLIO CREATED EDITION 1
14/11/1996	2610596	LEASE	EDITION 2
2/10/1997	3463354	SURRENDER OF LEASE	EDITION 3
22/1/1998	3747589	CHANGE OF NAME	
22/1/1998	3747590	VARIATION OF LEASE	EDITION 4
5/2/1998	3750891	SUB-LEASE ? lease	
5/2/1998	3750892	SUB-LEASE	
5/2/1998	3750893	SUB-LEASE	EDITION 5
25/2/1998	3799210	REQUEST	EDITION 6
15/7/1998	5127786	REQUEST	EDITION 7
25/9/1998	5292627	SUB-LEASE	
13/10/1998	5325148	SUB-LEASE	
27/10/1998	5353972	SUB-LEASE	
16/11/1998	5398685	SUB-LEASE	
11/1/1999	5517251	SUB-LEASE	
11/1/1999	5517252	SUB-LEASE	
20/1/1999	5528105	MORTGAGE OF LEASE	
20/1/1999	5528106	MORTGAGE OF LEASE	
20/1/1999	5528107	MORTGAGE OF LEASE	
20/1/1999	5528108	MORTGAGE OF LEASE	
31/1/2000	6459288	SUB-LEASE	
31/1/2000	6473562	SUB-LEASE	
4/2/2000	6538311	SUB-LEASE	

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:49PM

FOLIO: 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
4/2/2000	6538312	SUB-LEASE	
4/2/2000	6538313	SUB-LEASE	
4/2/2000	6538314	SUB-LEASE	
4/2/2000	6538315	SUB-LEASE	
4/2/2000	6538316	SUB-LEASE	
4/2/2000	6538319	SUB-LEASE	
4/2/2000	6538320	SUB-LEASE	
14/2/2000	6538317	SUB-LEASE	
14/2/2000	6538318	SUB-LEASE	
21/2/2000	6582296	SUB-LEASE	
8/3/2000	6620901	SUB-LEASE	
8/3/2000	6620902	SUB-LEASE	
8/3/2000	6620903	SUB-LEASE	
8/3/2000	6622664	SUB-LEASE	
8/3/2000	6624522	SUB-LEASE	
14/3/2000	6639045	SUB-LEASE	
14/3/2000	6639046	SUB-LEASE	
21/3/2000	6653688	SUB-LEASE	
23/3/2000	6663995	SUB-LEASE	
29/3/2000	6678118	SUB-LEASE	
30/3/2000	6680415	SUB-LEASE	
3/5/2000	6736766	SUB-LEASE	
11/5/2000	6771613	SUB-LEASE	
11/5/2000	6771614	SUB-LEASE	
31/5/2000	6823449	SUB-LEASE	
31/5/2000	6823450	SUB-LEASE	
31/5/2000	6823451	SUB-LEASE	
31/5/2000	6823452	SUB-LEASE	
31/5/2000	6823453	SUB-LEASE	
31/5/2000	6823454	SUB-LEASE	
31/5/2000	6823455	SUB-LEASE	
31/5/2000	6823456	SUB-LEASE	

END OF PAGE 2 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:49PM

FOLIO: 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
2/6/2000	6823457	SUB-LEASE	
2/6/2000	6829964	SUB-LEASE	
2/6/2000	6829965	SUB-LEASE	
2/6/2000	6829966	SUB-LEASE	
5/7/2000	6925220	DEPARTMENTAL DEALING	
6/7/2000	6892932	SUB-LEASE	
17/7/2000	6950572	SUB-LEASE	
24/7/2000	6964436	SUB-LEASE	
24/7/2000	6967740	SUB-LEASE	
31/7/2000	6982778	SUB-LEASE	
9/8/2000	7000015	SUB-LEASE	
9/8/2000	7004068	SUB-LEASE	
9/8/2000	7008850	DEPARTMENTAL DEALING	
16/8/2000	7025396	SUB-LEASE	
18/8/2000	7028714	SUB-LEASE	
1/9/2000	7062417	SUB-LEASE	
26/9/2000	7109419	SUB-LEASE	
9/10/2000	7114488	SUB-LEASE	
11/10/2000	7141976	SUB-LEASE	
11/10/2000	7141977	SUB-LEASE	
30/10/2000	7145244	SUB-LEASE	
30/10/2000	7161981	SUB-LEASE	
30/10/2000	7171128	SUB-LEASE	
30/10/2000	7181688	SUB-LEASE	
31/10/2000	7189761	DEPARTMENTAL DEALING	
8/11/2000	7206301	SUB-LEASE	
20/11/2000	7224457	SUB-LEASE	

END OF PAGE 3 - CONTINUED OVER

FOLIO: 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
24/11/2000	7243190	SUB-LEASE	
24/11/2000	7243191	SURRENDER OF LEASE	
24/11/2000	7243192	SURRENDER OF LEASE	
24/11/2000	7243193	SUB-LEASE	
1/12/2000	7260120	SUB-LEASE	
15/1/2001	7348123	SURRENDER OF LEASE	
22/1/2001	7358777	VARIATION OF LEASE	
23/1/2001	7363308	SUB-LEASE	
30/1/2001	7374624	SUB-LEASE	
1/2/2001	7380269	SUB-LEASE	
1/2/2001	7381612	DEPARTMENTAL DEALING	
19/2/2001	7424764	SUB-LEASE	
15/3/2001	7476279	SUB-LEASE	
21/3/2001	7488253	LEASE	
26/3/2001	7497706	SURRENDER OF LEASE	
29/3/2001	7507334	SUB-LEASE	
3/4/2001	7517400	SUB-LEASE	
10/4/2001	7529857	SURRENDER OF LEASE	
10/4/2001	7529858	SUB-LEASE	
10/4/2001	7529859	SUB-LEASE	
19/4/2001	7536298	SUB-LEASE	
20/4/2001	7553266	SUB-LEASE	
20/4/2001	7553267	SUB-LEASE	
7/5/2001	7588980	DEPARTMENTAL DEALING	
13/8/2001	7821503	REQUEST	
13/8/2001	7565191	SUB-LEASE	

END OF PAGE 4 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:49PM

FOLIO: 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
13/8/2001	7565192	SUB-LEASE	
13/8/2001	7597674	SUB-LEASE	
13/8/2001	7597675	SUB-LEASE	
13/8/2001	7626568	TRANSFER OF LEASE	
13/8/2001	7707249	SUB-LEASE	
13/8/2001	7813534	DISCHARGE OF MORTGAGE	
13/8/2001	7813535	DISCHARGE OF MORTGAGE	
13/8/2001	7813536	DISCHARGE OF MORTGAGE	
13/8/2001	7813537	DISCHARGE OF MORTGAGE	
13/8/2001	7822892	SUB-LEASE	
13/8/2001	7827331	VARIATION OF LEASE	
21/11/2001	8040099	SUB-LEASE	
21/11/2001	8122994	SUB-LEASE	
26/11/2001	8000702	TRANSFER OF LEASE	
26/11/2001	8011426	SUB-LEASE	
21/12/2001	8230401	TRANSFER OF LEASE	
18/3/2002	8437684	DEPARTMENTAL DEALING	
18/3/2002	8353819	VARIATION OF LEASE	
18/3/2002	8353820	SUB-LEASE	
18/3/2002	8353821	SUB-LEASE	
18/3/2002	8343764	SUB-LEASE	
18/3/2002	8343765	SUB-LEASE	
18/3/2002	8343766	SUB-LEASE	
18/3/2002	8408750	SUB-LEASE	
18/3/2002	8416669	SUB-LEASE	
22/3/2002	8378341	SUB-LEASE	
28/3/2002	8467849	UNNECESSARY - DEPARTMENTAL DEALING	
28/3/2002	8452307	SUB-LEASE	
17/5/2002	8607700	DEPARTMENTAL DEALING	
24/5/2002	8593718	VARIATION OF LEASE	
27/5/2002	8378341	DE-REGISTERED - SUB-LEASE	
27/5/2002	8630146	DEPARTMENTAL DEALING	

END OF PAGE 5 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:49PM

FOLIO: 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
26/6/2002	8593719	SUB-LEASE	
26/6/2002	DP1041134	DEPOSITED PLAN	FOLIO CANCELLED
14/3/2004	AA472866	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

Received: 11/03/2019 13:49:30

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

First Title(s): OLD SYSTEM
Prior Title(s): 1/861843

Recorded	Number	Type of Instrument	C.T. Issue
26/6/2002	DP1041134	DEPOSITED PLAN	FOLIO CREATED EDITION 1
4/7/2002	8741035	DEPARTMENTAL DEALING	
30/8/2002	8895445	SUB-LEASE	
6/9/2002	8378341	SUB-LEASE	
6/9/2002	8567398	SUB-LEASE	
6/9/2002	8742329	TRANSFER OF LEASE	
6/9/2002	8934398	DEPARTMENTAL DEALING	
10/9/2002	8870601	VARIATION OF LEASE	
10/9/2002	8870602	SURRENDER OF LEASE	
10/9/2002	8870603	SURRENDER OF LEASE	
10/9/2002	8870604	SURRENDER OF LEASE	
10/9/2002	8902284	SURRENDER OF LEASE	
10/9/2002	8742339	VARIATION OF LEASE	
10/9/2002	8742340	VARIATION OF LEASE	
10/9/2002	8742341	VARIATION OF LEASE	
10/9/2002	8742342	TRANSFER OF LEASE	
11/9/2002	8742343	REQUEST	
11/9/2002	8742344	SURRENDER OF LEASE	
12/9/2002	8943777	DEPARTMENTAL DEALING	
12/9/2002	8950810	DEPARTMENTAL DEALING	
17/9/2002	8961555	DEPARTMENTAL DEALING	
25/9/2002	8982244	DEPARTMENTAL DEALING	
25/9/2002	8982453	DEPARTMENTAL DEALING	
25/9/2002	8984967	DEPARTMENTAL DEALING	
26/9/2002	8870605	SUB-LEASE	
26/9/2002	8870615	SUB-LEASE	
26/9/2002	8870616	SUB-LEASE	EDITION 2
31/10/2002	9088840	CHANGE OF NAME	

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE
11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
26/11/2002	9158648	SUB-LEASE	
26/11/2002	9158649	SUB-LEASE	
25/2/2003	9404425	SURRENDER OF LEASE	
25/2/2003	9404426	SUB-LEASE	
17/5/2003	9614873	SURRENDER OF LEASE	
17/5/2003	9614874	SUB-LEASE	
24/6/2003	9724871	REQUEST	
22/7/2003	9810301	REQUEST	
14/8/2003	9879043	SUB-LEASE	
10/9/2003	9958491	SUB-LEASE	
10/9/2003	9958492	SUB-LEASE	
17/10/2003	AA75252	REQUEST	
26/11/2003	AA99028	SURRENDER OF LEASE	
26/11/2003	AA99029	SUB-LEASE	
4/2/2004	AA353472	SUB-LEASE	
4/2/2004	AA353473	SURRENDER OF LEASE	
4/2/2004	AA353474	SUB-LEASE	
1/3/2004	AA422987	SUB-LEASE	
14/3/2004	AA472866	DEPARTMENTAL DEALING	
1/6/2004	AA684275	SURRENDER OF LEASE	
11/6/2004	AA715743	SUB-LEASE	
11/6/2004	AA715744	SUB-LEASE	
11/6/2004	AA715745	SUB-LEASE	
11/6/2004	AA715746	SUB-LEASE	
11/6/2004	AA715747	SUB-LEASE	
4/2/2005	AB264578	VARIATION OF LEASE	
4/2/2005	AB264579	SURRENDER OF LEASE	
4/2/2005	AB264580	TRANSFER OF LEASE	

END OF PAGE 2 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
9/2/2005	AB276426	SUB-LEASE	
16/2/2005	AB289404	SUB-LEASE	
22/2/2005	AB304873	SUB-LEASE	
24/2/2005	AB310739	SUB-LEASE	
8/3/2005	AB336655	TRANSFER OF LEASE	
17/5/2005	AB483087	TRANSFER OF LEASE	
1/7/2005	AB596533	TRANSFER OF LEASE	
25/7/2005	AB649229	SUB-LEASE	
13/9/2005	AB763602	VARIATION OF LEASE	
19/9/2005	AB779530	SUB-LEASE	
30/9/2005	AB806186	VARIATION OF LEASE	
9/11/2005	AB900216	VARIATION OF LEASE	
14/11/2005	AB911712	TRANSFER OF LEASE	
14/2/2006	AC112173	SUB-LEASE	
22/2/2006	AC133457	VARIATION OF LEASE	
24/2/2006	AC136862	SUB-LEASE	
13/4/2006	AC186866	SURRENDER OF LEASE	
9/6/2006	AC242263	SUB-LEASE	
9/6/2006	AC250175	SUB-LEASE	
14/7/2006	AC455786	SUB-LEASE	
1/8/2006	AC463901	SUB-LEASE	
22/8/2006	AC539194	SUB-LEASE	

END OF PAGE 3 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
5/9/2006	AC575228	SUB-LEASE	
7/9/2006	AC580572	SUB-LEASE	
25/10/2006	AC693004	SUB-LEASE	
28/11/2006	AC753946	SUB-LEASE	
4/12/2006	AC704952	VARIATION OF LEASE	
4/12/2006	AC770525	SURRENDER OF LEASE	
4/12/2006	AC780235	VARIATION OF LEASE	
27/3/2007	AD17256	VARIATION OF LEASE	
5/4/2007	AD35373	SURRENDER OF LEASE	
16/4/2007	AD50403	SUB-LEASE	
3/7/2007	AD230657	SUB-LEASE	
6/7/2007	AD251123	VARIATION OF LEASE	
6/7/2007	AD40462	SUB-LEASE	
6/7/2007	AD100307	SUB-LEASE	
6/7/2007	AD150451	SUB-LEASE	
6/7/2007	AD197457	VARIATION OF LEASE	
16/8/2007	AD348929	VARIATION OF LEASE	
4/9/2007	AD393235	SUB-LEASE	
22/1/2008	AD716079	SUB-LEASE	
23/1/2008	AD320780	VARIATION OF LEASE	
23/1/2008	AD441059	SUB-LEASE	
23/1/2008	AD446576	SUB-LEASE	
23/1/2008	AD513744	SUB-LEASE	
23/1/2008	AD524864	TRANSFER OF LEASE	
3/3/2008	AD401685	REJECTED - SUB-LEASE	
12/3/2008	AD764471	SURRENDER OF LEASE	
12/3/2008	AD764481	SUB-LEASE	
12/3/2008	AD768742	SUB-LEASE	

END OF PAGE 4 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
31/3/2008	AD855833	SUB-LEASE	
31/3/2008	AD855882	SUB-LEASE	
4/4/2008	AD867969	SUB-LEASE	
4/4/2008	AD868045	SUB-LEASE	
21/4/2008	AD900080	SUB-LEASE	
9/5/2008	AD900047	VARIATION OF LEASE	
11/7/2008	AE28674	SUB-LEASE	
11/7/2008	AE28739	SUB-LEASE	
9/9/2008	AE199026	VARIATION OF LEASE	
10/9/2008	AE202862	SUB-LEASE	
1/10/2008	AE244431	SUB-LEASE	
29/10/2008	AE295919	SUB-LEASE	
6/11/2008	AE138992	SUB-LEASE	
6/11/2008	AE278520	SUB-LEASE	
7/11/2008	AE313533	SUB-LEASE	
27/11/2008	AE352898	VARIATION OF LEASE	
4/12/2008	AE367624	VARIATION OF LEASE	
5/12/2008	AE313550	SUB-LEASE	
13/1/2009	AE439255	SUB-LEASE	
26/2/2009	AE505537	REQUEST	
26/2/2009	AE517023	DEPARTMENTAL DEALING	
10/3/2009	AE545268	SUB-LEASE	
6/4/2009	AE596437	SUB-LEASE	
8/7/2009	AE789278	VARIATION OF LEASE	
8/7/2009	AE789290	VARIATION OF LEASE	

END OF PAGE 5 - CONTINUED OVER

Recorded	Number	Type of Instrument	C.T. Issue
13/8/2009	AE552491	SUB-LEASE	
18/8/2009	AE910245	SUB-LEASE	
4/9/2009	AE955705	SUB-LEASE	
4/11/2009	AF90465	VARIATION OF LEASE	
23/12/2009	AF212880	SUB-LEASE	
22/1/2010	AF221581	VARIATION OF LEASE	
23/3/2010	AF354727	TRANSFER OF LEASE	
21/5/2010	AF509266	SURRENDER OF LEASE	
13/7/2010	AF624594	VARIATION OF LEASE	
11/8/2010	AF625322	SUB-LEASE	
29/9/2010	AF771410	SURRENDER OF LEASE	
29/9/2010	AF771526	VARIATION OF LEASE	
4/11/2010	AF851008	VARIATION OF LEASE	
8/11/2010	AF848342	TRANSFER OF LEASE	
6/1/2011	AF974421	SUB-LEASE	
9/3/2011	AG108093	VARIATION OF LEASE	
28/6/2011	AG329399	SUB-LEASE	
26/7/2011	AG357673	SUB-LEASE	
26/7/2011	AG378362	SUB-LEASE	
6/10/2011	AG537339	SUB-LEASE	
26/10/2011	AG581773	SURRENDER OF LEASE	
27/10/2011	AG451796	WITHDRAWN - SURRENDER OF LEASE	
28/10/2011	AG585241	SUB-LEASE	

END OF PAGE 6 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
21/3/2012	AG756802	SUB-LEASE	
4/5/2012	AG963415	SUB-LEASE	
12/6/2012	AH38698	SUB-LEASE	
15/6/2012	AH51298	TRANSFER OF LEASE	
12/9/2012	AH229649	SUB-LEASE	
20/9/2012	AH242551	SUB-LEASE	
8/10/2012	AH283625	SUB-LEASE	
8/10/2012	AH283708	SUB-LEASE	
30/10/2012	AH332344	SUB-LEASE	
20/11/2012	AH378684	MORTGAGE OF LEASE	
7/1/2013	AH467122	TRANSFER OF LEASE	
25/1/2013	AH512538	SUB-LEASE	
30/1/2013	AH517994	SUB-LEASE	
4/2/2013	AH529511	VARIATION OF LEASE	
24/5/2013	AH753144	SUB-LEASE	
13/6/2013	AH798994	SUB-LEASE	
16/7/2013	AH864938	SUB-LEASE	
5/10/2013	AI67569	TRANSFER OF LEASE	
5/2/2014	AI97374	MORTGAGE OF LEASE	
18/2/2014	AI380533	SURRENDER OF LEASE	
19/3/2014	AI344707	SURRENDER OF LEASE	
22/4/2014	AI340590	REQUEST	

END OF PAGE 7 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
5/5/2014	AI549735	SUB-LEASE	
5/5/2014	AI549749	SUB-LEASE	
5/5/2014	AI549787	SUB-LEASE	
24/6/2014	AI674307	DEPARTMENTAL DEALING	
24/6/2014	AI676666	DEPARTMENTAL DEALING	
22/7/2014	AI91703	SUB-LEASE	
22/7/2014	AI91704	SUB-LEASE	
22/7/2014	AI643465	SUB-LEASE	
22/7/2014	AI753187	DEPARTMENTAL DEALING	
1/9/2014	AI856371	VARIATION OF LEASE	
1/9/2014	AI854595	TRANSFER OF LEASE	
31/10/2014	AI844803	SUB-LEASE	
31/10/2014	AI856063	SUB-LEASE	
31/10/2014	AI856217	SUB-LEASE	
31/10/2014	AI887049	SUB-LEASE	
24/12/2014	AJ137529	CAVEAT	
24/2/2015	AJ231161	WITHDRAWAL OF CAVEAT	
5/3/2015	AJ196263	TRANSFER OF LEASE	
5/3/2015	AJ196281	SURRENDER OF LEASE	
5/3/2015	AJ196279	SUB-LEASE	
5/3/2015	AJ196280	VARIATION OF LEASE	
5/3/2015	AJ196282	SUB-LEASE	
5/3/2015	AJ272868	TRANSFER OF LEASE	
5/3/2015	AJ272869	MORTGAGE OF LEASE	
5/3/2015	AJ310307	DEPARTMENTAL DEALING	
5/3/2015	AJ272877	VARIATION OF LEASE	EDITION 3
25/11/2015	AJ997552	DISCHARGE OF MORTGAGE	
18/10/2017	AM813239	VARIATION OF LEASE	
18/10/2017	AM813240	VARIATION OF LEASE	
24/1/2018	AN35890	SUB-LEASE	
24/1/2018	AN35973	SUB-LEASE	
31/1/2018	AN35914	SUB-LEASE	

END OF PAGE 8 - CONTINUED OVER

SEARCH DATE

11/3/2019 1:48PM

FOLIO: 52/1041134

Recorded	Number	Type of Instrument	C.T. Issue
13/3/2018	AN167150	DISCHARGE OF MORTGAGE	
20/6/2018	AN154287	REJECTED - SUB-LEASE	
24/7/2018	AN517589	SUB-LEASE	
24/10/2018	AN798193	TRANSFER OF LEASE	
16/1/2019	AN955790	SUB-LEASE	
16/1/2019	AN955166	SUB-LEASE	
16/1/2019	AN955791	SUB-LEASE	
16/1/2019	AN955792	SUB-LEASE	
16/1/2019	AN955793	SUB-LEASE	

*** END OF SEARCH ***

LAND REGISTRY SERVICES Title Search

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 52/1041134

SEARCH DATE	TIME	EDITION NO	DATE
11/3/2019	1:48 PM	3	5/3/2015

LAND

LOT 52 IN DEPOSITED PLAN 1041134
AT MOORE PARK
LOCAL GOVERNMENT AREA SYDNEY
PARISH OF ALEXANDRIA COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1041134

FIRST SCHEDULE

CENTENNIAL PARK AND MOORE PARK TRUST

SECOND SCHEDULE (20 NOTIFICATIONS)

1 DP861843 RIGHT OF CARRIAGEWAY VARIABLE WIDTH APPURTENANT TO THE LAND ABOVE DESCRIBED

2 DP861843 RIGHT OF FOOTWAY 5 WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

3 3750891 LEASE TO FSAT PTY LIMITED EXPIRES: 21/4/2036. OPTION OF RENEWAL: 10 YEARS.

- 8895445 LEASE OF LEASE 3750891 TO HOYTS MULTI-PLEX CINEMAS PTY LTD OF SHOP 206-CINEMAS AND 215-CINEMAS, FOX STUDIOS AUSTRALIA COMPLEX. EXPIRES: 7/11/2019.
- 8742329 TRANSFER OF LEASE 3750891 LESSEE NOW FOX STUDIO OPERATIONS PTY LIMITED
- 8742340 VARIATION OF LEASE 3750891 - PROVISIONS VARIED
- 8742342 TRANSFER OF LEASE 3750891 LESSEE NOW FOX STUDIOS AUSTRALIA PTY LIMITED
- 9088840 CHANGE OF NAME AFFECTING LEASE 3750891 LESSEE NOW FOX ENTERTAINMENT PRECINCT PTY LIMITED
- AB264578 VARIATION OF LEASE 3750891
- AB264580 TRANSFER OF LEASE 3750891 LESSEE NOW CFS MANAGED PROPERTY LIMITED
- AD197457 VARIATION OF LEASE AC693004
- AD393235 LEASE OF LEASE 3750891 TO BRENT STREET PTY LTD OF OFFICE 101G1, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 15/3/2022.
- AD446576 LEASE OF LEASE 3750891 TO BRENT STREET PTY LTD OFFICE 102, IN THE CENTRE KNOWN AS THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 15/3/2022.
- AD764481 LEASE OF LEASE 3750891 TO BAVARIAN HOSPITALITY

END OF PAGE 1 - CONTINUED OVER

SECOND SCHEDULE (20 NOTIFICATIONS) (CONTINUED)

	GROUP PTY LTD OF SHOP 212G1, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 1/10/2008. OPTION OF RENEWAL: 9 YEARS AND 2 FURTHER OPTIONS OF 5 YEARS.
AE505537	REQUEST TO INSERT PLAN IN SUB-LEASE AD764481
AE199026	VARIATION OF LEASE AD764481 EXPIRY DATE NOW 1/10/2017.
AE313533	LEASE OF LEASE 3750891 TO BAVARIAN HOSPITALITY GROUP PTY LTD OF SHOP 102B1, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 20/2/2009. OPTION OF RENEWAL: 8 YEARS AND TWO FURTHER OPTIONS OF FIVE YEARS.
AE367624	VARIATION OF LEASE AE313533 EXPIRY DATE NOW 20/2/2017.
AF90465	VARIATION OF LEASE AC693004
AF354727	TRANSFER OF LEASE AD40462 LESSEE NOW MJW CATERING HOLDINGS PTY LIMITED
AF624594	VARIATION OF LEASE AD40462
AG756802	LEASE OF LEASE 3750891 TO OPORTO LEASING PTY LTD BEING SHOP2101B IN THE CENTRE KNOWN AS THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 25/9/2018.
AG963415	LEASE OF LEASE 3750891 TO FOXEQ PTY LTD OF SHOP 212G2, THE ENTERTAINMENT QUARTER, LANG RD, MOORE PARK. EXPIRES: 21/1/2022.
AH38698	LEASE OF LEASE 3750891 TO FOX AND LION HOTEL PTY LIMITED OF SHOP 2161, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/9/2020.
AH51298	TRANSFER OF LEASE AH38698 LESSEE NOW GALLAGHER'S GB'S PTY LIMITED
AH229649	LEASE OF LEASE 3750891 TO INTERNATIONAL PROPERTY (AUST) PTY LTD OF SHOP 22088 IN THE CENTRE KNOWN AS THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 28/6/2020.
AH467122	TRANSFER OF LEASE AE313533 LESSEE NOW LUXE BAKERY PTY LTD
AH512538	LEASE OF LEASE 3750891 TO KIDSXPRESS LIMITED OF SHOPS 121G1 AND 121G2 IN THE CENTRE KNOWN AS THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 22/10/2017.
AH753144	LEASE OF LEASE 3750891 TO DOLCETTO DESSERT BAR PTY LTD OF SHOP 2151A IN THE CENTRE KNOWN AS THE ENTERTAINMENT QUATER, LANG ROAD, MOORE PARK. EXPIRES: 12/8/2020.
AH798994	LEASE OF LEASE 3750891 TO DOLCETTO DESSERT BAR

END OF PAGE 2 - CONTINUED OVER

SECOND SCHEDULE (20 NOTIFICATIONS) (CONTINUED)

		PTY LTD OF SHOP 2151 THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 12/8/2020.
	AH864938	LEASE OF LEASE 3750891 TO JIREH INTERNATIONAL PTY LTD OF SHOP 208G1 THE ENTERTAINMENT QUARTER, LANG RD, MOORE PARK. EXPIRES: 9/11/2018.
	AI549749	LEASE OF LEASE 3750891 TO PHYSIOCISE SYDNEY PTY LIMITED BEING SHOP 2202E. EXPIRES: 29/9/2018.
	AI91703	LEASE OF LEASE 3750891 TO PAMDARK PTY LIMITED BEING SHOP 2207. EXPIRES: 7/7/2018.
	AI91704	LEASE OF LEASE 3750891 TO YHM PTY LTD BEING SHOP 2073B. EXPIRES: 8/9/2018.
	AI643465	LEASE OF LEASE 3750891 TO CENTURY VENUES PTY LIMITED BEING SHOP 207F2. EXPIRES: 30/9/2018.
	AI856371	VARIATION OF LEASE AE295919 EXPIRY DATE NOW 28/7/2018.
*	AI844803	LEASE OF LEASE 3750891 TO SYDNEY CRICKET AND SPORTS GROUND TRUST BEING SHOP 2205A. EXPIRES: 7/12/2020. (SEE AN798193)
	AI856063	LEASE OF LEASE 3750891 TO THE HI-FI SYDNEY PTY LTD BEING SHOP 2206. EXPIRES: 31/10/2021. OPTION OF RENEWAL: 10 YEARS.
	AI856217	LEASE OF LEASE 3750891 TO TRACKDOWN DIGITAL PTY LIMITED BEING SUITE 125G1. EXPIRES: 31/5/2019. OPTION OF RENEWAL: 5 YEARS.
	AI887049	LEASE OF LEASE 3750891 TO SUBWAY REALTY PTY LTD BEING SHOP 2101A. EXPIRES: 28/2/2022.
	AJ196263	TRANSFER OF LEASE 3750891 LESSEE NOW NOVIAN FUNDS MANAGEMENT PTY LIMITED
	AJ196279	LEASE OF LEASE 3750891 TO STELLAR GROUP PTY LIMITED BEING SHOP 215S1. EXPIRES: 31/10/2019. OPTION OF RENEWAL: 3 OPTIONS OF 5 YEARS.
	AJ196280	VARIATION OF SUBLEASE AG963415
	AJ196282	LEASE OF LEASE 3750891 TO FOODCO GROUP PTY LIMITED BEING SHOP 215F1. EXPIRES: 15/5/2025.
	AJ272868	TRANSFER OF LEASE 3750891 LESSEE NOW CARSINGHA INVESTMENTS PTY LIMITED
	AJ272869	MORTGAGE OF LEASE 3750891 TO COMMONWEALTH BANK OF AUSTRALIA
	AJ272877	VARIATION OF LEASE 3750891
*	AM813239	VARIATION OF LEASE AD446576
*	AM813240	VARIATION OF LEASE AD393235
*	AN35890	LEASE OF LEASE 3750891 TO BLACK STAR PASTRY PTY LTD BEING TENANCIES 210-2 AND 210-4, BUILDING 210, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 6/11/2020. OPTION OF RENEWAL: 5 YEARS.
*	AN35973	LEASE OF LEASE 3750891 TO URBAN WINERY PTY LTD

END OF PAGE 3 - CONTINUED OVER

SECOND SCHEDULE (20 NOTIFICATIONS) (CONTINUED)

BEING TENANCY 121-G1, GROUND FLOOR, BUILDING 212, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. COMMENCES: 21/5/2018. EXPIRES: 20/5/2025. OPTION OF RENEWAL: 7 YEARS AND ONE FURTHER OPTION OF 4 YEARS.

* AN35914 LEASE OF LEASE 3750891 TO FRATELLI FRESH HOLDINGS PTY LTD BEING TENANCY 211-G1, BUILDING 211, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 18/8/2022. OPTION OF RENEWAL: 5 YEARS AND ONE FURTHER OPTION OF 5 YEARS.

* AN517589 LEASE OF LEASE 3750891 TO STRIKE AUSTRALIA PTY LTD BEING SHOP 2074A, THE ENTERTAINMENT QUARTER. EXPIRES: 25/11/2018.

* AN955790 LEASE OF LEASE 3750891 TO SYDNEY CRICKET GROUND AND SPORTS GROUND TRUST OF SHOP 215-5A IN BUILDING 215, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/10/2021. OPTION OF RENEWAL: 6 MONTHS WITH 1 FURTHER OPTION OF 6 MONTHS.

* AN955166 LEASE OF LEASE 3750891 TO SYDNEY CRICKET GROUND AND SPORTS GROUND TRUST OF SHOPS 2206A AND 2208B IN BUILDING 220, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/10/2021. OPTION OF RENEWAL: 6 MONTHS WITH 1 FURTHER OPTION OF 6 MONTHS.

* AN955791 LEASE OF LEASE 3750891 TO SYDNEY CRICKET AND SPORTS GROUND TRUST OF SUITES 2202A AND 2202B IN BUILDING 220, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/10/2021. OPTION OF RENEWAL: 6 MONTHS WITH 1 FURTHER OPTION OF 6 MONTHS.

* AN955792 LEASE OF LEASE 3750891 TO SYDNEY CRICKET AND SPORTS GROUND TRUST OF SHOP 220-G7 IN BUILDING 220, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/10/2021. OPTION OF RENEWAL: 6 MONTHS WITH 1 FURTHER OPTION OF 6 MONTHS.

* AN955793 LEASE OF LEASE 3750891 TO SYDNEY CRICKET AND SPORTS GROUND TRUST OF SUITE 2081M IN BUILDING 208, THE ENTERTAINMENT QUARTER, LANG ROAD, MOORE PARK. EXPIRES: 30/10/2021. OPTION OF RENEWAL: 6 MONTHS WITH 1 FURTHER OPTION OF 6 MONTHS.

4 DP1041134 RIGHT OF FOOTWAY 1 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

5 DP1041134 RIGHT OF FOOTWAY 1 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

6 DP1041134 EASEMENT FOR OVERHANG 1.5 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

END OF PAGE 4 - CONTINUED OVER

SECOND SCHEDULE (20 NOTIFICATIONS) (CONTINUED)

7 DP1041134 EASEMENT FOR ACCESS VARIABLE WIDTH APPURTENANT TO THE LAND ABOVE DESCRIBED

8 DP1041134 EASEMENT FOR OVERHANG 3 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

9 DP1041134 RIGHT OF ACCESS 3 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

10 DP1041134 EASEMENT FOR LIGHT AND AIR 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

11 DP1041134 EASEMENT FOR LIGHT AND AIR 3 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

12 DP1041134 EASEMENT FOR LIGHT AND AIR VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

13 DP1041134 RIGHT OF ACCESS VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

14 DP1041134 EASEMENT FOR OVERHANG VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

15 DP1041134 EASEMENT FOR OVERHANG 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

16 DP1041134 EASEMENT FOR OVERHANG 3 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

17 DP1041134 RIGHT OF ACCESS 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

18 DP1041134 RIGHT OF ACCESS 3 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

19 DP1041134 EASEMENT FOR SUPPORT 0.3 METRE(S) WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED

20 DP1041134 EASEMENT FOR OVERHANG 0.15 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM

NOTATIONS

NOTE: REFER ALL DEALINGS TO SD2

UNREGISTERED DEALINGS: VL AP107227 DP1246842.

*** END OF SEARCH ***

Appendix F

Planning Certificate

City of Sydney
Town Hall House
456 Kent Street
Sydney NSW 2000

Telephone +61 2 9265 9333
Fax +61 2 9265 9222
council@cityofsydney.nsw.gov.au

GPO Box 1591 Sydney NSW 2001
cityofsydney.nsw.gov.au

DOUGLAS PARTNERS PTY LTD
96 Hermitage Rd
WEST RYDE NSW 2114

PLANNING CERTIFICATE

Under Section 10.7 of the Environmental Planning and Assessment Act, 1979

Applicant:	DOUGLAS PARTNERS PTY LTD
Your reference:	86724
Address of property:	1 Driver Avenue , MOORE PARK NSW 2021
Owner:	CENTENNIAL PARK & MOORE PARK TRUST
Description of land:	Lot 3 DP 861843
Certificate No.:	2019301185
Certificate Date:	6/03/19
Receipt No:	7199522
Fee:	$80.00
Paid:	5/03/19

Title information and description of land are provided from data supplied by the Valuer General and shown where available.

Issuing Officer
per **Monica Barone**
Chief Executive Officer

CERTIFICATE ENQUIRIES:
Ph: 9265 9333
Fax: 9265 9415

Sydney2030/Green/Global/Connected

PLANNING CERTIFICATE UNDER SECTION 10.7 (2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 - ENVIRONMENTAL PLANNING & ASSESSMENT REGULATION, 2000, CLAUSES (1) - (2).

DEVELOPMENT CONTROLS

The following information must be read in conjunction with and subject to all other provisions of the environmental planning instruments specified in this certificate.

ZONING

SEPP 47- Moore Park Showground
(State Environmental Planning Policy No. 47 – Moore Park Showground) – Gazetted 17/11/1995

PROPOSED ZONING

This property is not affected by a draft zone.

LOCAL PLANNING CONTROLS

Development Control Plan for Orders (Adopted 09.12.1998)

City of Sydney Contaminated Land Development Control Plan 2004 (in force on 28.06.2004)

City of Sydney Access Development Control Plan 2004 (in force on 28.06.2004)

City of Sydney Convenience Store Development Control Plan 2004 (date of commencement – 24.09.2004)

City of Sydney Boarding Houses Development Control Plan 2004 (date of commencement – 12.01.2005)

City of Sydney Notification of Planning and Development Applications Development Control Plan 2005 (commenced 18.05.2005)

City of Sydney Child Care Centres Development Control Plan 2005 (commenced 10.10.2005)

City of Sydney Adult Entertainment and Sex Industry Premises Development Control Plan 2006 (commenced 18.04.06)

City of Sydney Heritage Development Control Plan 2006 (commenced 02.01.07)

City of Sydney Signage and Advertising Structures Development Control Plan 2005 (commenced 28.03.2005)

City of Sydney Visitor and Tourist Accommodation Development Control Plan 2006 (commenced 24.03.2006)

City of Sydney Telecommunications and Radiocommunications Development Control Plan 2006 (commenced 14.08.2006)

City of Sydney Late Night Trading Premises Development Control Plan 2007 (commenced 01.01.2008)

Planning Proposal Serviced Apartments: Amendment of the following Local Environmental Plans.

- **Sydney Local Environmental Plan 2012;**
- **Sydney Local Environmental Plan 2005;**
- **Sydney Local Environmental Plan (Green Square Town Centre) 2013; and**
- **Sydney Local Environmental Plan (Green Square Town Centre Stage 2) 2013.**

This Planning Proposal explains the intent of, and justification for the proposed amendment to ensure State Environmental Planning Policy No. 65 (SEPP 65) and the Apartment Design Guide provisions apply to serviced apartments.

HERITAGE

State Heritage Register (Amendment To Heritage Act, 1977 Gazetted 2/4/99)
This property may be identified as being of state heritage significance, and entered on the State Heritage Register.

To confirm whether the site is listed under the Heritage Act 1977 a Section 167 Certificate should be obtained from the NSW Heritage Office by contacting the NSW Heritage office on (02) 9873 8500 for an application from or by downloading the application form from www.heritage.nsw.gov.au

STATE PLANNING INSTRUMENTS

Full copies of State Environmental Planning Policies are available online at www.planning.nsw.gov.au.

State Environmental Planning Policy No. 1 – Development Standards
This policy makes development standards more flexible. It allows Council to approve a development proposal that does not comply with a set standard where this can be shown to be unreasonable or unnecessary.

State Environmental Planning Policy No. 19 – Bushland in Urban Areas
This is a policy to protect and preserve bushland within certain urban areas, as part of the natural heritage or for recreational, educational and scientific purposes. This policy is designed to protect bushland in public open space zones and reservations, and to ensure that bush preservation is given a high priority when local environmental plans for urban development are prepared.

State Environmental Planning Policy No. 32 – Urban Consolidation
This policy implements the principles of urban consolidation, including the orderly, economic use and development of land. The policy enables urban land which is no longer required for the purpose for which it is currently zoned or used to be redeveloped for multi-unit housing and related development.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
This policy aims to amend the definitions of hazardous and offensive industries; to render ineffective any environmental planning instruments not defining hazardous or offensive as per this policy; to control development of hazardous and offensive industries.

State Environmental Planning Policy No.47 Moore Park Showground

State Environmental Planning Policy No. 55 – Remediation of Land
This policy provides planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals. To assist councils and developers, the Department, in conjunction with the Environment Protection Authority, has prepared Managing Land Contamination: Planning Guidelines.

State Environmental Planning Policy No 60 – Exempt and Complying Development (Gazetted 3.03.00)
Specifies exempt and complying development in certain areas that have not provided for those types of development through a Local Environmental Plan. This is achieved by identifying the development of minimal environmental impact that is to be exempt and identifying development that is to be complying development. The policy also specifies standards for that development, identify complying development separately for metropolitan Sydney and regional areas of New South Wales, specifies conditions for complying development certificates and ensures that development consent is required for the subdivision of land, and the erection of a building or for demolition.

State Environmental Planning Policy No. 64 – Advertising and Signage
This policy aims to ensure that signage (including advertising):
Is compatible with the desired amenity and visual character of an area, and

- Provides effective communications in suitable locations, and
- Is of a high quality design and finish.

To this end the policy regulates signage (but not content) under Part 4 of the Act and provides limited time consents for the display of certain advertisements. The policy does not apply to signage that is exempt development under an environmental planning instrument. It does apply to all signage that can be displayed with or without consent and is visible from any public place or reserve, except as provided by the policy.

This policy should be read in conjunction with the Sydney Local Environmental Plan 2005, the City of Sydney Signage and Advertising Structures Development Control Plan 2005 and State Environmental Planning Policy No. 60 where these apply.

State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Buildings
This policy aims to improve the design quality of flats of three or more storeys with four or more self contained dwellings. The policy sets out a series of design principles for local councils to consider when assessing development proposals for residential flat development. The policy also creates a role for an independent design review panel and requires the involvement of a qualified designer in the design and approval process.

State Environmental Planning Policy No.70 – Affordable Housing (Revised Schemes) (Gazetted 31.05.02)
The policy identifies that there is a need for affordable housing in the City of Sydney, describes the kinds of households for which affordable housing may be provided and makes a requirement with respect to the imposition of conditions relating to the provision of affordable housing (provided other requirements under the Act are met).

State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
This Policy does not apply to land described in Schedule 1 (Environmentally sensitive land), or land that is zoned for industrial purposes, or land to which an interim heritage order made under the *Heritage Act 1997* by the Minister administering that Act applies, or land to which a listing on the State Heritage Register kept under the *Heritage Act 1997* applies.

The Policy aims to encourage the provision of housing (including residential care facilities) that will increase the supply and diversity of residences that meet the needs of seniors or people with a disability, and make efficient use of existing infrastructure and services, and be of good design.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
Aims to ensure consistency in the implementation of the BASIX scheme throughout the State. This Policy achieves its aim by overriding provisions of other environmental planning instruments and development control plans that would otherwise add to, subtract from or modify any obligations arising under the BASIX scheme.

State Environmental Planning Policy (State Significant Precincts) 2005
This Policy aims to identify development of economic, social or environmental significance to the State or regions of the State so as to provide a consistent and comprehensive assessment and decision making process for that development.
NB: This SEPP also contains exempt & complying provisions

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
This Policy aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State.

State Environmental Planning Policy (Temporary Structures and Places of Public Entertainment) 2007
This Policy aims to ensure that suitable provision is made for ensuring the safety of persons using temporary structures or places of public entertainment.

State Environmental Planning Policy (Infrastructure) 2007
This Policy aims to facilitate the effective delivery of infrastructure across the state.
NB: This SEPP also contains exempt & complying provisions

State Environmental Planning Policy (Repeal of Concurrence and Referral Provisions) 2008
This Policy is an ‘amending instrument’ that removes or modifies referral and concurrence clauses within local environmental plans (LEPs), regional environmental plans (REPs) and State environmental planning policies (SEPPs).

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
This Policy Streamlines assessment processes for development that complies with specified development standards. The policy provides exempt and complying development codes that have State-wide application, identifying, in the General Exempt Development Code, types of development that are of minimal environmental impact that may be carried out without the need for development consent; and, in the General Housing Code, types of complying development that may be carried out in accordance with a complying development certificate as defined in the Environmental Planning and Assessment Act 1979.

State Environmental Planning Policy (Affordable Rental Housing) 2009
Establishes a consistent planning regime for the provision of affordable rental housing. The policy provides incentives for new affordable rental housing, facilitates the retention of existing affordable rentals, and expands the role of not-for-profit providers. It also aims to support local centres by providing housing for workers close to places of work, and facilitate development of housing for the homeless and other disadvantaged people. NOTE: Does not apply to land at Green Square or at Ultimo Pyrmont, or on southern employment land.

State Environmental Planning Policy (Urban Renewal) 2010
The aims of this Policy are as follows:
(a) to establish the process for assessing and identifying sites as urban renewal precincts,
(b) to facilitate the orderly and economic development and redevelopment of sites in and around urban renewal precincts,
(c) to facilitate delivery of the objectives of any applicable government State, regional or metropolitan strategies connected with the renewal of urban areas that are accessible by public transport.

State Environmental Planning Policy (State and Regional Development) 2011
The aims of this Policy are as follows:
(a) to identify development that is State significant development,
(b) to identify development that is State significant infrastructure and critical State significant infrastructure,
(c) to confer functions on joint regional planning panels to determine development applications.

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
The aims of this Policy are:
(a) to protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and
(b) to preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
The aim of this Policy is to facilitate the effective delivery of educational establishments and early education and care facilities across the state.

State Environmental Planning Policy (Coastal Management) 2018
The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal

Management Act 2016, including the management objectives for each coastal management area, by:
(a) managing development in the coastal zone and protecting the environmental assets of the coast, and
(b) establishing a framework for land use planning to guide decision-making in the coastal zone, and
(c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
This plan applies to land within the Sydney Harbour Catchment, as shown edged heavy black on the Sydney Harbour Catchment Map, being part of the Sydney Region declared by order published in Gazette No 38 of 7 April 1989 at page 1841.

This plan has the following aims with respect to the Sydney Harbour Catchment:
to ensure that the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected and maintained: as outstanding natural asset, and as a public asset of national and heritage significance, for existing and future generations; to ensure a healthy, sustainable environment on land and water; to achieve a high quality urban environment; to ensure a prosperous working waterfront and an effective transport corridor, to encourage a culturally rich and vibrant place for people; to ensure accessibility to and along Sydney Harbour and its foreshores; to ensure the protection, maintenance and rehabilitation of watercourses, wetlands, riparian lands, remnant vegetation and ecological connectivity, to provide a consolidated, simplified and updated legislative framework for future planning.

OTHER MATTERS AFFECTING THE LAND AS PRESCRIBED BY SCHEDULE 4 - E. P. & A. REGULATION, 2000. CLAUSES (3) - (10)

(3) Complying Development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Note: All Exempt and Complying Development Codes: Council does not have sufficient information to ascertain the extent of a land based exclusion on a property. Despite any statement preventing the carrying out of complying development in the Codes listed below, complying development may still be carried out providing the development is not on the land affected by the exclusion and meets the requirements and standards of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

General Housing Code & Commercial and Industrial (New Buildings and Additions) Code

Complying development **may not** be carried out on the land under the General Housing Code & the Commercial and Industrial (New Buildings and Additions) Code if because of the provisions of clause 1.17A, 1.18(1)(c3) & 1.19 (Land-based requirements for exempt and complying development) any of the following statements are **YES**

▪ Clause 1.19(5)d. Land that is significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. (Applies only to the Commercial and Industrial (New Buildings and Additions) Code.	NO
▪ Clause 1.17A(d). Has been identified as a property that comprises, or on which there is, an item that is listed on the State Heritage Register under the *Heritage Act 1977* or that is subject to an interim heritage order under the *Heritage Act 1977*.	NO
▪ Clause 1.17A(d) & 1.18(1)(c3). Has been identified as a property that comprises, or on which there is, a heritage item or draft heritage item.	**NO**
▪ Clause 1.17A(c). Has been identified as being within a wilderness area (identified under the *Wilderness Act 1987*.	**NO**
▪ Clause 1.17A(e) & 1.19(1)e or 1.19(5)f. Has been identified as land that is within an environmentally sensitive area or by an environmental planning instrument as being within a buffer area, a river front area, an ecologically sensitive area, environmentally sensitive land or a protected area	**NO**
▪ Clause 1.19(1)a.or 1.19(5)a Has been identified as being within a heritage conservation area or a draft heritage conservation area.	**NO**
▪ Clause 1.19(1)b or 1.19(5)b. Has been identified as being land that is reserved for a public purpose in an environmental planning instrument.	**NO**
▪ Clause 1.19(1)c or 1.19(5)c. Has been identified as being on an Acid Sulfate Soils Map as being Class 1 or Class 2.	**NO**
▪ Clause 1.19(1)d or 1.19(5)e. Has been identified as land that is subject to a biobanking agreement under part 7A of the threatened Species Conservation Act 1995 or a property vegetation plan under the Native Vegetation Act 2003.	**NO**
▪ Clause 1.19(1)f or 1.19(5)g. Has been identified by an environmental planning instrument, a development control plan or a policy adopted by the Council as being or affected by a coastline hazard, a coastal hazard or a coastal erosion hazard.	**NO**
▪ Clause 1.19(1)g or 1.19(5)h. Has been identified as being land in a foreshore area.	**NO**
▪ Clause 1.19(1)h. Has been identified as land that is in the 25 ANEF contour or a higher ANEF contour. (Applies only to the General Housing Code)	**NO**
▪ Clause 1.19(1)j or 1.19(5)i. Has been identified as unsewered land within a drinking water catchment.	**NO**
▪ Clause 1.19(1)i. Has been identified as land that is declared to be a special area under the Sydney Water Catchment Management Act 1998.	**NO**

Housing Alterations Code
Complying development under the Housing Alterations Code **may** be carried out on the land.

Commercial and Industrial Alterations Code
Complying development under the Commercial and Industrial Alterations Code **may** be carried out on the land.

Subdivisions Code
Complying development under the Subdivisions Code **may** be carried out on the land.

Rural Housing Code
The Rural Housing Code does not apply to this Local Government Area.

General Development Code
Complying development under the General Development Code **may** be carried out on the land.

Demolition Code
Complying development under the Demolition Code **may** be carried out on the land.

Low Rise Medium Density Housing Code
This Code has been deferred until 1 July 2019.

(4) Coastal Protection Act, 1979

The council has not been notified by the department of public works that the land is affected by the operation of section 38 or 39 of the coastal protection act, 1979.

(4A) Certain information relating to beaches and coasts

(1) In relation to a coastal council an order has **not** been made under Part 4D of the coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land).

(2) In relation to a coastal council : Council has **not** been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land)

(4B) Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council : The owner (or any previous owner) of the land has not consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Note. “Existing coastal protection works” are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.

(5) Mine Subsidence District

This land has not been proclaimed to be a mine subsidence district within the meaning of section 15 of the mine subsidence compensation act, 1961.

(6) Road Widening and/or Road Realignment affected by (a) Division 2 of Part 3 of the Roads act 1993 or (c) any resolution of council or other authority.

This land **is not** affected by road widening and/or road realignment under section 25 of the Roads Act, 1993 and/or resolution of Council or any other authority.

(6) Road Widening and/or Road Realignment Affected by (b) any environmental planning instrument.

This land **is not** affected by any road widening or road realignment under any planning instrument.

(7) Council and other public authorities policies on hazard risk restrictions:

(a) The land **is not** affected by a policy adopted by the Council that that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk; and

(b) The land **is not** affected by a policy adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to on planning certificate issued by Council, that restricts the development of the land because of the likelihood of land slip, bushfire, flooding, tidal inundation, subsidence, acid sulphate soils or any other risk.

(7A) Flood related development controls information.

The development on this land or part of this land is not subject to flood related development controls.

(8) Land reserved for acquisition

No environmental planning instrument, or proposed environmental planning instrument applying to the land, provides for the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

(9) Contribution plans

The following Contributions Plans apply to properties within the City of Sydney local government area. Contributions plans marked **YES** may apply to this property:

▪ Central Sydney Development Contributions Plan 2013 – in operation 9th July 2013	**NO**
▪ City of Sydney Development Contributions Plan 2015 – in operation 1st July 2016	**YES**
▪ Redfern Waterloo Authority Contributions Plan 2006 – in operation 16th May 2007 ▪ Redfern Waterloo Authority Affordable Housing Contributions Plan – in operation 16th May 2007	**NO**

(9A) Biodiversity certified land

The land has not been certified as biodiversity certified land.

(10) Biobanking Agreement

Council has not been notified of a biobanking agreement under Part 7A of the Threatened Species Conservation Act 1995.

(11) Bush fire prone land

The land has not been identified as Bush fire prone land.

(12) Property vegetation plans

Not Applicable.

(13) Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of an order which as been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

(14) Directions under Part 3A

Not Applicable.

(15) Site compatibility certificates and conditions for seniors housing

(a) The land to which the certificate relates is not subject to a current site compatibility certificate (seniors housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any condition of consent to a development application granted after 11 October 2007 required by State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004.

(16) Site compatibility certificates for infrastructure

The land to which the certificate relates is not subject to a valid site compatibility certificate (infrastructure), of which Council is aware, in respect of proposed development on the land.

(17) Site compatibility certificates and conditions for affordable rental housing

(a) The land to which the certificate relates is not subject to a current site compatibility certificate (affordable rental housing), of which Council is aware, in respect of proposed development on the land.

(b) The land to which the certificate relates is not subject to any terms of a kind referred to in clause 17(1) or 37(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

(18) Paper subdivision information

Not Applicable.

(19) Site verification certificates

The land to which the certificate relates is not subject to a valid site verification certificate of which Council is aware.

(20) Loose-fill asbestos insulation

Not Applicable

(21) Affected building notices and building product rectification orders

(1)The land to which the certificate relates is not subject to any affected building notice of which Council is aware.

(2) (a) The land to which the certificate relates is not subject to any building product rectification order of which Council is aware and has not been fully complied with.

(b) The land to which the certificate relates is not subject to any notice of intention to make a building product rectification order of which Council is aware and is outstanding.

(3) In this clause:
affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.
building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

Note. The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

(a) The land to which the certificate relates **is not** declared to be **significantly contaminated land** within the meaning of that act as at the date when the certificate is issued.

(b) The land to which the certificate relates **is not** subject to a **management order** within the meaning of that act as at the date when the certificate is issued.

(c) The land to which the certificate relates **is not** the subject of an **approved voluntary management proposal** within the meaning of that act at the date the certificate is issued.

(d) The land to which the certificate relates **is not** the subject of an **ongoing maintenance order** within the meaning of that act as at the date when the certificate is issued.

(e) As at the date when the certificate is issued, Council **has not** identified that a **site audit statement** within the meaning of that act has been received in respect of the land the subject of the certificate.

PLANNING CERTIFICATE SECTION 10.7 (2) INFORMATION:
Information provided in accordance with planning certificate section 10.7 (2) has been taken from council's records and advice from other authorities but council disclaims all liability for any omission or inaccuracy in the information. Specific inquiry should be made where doubt exists.

PLANNING CERTIFICATE UNDER SECTION 10.7 (5) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

PLANNING CERTIFICATE SECTION 10.7 (5) ADVICE is current as at 12:00 noon two working days prior to the date of issue of this certificate. The following matters have been considered & details provided where information exists: easements in favour of council; parking permit scheme; heritage floor space restrictions; low-rental residential building; foreshore building line; tree preservation order.

Contaminated Land Potential:
Council records do not have sufficient information about the uses (including previous uses) of the land which is the subject of this section 10.7 certificate to confirm that the land has not been used for a purpose which would be likely to have contaminated the land. Parties should make their own enquiries as to whether the land may be contaminated.

Hazard Risk Restriction:
The City of Sydney Local Environmental Plan 2012 incorporates Acid Sulfate soil maps. Development on the land identified in those maps should have regard to Division 4 clause 7.16 of the LEP.

Construction Noise and View Loss Advice:
Intending purchasers are advised that the subject property may be affected by construction noise and loss or diminution of views as a result of surrounding development.

City of Sydney Tree Preservation Order 2004 (TPO)
This order applies to all land where South Sydney Local Environmental Plan 1998 applies and the City of Sydney Council or the Central Sydney Planning Committee is the relevant consent authority under the *Environmental Planning & Assessment* Act 1979. Contact Council's Contract and Asset Management section for more information.

Outstanding Notice & Order information
In relation to this property, there **is** an outstanding Order or Notice of Intention to issue an Order relating to Fire Safety (being an Order or Notice of Intention to issue an Order of type 6, 10, 11 under Section 121B of the Environmental Planning and Assessment Act, 1979). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under Section 121ZP of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act.

In relation to this property, there **is not** an outstanding Order or Notice of Intention to issue an Order (being an Order or Notice of Intention to issue an Order of a type other than relating to fire safety). Further information about the Order or Notice of Intention to issue an Order may be obtained by applying for a certificate under Section 121ZP of the Environmental Planning and Assessment Act and Section 735A of the Local Government Act.

The Minister is the Consent Authority
The Minister is the consent authority where the capital has an investment value of more than $10 million. State Environmental Planning Policy (Major Projects).

Residential & Visitor Parking Permit Schemes
The City of Sydney co-ordinates a Resident Permit Parking Scheme and a Visitor Permit Parking scheme. This property may be restricted from participating in either scheme. Eligibility may change after the date of this certificate, as parking supply and other traffic demands change. For more information contact Council's call centre on 9265 9333.

ADVICE FROM OTHER BODIES

Advice provided in accordance with planning certificate section 10.7 (5) is supplied in good faith. Council accepts no liability for the validity of the advice given. (see section 10.7 (6) of the Environmental Planning and Assessment Act, 1979).

For information regarding outstanding notices and orders a CERTIFICATE FOR OUTSTANDING NOTICES OF INTENTION AND/OR AN ORDER UNDER SECTION 735A OF THE LOCAL GOVERNMENT ACT, 1993 AND SECTION 121ZP OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979 may be applied for at Sydney City Council.

Planning certificate section 10.7 (2), local planning controls are available are available online at www.cityofsydney.nsw.gov.au

General Enquiries:
Telephone: 02 9265 9333

Town Hall House
Level 2
Town Hall House
456 Kent Street
Sydney
8am – 6pm Monday - Friday

State planning controls are available online at www.legislation.nsw.gov.au

Where planning certificate section 10.7 (5) matters are supplied, complete details are available by writing to:
Chief Executive Officer
City of Sydney
G.P.O. Box 1591
Sydney NSW 2000

End of Document

Appendix G

SafeWork NSW Records

NSW GOVERNMENT | SafeWork NSW

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

RECEIVED
20 MAR 2019
BY: ....

Our Ref: D19/087225

14 March 2019

Douglas Partners Pty Ltd
Mr David Walker
PO Box 472
WEST RYDE NSW 1685

Mr Walker

RE SITE: 1 Driver Ave, Moore Park NSW 2021

I refer to your site search request received by SafeWork NSW on 5 March 2019 requesting information on Storage of Hazardous Chemicals for the above site.

Enclosed are copies of the documents that SafeWork NSW holds on record number 35/037146 relating to the storage of Hazardous Chemicals at the above-mentioned premises.

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

Red sun
Special effects fax header

RECEIVED
SERVICE CENTRE
30 AUG 2005
WORKCOVER
NEW SOUTH WALES

DATE: 26-Aug-2005

TO: Dangerous Goods Licensing
WorkCover NSW

FAX : By Mail

PHONE: (02) 4321 5000

RE: Licence Number: 35/037146 - Please Cancel / Revoke this Licence

FROM: ARRAN GORDON

COPIES:

COMMENTS:

To: WorkCover N.S.W.
Dangerous Goods Licensing
Locked Bag 2906
Lisarow, N.S.W. 2252

Dear Dangerous Goods Licensing,

With reference to Licence Number: 35/037146 (attached) - can you please cancel or revoke this licence. Red Sun Productions has not required the quantity of bullet hit squibs originally anticipated and as the production is winding down, the Licence for the Keeping of Dangerous Goods is no longer required. Please find the original copy of the licence attached.

The small quantity of remaining stock of squibs will be held by Dave Young.

Please contact me with any queries mobile; 0419 512 911. Our fax number is (02) 8353 2635.

Thanks and regards,

Arran Gordon.

Arran Gordon

SPECIAL EFFECTS DEPARTMENT - RED SUN PRODUCTIONS
UNIT 4, BUILDING 36 - FOX STUDIOS AUSTRALIA
PHONE: +61 2 8353 2631 FAX: +61 2 8353 2635
POSTAL ADDRESS: FSA #1, DRIVER AVENUE, MOORE PARK, NSW 1363

WorkCover
NEW SOUTH WALES

Dangerous Goods Licensing
ph (02) 4321 5500   fax (02) 9287 5500

RECEIVED
SERVICE CENTRE
30 AUG 2005
WORKCOVER
NEW SOUTH WALES

Attn: ARRAN GORDON
Licensee: **RED SUN PRODUCTIONS PTY LTD** ACN 109 262 062
SPECIAL EFFECTS DEPARTMENT
FSA#1 DRIVER AVE
MOORE PARK NSW 1363

LICENCE FOR THE KEEPING OF DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATIONS THEREUNDER

Licence Number 35/037146 **Expiry Date** 22/03/2006 **No. of Depots** 1

Licensee Contact ARRAN GORDON Ph. 02 8353 2901 Fax. 02 8353 2635

Premises Licensed to Keep Dangerous Goods
RED SUN PRODUCTIONS PTY LTD
1 DRIVER AVE MOORE PARK 2021

Nature of Site FILM AND VIDEO PRODUCTION

Major Supplier of Dangerous Goods VARIOUS

Emergency Contact for this Site ARRAN GORDON / DAVE YOUNG
Ph. 02 9398 5254 (M) 0419 512 911 / (M) 0415 657 025

Site staffing 24 HRS 7 DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Qty
1	**INTERNAL MAGAZINE**	**Class 1.1B**	**50 KG**
	UN 0029 DETONATORS, NON-ELECTRIC		200 NO.
	UN 0030 DETONATORS, ELECTRIC		200 NO.
	UN 0360 DETONATOR ASSEMBLIES, NON-ELECTRIC		200 NO.
	UN 0456 DETONATORS, ELECTRIC		5000 NO.

PLEASE RETAIN AS PROOF OF LICENCE
Issued by Workcover Authority of New South Wales on 29 April 2005

Closed 26/9/05.

WorkCover. **Watching out for you.**

WorkCover NSW ABN 77 682 742 966 92-100 Donnison Street Gosford NSW 2250 Locked Bag 2906 Lisarow NSW 2252
Telephone 02 4321 5000 Facsimile 02 4325 4145 WorkCover Assistance Service **13 10 50**
DX 731 Website **www.workcover.nsw.gov.au**

WC1216LH

Application for Licence to Keep **DG1**

Dangerous Goods

Application for: New Licence ☒ Amendment ☐ Transfer ☐ Renewal of expired licence ☐

RECEIVED
SERVICE CENTRE
22 MAR 2005
WORKCOVER
NEW SOUTH WALES

PART A - *Applicant and site information* (See page 2 of Guidance Notes)

1 Name of applicant: Red Sun Productions Pty Ltd
ACN: 109 262 062

2 Postal Address of Applicant: Special Effects Dep't, FSA #1, Driver Avenue,
Suburb/Town: Moore Park
Postcode: N.S.W. 1363

3 Trading Name or Site Occupier's Name: Red Sun Productions Pty Ltd

4 Contact for Licence Inquiries
Phone: (02) 8353 2901
Fax: (02) 8353 2635
Name: Arran GORDON

5 Previous Licence Number (if known): **35/ NOT APPLICABLE** 037146

6 Previous Occupier (if known): **NOT APPLICABLE**

7 Site to be Licensed (Please include photocopy page from a local Street Directory with the site marked **X**)
No: 1
Street: Driver Avenue, Moore Park, N.S.W. ~~1363~~ 2021.

8 Main Business of Site: Film Studios and Associated Workshops

9 Site staffing: Hours per day: 24 Days per week: 7 (Security Guards)

10 Site Emergency Contact
Phone / Name:
0419 512 911 - Arran Gordon
(02) 9398 5254 (Home)
0415 657 025 - Dave Young

11 Major Supplier of Dangerous Goods: VARIOUS - (Orica, Combat Simulation Systems, De La Mare)

12 If a new site or for amendments to depots - see page 4 of Guidance Notes.
Plans Stamped by: Signature of Competent Person / Printed Name / Date stamped
Not Applicable - Class 1 Hazardous Goods approved directly by WorkCover N.S.W.

I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

13 Signature of Applicant: Arran Gordon
Printed Name: ARRAN GORDON
Date Signed: 17 MARCH 2005

Please send your application marked Confidential to: Dangerous Goods Licensing,
WorkCover NSW, Locked Bag 2906, LISAROW NSW 2252
Hotline: (02) 4321 5500 - Fax: (02) 9287 5500

29/4/05

What is a depot? See page 5 of the Guidance Notes

PART C - Dangerous Goods Storage Complete one section per depot

If you have more depots than that space provided, photocopy sufficient sheets first

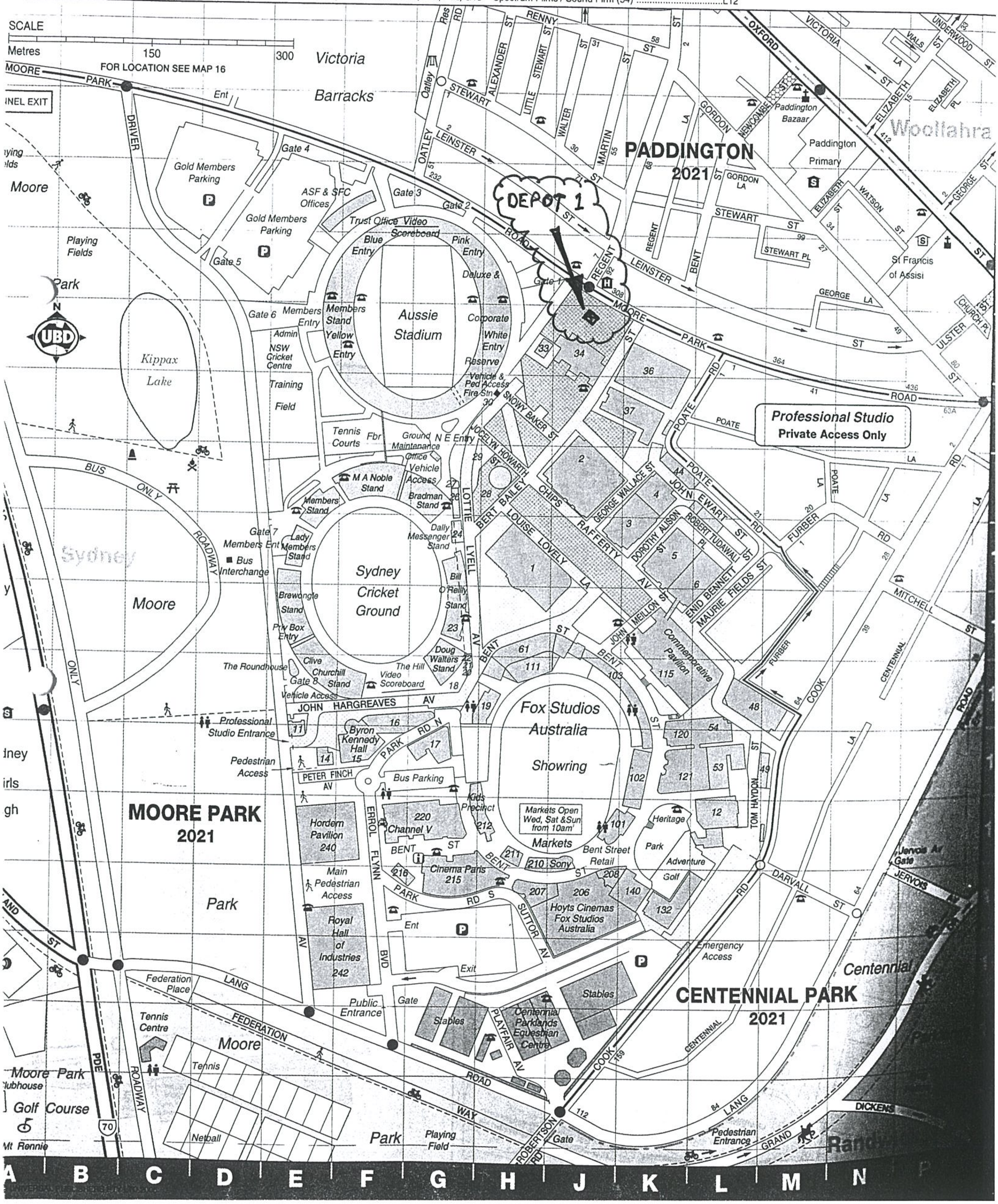
Depot Number	Type of Depot (see page 5)	Depot Class	Maximum Storage Capacity
1	Internal Magazine	1.1 B	50 Kilograms N.E.Q.

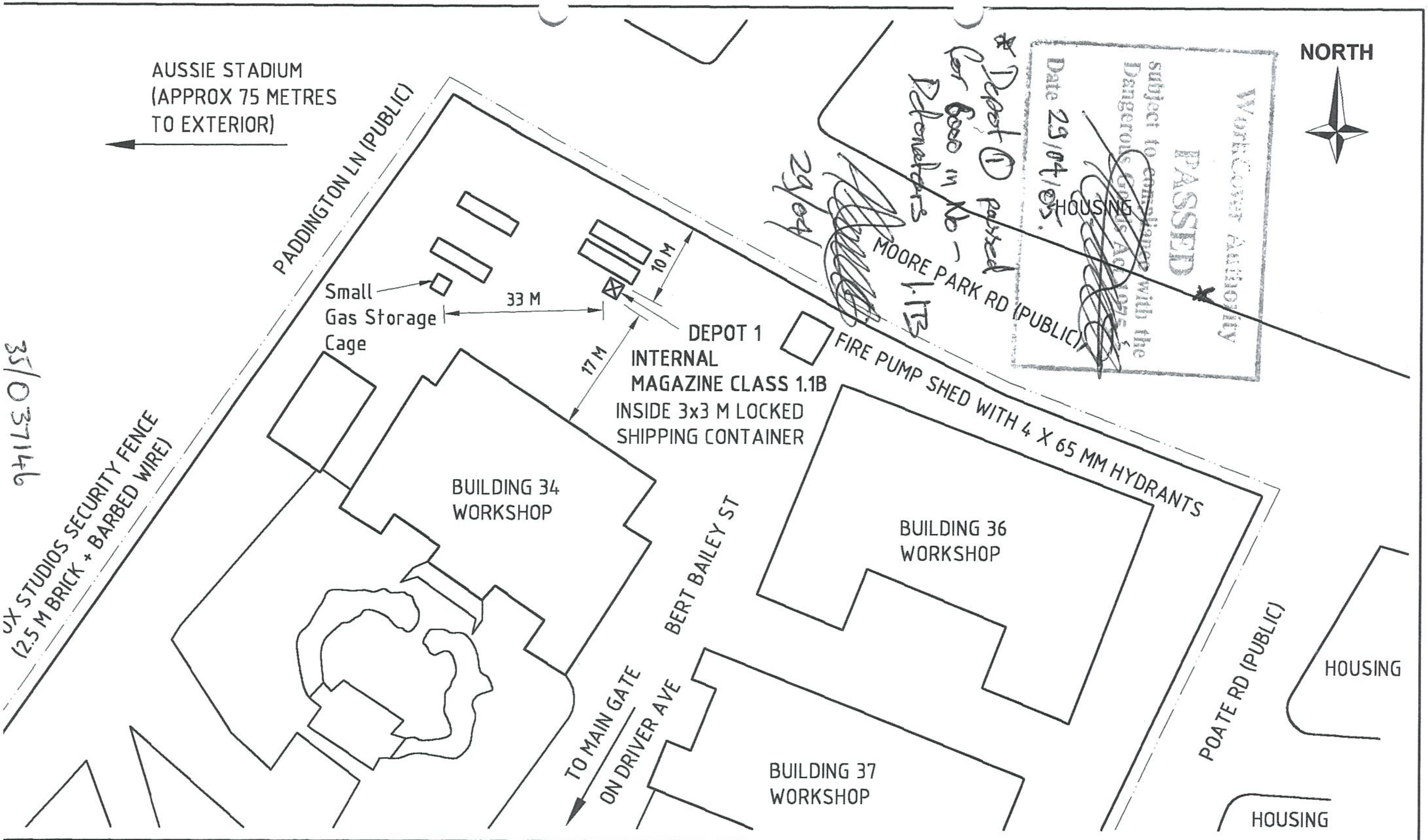
UN Number	Proper Shipping Name	Class	PG (I, II, III)	Product or Common Name	Typical Quantity	Unit eg L, kg, m^3
0456	Detonators, Electric	1.4 S	-----	De La Mare Bullet Hits SD100, SD70, MD1 Series	5,000	Each
UN 0029	Detonators, Non-Electric	1.1 B	-----	Plain Detonators	200	Each
UN 0030	Detonators, Electric	1.1 B	-----	Electric Detonators	200	Each
UN 0360	Detonator Assemblies, Non-Electric	1.1 B	-----	Signal Tube Detonator Assemblies	200	Each

S H O P P I N G   C E N T R E   3 Hours Free Parking

A B C D E F **MOORE PARK** J K L M N P

ıture Golf (mini golf)	K14
Cineffects / Studio Kite / Pride Studios (37)	K8
ıl Logic (53)	L13
Street Stand Retail / Food (103)	J12
ıel V (220)	G14
ıa Paris / Retail (215)	G15
ıgic (208)	J15
me Supplier (44)	K9
andstand Offices & Theatrettes (61)	H11
Lion Pub / Restaurant (216)	F15
on (24)	G10
Fox Shop (101)	J14
Fox Studios Australia Offices (19)	H12
Global Television (20)	G12
Horden Pavilion (240)	E14
Hoyts Cinemas, Fox Studios, Australia(12 Cinemas) (206)	J15
Kids Precinct (212)	G14
Liz Mullinar Casting, Prototype Casting (11)	E13
Markets	H14
Maura Fay Casting (22)	G12
Offices (14, 15, 16 & 17)	E13, F13, F12, G13
Offices (26 & 28)	G9, H9
Panavision / Atlab / Moneypenny / Stage & Screen (23)	G11
Rehearsal & Production Office (49)	M13
Retail / Entertainment (207)	H15
Retail / Entertainment (210 & 211)	H14
Royal Hall of Industries (242)	F15
Showring	J13
Security Office (18)	G12
Sound Stages -Film (1, 2, 3, 4 & 12)	H10, J9 ,K10 ,K9 ,L14
Sound Stages -Television (5 & 6)	K10, L10
Spectrum Films / Sound Firm (54)	L12
Storage (36)	K7
Stunt Agency (21)	G12
Stunt Agency Storage (30)	H8
Suttor Stand Family Restaurant (102)	K13
Tour Support Office (132)	K15
Travel Freight (27)	G9
Writers Iniative / Tropnest (33)	H7
Workshop (34)	J7
Workshops / Storage (48)	L12





WorkCover Authority
PASSED
subject to compliance with the
Dangerous Goods Act 1975
Date 29/04/05.

* Depot ① passed for 6000 in No - Detonators 1.1B

29/04

35/037146

		A	17-Mar-05	A.G.G	--	--	Issued for Application
--	--	Rev	Date	By	Chk	App	Description
Drawing No.	Reference Drawings	Revision History					

Projection:

All dimensions in millimetres, unless noted otherwise. DO NOT SCALE.

Red Sun Productions Pty Ltd

Title: © COPYRIGHT

Proposed Storage of Dangerous Goods

Site Sketch - Fox Studios

Scale:	Project No:	Drawing Number:	Rev:	Size:
NTS	FOX DG	SK-001	A	A4

Appendix H

QA/QC Procedures and Results

QA/QC PROCEDURES AND RESULTS

Q1. Data Quality Objectives

The Detailed Site Investigation (DSI) was prepared with reference to the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 as amended 2013 (NEPC, 2013). The DQO process is outlined as follows:

- Stating the Problem;
- Identifying the Decision;
- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors; and
- Optimising the Design for Obtaining Data.

The DQOs have been addressed within the report as shown in Table Q1.

Table Q1: Data Quality Objectives

Data Quality Objective	Report Section where Addressed
State the Problem	S1 Introduction
Identify the Decision	S13 Discussion and Recommendations S14 Conclusions
Identify Inputs to the Decision	S1 Introduction S3 Site Identification and Proposed Development S4 Site Walkover S5 Previous Reports S6 Topography, Geology and Hydrogeology S7 Site History Information S8 Potential Contamination Sources and Preliminary Conceptual Site Model S11 Field Work Results S12 Laboratory Analytical Rationale and Results
Define the Boundary of the Assessment	S3 Site Identification and Proposed Development
Develop a Decision Rule	S107 Assessment Criteria
Specify Acceptable Limits on Decision Errors	S9 Field Work and QA/QC
Optimise the Design for Obtaining Data	S2 Scope of Work S9 Field Work and QA/QC

Q2. FIELD AND LABORATORY QUALITY CONTROL

The field and laboratory QC procedures and results are summarised as follows:

- Analytical laboratories were NATA accredited for the analysis undertaken;
- Recommended holding times for analysis of samples were met;
- Blind field replicates were analysed at a rate of at least 10% of primary samples. For soil, intra-laboratory field replicates were analysed at a rate of 7% and inter-laboratory field replicates were analysed at a rate of 4%. For groundwater, intra-laboratory field replicates were analysed at a rate of 33%;
- Relative percentage differences (RPD) for intra-laboratory soil replicates (BD1/20190306 and BD2.20190307) were <30% for inorganics and <50% for organics (where concentrations are greater than five times the practical quantitation limit) except for:
    - Chromium in samples from borehole 101, depth 0.4-0.5 m (5 mg/kg and 7 mg/kg, RPD 33%); and
    - Zinc in samples from borehole 107, depth 0.9-1.0 m (10 mg/kg and 14 mg/kg, RPD 33%).

  These RPD which are greater than 30% do present a concern as the actual differences in concentrations are low.
- RPD for the inter-laboratory soil replicate (BD2/20190308) were <30% for inorganics and <50% for organics (where concentrations are greater than five times the practical quantitation limit);
- RPD for the intra-laboratory groundwater replicate (BDA) were <30% for inorganics and <50% for organics (where concentrations are greater than five times the practical quantitation limit);
- A soil trip spike (labelled TS) was used for each day of soil sampling. Analytical results for BTEX for the four trip spikes were within 60-140% recovery;
- A soil trip blank (labelled TB) was used for each day of soil sampling. Analytical results for BTEX were less than the practical quantitation limit for all four trip blanks;
- A water trip spike (labelled TS) was used for the groundwater monitoring event. Analytical results for BTEX for the trip spike were within 60-140% recovery;
- A water trip blank (labelled TB) was used for the groundwater monitoring event. Analytical results for BTEX were less than the practical quantitation limit;
- As soil sampling involved the collection of soil samples using disposable gloves to avoid cross-contamination and groundwater samples were collected by using disposable tubing to avoid cross-contamination, rinsate samples were not collected given that decontamination procedures did not need to be adopted for sampling equipment;
- Reagent blanks were used by the laboratories. Results were less than the practical quantitation limit;
- Matrix spike samples were used by the laboratories. Results were within the acceptance standards;
- Surrogate spike samples were used by the laboratories. Where results were able to be obtained, recoveries were within the acceptance standards. For acid extractable metals, in a small number of cases, recovery results were unable to be reported due to the inhomogeneous nature of the element in the sample. It was noted that an acceptable recovery was obtained for the laboratory

control samples. Recoveries for TRH C_{29}-C_{36} and TRH >C_{34}-C_{40} were not able to be obtained for sample 213316-24 due to interference from the high concentrations of the analytes;

- Laboratory control samples were used by the laboratories. Results were within the acceptance standards;
- Laboratory replicate samples had RPD results within the laboratory acceptance criteria except for: and
  - Zinc in sample 213316-38. Therefore, a triplicate result was issued for the sample;
  - Mercury in sample 213316-7. Therefore, a triplicate result was issued for the sample; and
  - Copper, nickel and zinc in 213316-2. Therefore a triplicate result and a quadruplicate result were issued due to the extremely inhomogeneous nature of this sample.

Laboratory certificates (Appendix I) should be referenced for further details on laboratory QC results. Overall, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

Q3. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs):

- Completeness – a measure of the amount of usable data from a data collection activity;
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
- Precision – a measure of variability or reproducibility of data; and
- Accuracy – a measure of closeness of the data to the ‘true’ value.

The DQIs were assessed as outlined in the following Table Q3.

Table Q3: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled; Preparation of borehole logs, sample location plan and chain of custody records; Preparation of field groundwater sampling sheets; Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody; Samples analysed for identified potential contaminants; Completion of chain of custody (COC) documentation; NATA accredited laboratory results certificates provided by the laboratory; Satisfactory frequency and results for field and laboratory quality control (QC) samples.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project; Experienced samplers used; Use of NATA registered laboratories, with test methods the same or similar between laboratories; Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled; Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQOs; Samples were extracted and analysed within holding times; Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures; Generally, acceptable RPD results between original samples and replicates; Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures; Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been complied with. As such, it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

Appendix I

Laboratory Certificates & Chain of Custody

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 213316

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Walker
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86724.00, Moore Park**
Number of Samples	37 SOIL
Date samples received	12/03/2019
Date completed instructions received	12/03/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	19/03/2019
Date of Issue	19/03/2019

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Giovanni Agosti, Group Technical Manager
Ken Nguyen, Reporting Supervisor
Lucy Zhu, Senior Asbestos Analyst
Nancy Zhang, Laboratory Manager, Sydney
Nick Sarlamis, Inorganics Supervisor
Steven Luong, Organics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in soil		
Our Reference		213316-16
Your Reference	UNITS	108
Depth		2.7-2.8
Date Sampled		07/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	17/03/2019
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1

VOCs in soil		
Our Reference		213316-16
Your Reference	UNITS	108
Depth		2.7-2.8
Date Sampled		07/03/2019
Type of sample		SOIL
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	100
Surrogate aaa-Trifluorotoluene	%	79
Surrogate Toluene-d_8	%	99
Surrogate 4-Bromofluorobenzene	%	100

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-1	213316-2	213316-3	213316-4	213316-5
Your Reference	UNITS	101	101	101	102	102
Depth		0.4-0.5	0.9-1.0	2.9-3.0	2.9-3.0	3.9-4.0
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	97	94	90	94

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-6	213316-7	213316-8	213316-9	213316-10
Your Reference	UNITS	103	103	104	104	105
Depth		0.2-0.3	1.9-2.0	0.9-1.0	1.9-2.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	94	94	92	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-11	213316-12	213316-13	213316-14	213316-15
Your Reference	UNITS	106	106	107	107	108
Depth		0.4-0.5	1.9-2.0	0.2-0.3	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	96	97	94	92

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-17	213316-18	213316-19	213316-20	213316-21
Your Reference	UNITS	109	109	110	111	112
Depth		0.9-1.0	2.9-3.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	94	99	100	100	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-22	213316-23	213316-24	213316-25	213316-26
Your Reference	UNITS	113	114	115	115	116
Depth		0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	97	96	98	96	92

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-27	213316-28	213316-29	213316-30	213316-31
Your Reference	UNITS	116	BD1/20190306	BD2/20190307	TS	TB
Depth		1.9-2.0	-	-	-	-
Date Sampled		11/03/2019	06/03/2019	07/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	99%	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	98%	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	100%	<1
m+p-xylene	mg/kg	<2	<2	<2	100%	<2
o-Xylene	mg/kg	<1	<1	<1	100%	<1
naphthalene	mg/kg	<1	<1	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	98	94	97	93	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		213316-32	213316-33	213316-34	213316-35	213316-36
Your Reference	UNITS	TS	TB	TS	TB	TS
Depth		-	-	-	-	-
Date Sampled		07/03/2019	07/03/2019	08/03/2019	08/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
Benzene	mg/kg	95%	<0.2	99%	<0.2	97%
Toluene	mg/kg	96%	<0.5	98%	<0.5	99%
Ethylbenzene	mg/kg	96%	<1	99%	<1	96%
m+p-xylene	mg/kg	97%	<2	99%	<2	98%
o-Xylene	mg/kg	97%	<1	100%	<1	97%
naphthalene	mg/kg	[NA]	<1	[NA]	<1	[NA]
Total +ve Xylenes	mg/kg	[NA]	<1	[NA]	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	92	99	88	97	91

vTRH(C6-C10)/BTEXN in Soil		
Our Reference		213316-37
Your Reference	UNITS	TB
Depth		-
Date Sampled		11/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	17/03/2019
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Total +ve Xylenes	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	95

svTRH (C10-C40) in Soil						
Our Reference		213316-1	213316-2	213316-3	213316-4	213316-5
Your Reference	UNITS	101	101	101	102	102
Depth		0.4-0.5	0.9-1.0	2.9-3.0	2.9-3.0	3.9-4.0
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	120	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	120	<50
Surrogate o-Terphenyl	%	102	101	99	100	101

svTRH (C10-C40) in Soil						
Our Reference		213316-6	213316-7	213316-8	213316-9	213316-10
Your Reference	UNITS	103	103	104	104	105
Depth		0.2-0.3	1.9-2.0	0.9-1.0	1.9-2.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	220	<100	200	<100
TRH C_{29} - C_{36}	mg/kg	<100	140	<100	140	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	330	<100	300	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	330	<50	300	<50
Surrogate o-Terphenyl	%	99	103	99	102	101

svTRH (C10-C40) in Soil						
Our Reference		213316-11	213316-12	213316-13	213316-14	213316-15
Your Reference	UNITS	106	106	107	107	108
Depth		0.4-0.5	1.9-2.0	0.2-0.3	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	330
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	280
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	<100	<100	<100	550
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	160
Total +ve TRH (>C10-C40)	mg/kg	140	<50	<50	<50	700
Surrogate o-Terphenyl	%	101	101	101	101	106

svTRH (C10-C40) in Soil						
Our Reference		213316-17	213316-18	213316-19	213316-20	213316-21
Your Reference	UNITS	109	109	110	111	112
Depth		0.9-1.0	2.9-3.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	230	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	190	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	140	370	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	140	370	<50	<50	<50
Surrogate o-Terphenyl	%	100	100	101	101	103

svTRH (C10-C40) in Soil						
Our Reference		213316-22	213316-23	213316-24	213316-25	213316-26
Your Reference	UNITS	113	114	115	115	116
Depth		0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	360	250	290
TRH C_{29} - C_{36}	mg/kg	<100	<100	350	240	340
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	630	440	560
TRH >C_{34} -C_{40}	mg/kg	<100	<100	190	130	180
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	820	580	740
Surrogate o-Terphenyl	%	102	99	110	105	104

svTRH (C10-C40) in Soil				
Our Reference		213316-27	213316-28	213316-29
Your Reference	UNITS	116	BD1/20190306	BD2/20190307
Depth		1.9-2.0	-	-
Date Sampled		11/03/2019	06/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	17/03/2019	17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	250	<100	<100
TRH C_{29} - C_{36}	mg/kg	230	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	430	<100	<100
TRH >C_{34} -C_{40}	mg/kg	120	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	550	<50	<50
Surrogate o-Terphenyl	%	103	98	99

PAHs in Soil						
Our Reference		213316-1	213316-2	213316-3	213316-4	213316-5
Your Reference	UNITS	101	101	101	102	102
Depth		0.4-0.5	0.9-1.0	2.9-3.0	2.9-3.0	3.9-4.0
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Acenaphthylene	mg/kg	<0.1	0.2	0.2	0.4	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.1	0.1	0.2	<0.1
Phenanthrene	mg/kg	<0.1	1.9	1.4	2.9	0.8
Anthracene	mg/kg	<0.1	0.4	0.3	0.6	0.2
Fluoranthene	mg/kg	<0.1	2.9	2.5	5.0	1.7
Pyrene	mg/kg	<0.1	2.7	2.4	4.5	1.5
Benzo(a)anthracene	mg/kg	<0.1	1.2	1.2	2.2	0.8
Chrysene	mg/kg	<0.1	1.5	1.5	2.7	0.9
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	2.2	2.2	3.8	1
Benzo(a)pyrene	mg/kg	0.06	1.3	1.3	2.3	0.71
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.6	0.6	1.0	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.2	0.1	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.8	0.8	1.3	0.4
Total +ve PAH's	mg/kg	0.06	16	15	27	8.4
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.9	1.9	3.3	0.9
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.9	1.9	3.3	1.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.9	1.9	3.3	1.0
Surrogate p-Terphenyl-d14	%	128	104	107	108	101

PAHs in Soil						
Our Reference		213316-6	213316-7	213316-8	213316-9	213316-10
Your Reference	UNITS	103	103	104	104	105
Depth		0.2-0.3	1.9-2.0	0.9-1.0	1.9-2.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	0.2	<0.1	0.2	<0.1
Acenaphthylene	mg/kg	0.1	0.7	<0.1	0.9	<0.1
Acenaphthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.5	<0.1	0.3	<0.1
Phenanthrene	mg/kg	0.9	5.8	<0.1	6.6	<0.1
Anthracene	mg/kg	0.2	1.4	<0.1	1.6	<0.1
Fluoranthene	mg/kg	1.6	9.1	<0.1	13	<0.1
Pyrene	mg/kg	1.5	8.2	<0.1	11	<0.1
Benzo(a)anthracene	mg/kg	0.7	4.2	<0.1	5.6	<0.1
Chrysene	mg/kg	0.9	5.0	<0.1	6.9	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	1	7.5	<0.2	9.8	<0.2
Benzo(a)pyrene	mg/kg	0.75	4.5	<0.05	6.0	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.4	2.1	<0.1	2.5	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.5	<0.1	0.7	<0.1
Benzo(g,h,i)perylene	mg/kg	0.5	2.5	<0.1	3.0	<0.1
Total +ve PAH's	mg/kg	8.6	52	<0.05	68	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.99	6.5	<0.5	8.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.0	6.5	<0.5	8.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.1	6.5	<0.5	8.5	<0.5
Surrogate p-Terphenyl-d14	%	104	106	102	122	108

PAHs in Soil						
Our Reference		213316-11	213316-12	213316-13	213316-14	213316-15
Your Reference	UNITS	106	106	107	107	108
Depth		0.4-0.5	1.9-2.0	0.2-0.3	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	<0.1	0.1	<0.1	0.6
Acenaphthylene	mg/kg	0.4	0.2	0.3	<0.1	0.9
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Fluorene	mg/kg	0.2	<0.1	0.1	<0.1	0.6
Phenanthrene	mg/kg	3.2	1.2	2.0	0.2	8.9
Anthracene	mg/kg	0.6	0.2	0.3	<0.1	1.7
Fluoranthene	mg/kg	5.9	2.1	4.0	0.2	15
Pyrene	mg/kg	5.3	1.9	3.9	0.2	16
Benzo(a)anthracene	mg/kg	2.5	0.9	1.9	0.1	7.3
Chrysene	mg/kg	3.3	1.1	2.5	0.1	8.8
Benzo(b,j+k)fluoranthene	mg/kg	4.7	2	3.4	<0.2	12
Benzo(a)pyrene	mg/kg	2.9	0.91	1.9	0.1	7.9
Indeno(1,2,3-c,d)pyrene	mg/kg	1.3	0.5	1	<0.1	3.7
Dibenzo(a,h)anthracene	mg/kg	0.3	0.1	0.2	<0.1	0.8
Benzo(g,h,i)perylene	mg/kg	1.7	0.6	1.3	<0.1	4.7
Total +ve PAH's	mg/kg	32	11	23	0.88	89
Benzo(a)pyrene TEQ calc (zero)	mg/kg	4.1	1.3	2.8	<0.5	11
Benzo(a)pyrene TEQ calc(half)	mg/kg	4.1	1.3	2.8	<0.5	11
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	4.1	1.3	2.8	<0.5	11
Surrogate p-Terphenyl-d14	%	102	106	108	105	107

PAHs in Soil						
Our Reference		213316-17	213316-18	213316-19	213316-20	213316-21
Your Reference	UNITS	109	109	110	111	112
Depth		0.9-1.0	2.9-3.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	1.4	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.6	6.8	<0.1	0.1	<0.1
Anthracene	mg/kg	0.2	1.4	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	1.8	16	<0.1	0.2	<0.1
Pyrene	mg/kg	2.2	15	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	1.2	8.6	<0.1	0.1	<0.1
Chrysene	mg/kg	1.6	9.7	<0.1	0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	2.9	17	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	2.0	11	<0.05	0.08	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	1.1	5.4	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	0.2	1.2	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	1.5	6.7	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	15	100	<0.05	0.88	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	2.7	15	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	2.7	15	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	2.7	15	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	104	109	101	103	102

PAHs in Soil						
Our Reference		213316-22	213316-23	213316-24	213316-25	213316-26
Your Reference	UNITS	113	114	115	115	116
Depth		0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Naphthalene	mg/kg	<0.1	<0.1	0.2	0.1	0.3
Acenaphthylene	mg/kg	<0.1	<0.1	0.5	0.5	0.9
Acenaphthene	mg/kg	<0.1	<0.1	0.2	0.1	0.2
Fluorene	mg/kg	<0.1	<0.1	0.2	0.2	0.4
Phenanthrene	mg/kg	0.4	0.2	4.0	4.3	6.8
Anthracene	mg/kg	<0.1	<0.1	1.1	1.1	1.1
Fluoranthene	mg/kg	0.8	0.2	13	12	13
Pyrene	mg/kg	0.8	0.2	15	12	13
Benzo(a)anthracene	mg/kg	0.4	<0.1	6.6	5.2	6.0
Chrysene	mg/kg	0.5	0.1	8.9	6.5	7.9
Benzo(b,j+k)fluoranthene	mg/kg	0.6	<0.2	15	9.6	13
Benzo(a)pyrene	mg/kg	0.4	0.09	9.7	6.1	8.5
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<0.1	4.7	3.0	4.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	1.0	0.7	0.9
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	6.4	4.2	6.0
Total +ve PAH's	mg/kg	4.2	0.77	86	66	82
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	14	8.6	12
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	<0.5	14	8.6	12
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.6	<0.5	14	8.6	12
Surrogate p-Terphenyl-d14	%	102	99	102	100	106

PAHs in Soil		
Our Reference		213316-27
Your Reference	UNITS	116
Depth		1.9-2.0
Date Sampled		11/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	14/03/2019
Naphthalene	mg/kg	0.4
Acenaphthylene	mg/kg	1.0
Acenaphthene	mg/kg	0.1
Fluorene	mg/kg	0.4
Phenanthrene	mg/kg	5.9
Anthracene	mg/kg	1.3
Fluoranthene	mg/kg	12
Pyrene	mg/kg	12
Benzo(a)anthracene	mg/kg	5.6
Chrysene	mg/kg	7.5
Benzo(b,j+k)fluoranthene	mg/kg	12
Benzo(a)pyrene	mg/kg	7.5
Indeno(1,2,3-c,d)pyrene	mg/kg	3.8
Dibenzo(a,h)anthracene	mg/kg	0.9
Benzo(g,h,i)perylene	mg/kg	5.0
Total +ve PAH's	mg/kg	74
Benzo(a)pyrene TEQ calc (zero)	mg/kg	11
Benzo(a)pyrene TEQ calc(half)	mg/kg	11
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	11
Surrogate p-Terphenyl-d14	%	98

Organochlorine Pesticides in soil						
Our Reference		213316-2	213316-4	213316-7	213316-9	213316-10
Your Reference	UNITS	101	102	103	104	105
Depth		0.9-1.0	2.9-3.0	1.9-2.0	1.9-2.0	0.4-0.5
Date Sampled		06/03/2019	06/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	105	96	98	105

Organochlorine Pesticides in soil						
Our Reference		213316-11	213316-13	213316-15	213316-17	213316-19
Your Reference	UNITS	106	107	108	109	110
Depth		0.4-0.5	0.2-0.3	0.4-0.5	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	103	98	105	106

Organochlorine Pesticides in soil						
Our Reference		213316-20	213316-21	213316-22	213316-23	213316-25
Your Reference	UNITS	111	112	113	114	115
Depth		0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	108	106	99	96

Organochlorine Pesticides in soil		
Our Reference		213316-27
Your Reference	UNITS	116
Depth		1.9-2.0
Date Sampled		11/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	15/03/2019
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	98

Organophosphorus Pesticides						
Our Reference		213316-2	213316-4	213316-7	213316-9	213316-10
Your Reference	UNITS	101	102	103	104	105
Depth		0.9-1.0	2.9-3.0	1.9-2.0	1.9-2.0	0.4-0.5
Date Sampled		06/03/2019	06/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	105	96	98	105

Organophosphorus Pesticides						
Our Reference		213316-11	213316-13	213316-15	213316-17	213316-19
Your Reference	UNITS	106	107	108	109	110
Depth		0.4-0.5	0.2-0.3	0.4-0.5	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	103	98	105	106

Organophosphorus Pesticides						
Our Reference		213316-20	213316-21	213316-22	213316-23	213316-25
Your Reference	UNITS	111	112	113	114	115
Depth		0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	106	108	106	99	96

Organophosphorus Pesticides		
Our Reference		213316-27
Your Reference	UNITS	116
Depth		1.9-2.0
Date Sampled		11/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	15/03/2019
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	98

PCBs in Soil						
Our Reference		213316-2	213316-4	213316-7	213316-9	213316-10
Your Reference	UNITS	101	102	103	104	105
Depth		0.9-1.0	2.9-3.0	1.9-2.0	1.9-2.0	0.4-0.5
Date Sampled		06/03/2019	06/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	103	105	96	98	105

PCBs in Soil						
Our Reference		213316-11	213316-13	213316-15	213316-17	213316-19
Your Reference	UNITS	106	107	108	109	110
Depth		0.4-0.5	0.2-0.3	0.4-0.5	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	99	103	98	105	106

PCBs in Soil						
Our Reference		213316-20	213316-21	213316-22	213316-23	213316-25
Your Reference	UNITS	111	112	113	114	115
Depth		0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	106	108	106	99	96

PCBs in Soil		
Our Reference		213316-27
Your Reference	UNITS	116
Depth		1.9-2.0
Date Sampled		11/03/2019
Type of sample		SOIL
Date extracted	-	13/03/2019
Date analysed	-	15/03/2019
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	98

Acid Extractable metals in soil						
Our Reference		213316-1	213316-2	213316-3	213316-4	213316-5
Your Reference	UNITS	101	101	101	102	102
Depth		0.4-0.5	0.9-1.0	2.9-3.0	2.9-3.0	3.9-4.0
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	4	8	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	6	28	8	4
Copper	mg/kg	<1	40	46	83	22
Lead	mg/kg	4	270	290	460	190
Mercury	mg/kg	<0.1	1.5	1.6	2.7	1
Nickel	mg/kg	<1	2	3	5	2
Zinc	mg/kg	5	160	330	250	82

Acid Extractable metals in soil						
Our Reference		213316-6	213316-7	213316-8	213316-9	213316-10
Your Reference	UNITS	103	103	104	104	105
Depth		0.2-0.3	1.9-2.0	0.9-1.0	1.9-2.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	7	<4	4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	0.5	<0.4
Chromium	mg/kg	15	13	1	8	2
Copper	mg/kg	20	210	<1	93	10
Lead	mg/kg	46	570	3	650	19
Mercury	mg/kg	0.2	3.6	<0.1	3.5	<0.1
Nickel	mg/kg	2	12	<1	6	<1
Zinc	mg/kg	98	390	4	350	310

Acid Extractable metals in soil						
Our Reference		213316-11	213316-12	213316-13	213316-14	213316-15
Your Reference	UNITS	106	106	107	107	108
Depth		0.4-0.5	1.9-2.0	0.2-0.3	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	13	9	2	8
Copper	mg/kg	29	35	65	4	44
Lead	mg/kg	150	110	230	10	200
Mercury	mg/kg	0.8	1.3	0.7	<0.1	1.0
Nickel	mg/kg	3	2	3	<1	14
Zinc	mg/kg	130	160	580	10	110

Acid Extractable metals in soil						
Our Reference		213316-17	213316-18	213316-19	213316-20	213316-21
Your Reference	UNITS	109	109	110	111	112
Depth		0.9-1.0	2.9-3.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	7	8	8	10	2
Copper	mg/kg	3	23	4	4	<1
Lead	mg/kg	10	68	3	2	1
Mercury	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	3	3	2	<1
Zinc	mg/kg	9	39	4	3	2

Acid Extractable metals in soil						
Our Reference		213316-22	213316-23	213316-24	213316-25	213316-26
Your Reference	UNITS	113	114	115	115	116
Depth		0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	3	5	5	11
Copper	mg/kg	1	<1	62	19	62
Lead	mg/kg	3	4	150	90	120
Mercury	mg/kg	<0.1	<0.1	2.8	0.5	0.6
Nickel	mg/kg	<1	<1	7	2	46
Zinc	mg/kg	3	9	100	59	87

Acid Extractable metals in soil						
Our Reference		213316-27	213316-28	213316-29	213316-38	213316-39
Your Reference	UNITS	116	BD1/20190306	BD2/20190307	116 - [TRIPLICATE]	103 - [TRIPLICATE]
Depth		1.9-2.0	-	-	0.4-0.5	1.9-2.0
Date Sampled		11/03/2019	06/03/2019	07/03/2019	11/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Arsenic	mg/kg	<4	<4	<4	<4	8
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	7	3	10	14
Copper	mg/kg	53	<1	5	57	240
Lead	mg/kg	260	3	12	110	710
Mercury	mg/kg	1.1	<0.1	<0.1	0.6	4.3
Nickel	mg/kg	13	<1	<1	45	15
Zinc	mg/kg	170	4	14	82	440

Acid Extractable metals in soil			
Our Reference		213316-40	213316-41
Your Reference	UNITS	101 - [TRIPLICATE]	101 - [TRIPLICATE]
Depth		0.9-1.0	0.9-1.0
Date Sampled		06/03/2019	06/03/2019
Type of sample		SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019
Arsenic	mg/kg	7	<4
Cadmium	mg/kg	1	<0.4
Chromium	mg/kg	6	7
Copper	mg/kg	58	81
Lead	mg/kg	370	370
Mercury	mg/kg	1.4	1.7
Nickel	mg/kg	5	2
Zinc	mg/kg	1,100	210

Misc Soil - Inorg						
Our Reference		213316-2	213316-4	213316-7	213316-9	213316-10
Your Reference	UNITS	101	102	103	104	105
Depth		0.9-1.0	2.9-3.0	1.9-2.0	1.9-2.0	0.4-0.5
Date Sampled		06/03/2019	06/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		213316-11	213316-13	213316-15	213316-17	213316-19
Your Reference	UNITS	106	107	108	109	110
Depth		0.4-0.5	0.2-0.3	0.4-0.5	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		213316-20	213316-21	213316-22	213316-23	213316-25
Your Reference	UNITS	111	112	113	114	115
Depth		0.4-0.5	0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg		
Our Reference		213316-27
Your Reference	UNITS	116
Depth		1.9-2.0
Date Sampled		11/03/2019
Type of sample		SOIL
Date prepared	-	13/03/2019
Date analysed	-	14/03/2019
Total Phenolics (as Phenol)	mg/kg	<5

Moisture						
Our Reference		213316-1	213316-2	213316-3	213316-4	213316-5
Your Reference	UNITS	101	101	101	102	102
Depth		0.4-0.5	0.9-1.0	2.9-3.0	2.9-3.0	3.9-4.0
Date Sampled		06/03/2019	06/03/2019	06/03/2019	06/03/2019	06/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	4.9	7.2	9.5	10	6.0

Moisture						
Our Reference		213316-6	213316-7	213316-8	213316-9	213316-10
Your Reference	UNITS	103	103	104	104	105
Depth		0.2-0.3	1.9-2.0	0.9-1.0	1.9-2.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	8.4	15	1.9	13	3.2

Moisture						
Our Reference		213316-11	213316-12	213316-13	213316-14	213316-15
Your Reference	UNITS	106	106	107	107	108
Depth		0.4-0.5	1.9-2.0	0.2-0.3	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	6.9	4.6	4.0	6.3	9.0

Moisture						
Our Reference		213316-17	213316-18	213316-19	213316-20	213316-21
Your Reference	UNITS	109	109	110	111	112
Depth		0.9-1.0	2.9-3.0	0.4-0.5	0.4-0.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	08/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	5.1	7.0	3.9	2.5	2.6

Moisture						
Our Reference		213316-22	213316-23	213316-24	213316-25	213316-26
Your Reference	UNITS	113	114	115	115	116
Depth		0.4-0.5	0.4-0.5	0.4-0.5	1.4-1.5	0.4-0.5
Date Sampled		08/03/2019	08/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019	14/03/2019	14/03/2019
Moisture	%	3.2	14	6.5	8.9	9.6

Moisture				
Our Reference		213316-27	213316-28	213316-29
Your Reference	UNITS	116	BD1/20190306	BD2/20190307
Depth		1.9-2.0	-	-
Date Sampled		11/03/2019	06/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL
Date prepared	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	14/03/2019	14/03/2019	14/03/2019
Moisture	%	12	5.1	4.9

Asbestos ID - soils						
Our Reference		213316-3	213316-4	213316-7	213316-9	213316-10
Your Reference	UNITS	101	102	103	104	105
Depth		2.9-3.0	2.9-3.0	1.9-2.0	1.9-2.0	0.4-0.5
Date Sampled		06/03/2019	06/03/2019	07/03/2019	07/03/2019	07/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 25g	Approx. 25g	Approx. 30g	Approx. 30g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		213316-11	213316-13	213316-15	213316-17	213316-23
Your Reference	UNITS	106	107	108	109	114
Depth		0.4-0.5	0.2-0.3	0.4-0.5	0.9-1.0	0.4-0.5
Date Sampled		07/03/2019	07/03/2019	07/03/2019	08/03/2019	08/03/2019
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 30g	Approx. 25g	Approx. 20g	Approx. 35g	Approx. 40g
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown sandy soil & rocks	Beige fine-grained soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO	NO	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils			
Our Reference		213316-25	213316-27
Your Reference	UNITS	115	116
Depth		1.4-1.5	1.9-2.0
Date Sampled		11/03/2019	11/03/2019
Type of sample		SOIL	SOIL
Date analysed	-	15/03/2019	15/03/2019
Sample mass tested	g	Approx. 35g	Approx. 30g
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Asbestos comments	-	NO	NO
Trace Analysis	-	No asbestos detected	No asbestos detected

Misc Inorg - Soil			
Our Reference		213316-24	213316-27
Your Reference	UNITS	115	116
Depth		0.4-0.5	1.9-2.0
Date Sampled		11/03/2019	11/03/2019
Type of sample		SOIL	SOIL
Date prepared	-	15/03/2019	15/03/2019
Date analysed	-	15/03/2019	15/03/2019
pH 1:5 soil:water	pH Units	8.6	8.8

CEC			
Our Reference		213316-24	213316-27
Your Reference	UNITS	115	116
Depth		0.4-0.5	1.9-2.0
Date Sampled		11/03/2019	11/03/2019
Type of sample		SOIL	SOIL
Date prepared	-	18/03/2019	18/03/2019
Date analysed	-	18/03/2019	18/03/2019
Exchangeable Ca	meq/100g	5.0	11
Exchangeable K	meq/100g	0.1	0.2
Exchangeable Mg	meq/100g	0.62	0.82
Exchangeable Na	meq/100g	0.11	<0.1
Cation Exchange Capacity	meq/100g	5.9	12

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date extracted	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			17/03/2019	[NT]	[NT]	[NT]	[NT]	17/03/2019	[NT]
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
bromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
chloroform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
2,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
1,1-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
carbon tetrachloride	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	mg/kg	0.2	Org-014	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
dibromomethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
trichloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
bromodichloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	mg/kg	0.5	Org-014	<0.5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
dibromochloromethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
1,2-dibromoethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
tetrachloroethene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
chlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
bromoform	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-014	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
styrene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-Xylene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
isopropylbenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
bromobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
tert-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
sec-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
hexachlorobutadiene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluorometha	%		Org-014	97	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-014	87	[NT]	[NT]	[NT]	[NT]	84	[NT]
Surrogate Toluene-d_8	%		Org-014	99	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-014	96	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			17/03/2019	1	17/03/2019	17/03/2019		17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	101	92
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	101	92
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	113	104
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	103	95
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	93	83
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	99	90
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	96	87
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	100	1	101	97	4	99	89

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	213316-24
Date extracted	-			[NT]	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	11	17/03/2019	17/03/2019		17/03/2019	17/03/2019
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	11	<25	<25	0	100	96
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	11	<25	<25	0	100	96
Benzene	mg/kg	0.2	Org-016	[NT]	11	<0.2	<0.2	0	115	108
Toluene	mg/kg	0.5	Org-016	[NT]	11	<0.5	<0.5	0	104	98
Ethylbenzene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	91	88
m+p-xylene	mg/kg	2	Org-016	[NT]	11	<2	<2	0	95	94
o-Xylene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	91	91
naphthalene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	11	94	94	0	100	94

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	17/03/2019	17/03/2019		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	23	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	23	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	23	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	23	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	23	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	23	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	23	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	23	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	23	96	96	0	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	26	17/03/2019	17/03/2019		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	26	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	26	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	26	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	26	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	26	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	26	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	26	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	26	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	26	92	94	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			17/03/2019	1	17/03/2019	17/03/2019		17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	105	92
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	107	97
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	129	77
TRH $>C_{10}$ -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	105	92
TRH $>C_{16}$ -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	107	97
TRH $>C_{34}$ -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	129	77
Surrogate o-Terphenyl	%		Org-003	102	1	102	100	2	109	101

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	213316-24
Date extracted	-			[NT]	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	11	17/03/2019	17/03/2019		17/03/2019	17/03/2019
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	108	104
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	108	118
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	129	#
TRH $>C_{10}$ -C_{16}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	108	104
TRH $>C_{16}$ -C_{34}	mg/kg	100	Org-003	[NT]	11	140	150	7	108	118
TRH $>C_{34}$ -C_{40}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	129	#
Surrogate o-Terphenyl	%		Org-003	[NT]	11	101	101	0	110	115

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	17/03/2019	17/03/2019		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	23	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	23	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	23	<100	<100	0	[NT]	[NT]
TRH $>C_{10}$ -C_{16}	mg/kg	50	Org-003	[NT]	23	<50	<50	0	[NT]	[NT]
TRH $>C_{16}$ -C_{34}	mg/kg	100	Org-003	[NT]	23	<100	<100	0	[NT]	[NT]
TRH $>C_{34}$ -C_{40}	mg/kg	100	Org-003	[NT]	23	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	23	99	97	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	26	17/03/2019	17/03/2019		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	26	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	26	290	440	41	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	26	340	500	38	[NT]	[NT]
TRH $>C_{10}$ -C_{16}	mg/kg	50	Org-003	[NT]	26	<50	<50	0	[NT]	[NT]
TRH $>C_{16}$ -C_{34}	mg/kg	100	Org-003	[NT]	26	560	840	40	[NT]	[NT]
TRH $>C_{34}$ -C_{40}	mg/kg	100	Org-003	[NT]	26	180	250	33	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	26	104	112	7	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	1	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	96	90
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	105	100
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	106	98
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	94
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	95
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	130	126
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	0.06	<0.05	18	96	92
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	105	1	128	103	22	109	104

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	213316-24
Date extracted	-			[NT]	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	11	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Naphthalene	mg/kg	0.1	Org-012	[NT]	11	0.1	0.1	0	90	91
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	11	0.4	0.5	22	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	11	0.2	0.2	0	100	100
Phenanthrene	mg/kg	0.1	Org-012	[NT]	11	3.2	3.1	3	98	100
Anthracene	mg/kg	0.1	Org-012	[NT]	11	0.6	0.6	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	11	5.9	6.6	11	94	98
Pyrene	mg/kg	0.1	Org-012	[NT]	11	5.3	6.2	16	95	90
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	11	2.5	3.0	18	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	11	3.3	3.4	3	126	127
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	11	4.7	5.3	12	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	11	2.9	3.2	10	92	93
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	11	1.3	1.5	14	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	11	0.3	0.4	29	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	11	1.7	2.0	16	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	11	102	109	7	104	102

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	23	0.2	<0.1	67	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	23	0.2	<0.1	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	23	0.2	<0.1	67	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	23	0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	23	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	23	0.09	<0.05	57	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate *p*-Terphenyl-d14	%		Org-012	[NT]	23	99	98	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	26	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	26	14/03/2019	14/03/2019		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	26	0.3	0.4	29	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	26	0.9	0.5	57	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	26	0.2	0.6	100	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	26	0.4	0.5	22	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	26	6.8	8.0	16	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	26	1.1	2.0	58	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	26	13	16	21	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	26	13	17	27	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	26	6.0	7.8	26	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	26	7.9	11	33	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	26	13	17	27	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	26	8.5	12	34	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	26	4.3	5.9	31	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	26	0.9	1.2	29	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	26	6.0	7.8	26	[NT]	[NT]
Surrogate *p*-Terphenyl-d14	%		Org-012	[NT]	26	106	103	3	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	11	15/03/2019	15/03/2019		14/03/2019	14/03/2019
HCB	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	89	80
gamma-BHC	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	85	78
Heptachlor	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	86	82
delta-BHC	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	88	81
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	96	90
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	92	88
Dieldrin	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	113	106
Endrin	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	94	90
pp-DDD	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	86	80
Endosulfan II	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	93	65
Methoxychlor	mg/kg	0.1	Org-005	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	102	11	99	101	2	125	121

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	15/03/2019	15/03/2019		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	23	99	98	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	11	15/03/2019	15/03/2019		14/03/2019	14/03/2019
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	93	87
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	104	77
Dimethoate	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	93	86
Fenitrothion	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	101	99
Malathion	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	94	72
Parathion	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	96	80
Ronnel	mg/kg	0.1	Org-008	<0.1	11	<0.1	<0.1	0	90	85
Surrogate TCMX	%		Org-008	102	11	99	101	2	100	101

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	15/03/2019	15/03/2019		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	23	99	98	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date extracted	-			13/03/2019	11	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	11	15/03/2019	15/03/2019		14/03/2019	14/03/2019
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	92	117
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	102	11	99	101	2	100	101

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	15/03/2019	15/03/2019		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	23	99	98	1	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date prepared	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			14/03/2019	1	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	93	77
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	77	79
Chromium	mg/kg	1	Metals-020	<1	1	5	5	0	78	75
Copper	mg/kg	1	Metals-020	<1	1	<1	<1	0	79	119
Lead	mg/kg	1	Metals-020	<1	1	4	4	0	82	78
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	105	123
Nickel	mg/kg	1	Metals-020	<1	1	<1	<1	0	75	76
Zinc	mg/kg	1	Metals-020	<1	1	5	5	0	77	##

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-8	213316-24
Date prepared	-			[NT]	2	13/03/2019	13/03/2019		13/03/2019	13/03/2019
Date analysed	-			[NT]	2	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Arsenic	mg/kg	4	Metals-020	[NT]	2	<4	14	111	80	81
Cadmium	mg/kg	0.4	Metals-020	[NT]	2	<0.4	2	133	88	80
Chromium	mg/kg	1	Metals-020	[NT]	2	6	7	15	89	82
Copper	mg/kg	1	Metals-020	[NT]	2	40	70	55	92	86
Lead	mg/kg	1	Metals-020	[NT]	2	270	350	26	94	107
Mercury	mg/kg	0.1	Metals-021	[NT]	2	1.5	1.3	14	111	#
Nickel	mg/kg	1	Metals-020	[NT]	2	2	10	133	87	84
Zinc	mg/kg	1	Metals-020	[NT]	2	160	2000	170	91	74

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	7	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	7	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	7	7	10	35	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	7	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	7	13	15	14	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	7	210	280	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	7	570	640	12	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	7	3.6	7.0	64	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	7	12	16	29	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	7	390	550	34	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	11	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	11	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	11	5	5	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	11	29	36	22	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	11	150	160	6	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	11	0.8	0.7	13	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	11	3	3	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	11	130	160	21	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	23	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	23	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	23	3	3	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	23	<1	2	67	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	23	4	5	22	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	23	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	23	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	23	9	9	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	26	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	26	14/03/2019	14/03/2019		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	26	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	26	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	26	11	11	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	26	62	57	8	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	26	120	120	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	26	0.6	0.5	18	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	26	46	42	9	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	26	87	150	53	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	213316-2
Date prepared	-			14/03/2019	11	13/03/2019	13/03/2019		14/03/2019	14/03/2019
Date analysed	-			14/03/2019	11	14/03/2019	14/03/2019		14/03/2019	14/03/2019
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	11	<5	<5	0	104	104

QUALITY CONTROL: Misc Soil - Inorg					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	23	13/03/2019	13/03/2019		[NT]	[NT]
Date analysed	-			[NT]	23	14/03/2019	14/03/2019		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	23	<5	<5	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			15/03/2019	27	15/03/2019	15/03/2019		15/03/2019	[NT]
Date analysed	-			15/03/2019	27	15/03/2019	15/03/2019		15/03/2019	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	27	8.8	8.8	0	102	[NT]

Client Reference: 86724.00, Moore Park

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	[NT]
Date prepared	-			18/03/2019	24	18/03/2019	18/03/2019		18/03/2019	[NT]
Date analysed	-			18/03/2019	24	18/03/2019	18/03/2019		18/03/2019	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	24	5.0	5.1	2	110	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	24	0.1	0.2	67	121	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	24	0.62	0.61	2	108	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	24	0.11	0.11	0	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Acid Extractable Metals in Soil:
Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Acid Extractable Metals in Soil:
Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 213316-26 for Zn. Therefore a triplicate result has been issued as laboratory sample number 213316-38.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 213316-7 for Hg. Therefore a triplicate result has been issued as laboratory sample number 213316-39.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 213316-2 for Cu, Ni and Zn. Therefore a triplicate result has been issued as laboratory sample number 213316-40. Due to the extremely inhomogenous nature of this sample, a quadruplicate result has been issued as laboratory sample number 213316-41.

TRH Soil C10-C40 NEPM - # Percent recovery is not possible to report as the high concentration of analytes in sample 24ms have caused interference.

PAHs in Soil - The RPD for duplicate results is accepted due to the non homogenous nature of sample 26.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86724.00	**Suburb:**	Moore Park	**To:**	Envirolab Services
Project Name:	Moore Park	**Order Number**			12 Ashley Street, Chatswood NSW 2067
Project Manager:	D. Walker	**Sampler:**	Lisa Teng	**Attn:**	
Emails:	david.walker@douglaspartners.com.au			**Phone:**	02 9910 6200

Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑ **Email:** sydney@envirolab.com.au

Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved Do samples contain 'potential' HBM? Yes ☐ No ☑ (If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	depth (m)	Lab ID	Date Sampled	Sample Type S - soil W - water	Container Type G - glass P - plastic	Analytes Combo 8a	Combo 8	Combo 3a	Combo 3	VOC	BTEX only				Notes/preservation
101	0.4-0.5	1	6/3/19	S	G				✓						
101	0.9-1.0	2	6/3/19				✓								
101	2.9-3.0	3	6/3/19					✓							
102	2.9-3.0	4	6/3/19			✓									
102	3.9-4.0	5	6/3/19						✓						
103	0.2-0.3	6	7/3/19						✓						
103	1.9-2.0	7	7/3/19			✓									
104	0.9-1.0	8	7/3/19						✓						
104	1.9-2.0	9	7/3/19			✓									
105	0.4-0.5	10	7/3/19			✓									
106	0.4-0.5	11	7/3/19			✓									18-9
106	1.9-2.0	12	7/3/19						✓						
107	0.2-0.3	13	7/3/19			✓									
107	0.9-1.0	14	7/3/19						✓						
108	0.4-0.5	15	7/3/19	✓	✓	✓									
PQL (S) mg/kg															

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
ENVIROLAB
Job No: 213316
Date Received: 12-3-19
Time Received: 1422
Received by: KG
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

ANZECC PQLs req'd for all water analytes ☐

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Lab Report/Reference No: 213316

Metals to Analyse: 8HM unless specified here:

Total number of samples in container:

Relinquished by: DW

Transported to laboratory by: Courier

Send Results to: Douglas Partners Pty Ltd

Address: 96 Hermitage Road, West Ryde

Phone: 98090666 **Fax:** 98094095

Signed:

Received by: K. Coe

Date & Time: 12-3-19 1422

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86724.00	**Suburb:** Moore Park	**To:**	Envirolab Services
Project Name: Moore Park	**Order Number**		12 Ashley Street, Chatswood NSW 2067
Project Manager: D. Walker	**Sampler:** Lisa Teng	**Attn:**	
Emails: david.walker@douglaspartners.com.au		**Phone:**	02 9910 6200
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑		**Email:**	sydney@envirolab.com.au

Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved Do samples contain 'potential' HBM? Yes ☐ No ☑ (If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	depth	Lab ID	Date Sampled	Sample Type: S - soil W - water	Container Type: G - glass P - plastic	Analytes: Combo 8a	Combo 8	Combo 3a	Combo 3	VOC	BTEX only	Combo 1m	Metals (8) + TRH + BTEX	pH + CEC	Notes/preservation
108	2.7-2.8	16	7/3/19	S	G					✓					
109	0.9-1.0	17	8/3/19	S	G	✓									
109	2.9-3.0	18	8/3/19	↓	↓				✓						
110	0.4-0.5	19	8/3/19	↓	↓		✓								
111	0.4-0.5.	20	8/3/19	↓	↓		✓								
112	0.4-0.5.	21	8/3/19	↓	↓		✓								
113	0.4-0.5.	22	8/3/19	↓	↓		✓								
114	0.4-0.5	23	8/3/19	↓	↓	✓									
115	0.4-0.5	24	11/3/19	↓	↓				✓					✓	
115	1.4-1.5	25	11/3/19	↓	↓	✓									
116	0.4-0.5	26	11/3/19	↓	↓				✓						
116	1.9-2.0	27	11/3/19	↓	↓	✓								✓	
BD1/20190306		28	6/3/19	↓	↓							✓			→ Send to Eurofins
BD2/20190307		29	7/3/19	↓	↓							✓			for analysis.
* BD2/20190308			8/3/19	↓	↓								✓		*
PQL (S) mg/kg												ANZECC PQLs req'd for all water analytes ☐			

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Lab Report/Reference No: 213316

Metals to Analyse: 8HM unless specified here:

Total number of samples in container: **Relinquished by:** DW **Transported to laboratory by:** Courier

Send Results to: Douglas Partners Pty Ltd **Address:** 96 Hermitage Road, West Ryde **Phone:** 98090666 **Fax:** 98094095

Signed: **Received by:** K. Care **Date & Time:** 12.3.19 14:22

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86724.00	**Suburb:** Moore Park	**To:**	Envirolab Services
Project Name: Moore Park	**Order Number**		12 Ashley Street, Chatswood NSW 2067
Project Manager: D. Walker	**Sampler:** Lisa Teng	**Attn:**	
Emails: david.walker@douglaspartners.com.au		**Phone:**	02 9910 6200
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑		**Email:**	sydney@envirolab.com.au

Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved Do samples contain 'potential' HBM? Yes ☐ No ☑ (If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes									Notes/preservation
			S - soil W - water	G - glass P - plastic	BTEX Only									
TS	30	6/3/19	S	G	✓									
TB	31	6/3/19			✓									
TS	32	7/3/19			✓									
TB	33	7/3/19			✓									
TS	34	8/3/19			✓									
TB	35	8/3/19			✓									
TS	36	11/3/19			✓									
TB	37	11/3/19	↓	↓	✓									
PQL (S) mg/kg														

ANZECC PQLs req'd for all water analytes ☐

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Lab Report/Reference No: 213316

Metals to Analyse: 8HM unless specified here:

Total number of samples in container:

Relinquished by: DW

Transported to laboratory by: Courier

Send Results to: Douglas Partners Pty Ltd

Address: 96 Hermitage Road, West Ryde

Phone: 98090666 **Fax:** 98094095

Signed:

Received by: K. Gore

Date & Time: 12.3.19 17:22

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	David Walker

Sample Login Details

Your reference	86724.00, Moore Park
Envirolab Reference	213316
Date Sample Received	12/03/2019
Date Instructions Received	12/03/2019
Date Results Expected to be Reported	19/03/2019

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	37 SOIL
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	18.9
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	CEC
101-0.4-0.5		✓	✓	✓				✓				
101-0.9-1.0		✓	✓	✓	✓	✓	✓	✓	✓			
101-2.9-3.0		✓	✓	✓				✓		✓		
102-2.9-3.0		✓	✓	✓	✓	✓	✓	✓	✓	✓		
102-3.9-4.0		✓	✓	✓				✓				
103-0.2-0.3		✓	✓	✓				✓				
103-1.9-2.0		✓	✓	✓	✓	✓	✓	✓	✓	✓		
104-0.9-1.0		✓	✓	✓				✓				
104-1.9-2.0		✓	✓	✓	✓	✓	✓	✓	✓	✓		
105-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓	✓		
106-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓	✓		
106-1.9-2.0		✓	✓	✓				✓				
107-0.2-0.3		✓	✓	✓	✓	✓	✓	✓	✓	✓		
107-0.9-1.0		✓	✓	✓				✓				
108-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓	✓		
108-2.7-2.8	✓											
109-0.9-1.0		✓	✓	✓	✓	✓	✓	✓	✓	✓		
109-2.9-3.0		✓	✓	✓				✓				
110-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓			
111-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓			
112-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓			
113-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓			
114-0.4-0.5		✓	✓	✓	✓	✓	✓	✓	✓	✓		
115-0.4-0.5		✓	✓	✓				✓			✓	✓
115-1.4-1.5		✓	✓	✓	✓	✓	✓	✓	✓	✓		
116-0.4-0.5		✓	✓	✓				✓				
116-1.9-2.0		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BD1/20190306		✓	✓					✓				
BD2/20190307		✓	✓					✓				
TS		✓										
TB		✓										
TS		✓										

Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Misc Soil - Inorg	Asbestos ID - soils	Misc Inorg - Soil	CEC
TB		✓										
TS		✓										
TB		✓										
TS		✓										
TB		✓										

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 213320

Client Details

Client	Douglas Partners Pty Ltd
Attention	Lisa Teng, David Walker
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86724.00, Moore Park**
Number of Samples	6 Water
Date samples received	12/03/2019
Date completed instructions received	12/03/2019

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	19/03/2019
Date of Issue	21/03/2019

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Results Approved By
Giovanni Agosti, Group Technical Manager
Jeremy Faircloth, Operations Manager, Sydney
Nancy Zhang, Laboratory Manager, Sydney
Steven Luong, Organics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

VOCs in water				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date extracted	-	15/03/2019	15/03/2019	15/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	6	2	3
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
Bromoform	µg/L	<1	<1	<1

VOCs in water				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
m+p-xylene	µg/L	<2	<2	9
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	5
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	6
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	9
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	101	101	99
Surrogate toluene-d8	%	97	98	98
Surrogate 4-BFB	%	98	107	102

vTRH(C6-C10)/BTEXN in Water

Our Reference		213320-1	213320-2	213320-3	213320-4	213320-5
Your Reference	UNITS	101	108	109	BDA	TS
Date Sampled		11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	40	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	25	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	85%
Toluene	µg/L	<1	<1	<1	<1	85%
Ethylbenzene	µg/L	<1	<1	<1	<1	88%
m+p-xylene	µg/L	<2	<2	9	<2	86%
o-xylene	µg/L	<1	<1	5	<1	90%
Naphthalene	µg/L	<1	2	1	3	[NA]
Surrogate Dibromofluoromethane	%	101	101	99	100	95
Surrogate toluene-d8	%	97	98	98	99	100
Surrogate 4-BFB	%	98	107	102	103	100

vTRH(C6-C10)/BTEXN in Water

Our Reference		213320-6
Your Reference	UNITS	TB
Date Sampled		11/03/2019
Type of sample		Water
Date extracted	-	15/03/2019
Date analysed	-	16/03/2019
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	98
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	100

svTRH (C10-C40) in Water					
Our Reference		213320-1	213320-2	213320-3	213320-4
Your Reference	UNITS	101	108	109	BDA
Date Sampled		11/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water	Water
Date extracted	-	15/03/2019	15/03/2019	15/03/2019	15/03/2019
Date analysed	-	16/03/2019	16/03/2019	16/03/2019	16/03/2019
TRH C_{10} - C_{14}	µg/L	230	<50	130	<50
TRH C_{15} - C_{28}	µg/L	630	160	320	220
TRH C_{29} - C_{36}	µg/L	<100	120	100	150
TRH >C_{10} - C_{16}	µg/L	410	<50	200	68
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	410	<50	200	65
TRH >C_{16} - C_{34}	µg/L	460	220	300	290
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	102	81	81	102

PAHs in Water - Low Level				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date extracted	-	15/03/2019	15/03/2019	15/03/2019
Date analysed	-	18/03/2019	18/03/2019	18/03/2019
Naphthalene	µg/L	1	2.9	2
Acenaphthylene	µg/L	<0.1	1.5	0.2
Acenaphthene	µg/L	<0.1	0.4	<0.1
Fluorene	µg/L	<0.1	0.9	0.1
Phenanthrene	µg/L	<0.1	3.1	0.4
Anthracene	µg/L	<0.1	0.3	<0.1
Fluoranthene	µg/L	<0.1	0.7	0.1
Pyrene	µg/L	<0.1	0.6	0.2
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	1.2	10	2.8
Surrogate p-Terphenyl-d14	%	109	84	94

OCP in water - Trace level				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date extracted	-	19/03/2019	19/03/2019	19/03/2019
Date analysed	-	20/03/2019	20/03/2019	20/03/2019
HCB	µg/L	<0.001	<0.001	<0.001
alpha-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Mirex	µg/L	<0.002	<0.002	<0.002
Surrogate p-Terphenyl-d_{14}	%	45	102	69

OP in water Trace ANZECCF/ADWG				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date extracted	-	19/03/2019	19/03/2019	19/03/2019
Date analysed	-	20/03/2019	20/03/2019	20/03/2019
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.01	<0.01	<0.01
Dichlorovos	µg/L	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.15	<0.15	<0.15
Ethion	µg/L	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2
Malathion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Methyl Parathion	µg/L	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2
Surrogate p-Terphenyl-d_{14}	%	45	102	69

PCB in water - trace level Aroclors				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date prepared	-	19/03/2019	19/03/2019	19/03/2019
Date analysed	-	20/03/2019	20/03/2019	20/03/2019
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate p-Terphenyl-d14	%	45	102	69

HM in water - dissolved					
Our Reference		213320-1	213320-2	213320-3	213320-4
Your Reference	UNITS	101	108	109	BDA
Date Sampled		11/03/2019	11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water	Water
Date prepared	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Arsenic-Dissolved	µg/L	1	<1	<1	<1
Cadmium-Dissolved	µg/L	0.2	0.2	<0.1	0.1
Chromium-Dissolved	µg/L	4	<1	<1	<1
Copper-Dissolved	µg/L	9	34	6	34
Lead-Dissolved	µg/L	4	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	18	46	13	45
Zinc-Dissolved	µg/L	130	220	70	230

Total Phenolics in Water				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date extracted	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	13/03/2019	13/03/2019	13/03/2019
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05

Cations in water Dissolved				
Our Reference		213320-1	213320-2	213320-3
Your Reference	UNITS	101	108	109
Date Sampled		11/03/2019	11/03/2019	11/03/2019
Type of sample		Water	Water	Water
Date digested	-	13/03/2019	13/03/2019	13/03/2019
Date analysed	-	13/03/2019	13/03/2019	13/03/2019
Calcium - Dissolved	mg/L	24	38	51
Magnesium - Dissolved	mg/L	2.8	8.5	6.3
Hardness	mgCaCO 3 /L	70	130	150

Method ID	Methodology Summary
Ext-054	Analysed by MPL Envirolab
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-012/017	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			15/03/2019	3	15/03/2019	16/03/2019		15/03/2019	[NT]
Date analysed	-			16/03/2019	3	16/03/2019	17/03/2019		16/03/2019	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	3	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	94	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	3	3	3	0	97	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	94	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	95	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	3	<1	<1	0	95	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	3	<1	<1	0	95	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	3	<1	<1	0	91	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	3	<1	<1	0	92	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	3	9	9	0	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	3	5	5	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	3	6	6	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	3	9	9	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	3	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	100	3	99	100	1	98	[NT]
Surrogate toluene-d8	%		Org-013	98	3	98	99	1	99	[NT]
Surrogate 4-BFB	%		Org-013	106	3	102	105	3	93	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			15/03/2019	3	15/03/2019	16/03/2019		15/03/2019	[NT]
Date analysed	-			16/03/2019	3	16/03/2019	17/03/2019		16/03/2019	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	3	<10	<10	0	91	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	3	40	39	3	91	[NT]
Benzene	µg/L	1	Org-016	<1	3	<1	<1	0	92	[NT]
Toluene	µg/L	1	Org-016	<1	3	<1	<1	0	93	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	3	<1	<1	0	90	[NT]
m+p-xylene	µg/L	2	Org-016	<2	3	9	9	0	90	[NT]
o-xylene	µg/L	1	Org-016	<1	3	5	5	0	90	[NT]
Naphthalene	µg/L	1	Org-013	<1	3	1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	100	3	99	100	1	98	[NT]
Surrogate toluene-d8	%		Org-016	98	3	98	99	1	99	[NT]
Surrogate 4-BFB	%		Org-016	106	3	102	105	3	93	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			15/03/2019	[NT]	[NT]	[NT]	[NT]	15/03/2019	[NT]
Date analysed	-			16/03/2019	[NT]	[NT]	[NT]	[NT]	16/03/2019	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	72	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH $>C_{10}$ - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	72	[NT]
TRH $>C_{16}$ - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH $>C_{34}$ - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	88	[NT]
Surrogate o-Terphenyl	%		Org-003	82	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			15/03/2019	[NT]	[NT]	[NT]	[NT]	15/03/2019	[NT]
Date analysed	-			18/03/2019	[NT]	[NT]	[NT]	[NT]	18/03/2019	[NT]
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	70	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	95	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: OCP in water - Trace level					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2019	[NT]	[NT]	[NT]	[NT]	19/03/2019	[NT]
Date analysed	-			21/03/2019	[NT]	[NT]	[NT]	[NT]	21/03/2019	[NT]
HCB	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	118	[NT]
gamma-BHC	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	116	[NT]
Heptachlor	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	116	[NT]
delta-BHC	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	113	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	110	[NT]
gamma-Chlordane	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-005	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	105	[NT]
Dieldrin	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	122	[NT]
Endrin	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	100	[NT]
Endosulfan II	µg/L	0.002	Org-005	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
DDT	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Methoxychlor	µg/L	0.001	Org-005	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Mirex	µg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d$_{14}$	%		Org-012	94	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: OP in water Trace ANZECCF/ADWG					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2019	[NT]	[NT]	[NT]	[NT]	19/03/2019	[NT]
Date analysed	-			21/03/2019	[NT]	[NT]	[NT]	[NT]	21/03/2019	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Ext-054	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos ethyl	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	µg/L	0.009	Ext-054	<0.009	[NT]	[NT]	[NT]	[NT]	120	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	107	[NT]
Diazinon	µg/L	0.01	Ext-054	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorovos	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.15	Ext-054	<0.15	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	123	[NT]
Fenitrothion	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	101	[NT]
Malathion	µg/L	0.05	Ext-054	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Ext-054	<0.004	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methyl Parathion	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.2	Ext-054	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Ext-054	94	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: PCB in water - trace level Aroclors					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/03/2019	[NT]	[NT]	[NT]	[NT]	19/03/2019	[NT]
Date analysed	-			21/03/2019	[NT]	[NT]	[NT]	[NT]	21/03/2019	[NT]
Aroclor 1016	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	105	[NT]
Aroclor 1260	µg/L	0.01	Org-012/017	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Ext-054	94	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	[NT]
Date analysed	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	100	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	0.2	0.3	40	103	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	98	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	9	9	0	99	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	99	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	100	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	18	19	5	100	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	130	140	7	99	[NT]

QUALITY CONTROL: Total Phenolics in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	[NT]
Date analysed	-			13/03/2019	1	13/03/2019	13/03/2019		13/03/2019	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	104	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Date analysed	-			13/03/2019	[NT]	[NT]	[NT]	[NT]	13/03/2019	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Trace level OCP/OP/PCB analysed by MPL. Report no. 223718

Surrogate recovery was low due to sample emulsifying during extraction

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86724.00	**Suburb:** Moore Park	**To:**	Envirolab Services
Project Name: Moore Park	**Order Number**		12 Ashley Street, Chatswood NSW 2067
Project Manager: D. Walker	**Sampler:** Lisa Teng	**Attn:**	
Emails: david.walker@douglaspartners.com.au		**Phone:**	02 9910 6200
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑		**Email:**	sydney@envirolab.com.au

Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved Do samples contain 'potential' HBM? Yes ☐ No ☑ (If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type S - soil W - water	Container Type G - glass P - plastic	Analytes Combo 4L	TRACE OCP + OPP + PCB	VOC	Hardness	Combo 1m	BTEX only				Notes/preservation
101	1	11/3/19	W	G/P	✓	✓	✓	✓						
108	2	↓	↓	↓	✓	✓	✓	✓						
109	3	↓	↓	↓	✓	✓	✓	✓						
BDA	4	↓	↓	↓					✓					
TS	5	↓	↓	Vial						✓				
TB	6	↓	↓	Vial						✓				
PQL (S) mg/kg												**ANZECC PQLs req'd for all water analytes ☐**		

ENVIROLAB
Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No. 213320
Date Received: 12-3.19
Time Received: 14:22
Received by: KG
Temp: [✓ Cool]/Ambient
Cooling: Ice/[✓ Icepack]
Security: Intact/Broken/None

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No:

Total number of samples in container: **Relinquished by:** DW | **Transported to laboratory by:** Courier

Send Results to: Douglas Partners Pty Ltd **Address** 96 Hermitage Road, West Ryde **Phone:** 98090666 **Fax:** 98094095

Signed: **Received by:** K. Gore **Date & Time:** 12.3.19 14:22

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200   fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Lisa Teng, David Walker

Sample Login Details

Your reference	86724.00, Moore Park
Envirolab Reference	213320
Date Sample Received	12/03/2019
Date Instructions Received	12/03/2019
Date Results Expected to be Reported	19/03/2019

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	14.4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	OCP in water - Trace level	OP in water Trace ANZECCF/ADWG	PCB in water - trace levelAroclors	HM in water - dissolved	Total Phenolicsin Water	Cations in water Dissolved
101	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
108	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
109	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BDA		✓	✓					✓		
TS		✓								
TB		✓								

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Douglas Partners (Syd)
96 Hermitage Road
West Ryde
NSW 2114

Attention: **David Walker**

Report **645098-S**
Project name MOORE PARK
Project ID 867224.00
Received Date Mar 13, 2019

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**BD2/20190308** **Soil** **S19-Ma15401** **Mar 08, 2019**
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
Heavy Metals			
Arsenic	2	mg/kg	< 2
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	< 5
Copper	5	mg/kg	< 5
Lead	5	mg/kg	< 5
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	< 5
% Moisture	1	%	2.4

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	**Testing Site**	**Extracted**	**Holding Time**
Eurofins | mgt Suite B1			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Mar 14, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Mar 14, 2019	14 Day
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 14, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Mar 14, 2019	14 Day
- Method: LTM-ORG-2010 TRH C6-C40			
Metals M8	Sydney	Mar 14, 2019	28 Day
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Mar 13, 2019	14 Day
- Method: LTM-GEN-7080 Moisture			

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: MOORE PARK
Project ID: 867224.00

Order No.:
Report #: 645098
Phone: 02 9809 0666
Fax:

Received: Mar 13, 2019 2:46 PM
Due: Mar 20, 2019
Priority: 5 Day
Contact Name: David Walker

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Metals M8	Moisture Set	Eurofins | mgt Suite B1
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BD2/20190308	Mar 08, 2019		Soil	S19-Ma15401	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure, April 2011 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram
ppm: Parts per million
org/100mL: Organisms per 100 millilitres
mg/L: milligrams per litre
ppb: Parts per billion
NTU: Nephelometric Turbidity Units
ug/L: micrograms per litre
%: Percentage
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.2 2018
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.2 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	120			70-130	Pass	
TRH C10-C14	%	72			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	108			70-130	Pass	
Toluene	%	109			70-130	Pass	
Ethylbenzene	%	124			70-130	Pass	
m&p-Xylenes	%	118			70-130	Pass	
o-Xylene	%	115			70-130	Pass	
Xylenes - Total	%	117			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	93			70-130	Pass	
TRH C6-C10	%	115			70-130	Pass	
TRH >C10-C16	%	75			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	115			70-130	Pass	
Cadmium	%	118			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium			%	112			70-130	Pass	
Copper			%	112			70-130	Pass	
Lead			%	118			70-130	Pass	
Mercury			%	113			70-130	Pass	
Nickel			%	113			70-130	Pass	
Zinc			%	114			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Ma18824	NCP	%	105			70-130	Pass	
TRH C10-C14	S19-Ma11880	NCP	%	76			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Ma18824	NCP	%	96			70-130	Pass	
Toluene	S19-Ma18824	NCP	%	98			70-130	Pass	
Ethylbenzene	S19-Ma18824	NCP	%	98			70-130	Pass	
m&p-Xylenes	S19-Ma18824	NCP	%	97			70-130	Pass	
o-Xylene	S19-Ma18824	NCP	%	98			70-130	Pass	
Xylenes - Total	S19-Ma18824	NCP	%	98			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Ma18824	NCP	%	74			70-130	Pass	
TRH C6-C10	S19-Ma18824	NCP	%	102			70-130	Pass	
TRH >C10-C16	S19-Ma15275	NCP	%	74			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Ma15271	NCP	%	110			70-130	Pass	
Cadmium	S19-Ma15271	NCP	%	98			70-130	Pass	
Chromium	S19-Ma15271	NCP	%	113			70-130	Pass	
Copper	S19-Ma15271	NCP	%	120			70-130	Pass	
Lead	S19-Ma15271	NCP	%	96			70-130	Pass	
Mercury	S19-Ma15271	NCP	%	106			70-130	Pass	
Nickel	S19-Ma15271	NCP	%	127			70-130	Pass	
Zinc	S19-Ma15271	NCP	%	129			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Ma14995	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S19-Ma14995	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S19-Ma14995	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S19-Ma14995	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Ma14995	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-Ma14995	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-Ma14995	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-Ma14995	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-Ma14995	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-Ma14995	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Ma14995	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-Ma14995	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S19-Ma14995	NCP	mg/kg	< 50	< 50	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Ma16717	NCP	mg/kg	13	16	19	30%	Pass	
Cadmium	S19-Ma14979	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Ma16717	NCP	mg/kg	31	30	5.0	30%	Pass	
Copper	S19-Ma16717	NCP	mg/kg	22	25	10	30%	Pass	
Lead	S19-Ma16717	NCP	mg/kg	12	11	5.0	30%	Pass	
Mercury	S19-Ma16717	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Ma16717	NCP	mg/kg	10	8.7	19	30%	Pass	
Zinc	S19-Ma16717	NCP	mg/kg	36	31	14	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Fe36616	NCP	%	12	12	2.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Nibha Vaidya	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEE

Project No: 86724.00
Project Name: Moore Park
Project Manager: D. Walker
Emails: david.walker@douglaspartners.com.au
Suburb: Moore Park
Order Number
Sampler: Lisa Teng

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2067
Attn:
Phone: 02 9910 6200
Email: sydney@envirolab.com.au

Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑
Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved Do samples contain 'potential' HBM? Yes ☐ No ☑ (If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID		Lab ID	Date Sampled	Sample Type	Container Type	Analytes									Notes/preservation
	depth			S - soil W - water	G - glass P - plastic	Combo 8a	Combo 8	Combo 3a	Combo 3	VOC	BTEX only	Combo 1a	Metals (8) + TRH + BTEX	pH + CEC	
108	2.7-2.8	16	7/3/19	S	G					✓					
109	0.9-1.0	17	8/3/19	S	G	✓									
109	2.9-3.0	18	8/3/19	↓	↓				✓						
110	0.4-0.5	19	8/3/19	↓	↓		✓								
111	0.4-0.5	20	8/3/19	↓	↓		✓								
112	0.4-0.5	21	8/3/19	↓	↓		✓								
113	0.4-0.5	22	8/3/19	↓	↓		✓								
114	0.4-0.5	23	8/3/19	↓	↓	✓									
115	0.4-0.5	24	11/3/19	↓	↓				✓					✓	
115	1.4-1.5	25	11/3/19	↓	↓	✓									
116	0.4-0.5	26	11/3/19	↓	↓				✓						
116	1.9-2.0	27	11/3/19	↓	↓	✓								✓	
BD1/20190306		28	6/3/19	↓	↓							✓			→ Send to Eurofins
BD2/20190307		29	7/3/19	↓	↓							✓			for analysis.
* BD2/20190308			8/3/19	↓	↓								✓		*
PQL (S) mg/kg															

ANZECC PQLs req'd for all water analytes ☐

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit
Lab Report/Reference No: 213316
Metals to Analyse: 8HM unless specified here:
Total number of samples in container:
Relinquished by: DW
Transported to laboratory by: Courier
Send Results to: Douglas Partners Pty Ltd
Address: 96 Hermitage Road, West Ryde
Phone: 98090666 **Fax:** 98094095
Signed:
Received by: K. Cere
Date & Time: 12.3.19 14:22

Relinquished: Tony. 13.3.19 11:45

Andrea E/Eurofins 13/3/19 - 2:46 pm

645098

eurofins | mgt

Melbourne
6 Monterey Road
Dandenong South Vic 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Sample Receipt Advice

Company name: **Douglas Partners (Syd)**

Contact name: David Walker
Project name: MOORE PARK
Project ID: 867224.00
COC number: Not provided
Turn around time: 5 Day
Date/Time received: Mar 13, 2019 2:46 PM
Eurofins | mgt reference: **645098**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.
☑ COC has been completed correctly.
☑ Attempt to chill was evident.
☑ Appropriately preserved sample containers have been used.
☑ All samples were received in good condition.
☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.
☒ Split sample sent to requested external lab.
☒ Some samples have been subcontracted.
N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Nibha Vaidya on Phone : +61 (2) 9900 8415 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to David Walker - david.walker@douglaspartners.com.au.

Company Name: Douglas Partners (Syd)
Address: 96 Hermitage Road
West Ryde
NSW 2114

Project Name: MOORE PARK
Project ID: 867224.00

Order No.:
Report #: 645098
Phone: 02 9809 0666
Fax:

Received: Mar 13, 2019 2:46 PM
Due: Mar 20, 2019
Priority: 5 Day
Contact Name: David Walker

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Metals M8	Moisture Set	Eurofins | mgt Suite B1
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	BD2/20190308	Mar 08, 2019		Soil	S19-Ma15401	X	X	X
Test Counts						1	1	1

Appendix J

Groundwater Field Sheets

Douglas Partners
Geotechnics / Environment / Groundwater

Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_2^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing
Bore Vol Normally: 7.2*h

Project and Bore Installation Details	
Bore / Standpipe ID:	101
Project Name:	Moore Park, 1 Drive Ave
Project Number:	86724.00
Site Location:	
Bore GPS Co-ord:	
Installation Date:	
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-
Bore Development Details	
Date/Time:	8/3/19
Purged By:	D. Walker
GW Level (pre-purge):	5.25 m bgl
GW Level (post-purge):	m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	10.2 m bgl
Estimated Bore Volume:	L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or dry) DRY - 8L, brown, cloudy water no odour
Equipment:	plastic pump + bailer
Micropurge and Sampling Details	
Date/Time:	11/3/19
Sampled By:	D. Walker
Weather Conditions:	cloudy, warm
GW Level (pre-purge):	5.98 m bgl
GW Level (post sample):	7.82 m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	10.2 m bgl
Estimated Bore Volume:	L
Total Volume Purged:	L
Equipment:	Geopump, TPS90FLMV

Water Quality Parameters

Time / Volume	Temp (°C)	DO (~~mg/L~~)	EC (µS or ~~mS/cm~~)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	**0.1°C**	**+/- 0.3 ~~mg/L~~**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
0 min / 0 L	23.4	1.20 ppm	688 µS/cm	6.98	-	37 mV
1 /	23.1	0.92	670	6.91	-	34
2 / 1.2 L	22.9	0.71	647	6.76	-	33
3 /	22.7	0.49	628	6.59	-	35
4 / 2.4 L	22.6	0.41	612	6.44	-	37
5 min / 3L	22.6	0.33	592	6.30	-	38
Measurement of	parameters	Stopped	here due	to limited		Volume
of water in well.						
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

Sample Details

Sampling Depth (rationale):	~9 m bgl, limited water in well
Sample Appearance (e.g. colour, siltiness, odour):	cloudy + brown (only slightly). No odour
Sample ID:	101
QA/QC Samples:	no replicate
Sampling Containers and filtration:	Metals - filtered. Lab prepared bottles/vials
Comments / Observations:	

Douglas Partners
Geotechnics / Environment / Groundwater

Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_2^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing

Bore Vol Normally: 7.2*h

Project and Bore Installation Details

Bore / Standpipe ID:	108
Project Name:	Moore Park, 1 Drive Ave
Project Number:	86724.00
Site Location:	
Bore GPS Co-ord:	
Installation Date:	
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-

Bore Development Details

Date/Time:	8/3/19
Purged By:	D.Walker
GW Level (pre-purge):	2.31 m bgl
GW Level (post-purge):	m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	10 m bgl
Estimated Bore Volume:	L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or [✓ dry]) DRY - 20 L, brown, cloudy water no odour
Equipment:	Plastic pump + bailer

Micropurge and Sampling Details

Date/Time:	11/3/19
Sampled By:	D.Walker
Weather Conditions:	Sunny, warm
GW Level (pre-purge):	2.64 m bgl
GW Level (post sample):	4.81 m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	10 m bgl
Estimated Bore Volume:	L
Total Volume Purged:	L
Equipment:	Geopump, TPS 90FLmv

Water Quality Parameters

Time / Volume	Temp (°C)	DO (~~mg/L~~)	EC (µS or m~~S~~/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	**0.1°C**	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
0 min / 0 L	24.9	2.88 ppm	461 µS/cm	5.35	-	50 mV
1 /	24.7	2.18	461	5.29	-	50
2 / 1 L	24.6	1.90	459	5.25	-	52
3 /	24.6	1.72	455	5.19	-	54
4 / 2 L	24.6	1.43	452	5.16	-	57
5 /	24.6	1.31	449	5.14	-	60
6 / 3 L	24.7	1.19	446	5.14	-	61
7 /	24.8	1.13	443	5.10	-	66
8 min / 4 L	24.8	1.06	441	5.07	-	70
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

Sample Details

Sampling Depth (rationale):	~7 m bgl, limited water in well, within well screen.
Sample Appearance (e.g. colour, siltiness, odour):	Clear, colourless, No odour
Sample ID:	108
QA/QC Samples:	BDA - replicate
Sampling Containers and filtration:	metals - filtered Lab prepared bottles / vials
Comments / Observations:	

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Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume $= \pi h_1 d_2^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$

Where: $\pi = 3.14$

n = porosity (0.3 for most filter pack material)

h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing

Bore Vol Normally: 7.2*h

Project and Bore Installation Details	
Bore / Standpipe ID:	109
Project Name:	Moore Park, 1 Drive Ave
Project Number:	86724.00
Site Location:	
Bore GPS Co-ord:	
Installation Date:	
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-
Bore Development Details	
Date/Time:	8/3/19
Purged By:	D. Walker
GW Level (pre-purge):	2.39 m bgl
GW Level (post-purge):	m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	10 m bgl
Estimated Bore Volume:	L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or [✓ dry]) 20L - dry, brown, cloudy water
Equipment:	Pump + bailer
Micropurge and Sampling Details	
Date/Time:	11/3/19
Sampled By:	D. Walker
Weather Conditions:	cloudy, warm
GW Level (pre-purge):	6.03 m bgl
GW Level (post sample):	8.58 m bgl
PSH observed:	Yes / [✓ No] ([✓ interface] / visual). Thickness if observed:
Observed Well Depth:	m bgl
Estimated Bore Volume:	L
Total Volume Purged:	L
Equipment:	Geopump, TPS 90FLMV

Water Quality Parameters

Time / Volume	Temp (°C)	DO (~~mg/L~~)	EC (µS or ~~m~~S/cm)	pH	Turbidity	Redox (mV)
Stabilisation Criteria (3 readings)	***0.1° C***	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10%**	**+/- 10 mV**
0 min / 0 L	25.1	2.08 ppm	751 µS/cm	6.79	–	44
1 /	23.5	1.81	767	6.69	–	41
2 / 1.2	23.1	2.00	775	6.65	–	40
3 /	22.9	2.24	774	6.59	–	41
4 / 2.3	22.8	2.27	772	6.53	–	39
5 /	22.8	2.49	765	6.47	–	39
6 /	22.8	2.58	762	6.43	–	38
7 min / 4L	22.9	2.62	760	6.42	–	35
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS			

Sample Details

Sampling Depth (rationale):	9 m bgl, limited water in well
Sample Appearance (e.g. colour, siltiness, odour):	slightly cloudy + brown, no odour
Sample ID:	109
QA/QC Samples:	no replicate
Sampling Containers and filtration:	Metals - filtered Lab prepared bottles/vials.
Comments / Observations:	