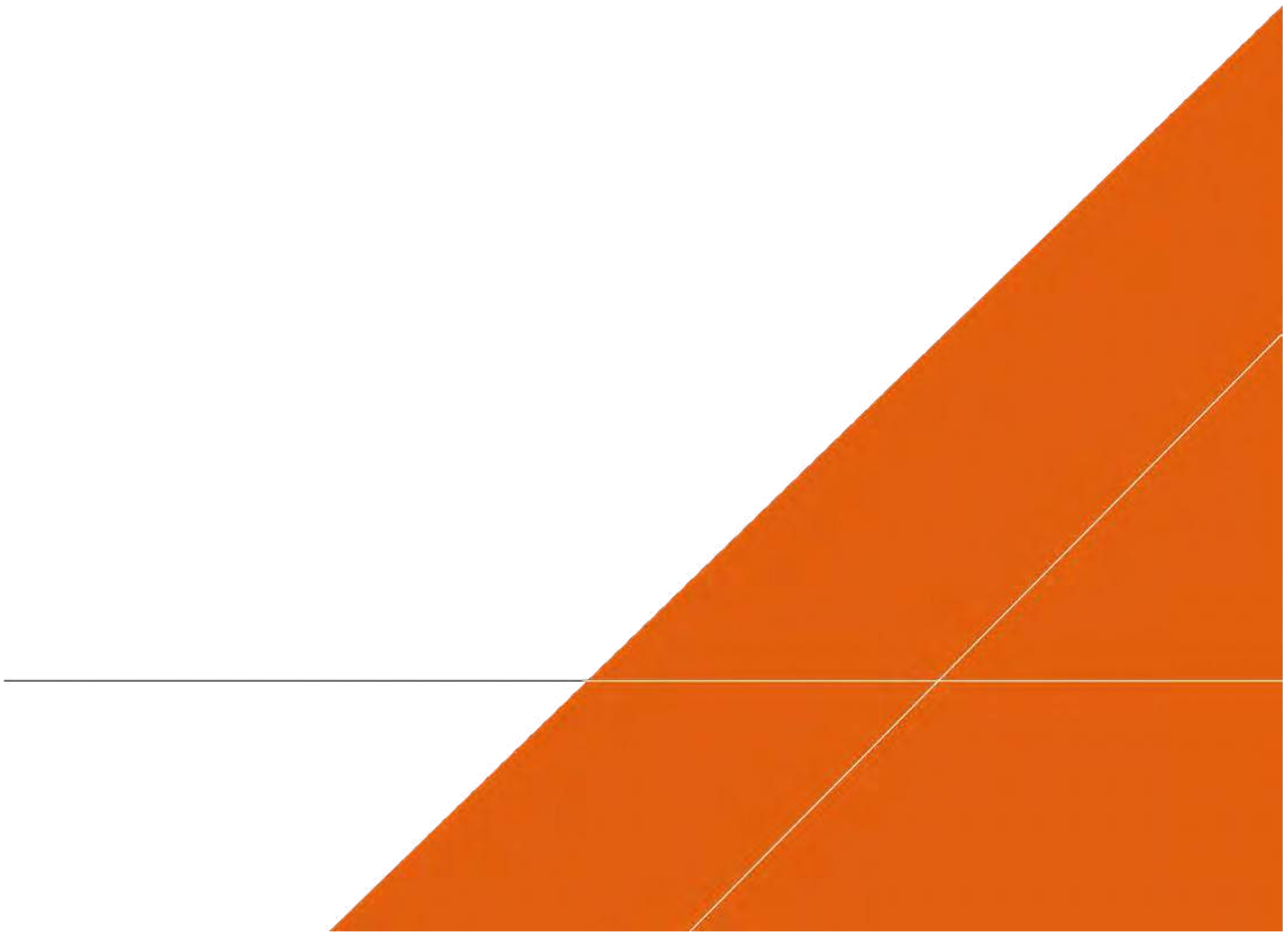
ARCADIS Design & Consultancy for natural and built assets

Item 3 - Attachment K - Contamination

PRELIMINARY SITE INVESTIGATION, CONTAMINATION

Concord West Precinct, NSW, 2138

25 MARCH 2021



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Preliminary Site Investigation

Concord West Precinct, NSW, 2138

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REVISIONS

Revision	Date	Description	Prepared by	Approved by
0	18/09/2018	DRAFT	SY/NP	DJ
01	08/08/2019	FINAL	NP	NP
02	25/03/2021	FINAL – REISSUED	NP	NP

CONTENTS

APPENDICES

1 INTRODUCTION

Arcadis Australia Pacific Pty Ltd (Arcadis) was engaged to complete a Preliminary Site Investigation (PSI) of the site area located within Concord West as shown on ***Figure 1, Appendix A.***

A PSI and Detailed Site Investigation (DSI) have previously been completed by Douglas Partners for two sites within the investigation area. They are located at 7 Concord Avenue (Spitfire Paintball & Go Karts) and 202-210 George Street (Civardi Furniture), refer to ***Appendix D*** for a copy of the report.

1.1 Background

The site area is located on the western side of Concord Station, which includes land beyond Concord Avenue, George Street and Victoria Avenue. The site area is approximately 7.5ha comprising of mostly residential dwellings and some smaller industrial/commercial warehouses. The area is generally characterised as a mixture of low density residential, medium density residential, public infrastructure and public recreation. Arcadis understands that the site is proposed to be rezoned from these mixed used into a medium density residential (R3) precinct.

1.2 Objective of the PSI

The objective of the PSI was to identify the potential for issues, concerns or environmental risks and liabilities associated with the current and historical uses of the site area and generally satisfy the requirements of a Preliminary Site Investigation (PSI) of *State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55)* to support a planning proposal for precinct land rezoning.

1.3 Scope of Work

To meet the objective Arcadis completed the following scope of works:

- A review of available zoning plans to determine whether there have been potentially contaminating activities that may have occurred on the site. Due to the size of the site and number of single dwelling allotments Section 10.7 certificates were not collected as part of this investigation;
- An evaluation of historical aerial photographs to assist in assessing historical land uses and conditions on and adjacent to the site;
- A review of the environmental setting with regards to geology, topography, hydrology and hydrogeology;
- A site walkover to accessible areas (private residents were only viewed from public land) to characterise the property setting, including inspection of the site surface for obvious signs of potential contamination and/or contaminant sources (i.e. underground tanks that were clearly visible);
- A visual evaluation of surrounding land uses to identify any neighbouring activities that may have affected or present a potential risk to the environmental quality of the site; and
- Preparation of this Phase 1 ESA Report in accordance with the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

2 LIMITATIONS

The findings of this report are based on the scope of work outlined in **Section 1.3**. Arcadis performed its services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties, expressed or implied are made.

Subject to the scope of work, Arcadis' assessment was limited strictly to identifying the environmental conditions associated with the subject property and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials should not be interpreted as a guarantee that such materials do not exist on the subject property.

Additionally, unless otherwise stated Arcadis did not conduct soil, air, wastewater or other matrix analyses including asbestos or perform contaminated sampling of any kind. Nor did Arcadis investigate any waste material from the property that may have been disposed of at the site or undertake an assessment or review of related site waste management practices.

The results of this assessment are based upon (if undertaken as part of the scope work) a site inspection conducted by Arcadis personnel and/or information from interviews with people who have knowledge of site conditions and/or information provided by regulatory agencies. All conclusions and recommendations regarding the property are the professional opinions of the Arcadis personnel involved with the project, subject to the qualifications made above.

While normal assessments of data reliability have been made, Arcadis assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements or sources outside of Arcadis, or developments resulting from situations outside the scope of this project.

Arcadis is not engaged in environmental assessment and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client.

3 SITE CHARACTERISTICS

3.1 Site Location

The location and layout of the site area is shown in ***Figure 1, Appendix A***. The site details are provided in Table 1 below and described in detail in the following sections.

Table 1 - Site Summary Detail

Site Characteristic	Detail
Street Address	Site area north west of Concord Station – Encompasses a number of residential blocks and two industrial/commercial warehouses, refer to **Figure 2 Appendix A**
Local Government Area	City of Canada Bay
Land Use Information	Current land use zoning includes: • 'IN1 – General Industrial' under the Canada Bay Local Environmental Plan 2013 • R2 – Low Density Residential • SP2 – Infrastructure – School • SP2 – Infrastructure – Classified Road • R3 – Medium Density Residential • RE1 – Public Recreation
Approximate Site Coordinates (UTM) of Area	Latitude: -33.84704 Longitude: 151.083409
Site Area	7.5ha

3.2 Site Description

The following site description is based on the conditions of the site observed for the site area during a site visit conducted on the 12th of September 2018 by Environmental Scientist Natasha Pasley and Graduate Civil Engineer Susumu Yamamoto from Arcadis. ***Appendix B*** presents site photos taken during the site walkover.

The site area is comprises of low and medium density residential housing and two industrial/commercial sites. The two industrial/commercial sites are currently occupied by Civardi Furniture, AJ Glass & Aluminium Pty and Circle-C Transformers. Circle C transformers and AJ Glass & Aluminium Pty Ltd occupy the same site.

There were no visible signs of contamination, hazardous material, waste, fill material or hydrocarbon odours within the outdoor areas of the industrial sites. Based on the current uses of the industrial sites they were assessed as having a high risk of potential contamination. A DSI (Douglas Partners 2007) assessing both soil and groundwater contamination has been completed at the Civardi Furniture warehouse. A copy of this report is provided in **Appendix D**. review of this report is provided Section XX

There were no visible signs of contamination, hazardous material, waste, fill material or hydrocarbon odours within the outdoor areas of the residential sites. These areas were assessed as having a low potential risk of contamination. No staining was noted on the concrete driveways or along the

concrete pavements along the road. No signs of plant stress were observed. No odours were noted during the site walkover.

Two industrial sites just outside of the site area were also inspected from the street. An industrial building adjacent to Civardi Furniture occupied by Spitfire Paintball & Go Karts, and a site on the southern boundary of the site area occupied by Chippendale Printing.

The property of Spitfire Paintball & Go Karts has previously during the DSI conducted by Douglas Partners (2007). Chippendale Printing was only viewed from the outside therefore it was difficult to assess any potential contaminants, however based on the use of the site as a printing works it is considered an area of potential environmental concern.

3.3 Surrounding Land Uses

The land uses currently surrounding the site are as follows:

- **North**: Industrial type warehouses residential properties and Charlton Drive;
- **South:** Residential properties; industrial buildings
- **East:** Train tracks beyond which are residential properties and Queen Street;
- **West:** Homebush Bay Drive beyond which is Bicentennial Park.

3.4 Sensitive Environments

The nearest sensitive environments are as follows:

- Within the site area there is a Childcare Centre (Only About Children Concord);
- 8m west of the site area there is a Child Healthcare Centre (Early Childhood Health Centres);
- Another Childcare Centre (Victoria Avenue Children's Centre) is located 10.23m west of the site;
- Within the site area, there are several medium density residential dwellings located directly south of an industrial area at 202-210 George Street;
- Victoria Avenue Public School located 40m west of the site area and is located approximately 46m south of an industrial precinct. St Ambrose Catholic Primary School is located 147m south east of the site area;
- A tutoring service (C3 Education Group Inner West Tutoring) is also located 189m east of the site area;
- Several parks are located in close proximity to the site area including Powells Creek Reserve (95m west), Soccer Fields (168m south-west), Playground (382m), Tennis Courts (441m) and Bicentennial Park (490m); and
- The nearest surface water receptors are Powells Creek and a Billabong that comes off Homebush Bay. These watercourses are located approximately 125 m to the west and northwest of the site area.

3.5 Proposed Land Use

Arcadis understands that the site area is proposed to be rezoned to 'R3 – Medium Density Residential' to permit residential use of the land.

4 PREVIOUS INVESTIGATIONS

Douglass Partners conducted a DSI at 202-210 George Street and 7 Concord Avenue in November 2007. The site at 202-210 George Street is currently occupied by Civardi Furniture, a furniture fabricator and is within the study area of this investigation. The findings of the Douglass Partners (2007) report relevant to 202-210 George Street site are summarised below:

- The following known storage tanks were noted to be present at 7 Concord Avenue and 202-210 George Street:
  - 1 x 10,000 L UST beyond the investigation area at 7 Concord Avenue;
  - 1 x 9,000 L former UST beyond the investigation area at 7 Concord Avenue; and
  - 1 x 5,000 L UST within the investigation area in north eastern portion of 202-210 George Street
- Fill material beneath a concrete slab at bore holes 102 located at the south-east corner of the building at 202-210 George Street was observed to be sand and gravelly clay materials to a depth of 1.8m below ground level (bgl).
- Borehole 206 was drilled to the east of the building and the fill was described as silty sand fill to the depth of 0.5m bgl underlainy by layers of clay filling to a depth of 2.5m bgl.
- Fill material at borehole 205, within the northern portion of the building was observed to be sand and clay to a depth of 0.6 bgl.
- Fill material at bore holes 222, 204, 218 and 229 was noted to depths between 0.8 and 1.2m bgl and was described as sand and gravelly clay materials with crushed brick at bore 101.
- Fill beneath the building was observed to be clay, sand and sandstone boulder materials to a depth of 1.7m bgl. Refusal on a timber (or tree a tree stump) was noted at 0.7mbgl at borehole 227.
- The natural materials underlying the site were typically described as a layer of peaty clay up to 0.9m bgl, underlain by silty clays followed by shale bedrock. Iron stone was noted in stiffer clay materials some of the boreholes at the site.
- Hydrocarbon odours were noted within the peaty clay at a depth between 0.6m bgl to 1.5m bgl and 1.5m to 2.0m bgl at borehole 205.
- Asbestos was detected on the surface of the site and within fill material at 7 Concord Ave, the extent of the asbestos in fill material was not delineated and therefore it is unknown how far it extends beyond the locations identified in the DSI (Douglas Partners 2007).
- Groundwater at both 7 Concord Avenue and 202-210 George Street was generally observed within the shallow soft peat and clay soils and ranged between 0.744 to 2.16 m bgl. This was reported as 2.12 to 3.95 m AHD.
- Groundwater flow direction at 202-210 George Street was inferred to flow in a north westerly direction. While at 7 Concord Avenue groundwater was inferred to flow in a westerly direction.
- Groundwater collected from borehole 213 located beyond the study area at 7 Concord Ave reported a hydrocarbon odour.
- Douglass Partners (2007) did not report elevated photo ionisation measurements in soils at 202-210 George Street.
- Concentrations of heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs) and Phenols in soil were reported below the Health-based Investigation Level B (HIL B) for high density residential dwellings with minimal opportunities for soil access (NEMP 2013). It is noted that the laboratory certificates are not available within the Douglas Partners (2007) report, therefore the toxicity equivalent quotient (TEQ) for benzo-a-pyrene (BaP) cannot currently be determined. Future investigations would need to address this data gap.

- Concentrations of benzene, toluene, ethylbenzene, xylene (BTEX) and total petroleum hydrocarbons (TPHs) in soil were reported below the health screening levels (HSLs) for vapour intrusion risk. Concentrations of TRH C10-C36 at borehole 205 between 1.0-1.5m were reported at 3,150 mg/kg, which may be in excess of the Management Limits (NEPM 2013). Note that the reported hydrocarbon fractions do not precisely align to the F2 (NEPM 2013) fractions. Additional site investigations should take this into consideration when designing sampling strategies.
- Concentrations of heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), volatile organic hydrocarbons (VOCs) and Phenols in groundwater were reported below the adopted ANZECC 2000 freshwater 95% species protection trigger values. The exception to this were some minor detections if dissolved heavy metals which were considered indicative of background conditions within an urban environment.
- Concentrations of TRH C10-C36 at monitoring well GW205 were reported at concentrations of 2,560 mg/kg, the reported hydrocarbon fractions do not precisely align to the F2 (NEPM 2013) fractions and therefore it is not possible to determine if this represents an exceedance to the relevant guidelines.
- Concentrations of TRH detected in soil and groundwater at borehole and groundwater well 205 were likely to be associated with the nearby UST, bowser and associated underground infrastructure.
- The fill materials were reported to be susceptible to acid conditions however may not be associated with sulphidic ores and not considered ASS.
- The natural soils beneath the site are likely to be potential acid sulphate soils and reported a sulphur trail indicative of ASS conditions.

The general conditions of the site are characterised by a layer of filling to a depth of approximately 1.5m bgl which contain concentrations of PAHs, heavy metals and potentially asbestos. Given the proximity of the precinct to Homebush Bay and the Rhodes Peninsular these types of compounds are not un-expected to be present within the fill material. The underlying natural soils are likely to be acid sulfate in nature. At the time of investigation, groundwater quality appeared to have been impacted with hydrocarbons in the vicinity of the USTs both within the investigation area at 202-210 George Street and immediately beyond the investigation area at 7 Concord Avenue.

Based on the findings of the investigation and prior to redevelopment further investigation should occur to address any data gaps identified within the Douglas Partners investigation. This should include assessment against new and revised guidelines which may require further additional sampling to be completed. Once a precinct wide master plan has been developed and approved, a remedial action plan (RAP) should be prepared to facilitate any remedial works and the removal of the USTs and associated underground fuel infrastructure at 202-210 George Street.

5 SITE HISTORY

5.1 Zoning

The site is subject to land zoning in the Canada Bay Local Environmental Plan 2013 as shown in Table 2 below.

Table 2 - Zoning and Objectives of the Site Area.

Zone	Objectives
IN1 – General Industrial	• To provide a wide range of industrial and warehouse land uses. • To encourage employment opportunities. • To minimise any adverse effect of industry on other land uses. • To support and protect industrial land for industrial uses.
R2 – Low Density Residential	• To provide for the housing needs of the community within a low density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents.
SP2 – Infrastructure – School & Classified Road	• To provide for infrastructure and related uses. • To prevent development that is not compatible with or that may detract from the provision of infrastructure. • To ensure that works are compatible with and protect the biodiversity values of the natural environment.
R3 – Medium Density Residential	• To provide for the housing needs of the community within a medium density residential environment. • To provide a variety of housing types within a medium density residential environment. • To enable other land uses that provide facilities or services to meet the day to day needs of residents
RE1 – Public Recreation	• To enable land to be used for public open space or recreational purposes. • To provide a range of recreational settings and activities and compatible land uses. • To protect and enhance the natural environment for recreational purposes. • To facilitate public access to and along the foreshore. • To conserve public open space that enhances the scenic and environmental quality of Canada Bay.

5.2 Aerial Photograph Review

Aerial photographs were sourced from Land Insight and Resource. Photographs from 1943, 1955, 1961, 1961, 1978, 1986, 1994, 1998, 2004, 2010, 2014 and 2018 were reviewed to assess the history of the site area and determine when changes to the use of site area may have occurred.

Copies of the aerial photographs are included in **Appendix C**. The relevant information about site area and further surroundings is summarised in Table 3 below.

Table 3 - Summary of Aerial Photography

Date	Description of the Site Area	Description of Surrounding Land
1943	A large warehouse can be observed covering the majority of the area around 7 Concord Avenue and 202-210 George Street. The rectangular warehouse is situated on the eastern half of the site. The remainder of the site has been cleared of vegetation. Station Avenue, George Street, King Street and Victoria Avenue can be clearly seen within the site area. Some residential properties have been constructed to the around an industrial warehouse near the western boundary of the site area, on the corner of Victoria Avenue and Station Avenue. A warehouse also exists near the southern boundary of the site area on George Street.	Surrounding areas to the east of the site area have been primarily residentially developed. Some other industrial type warehouse structures can also be seen to the south and north of the site area. Railway tracks and what is currently Concord West Train Station can also be observed to the east of the site area. The land to the west of the site area appears undeveloped but mostly cleared of vegetation. Trees are present to the northwest of the site, indicating the presence of the billabong. A large rectangular patch of ground to the southwest of the site area has been completely stripped of grass/vegetation.
1955	Site configuration at 7 Concord Avenue and 202-210 George Street does not appear to have changed. More residential development has occurred to the south and north of the site area. The industrial warehouse near the eastern boundary has been demolished, leaving a rectangular path of ground. A warehouse has been constructed on the eastern side of the site area near the intersection of Victoria Avenue and King Street.	A warehouse southwest of the site area has been demolished. Outside of this, there have been no major changes to surrounding land use.
1961	Clearing has taken place to the west of site area. Including the large warehouse at 7 Concord Avenue and 202-210 George Street which has been completely removed, leaving the area vacant.	There has been clearing of land from the inside of the site area, extending out to the west to Powells Creek. Vast land clearing can also be observed to the southwest of the site. Northwest of the site, Homebush Bay Drive has started to become defined.
1978	A new warehouse has been constructed near the western boundary of the site area. Aside from this no major changes have been made to the site area. The picture quality is extremely poor resulting in difficulty interpreting this period.	There are new warehouses to the south and north of the site. The previous warehouse on the northern boundary of the site area has been demolished. There are further definitions of Homebush Bay Drive to the northwest of the site.

Date	Description of the Site Area	Description of Surrounding Land
1986	No major changes have been made to the site area	No major changes to surrounding land use except for land clearings just southwest of the site area and the construction of Victoria Avenue public school. There is also now a small bridge across Powells Creek
1994	No major changes have been made to the site area	Homebush Bay Drive appears to have been completed to the west of the site. Further west, some smaller buildings have been established in what is now Bicentennial Park.
1998	Warehouses on the northern boundary of the site are have been demolished and replaced with residential buildings. Warehouses on the southern boundary have been demolished.	The warehouse south of the site area has been renovated and expanded. The warehouse to the north of the site are has been demolished and there has been a clearing of land in the area.
2004	The site area has remained largely unchanged, however there has been a lot more growth of vegetation within the area.	Residential development has occurred to the north of the site area. Some additional small structures have been constructed to the west, past Homebush Bay Drive in Bicentennial Park.
2010	No major changes have been made to the site area.	No major changes to surrounding land use, with the exception of high density residential buildings south of the warehouse south of the site area.
2014	No major changes have been made to the site area.	Concord West Train Station is under renovation. Victoria Avenue Public School is under construction directly south of the site area.
2018	No major changes have been made to the site area.	Concord West Train Station has been renovated and the overpass across the railway tracks now sits further south than before. Victoria Avenue Public School has been construction directly south of the site area.

Based on the review of historical aerial photographs, some areas of the site appear to have been used for industrial purposes since at least 1943. The configuration of site area has generally consisted of a single large warehouse on the western portion of the site area (7 Concord Avenue and 202-210 George Street) and residential buildings in the other portions. The site area has changed from partially undeveloped with some residential properties, to being mostly residentially developed with some industrial warehousing.

It is noted that conclusions drawn from the aerial photographs must be treated with caution as the interpretation is subjective and is often limited by the quality of the photo.

5.3 NSW EPA Contaminated Land Search

A search of the NSW EPA Contaminated Land database for the property was conducted as part of this PSI. The NSW EPA does not hold records of notification of the site area to NSW EPA as a contaminated site under Section 60 of the CLM Act (1997).

No licences or notices have been issued to the site under the Protection of the Environment (Operations) Act 1997.One (1) delicensed activity in the site area is still regulated by the EPA. The Fred Hosking Pty Ltd (Licence No. 6839) conducted a now delicensed activity involving ‘Hazardous, Industrial or Group A Waste Generation or Storage’.

No activities were formerly licensed under the Protection of the Environment (Operations) Act 1997.

No EPA PFAS Investigation programs are situated within the site boundary.

The Land Insight and Resources report in ***Appendix C*** outlines any activities within the 200m dataset buffer around the site area.

5.4 WorkCover NSW Dangerous Goods Search

Due to the size of the site area and the number of lots, no WorkCover NSW Dangerous Goods Search has been ordered with the exception of the 202-210 George Street, the warehouse on the western side of the site area which has been identified as a high-risk area. The findings of this search should be included within future site assessments.

5.5 Industrial Processes

The historical data review indicated that the site area has been used for industrial processes. Currently, Civardi Furniture, a joinery manufacturer occupies a warehouse on the western side of the site area, Spitfire Paintball & Go Karts and Firmstone Flooring Specialists, occupies the northern section of this warehouse complex. AJ Glass & Aluminium Pty Ltd is located within the eastern portion of the site. Circle C transformers occupy the same address as AJ Glass & Aluminium Pty Ltd.Refer to Appendix C for figures indicating the location of these companies.

5.6 Manufacturing Processes

The historical data review indicated that Civardi Furniture and AJ Glass & Aluminium Pty Ltd have been used for manufacturing processes. The warehouse located at 7 Concord avenue immediately beyond the investigation area which is currently occupied by Spitfire Paintball & Go Karts and Firmstone Flooring Specialists may also have been used for manufacturing processes.

5.7 Hazardous Materials

During the site walkover through the residential area and the outside of the industrial warehouses, no hazardous materials were observed.

However, given some the residential houses in the site area were constructed in the 1950s to 1960s, it is possible that asbestos and lead paint was used in the building materials. In addition PCB capacitors, may also be present as well as synthetic mineral fibre insulation.

It should be noted that hazardous materials survey was not included in the scope of works.

5.8 Storage Tanks

The site is located within an underground petroleum storage system (UPSS) sensitive zone. UPSS sensitive zones represent a conservative assessment of areas that are likely to be vulnerable to contamination from leaking UPSS, or in close proximity to vulnerable environmental receptors.

With the exception of the storage tanks noted in section 5 above no other tanks were noted.

5.9 Discharges to Land, Water and Air

With the exception of the former One (1) delicensed activity at 7 Concord Avenue (The Fred Hosking Pty Ltd, Licence No. 6839) which now delicensed. No information for the block regarding discharges to land, water and air was available for review at the time of writing this report. It is noted that it is unknown if the waste were discharge to land or water. Given they were classified as Hazardous, Industrial or Group A it is unlikely they were discharged but rather stored onsite prior to offsite disposal.

6 SITE CONDITION AND ENVIRONMENTAL SETTING

6.1 Topography

The site area slopes slightly west toward Homebush Bay Drive and changes from an elevation of 8m Australian Height Datum (AHD) in the east and 2m (AHD) to the west. Refer to the MAP 2 of the Land Insight and Resources Report in ***Appendix C*** for additional information.

6.2 Visible Signs of Contamination

There were no visible signs of plant stress or contamination on the block during the site investigations.

6.3 Presence of Drums and Wastes

Several drums (220L to 10L) were observed inside the warehouse of Civardi Furniture (202-210 George Street). These drums contained glues, paints or solvents. Drums (220L) were also observed on the outside of the warehouse for AJ Glass & Aluminium Pty Ltd. It is unknown what these drums contained.

6.4 Fill Material

No fill material was obviously visible during the site walkover.

6.5 Odours

Aside from the odour of paints near the storage of glues, paints and solvents inside the warehouse, there were no olfactory indicators of possible contamination noted during the site walkover.

7 GEOLOGY AND HYDROGEOLOGY

7.1 Geology

The 1:100,000 Geological Survey of NSW map of Sydney indicates that the site area is underlain by the following geological unit;

- Quaternary aged man-made fill described as dredged estuarine sand and mud, demolition rubble, industrial and household waste overlying silty to peaty quartz sand, silt and clay with ferruginous and humic cementation in places, and common shell layers; and
- Triassic aged Ashfield Shale of the Wianamatta Group described as black to dark grey shale and laminate.

The Soil Conservation Service of NSW Sydney 1:100,000 Soil Landscapes Series Sheet 9310 (2nd Edition) indicates that the landscape of the region of the site area comprises of Blacktown Residual and Disturbed Terrain Soil Landscapes.

Refer to page 6 of the Land and Insight Resources report in ***Appendix C*** for the site geology.

7.2 Hydrogeology

A review of NSW Department of Primary Industries Office of Water records for groundwater bores within a 2km radius of the site area indicated the presence of 41 water monitoring bores. 38 of the bores are used for monitoring purposes, 1 for recreation, 1 for irrigation and 1 as unknown. Standing water levels of the bores ranged from 0.68 m bgl to 3.07 m bgl.

Refer to page 6 of the Land and Insight Resources report in ***Appendix C*** for the hydrogeology data within a 500m buffer of the site area.

During the site walkover a groundwater monitoring bore was observed on the driveway of Spitfire Paintball & Go Karts (Lot 1 DP 219742) which is just outside the site area and was likely to have been installed as part of the Douglas Partners (2007) investigation. This borehole was not registered on the NSW Department of Primary Industries Office of Water.

7.3 Hydrology

The nearest surface water receptors are Powells Creek and a Billabong that comes off Homebush Bay. These watercourses are located approximately 125 m to the west and northwest of the site area, respectively.

7.4 Acid Sulfate Soil Risk

A review of the Atlas of Australian ASS map shows the west portion of the site area is situated in a Class B category with a low probability of occurrence (6-70% chance of occurrence). The eastern portion of the site area is situated in a Class C category with an extremely low probability of occurrence (1-5% chance of occurrence with occurrences in small localised areas).

This mapping is contradictory to the results reported within the Douglas Partners (2007) investigation which state the natural material from 1.5m bgl are likely to be potential acid sulfate soils. The site-specific results within the former investigation should be considered during future site assessments.

8 CONCEPTUAL SITE MODEL

Based on the information available for the site as summarised in Section 3 to Section 6, the following preliminary conceptual site model (CSM) has been prepared. The CSM identifies complete and potential pathways between the known or potential source(s) and the receptor(s).

8.1 Source

Potential sources of contamination at the site area and the associated Contaminants of Potential Concern (CoPC) are listed in Table 4 below. These will mainly be associated with the areas where the historical data review indicated that the site area has been used for industrial processes, including:

- Civardi Furniture
- Spitfire Paintball & Go Karts and Firmstone Flooring Specialists
- AJ Glass & Aluminium Pty Ltd/ C-transformers to the west of the site area.

Table 3 - Potential Contaminant Sources

Source	Associated Chemicals	CoPC
Storage and use of glues, paints and solvents	Glues and solvents	BTEX, TRH, chlorinated solvents, petroleum-based solvents, heavy metals, PAH, volatile organic compounds (VOCs)
Printing processes	Inorganic and organic dyes, solvents, glues and bleaching agents PFAS as vapour suppressants and fire fighting foam.	BTEX, TRH, chlorinated solvents, petroleum-based solvents, heavy metals, PAH, volatile organic compounds (VOCs) and PFAS
Fill materials	Asbestos, ash, slag, foundry waste industrial wastes and fall out from the local heavy industry	Asbestos, PAH, heavy metals, TRH, OCPs, OPPs, PCBs and dioxins.
Building materials containing ACM	Asbestos	Asbestos
Lead paint	Lead	Lead

Note that since the site walkover only occurred on the outside of Spitfire Paintball & Go Karts/Firmstone Flooring Specialists and AJ Glass & Aluminium Pty Ltd/ C-transformers it is difficult to assess the CoPC. Further investigation will be required at these two locations to accurately assess any contaminant sources.

8.2 Potentially Affected Media

Potentially affected media at the site include:

- Soil
- Groundwater
- Soil gas
- Surface water

8.3 Pathways

Pathways or transport mechanisms by which receptors may be exposed to contamination on and offsite include:

- Direct contact with contaminated soil/groundwater/surface water
- Vertical migration of spills/leaks to groundwater
- Ingestion of dust/abstracted groundwater/surface water
- Inhalation of asbestos fibres
- Inhalation of volatile vapours

8.4 Receptors

Potential receptors to contamination include:

- Site workers
- Intrusive maintenance workers
- Demolition/construction workers
- On-site and surrounding residents
- Groundwater users (off-site)
- Surface water receptors offsite
- Ecologically sensitive wetland

8.5 Exposure Assessment

Based on the preliminary CSM discussed above, the potential for contamination to be present at the industrial precincts within the site area is considered to be Moderate to High.

9 INTEGRITY ASSESSMENT

Information was collected from a wide range of sources to determine the risk of site contamination. The sources included a combination of government bodies and private organisations that have no knowledge of the current proposed development, nor are they project stakeholders.

The data obtained from other historical sources reviewed has been found to be in general agreement. It is therefore considered that the information provided in this historical assessment has an acceptable level of accuracy.

Whilst Arcadis uses professional judgement when evaluating information, Arcadis cannot guarantee all information is neither correct nor complete. Arcadis does not take responsibility for an errors nor incomplete data.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Summary of Conclusions

Based on the scope of work conducted for the site area in Concord West, NSW, the following conclusions are provided:

- The site area has several locations with a history of industrial use and accordingly has a potential risk for the presence of contamination.
- No visual or olfactory evidence of contamination was noted during the site walkover however historical investigations have identified soil and groundwater impacts within the industrial site at 202-210 George Street
- Based on previous investigations some of the natural soils underling the site are likely to be potential acid sulfate soils.

The precinct planning is currently within a preliminary stage and therefore additional investigations can be conducted at later stages within the planning process. The precinct planning proposal includes the formation of a high density residential precinct with basement carparking, future investigations should be conducted to support and inform a detailed masterplan once a concept plan is determined. This will allow investigations to be targeted at basements and open space areas to ensure a definitive land-use suitability statement can be made.

It is likely that following additional investigation works and remediation of the former industrial sites the precinct could be made suitable for the intended high density residential land-use. In accordance with SEPP 55 Remediation of Land further investigation and potential remediation works will need to be considered in future development applications.

10.2 Recommendations

Arcadis recommend that during the detailed planning phase (DA process) a data gap analysis and detailed environmental site investigation is conducted. The investigation should be completed in accordance with the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites* and the NEPC (2013) NEPM to determine if contaminants are present at concentrations that have the potential to pose an unacceptable risk to human health or ecological receptors. This should also include the assessment of acid sulphate soils within areas of proposed soil disturbance.

In addition, as part of the development application process a Remedial Action Plan (RAP) should be prepared to facilitate the removal of the known USTs and other potential impacts identified during the investigation process.

10.3 Extent of Uncertainties in the Results

Whilst Arcadis uses professional judgement when evaluating information, Arcadis cannot guarantee all information is neither correct nor complete. Arcadis is confident that the results of this investigation give an accurate representation of the historical status of the site but notes that no subsurface investigations were completed.

11 REFERENCES

ANZECC/NHMRC (1992) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites;

Department of Environment and Climate Change (2009) Guidelines on the Duty to Report Contamination Under the Contaminated Land Management Act 1997;

National Environment Protection Council (1999) 'National Environment Protection (Assessment of Site Contamination Measure 1999' as amended 2013.

NSW Environment Protection Authority (2006) Guidelines for the Site Auditor Scheme Environment Protection Authority.

NSW Environment Protection Authority (1995) Sampling Design Guidelines. Environment Protection Authority, Chatswood.

NSW OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites.

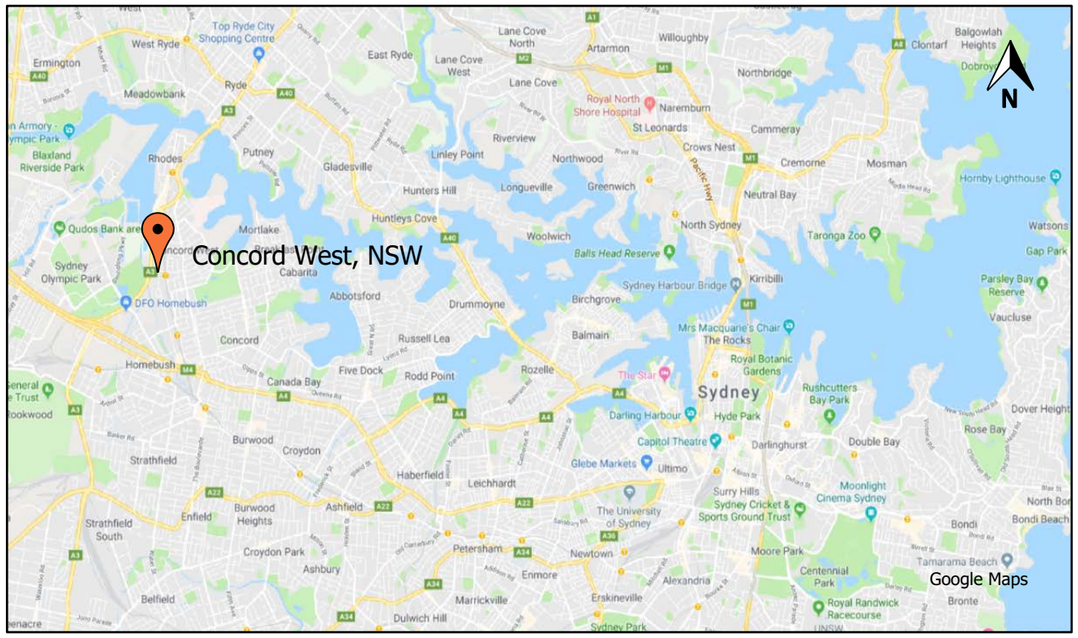
NSW DECC (2009) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.

Douglas Partners (November 2007) Phase 1 & 2 Contamination Assessment, 7 Concord Avenue & 202-210 George Street Concord West.

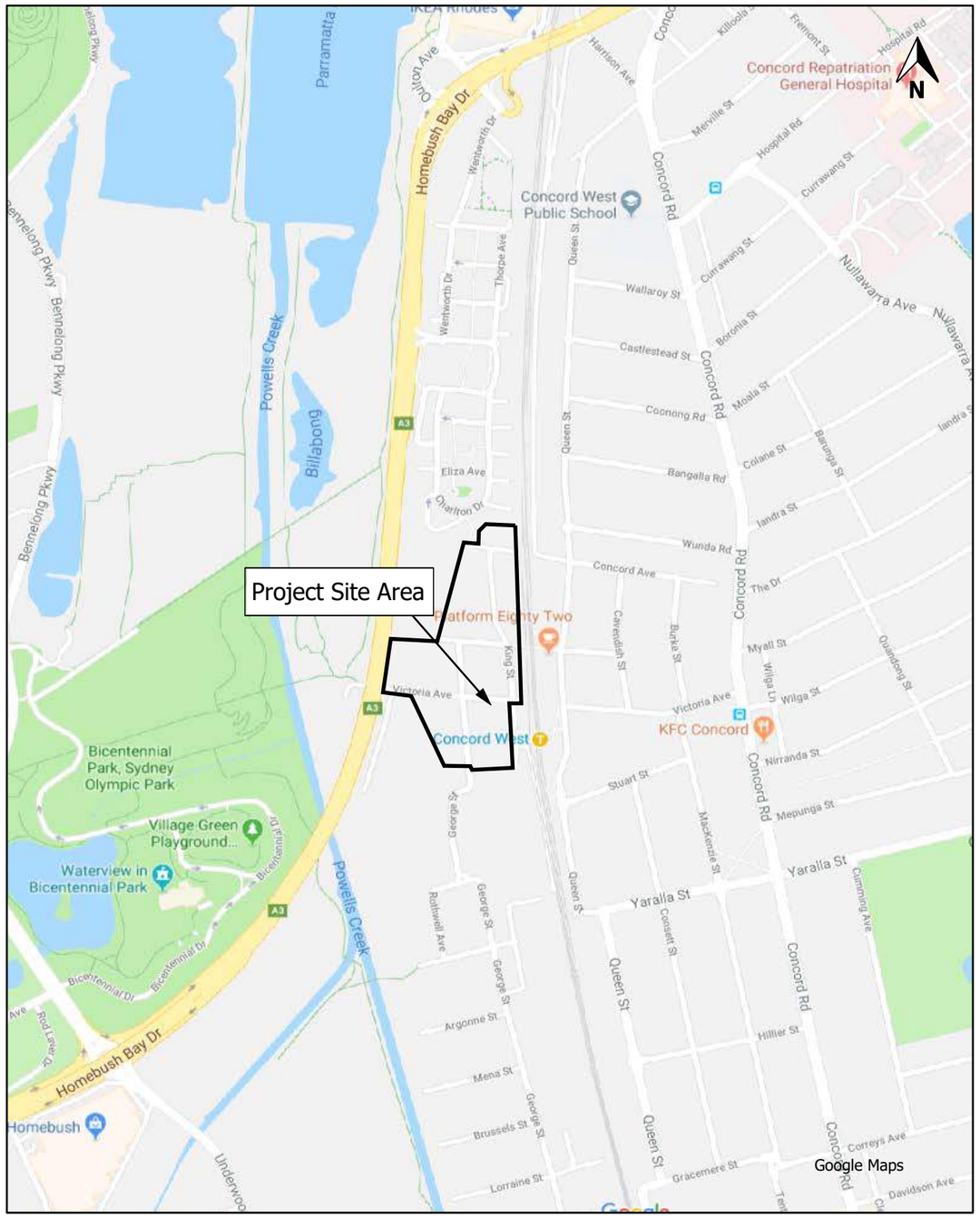
APPENDIX A FIGURES

COUNTRY

REGION



SITE LOCATION



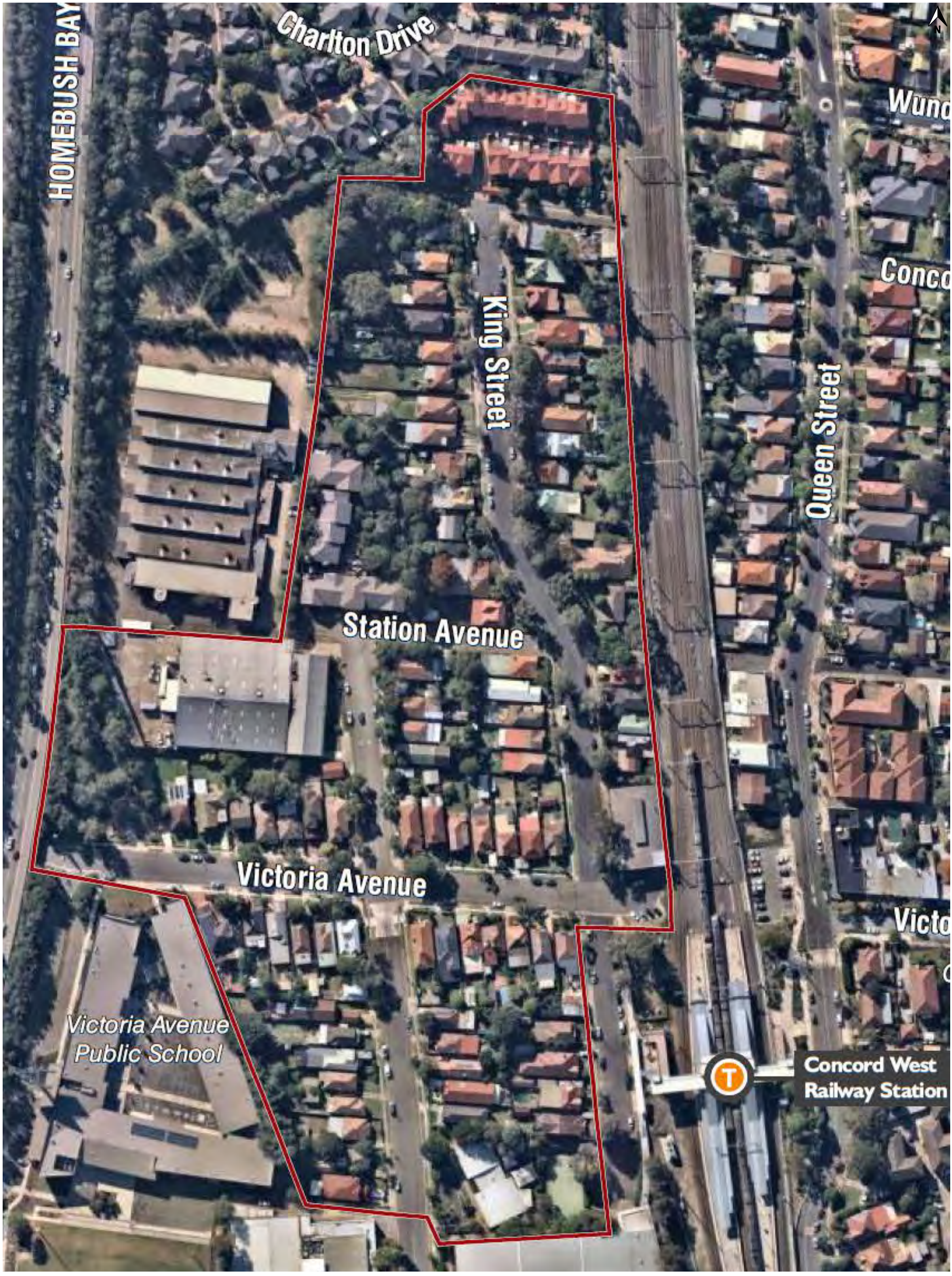
Note: Not to Scale.

Key

Site Boundary (approximate)

Title Concord West Precinct PSI		Figure 1 Site Location Plan
Location Concord West, NSW, 2138	Project No. 10023852	ARCADIS Design & Consultancy for natural and built assets

Key Investigation Boundary (approximate)	Title Concord West Precinct PSI	Figure 2 Site Layout
	Location Concord West, NSW, 2138	Project No. 10023852
		ARCADIS Design & Consultancy for natural and built assets



Key

Investigation Boundary (approximate)

Title Concord West Precinct PSI		Figure 2 Site Layout
Location Concord West, NSW, 2138	Project No. 10023852	ARCADIS Design & Consultancy for natural and built assets

APPENDIX B PHOTOS

ARCADIS Design & Consultancy for natural and built assets	**SITE PHOTOGRAPHS**	
	Site Location: **Concord West Precinct, NSW, 2138**	**Project No.** **10144827**

Photo No.	**Date**
1	12 Sept 2018

Description:
View from outside the AJ Glass & Aluminium Pty Ltd/Circle C transformers site

Photo No.	**Date**
2	12 Sept 2018

Description:
Two views
View 1 (Left) - looking south down King Street
View 2 (right) - looking west down Station Avenue

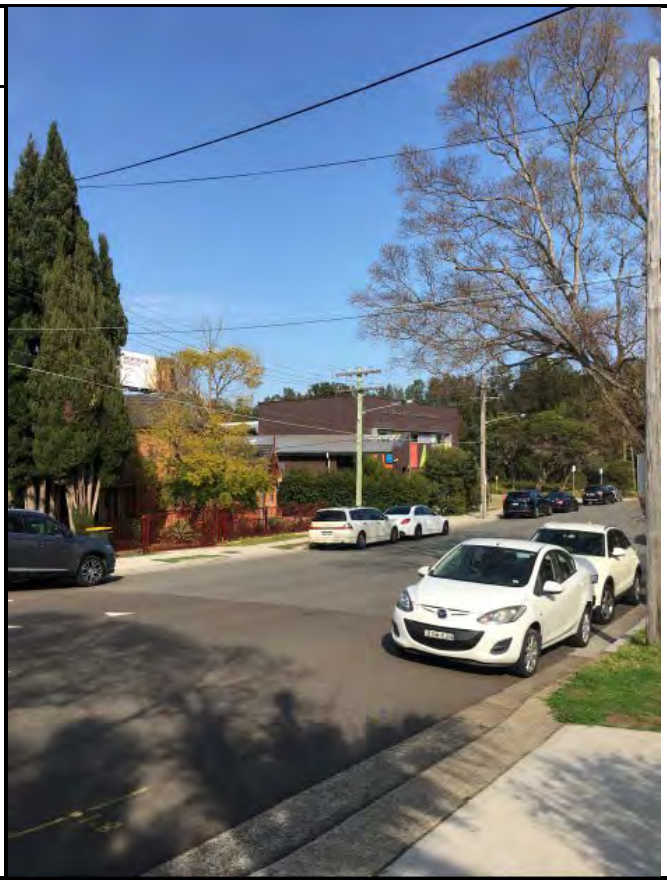
ARCADIS Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS	
	Site Location: **Concord West Precinct, NSW, 2138**	**Project No.** **10144827**

Photo No.	**Date**
3	12 Sept 2018

Description:
George Street Victoria Avenue Intersection.

Photo No.	**Date**
4	12 Sept 2018

Description:
View of Victoria Avenue Public School



ARCADIS Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS	
	Site Location: **Concord West Precinct, NSW, 2138**	**Project No.** **10144827**

Photo No.	**Date**
5	12 Sept 2018

Description:
View of the Only About Children Concord Childcare Service

Photo No.	**Date**
6	12 Sept 2018

Description:
View of Chippendale Printing

ARCADIS Design & Consultancy for natural and built assets	**SITE PHOTOGRAPHS**	
	Site Location: **202-210 George Street, Concord West, NSW, 2138**	**Project No.** **10019240**

Photo No.	**Date**
1	16 July 2018

Description:
View from inside the manufacturing area of the warehouse on Key Site 2 (Civardi Furniture).

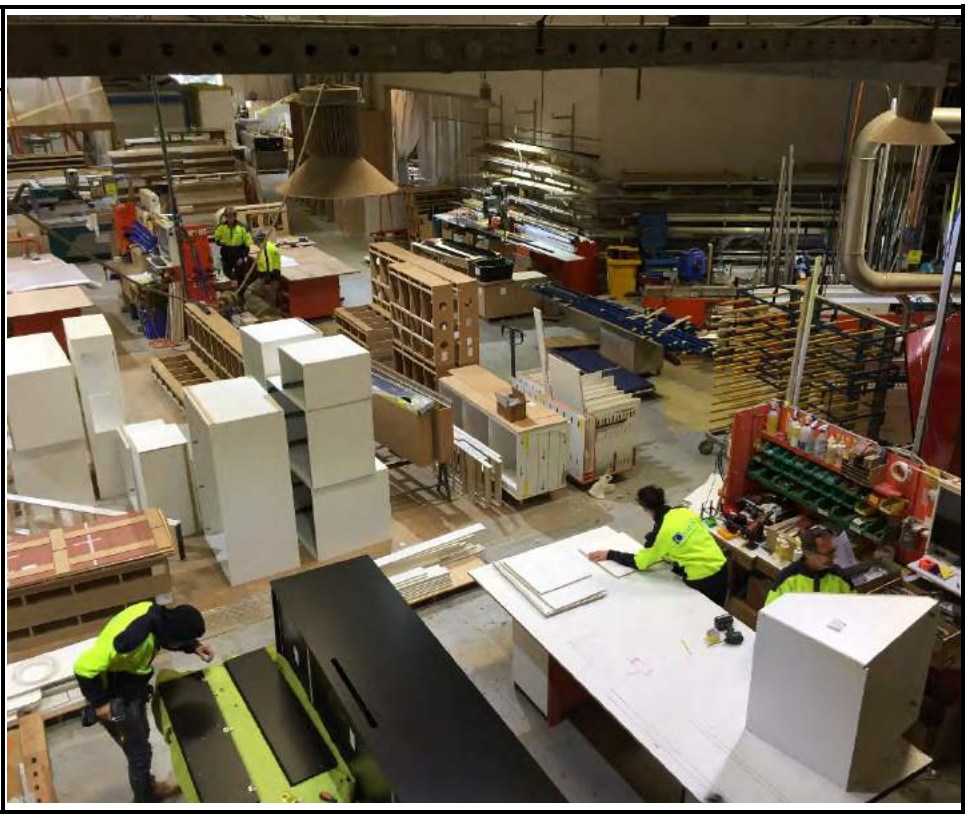


Photo No.	**Date**
2	16 July 2018

Description:
Two views of the room located in between the office area and the warehouse area of Civardi Furniture. The area is used for storage of glues, paints and solvents.

ARCADIS Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS	
	Site Location: **202-210 George Street, Concord West, NSW, 2138**	**Project No.** **10019240**

Photo No.	**Date**
3	16 July 2018

Description:
Another area for storage and cleaning of glues inside the warehouse.

Photo No.	**Date**
4	16 July 2018

Description:
View of the open area on the west side of Key Site 2. Timber is temporarily stored here before being taken inside the warehouse for processing. The shipping container that can be seen in this image contained 'Flammable Liquid' signs. This container is not used by the current occupants of Key Site 2 but was used by the printing factory that used to occupy the space.

ARCADIS Design & Consultancy for natural and built assets	**SITE PHOTOGRAPHS**	
	Site Location: **202-210 George Street, Concord West, NSW, 2138**	**Project No.** **10019240**

Photo No.	**Date**
5	16 July 2018

Description:
View of the pressurized room where timber spraying occurs.

Photo No.	**Date**
6	16 July 2018

Description:
A monitoring well was observed in the site to the north of Key Site 2, within the target area.

ARCADIS Design & Consultancy for natural and built assets	SITE PHOTOGRAPHS	
	Site Location: **202-210 George Street, Concord West, NSW, 2138**	**Project No.** **10019240**

Photo No.	**Date**
7	16 July 2018

Description:
Residential properties to the north of Key Site 2, within the target area.

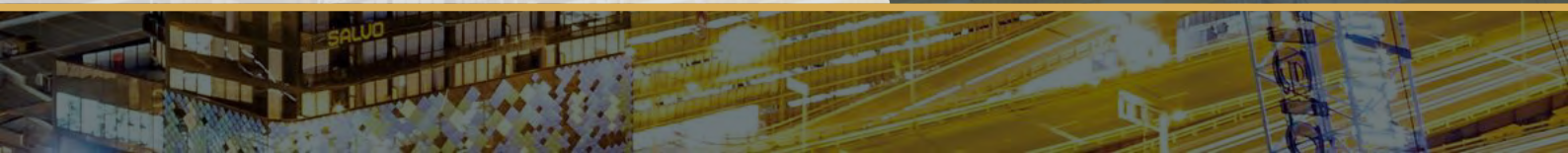
Photo No.	**Date**
8	16 July 2018

Description:
View of Concord West Railway Station from Victoria Avenue (target area around Key Site 2).

APPENDIX C LAND INSIGHT AND RESOURCES ENVIRO-SCREEN REPORT

ATTACHMENT A

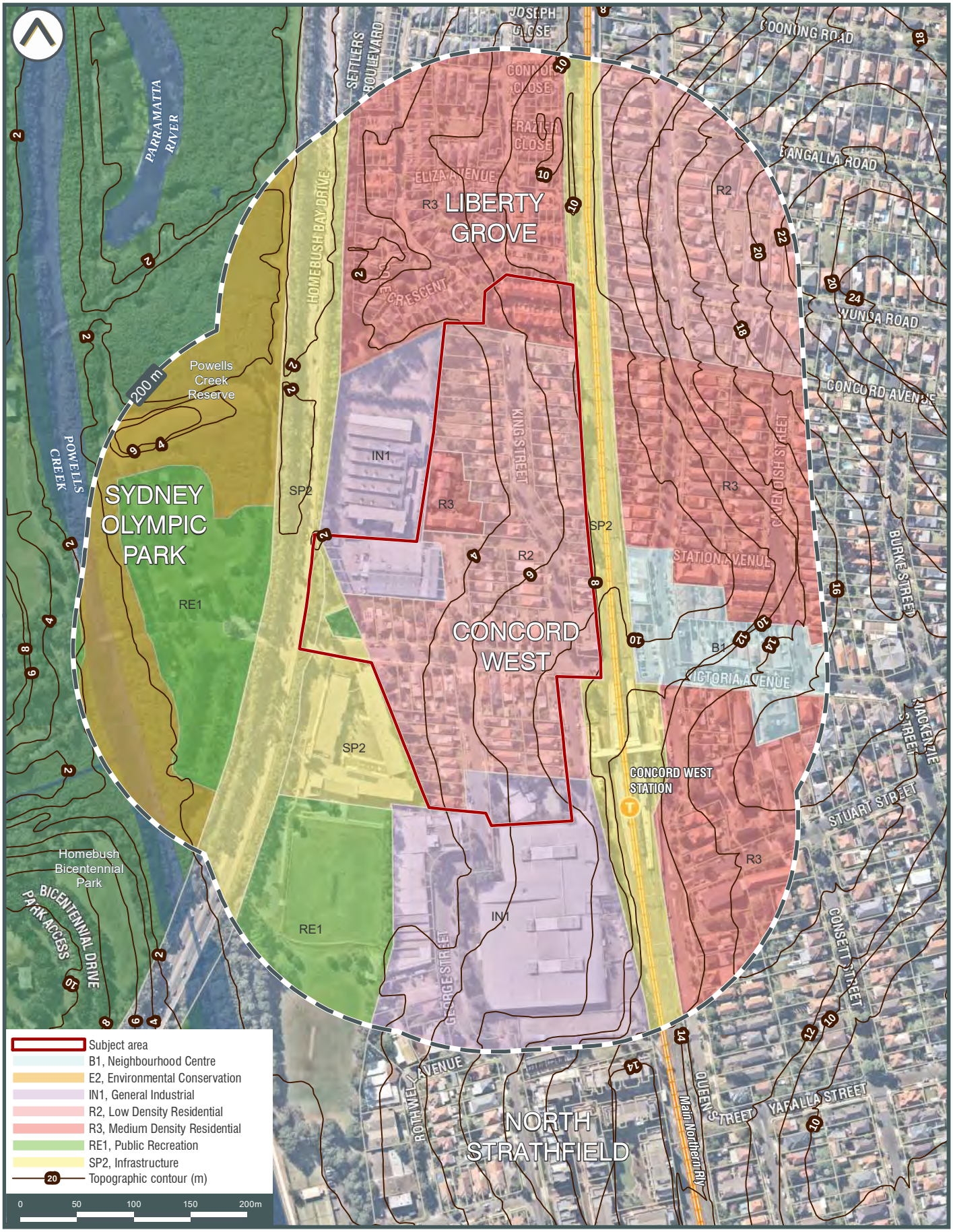
Report Maps



SUBJECT AREA AND SENSITIVE RECEPTORS

LAND INSIGHT & RESOURCES

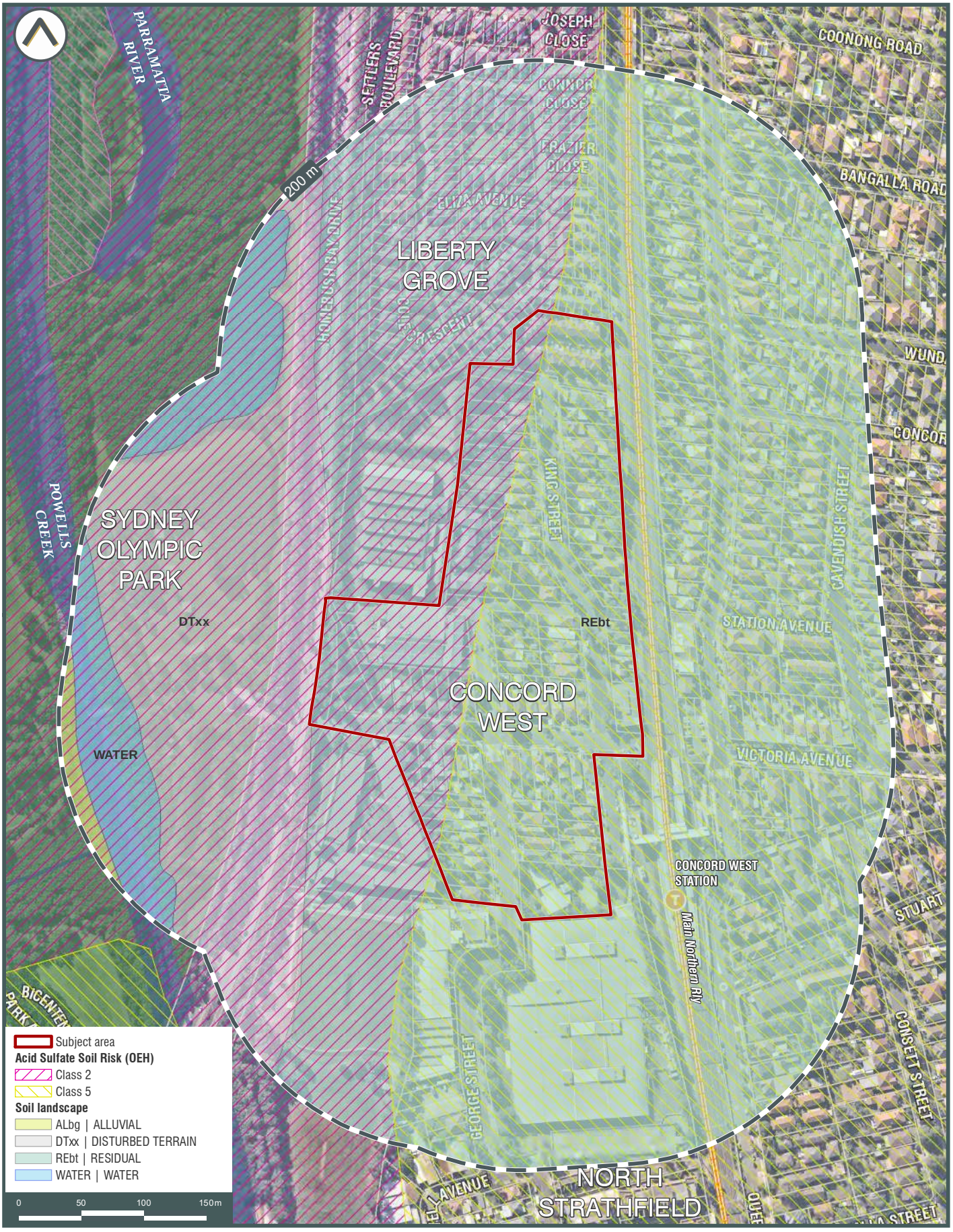
MAP 1



ZONING AND TOPOGRAPHY

LAND INSIGHT & RESOURCES

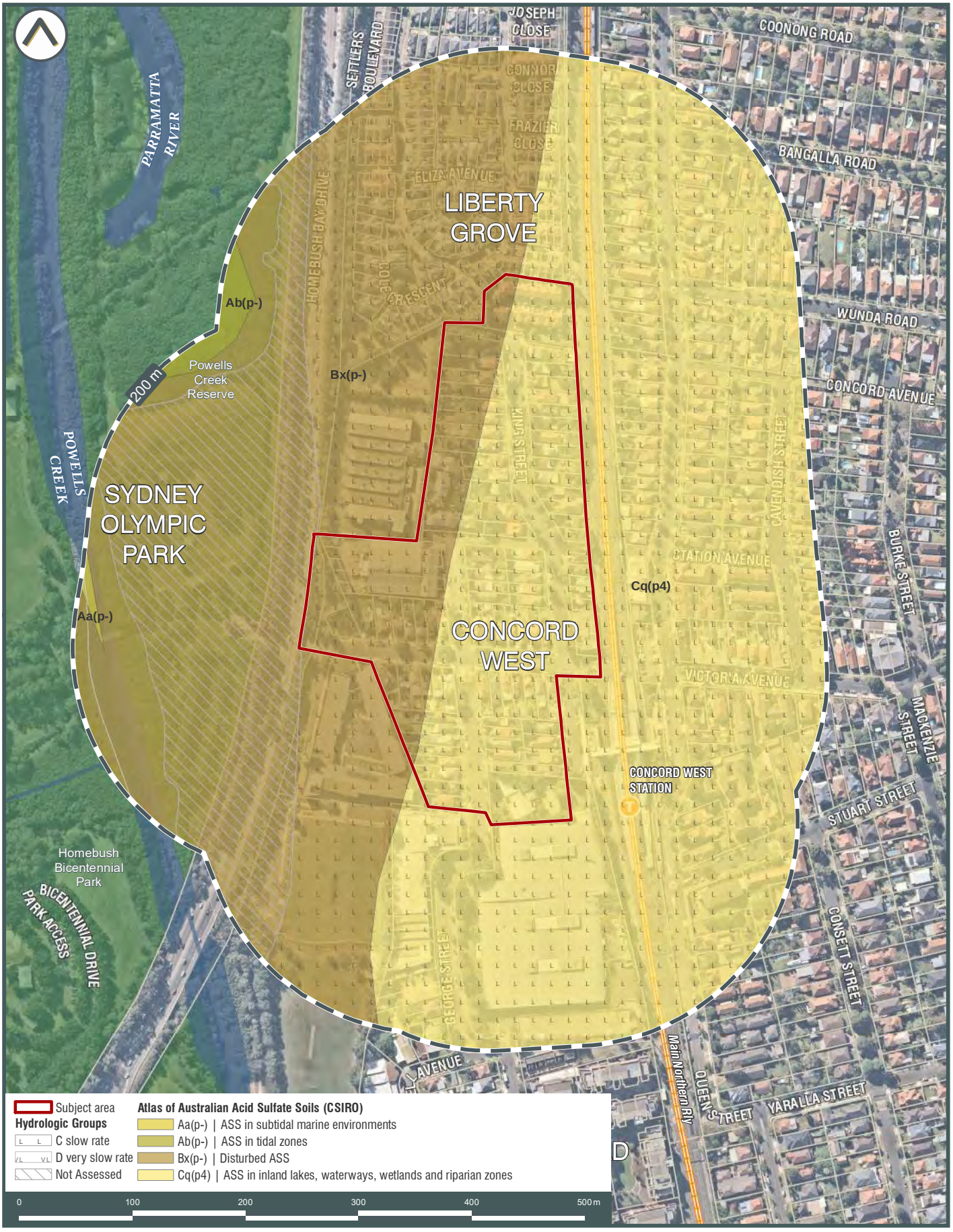
MAP 2



SOIL LANDSCAPES AND ACID SULFATE SOIL RISK

LAND INSIGHT & RESOURCES

MAP 3a



ATLAS OF AUSTRALIAN ACID SULFATE SOILS AND SALINITY

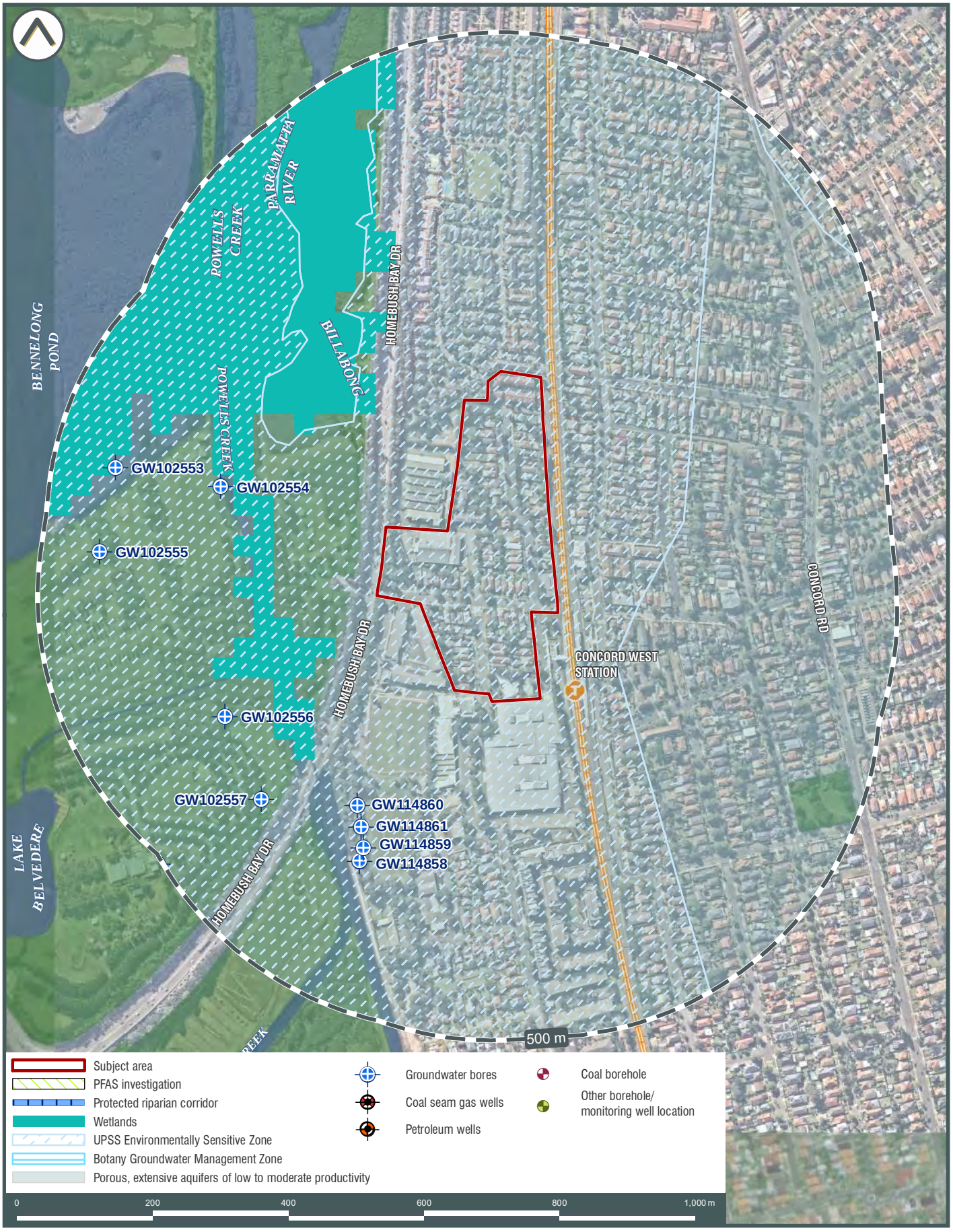
LAND INSIGHT & RESOURCES

MAP 3b

GEOLOGY

LAND INSIGHT & RESOURCES

MAP 4



HYDROGEOLOGY, GROUNDWATER BORE AND COAL SEAM GAS WELL LOCATIONS

LAND INSIGHT & RESOURCES

MAP 5

EPA RECORDS, SITES NOTIFIED, FORMER GASWORKS SITES & PFAS INVESTIGATION

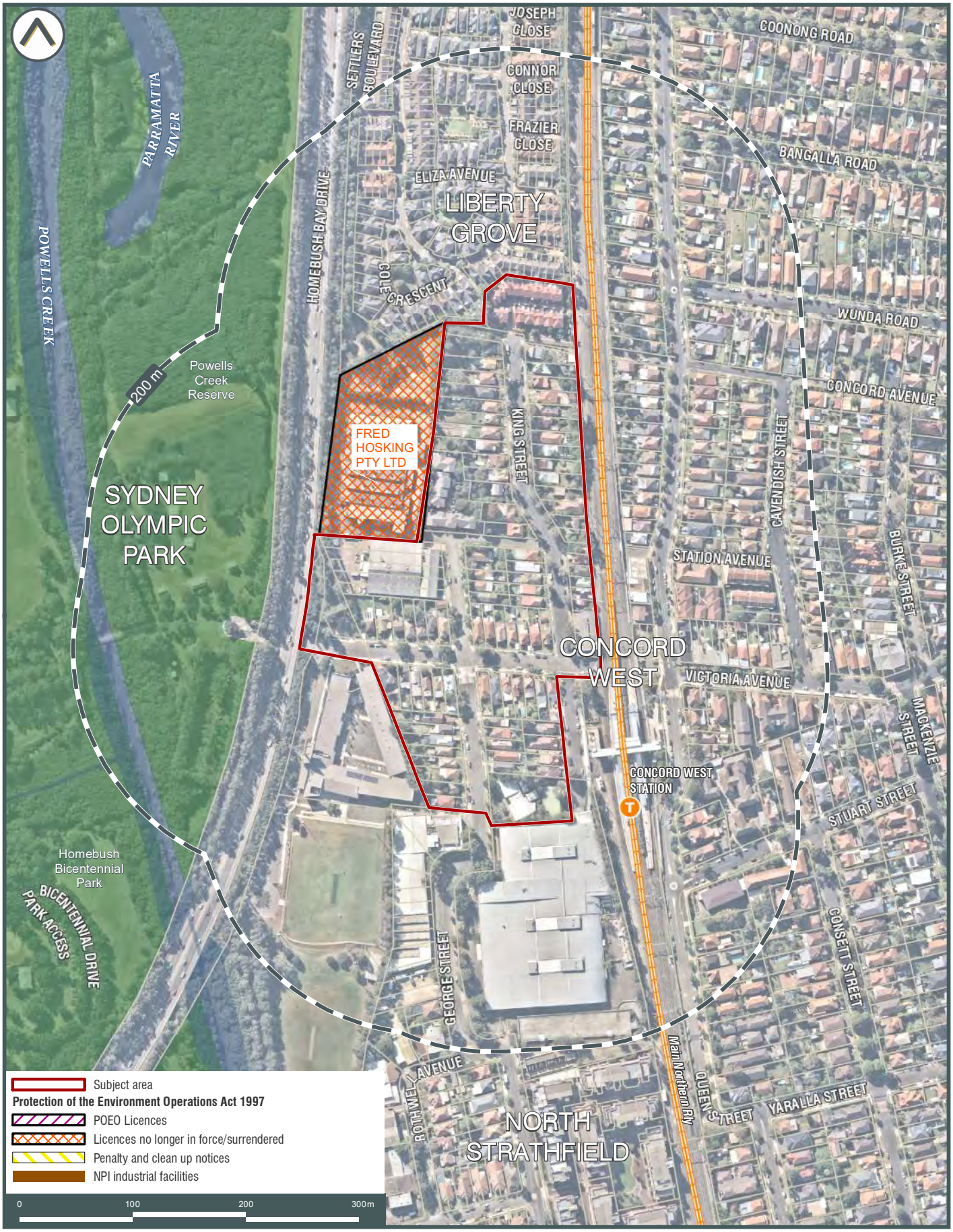
LAND INSIGHT & RESOURCES

MAP 6

POTENTIALLY CONTAMINATING ACTIVITIES

LAND INSIGHT & RESOURCES

MAP 7



LICENSING UNDER THE POEO ACT 1997 AND NPI FACILITIES

LAND INSIGHT & RESOURCES

MAP 8

HERITAGE

LAND INSIGHT & RESOURCES

MAP 9

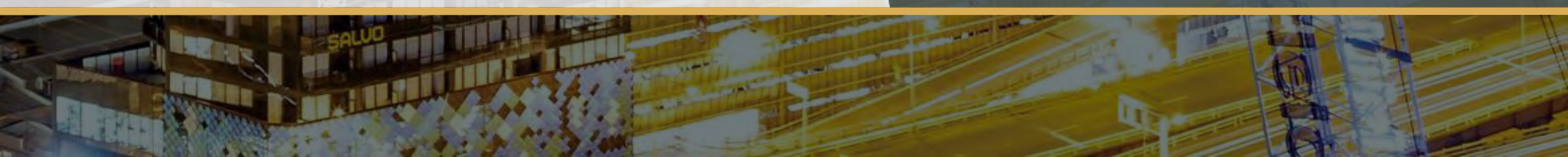
BUSHFIRE PRONE LAND

LAND INSIGHT & RESOURCES

MAP 10

ATTACHMENT B

Historical Imagery



LIR-00296 Aerial Photograph 1943 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1943

LAND INSIGHT & RESOURCES

MAP 11

LIR-00296 Aerial Photograph 1961 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1955

LAND INSIGHT & RESOURCES

MAP 12

LIR-00296 Aerial Photograph 1961 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1961

LAND INSIGHT & RESOURCES

MAP 13

LIR-00296 Aerial Photograph 1978 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1978

LAND INSIGHT & RESOURCES

MAP 14

LIR-00296 Aerial Photograph 1985 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1986

LAND INSIGHT & RESOURCES

MAP 15

LIR-00296 Aerial Photograph 1994 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1994

LAND INSIGHT & RESOURCES

MAP 16

LIR-00296 Aerial Photograph 1998 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1998

LAND INSIGHT & RESOURCES

MAP 17

LIR-00296 Aerial Photograph 2004 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2004

LAND INSIGHT & RESOURCES

MAP 18

LIR-00296 Aerial Photograph 2010 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2010

LAND INSIGHT & RESOURCES

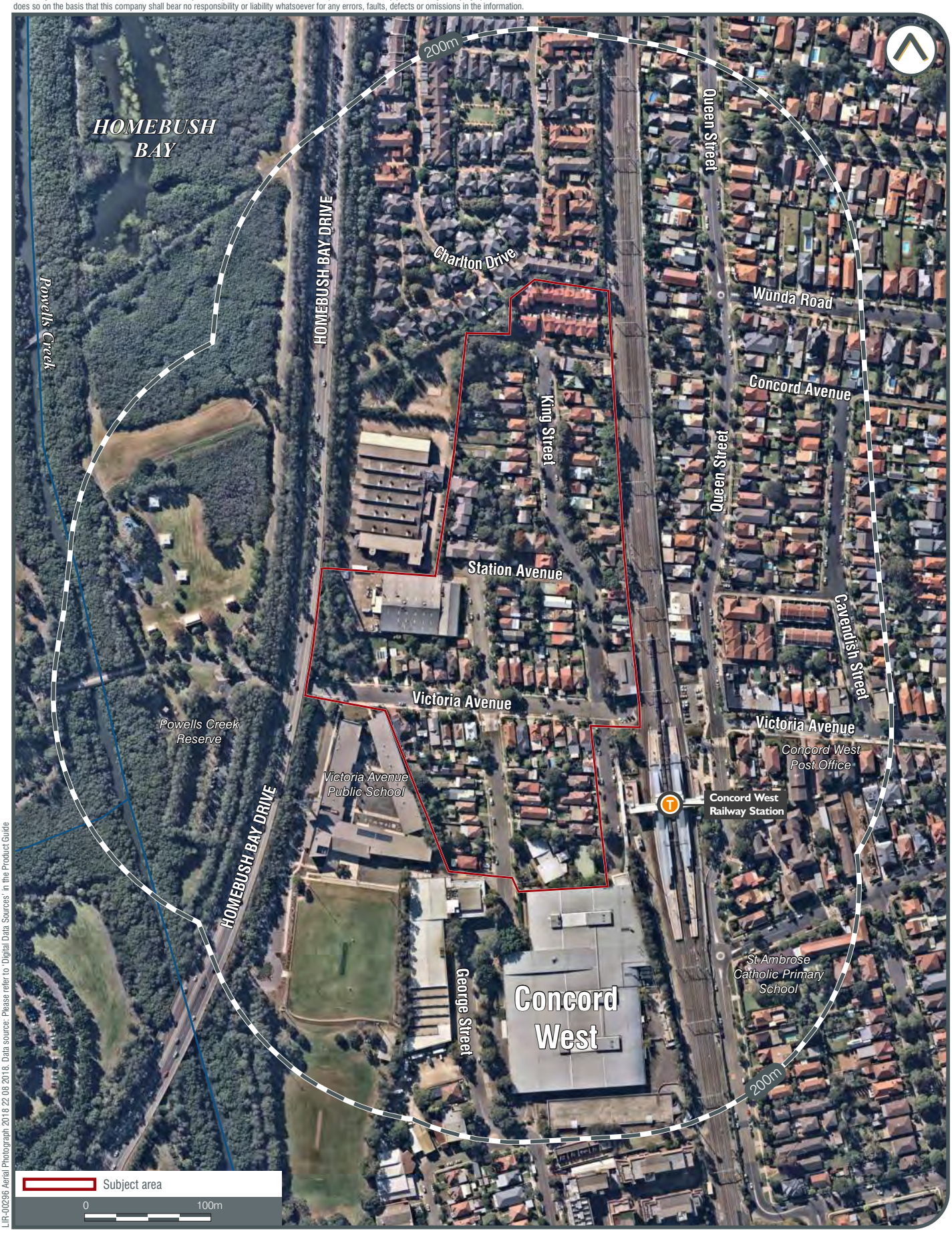
MAP 19

LIR-00296 Aerial Photograph 2014 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2014

LAND INSIGHT & RESOURCES

MAP 20

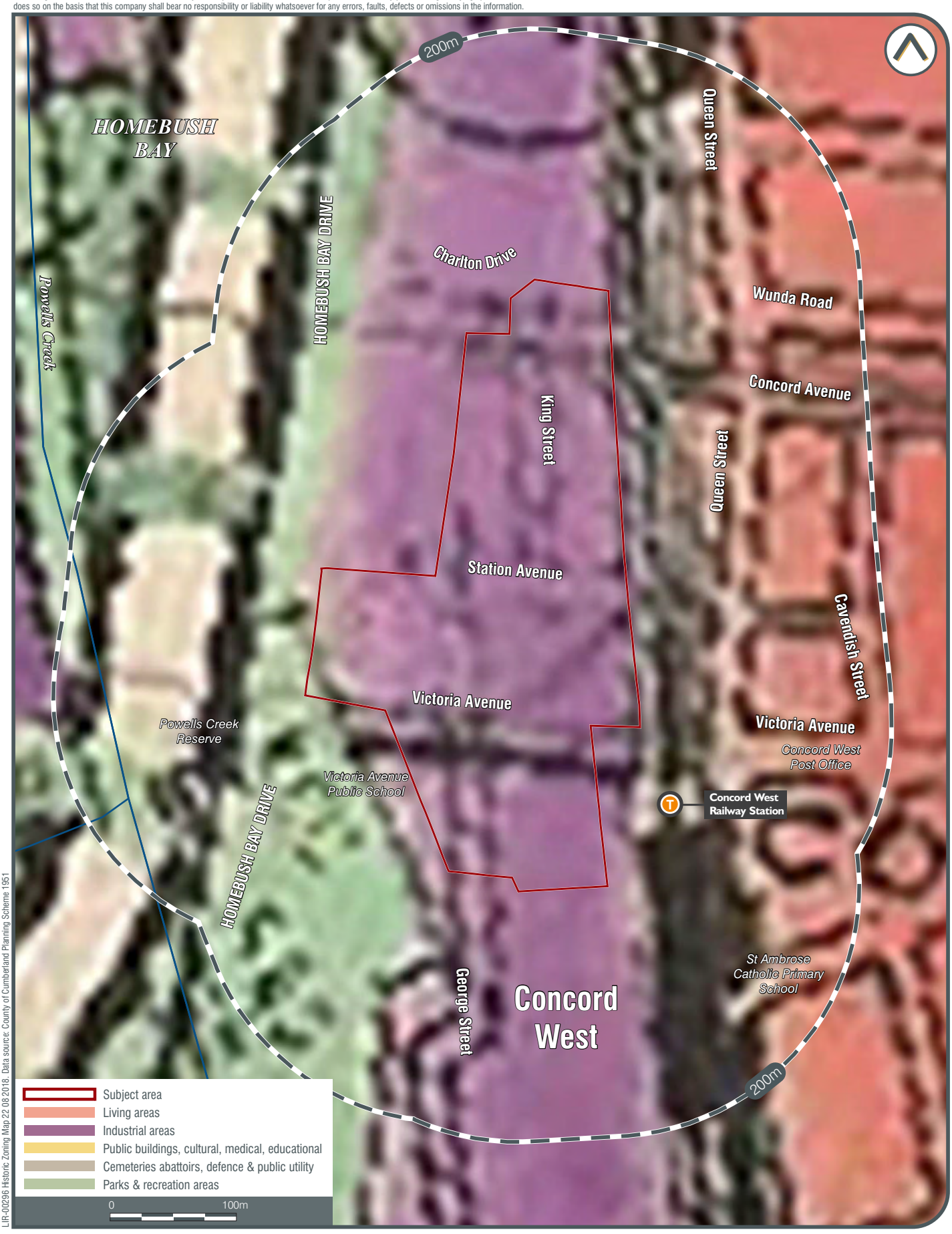


LIR-00296 Aerial Photograph 2018 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2018

LAND INSIGHT & RESOURCES

MAP 21

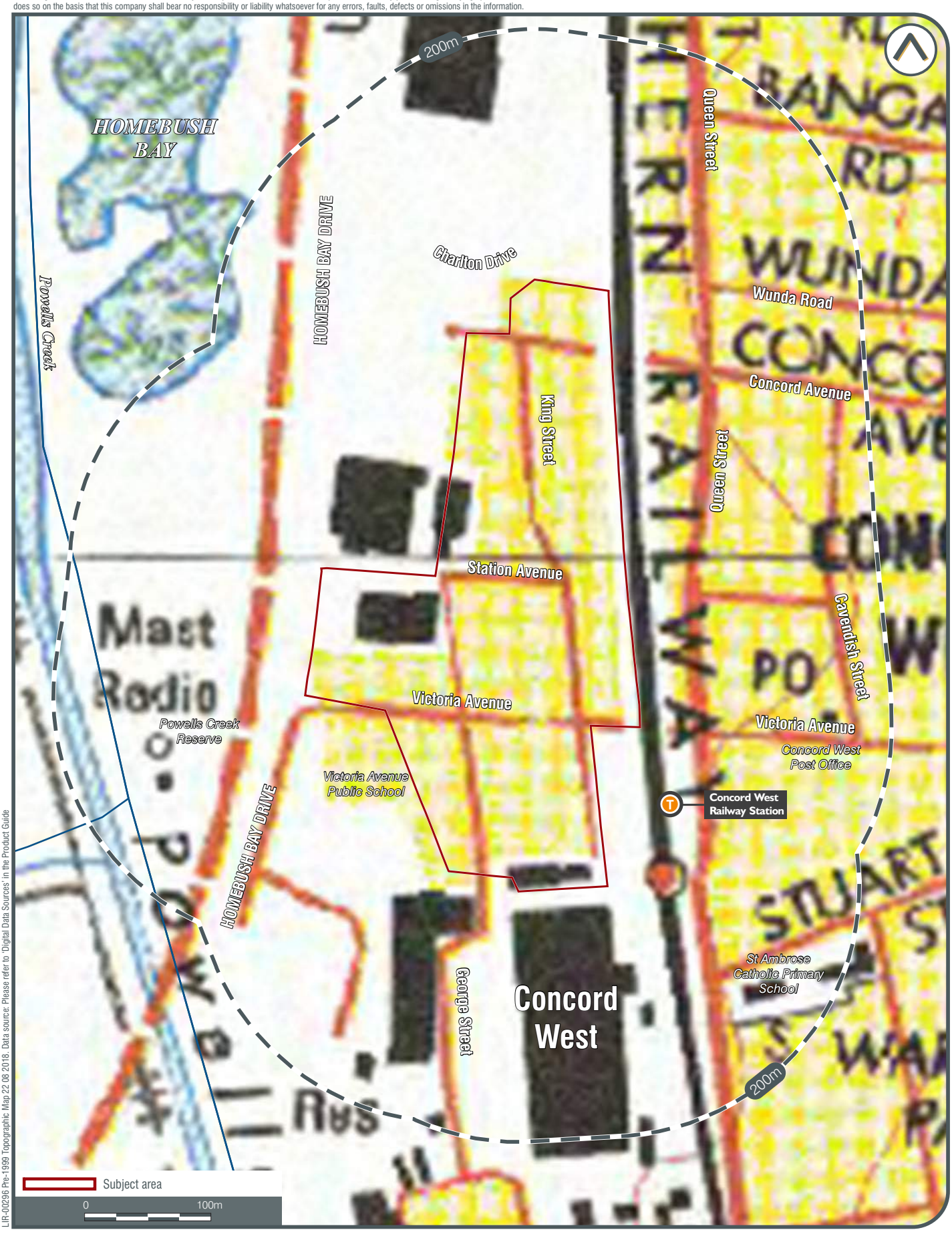


LIR-00296 Historic Zoning Map 22 08 2018. Data source: County of Cumberland Planning Scheme 1951

HISTORIC ZONING MAP 1951

LAND INSIGHT & RESOURCES

MAP 22

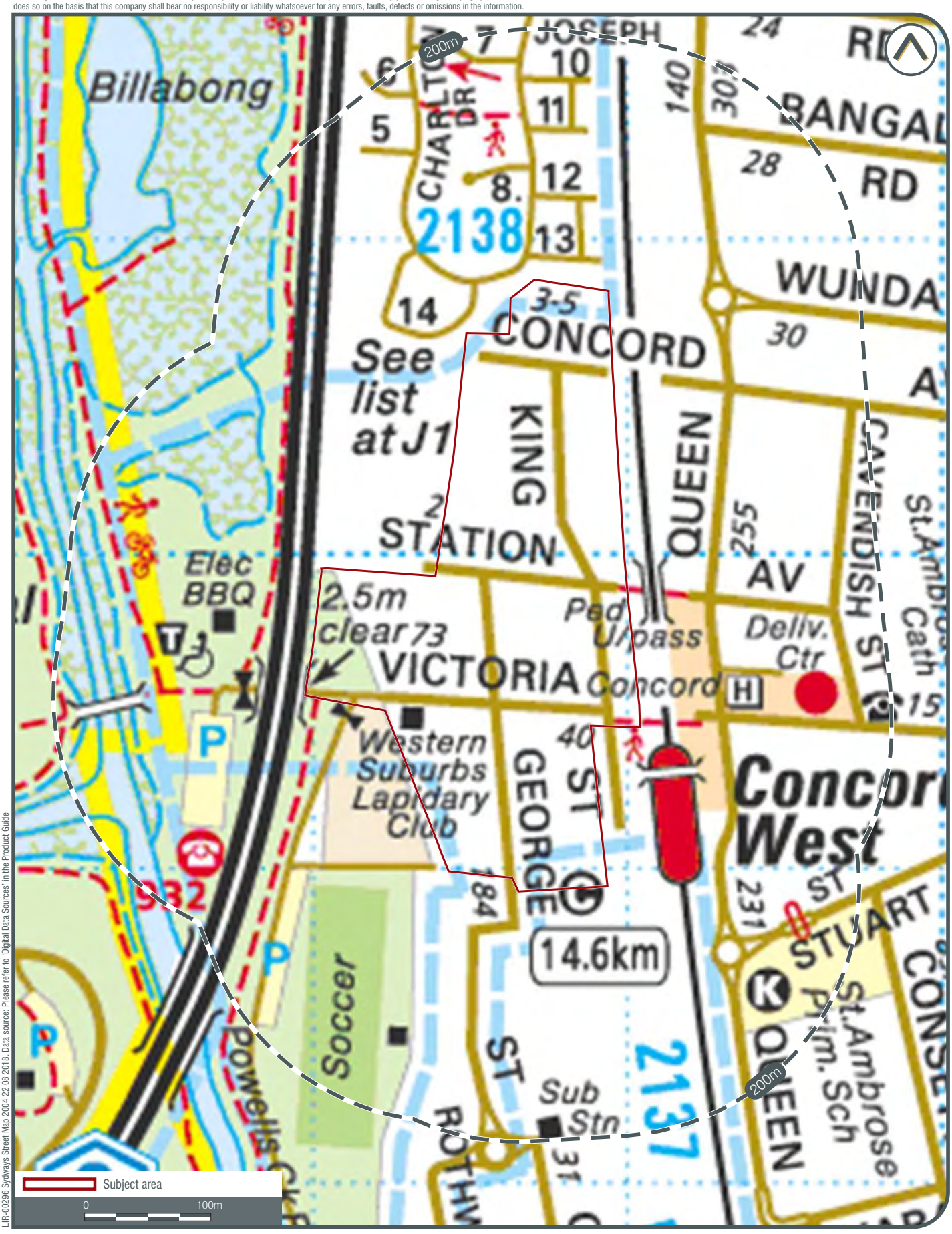


LIR-00296 Pre-1999 Topographic Map 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

PRE-1999 TOPOGRAPHIC MAP

LAND INSIGHT & RESOURCES

MAP 23



LIR-00296 Sydways Street Map 2004 22 08 2018. Data source: Please refer to 'Digital Data Sources' in the Product Guide

SYDWAYS STREET MAP 2004

LAND INSIGHT & RESOURCES

MAP 24

ENVIRO-SCREEN

Property Details

Concord West Planning Precinct

Concord West, NSW

Search Date: 22 August 2018

Understanding your Report

Your Report has been produced by Land Insight and Resources (LI Resources).

Your Report is based on information available from public databases and sources at the date of reporting. The information gathered relates to land that is within a 500 m radius (buffer zone) from the boundaries of the Property. A smaller or larger radius may be applied for certain records (as listed under records and as shown in report maps).

While every effort is made to ensure the details in your Report are correct, LI Resources cannot guarantee the accuracy or completeness of the information or data provided.

The report provided by LI Resources includes data listed on page 3 (table of contents). All sources of data and definitions are provided on the report maps and as listed in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact LI Resources at info@liresources.com.au.

The report does not include historical or aerial photographs; title searches; dangerous good searches or; Section 10.7 (2) & (5) Certificates (unless requested); or information derived from a physical inspection, such as hazardous building materials, areas of infilling or dumping/spilling of potentially contaminated materials. It is important to note that these documents and an inspection can contain information relevant to contamination that may not be identified by this Report.

This Report, and your use of it, is regulated by LI Resources Terms and Conditions (See LIR Product Guide).

Land Insight and Resources

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https://liresources.com.au/

INDEX

ATTACHMENTS
Attachment A - Report Maps
Attachment B - Historical Imagery
LIR Product Guide and Terms and Conditions

Section 1 Environmental Records Summary – Property Setting

1.1 SITE LOCATION MAP AND SENSITIVE RECEPTORS (200m Buffer)

Sensitive receptor	Category	Distance (m)*	Direction
Only About Children Concord	Child Care Centre	0.00	onsite
Early Childhood Health Centres	Child Health Care Centre	8.00	west
Victoria Avenue Children's Centre	Child Care Centre	10.23	west
Victoria Avenue Public School	Primary School	40.12	west
Lilly's Cottage	Kindergarten	0.00	south
Powells Creek Reserve	Park	94.50	west
St Ambrose Catholic Primary School	Primary School	147.01	south-east
Soccer Fields	Sports Field	168.28	south-west
C3 Education Group Inner West Tutoring	Tutoring Service	189.31	east

*Distance from the sensitive receptor point feature to the site boundary centroid.

1.2 LEP ZONING (200m Buffer)

LEP Zoning	IN1	General Industrial
	R2	Low Density Residential
	R3	Medium Density Residential
	R3	Medium Density Residential
	RE1	Public Recreation
	SP2	Infrastructure
Topography	2-8mAHD	

1.3 SOIL LANDSCAPE (On-site))

Soil Landscape	REbt - BLACKTOWN	**Type**	RESIDUAL
Description	Landscape- gently undulating rises on Wianamatta Group shales and Hawkesbury shale. Local relief to 30 m, slopes are usually <5%. Broad rounded crests and ridges with gently inclined slopes. Cleared eucalypt woodland and tall open-forest (wet sclerophyll forests). Soils-shallow to moderately deep (<100 cm) Red and Brown Podzolic Soils (Dr3.21, Dr3.11, Db2.11) on crests, upper slopes and well-drained areas; deep (150-300 cm) Yellow Podzolic Soils and Soloths (Dy2.11, Dy3.11) on lower slopes and in areas of poor drainage. Limitations- moderately reactive highly plastic subsoil, low soil fertility, poor soil drainage.		

1.4 ACID SULFATE SOIL (OEH 2011) (On-site)

Acid Sulfate Soil Risk Maps (ASS) *(Table 1.5.1)*	Class 2 and Class 5

1.5 ATLAS OF AUSTRALIAN ACID SULFATE SOIL AND SALINITY (On-site))

ASRIS Atlas of Australian Sulfate Soils *(Table 1.5.2)*	Bx(p-)	Disturbed ASS	**Probability of Occurrence**	Low Probability of occurrence
	Cq(p4)	ASS in inland lakes, waterways, wetlands and riparian zones		Extremely low probability of occurrence

Salinity Potential / Hydrogeological landscape	C slow rate Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

Table 1.5.1. Classification scheme in the ASS Planning Maps

Class of Land as shown on ASS Planning Maps	
1	Any works
2	Works below natural ground surface Works by which the watertable is likely to be lowered
3	Works beyond 1m below natural ground surface Works by which the watertable is likely to be lowered beyond 1m below natural ground surface
4	Works beyond 2m below natural ground surface Works by which the watertable is likely to be lowered beyond 2m below natural ground surface
5	Works within 500m of adjacent Class 1, 2, 3, or 4 land which are likely to lower the watertable below 1m AHD on adjacent Class 1, 2, 3 or 4 land.

For each class of land, the maps identify the type of works likely to present an environmental risk if undertaken in the particular class of land. If these types of works are proposed, further investigation is required to determine if ASS are actually present and whether they are present in such concentrations as to pose a risk to the environment.

Table 1.5.2. Australian Atlas of Acid Sulfate Soils[1] (ASS) map (CSIRO/NatCASS)

Code	Distinguishing soil/sediment properties, vegetation, landforms, or other characteristics
Probability of Occurrence of ASS[1]	
A	**High Probability of occurrence -** (>70% chance of occurrence in mapping unit)
B	**Low Probability of occurrence** - (6-70% chance of occurrence in mapping unit)
C	**Extremely low probability of occurrence** - (1-5% chance of occurrence in mapping unit)
D	**No probability of occurrence** - (<1% chance of occurrence in mapping unit)
x	**Disturbed ASS[1] terrain -** (ASS[1] material present below urban development).
u	**Unclassified** - (Insufficient information to classify map unit)
Zones	
a	Potential acid sulfate soil material and/or Monosulfidic Black Ooze (MBO).
b, c	Potential acid sulfate soil generally within upper 1 m.
c, d, e	ASS[1] generally within upper 1 m.
f	ASS[1] generally below 1 m from the surface
g	ASS[1], generally below 3 m from the surface.
h	ASS[1] generally within 1 m of the surface.
i, j	ASS[1] generally below 1 m of the surface.
k	ASS[1] material and/or Monosulfidic Black Ooze (MBO).
l, m, n, o, p, q	ASS[1] generally within upper 1 m in wet / riparian areas.
Subscripts to codes	
(a)	Actual acid sulfate soil (AASS) = sulfuric material.
(p)	Potential acid sulfate soil (PASS) = sulfidic material.
(q)	Monosulfidic Black Ooze (MBO) is organic ooze enriched by iron monosulfides.
Confidence levels	
(1)	All necessary analytical and morphological data are available
(2)	Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence
(3)	No necessary analytical data are available, but confidence is fair, based on a knowledge of similar soils in similar environments
(4)	No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional

[1]Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics (Pons 1973). Acid sulfate soil (ASS) may include PASS or AASS + PASS. Potential acid sulfate soil (PASS) = sulfidic material. Actual acid sulfate soil (AASS) = sulfuric material.

1.6 GEOLOGY (On-site)

Map Sheet	Symbol	Formation	Group	Era	Period	Description
Sydney 1:100,000 Geological Map	Rwa	Ashfield Shale	Wianamatta Group	Mesozoic	Triassic	Black to dark grey shale and laminite

1.7 COAL SEAM GAS (CSG), PETROLEUM WELLS AND OTHER BOREHOLES (500m buffer)

	On the Property?	Within Record Search Buffer?
CSG	Not identified	Not identified
Coal	Not identified	Not identified
Petroleum	Not identified	Not identified
Other	Not identified	Not identified

1.8 HYDROGEOLOGY (500m buffer)

	On the Property?	Within Record Search Buffer?
Aquifer Type	Porous, extensive aquifers of low to moderate productivity	Porous, extensive aquifers of low to moderate productivity
Wetlands	Not identified	Yes
Groundwater Bores	Not identified	Yes, see 1.8.1

Table 1.8.1. Groundwater Bore Details

Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL[1] (m)	Salinity[1]	Yield[1] (L/s)	Distance (m)	Direction
GW114860	n/a	-	-	-	-	-	-	221.8	south-west
GW114861	n/a	-	-	-	-	-	-	243.8	south-west
GW102554	Monitoring	01-Jan-96	4		1.83			250.4	west
GW114859	n/a	-	-	-	-	-	-	268	south-west
GW102556	Monitoring	01-Jan-96	4	-	1.83	-	-	286.7	south-west
GW114858	n/a	-	-	-	-	-	-	287.9	south-west

Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL[1] (m)	Salinity[1]	Yield[1] (L/s)	Distance (m)	Direction
GW102557	Monitoring	01-Jan-96	4	-	-	-	-	326.8	south-west
GW102553	Monitoring	01-Jan-96	4	-	1.83	-	-	407.5	west
GW102555	Monitoring	01-Jan-96	4	-	1.83	-	-	413.5	west

[1]The most recent data available from NSW Department of Industry – Lands & Water Division is shown in Table 1.8.1.

Table 1.8.2. Groundwater Bore Driller Lithology Details

Groundwater Bore ID	From Depth (m)	To Depth (m)	Lithology	Description	Distance (m)	Direction
Not identified						

Table 1.8.3. Other known borehole investigations

Borehole ID	Project	Client/License	Date Drilled	Depth (m)	Distance (m)	Direction
Not identified						

1.9 GROUNDWATER EXCLUSION ZONES (1km buffer)

	On the Property?	Within Record Search Buffer?
Botany Groundwater Management Zones[1]	Not identified	Not identified

1. Zone 1 – the use of groundwater remains banned; Zones 2 to 4 – domestic groundwater use is banned, especially for drinking water, watering gardens, washing windows and cars, bathing, or to fill swimming pools.

1.10 UNDERGROUND PETROLEUM STORAGE SYSTEM (UPSS) SENSITIVITY (1km buffer)

	On the Property?	Within Record Search Buffer?
UPSS Environmentally sensitive zone	Yes	Yes

Section 2 Environmental Records Summary – Contamination and Potentially Contaminating Activities

2.1 PFAS INVESTIGATION PROGRAM (200m buffer)

Site	Address	Distance (m)	Direction
Not identified			

2.2 CONTAMINATED LAND RECORD OF NOTICES ISSUED UNDER THE CLM ACT 1997 (200m buffer)

Site Name[2]	Site ID	Address[1]	Notices	Distance (m)	Direction
Bicentennial Park	3032	Bicentennial DRIVE SYDNEY OLYMPIC PARK NSW	1 current and 2 former	~45	west
Homebush Bay General Area	3033	Homebush Bay HOMEBUSH NSW	2 former	~45	west

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.
2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.

2.3 SITES NOTIFIED AS CONTAMINATED TO THE NSW EPA (200m buffer)

Site Name[2]	Site ID	Address[1]	Activity that caused Contamination	EPA Site Management Class[3]	Distance (m)	Direction
Bicentennial Park	1407	Bicentennial DRIVE	Landfill	Ongoing maintenance required to manage residual contamination (CLM Act)	~45	west

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.

2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.

3. The EPA maintains a record of sites that have been notified to the EPA by owners or occupiers as contaminated land. The sites notified to the EPA and recorded on the register are at various stages of the assessment and/or remediation process. Table 5 outlines the possible management status that can be attributed to a registered contaminated site.

Table 2.3.1. EPA Site Management Class Explanation

EPA Site Management Class	
Under Assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Contamination currently regulated under the CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.

EPA Site Management Class	
Contamination currently regulated under the POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

2.4 OTHER EPA CONTAMINATION ISSUES (200m buffer)

Former Gasworks Sites

Site	Location	Distance (m)	Direction
Not identified			

James Hardie Asbestos Waste Contamination Legacy

Site	Location	Type	Distance (m)	Direction
Not identified				

Former Uranium Processing Site at Hunters Hill (NSW)

Site	Location	Distance (m)	Direction
Not identified			

2.5 AVIATION FUEL DEPOTS/TERMINALS (200m buffer)

Site name	Description	Status	Distance (m)	Direction
Not identified				

2.6 AVIATION RESCUE FIRE FIGHTING FACILITIES (ARFF) (200m buffer)

Site name	Class	Status	Distance (m)	Direction
Not identified				

2.7 DERELICT MINES AND QUARRIES (200m buffer)

Deposit Name	Method	Description	Status	Distance (m)	Direction
Not identified					

2.8 DRY CLEANERS (200m buffer)

Site name	Location	Status	Distance (m)	Direction
Koala Laundry	249-251 Queen St, Concord West NSW 2138	Operational	76.3	east

2.9 LIQUID FUEL DEPOTS/TERMINALS (200m buffer)

Site name	Owner	Location	Status	Distance (m)	Direction
Not identified					

2.10 MILITARY FACILITIES (200m buffer)

Site name	Defence code	Distance (m)	Direction
Not identified			

2.11 POWER STATIONS (200m buffer)

Site name	Owner	Primary Fuel Type	Status	Distance (m)	Direction
Not identified					

2.12 SERVICE STATIONS (200m buffer)

Site name	Owner	Location	Status	Distance (m)	Direction
Not identified					

2.13 SUBSTATION LOCATIONS (200m buffer)

Site name	Owner	Location	Status	Distance (m)	Direction
Not identified					

2.14 TELEPHONE EXCHANGES (200m buffer)

Site name	Location	Status	Distance (m)	Direction
Not identified				

2.15 WASTE MANAGEMENT FACILITIES (200m buffer)

Site name	Owner	Class	Status	Distance (m)	Direction
Not identified					

2.16 WASTEWATER TREATMENT FACILITIES (200m buffer)

Site name	Operator	Class	Status	Distance (m)	Direction
Not identified					

2.17 UNEXPLODED ORDNANCE (UXO) SITES DEPARTMENT OF DEFENCE (DoD) (200m buffer)

Site name	Site ID	Description	Distance (m)	Direction
Not identified				

2.18 OTHER POTENTIALLY CONTAMINATED SITES (200m buffer)

Other Potentially Contaminated Sites

Site name	Category	Location	Distance (m)	Direction
Circle C Transformers	Electric Utility	3 King St, Concord West NSW 2138	0.00	onsite

AJ Glass & Aluminium Pty Ltd	Manufacturer	3 King St, Concord West NSW 2138	0.00	onsite
Civardi Furniture	Manufacturer	202-210 George St, Concord West NSW 2138	0.00	onsite
Firmstone Flooring Specialists Pty Ltd	Flooring Contractor	212 George St, (Corner George and Station Ave) Concord West NSW 2138	20	west

Historical (Legacy) Landfills

Site	Location	Distance (m)	Direction
Not identified			

Note: This is not an exhaustive list of all legacy landfills in NSW

Parramatta River Catchment Land Use Areas – Zoning Changes

Land Use 1943	Land Use 2005	Distance (m)	Direction
Industrial	Residential	0.00	Onsite and north

Parramatta River Catchment Land Use Areas – Reclamation Areas

	On the Property?	Within Record Search Buffer?
Reclamation Area	Not identified	Yes

*Many areas of Parramatta river have been reclaimed, often being used as rubbish dumps.

2.19 LICENSING UNDER THE POEO ACT 1997 (200m buffer)

Licences

EPL Number	Licence holder	Location Name	Premise Address	Fee Based Activity	Distance (m)	Direction
	Not identified					

Delicensed Premises still Regulated by EPA, Licences Surrendered, Clean Up and Penalty Notices

Licence Number	Licence holder	Name	Premise Address	Fee Based Activity	Status	Distance (m)	Direction
6839	Fred Hosking Pty Ltd	Fred Hosking Pty Ltd	Station Ave Concord West	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force	0.00	west

2.20 NPI INDUSTRIAL FACILITIES (200m buffer)

Facility name	Address	Primary ANZSIC Class	Date Range	Distance (m)	Direction
Not identified					

2.21 PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION (On-site)

Address	Match Found
Not identified	

1932 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Motor Cars, Lorries & Garages	Williams MS	28 Victoria Avenue, Concord West	Address	134m	East

* If no distance is provided, address no longer exists.

1940 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Oils - Lubricating	Oil Reclaiming Works	King Street, Concord	Address	On Site	
French Polishers	Wigins A L	112 Queen Street, Concord	Address	30m	East
Grocers - Retail	Perkins S	86 Queen Street, Concord	Address	35m	East
Fruiterers & Greengrocers	Henson A E	26 Victoria Avenue, Concord	Address	134m	East
Engineers - General	Westinghouse Brake (A/sia) Pty Ltd	George Street, Concord	Street		
Engines - Internal Combustion Marine & Stationary	McKAY H V MASSEY HARRIS PTY LTD	George Street, Concord	Street		
Machinery - Agricultural	McKAY H V MASSEY HARRIS PTY LTD	George Street, Concord	Street		
Machinery - Agricultural	Shearer David Ltd	George Street, Concord	Street		
Machinery - Agricultural	Shearer John&Sons (Vic) Pty Ltd	George Street, Concord	Street		
Machinery - General	Interstate Replacement Co	George Street, Concord	Street		
Produce Merchants - Wholesale	N.S.W. Produce Co	Concord Avenue, Concord	Street		

* If no distance is provided, address no longer exists.

1950 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Builders & Contractors	Ryan CJ&Thompson DT	11 King, Concord West	Address	On Site	
Motor Mechanics	Sheedy F A	35 King Street, Concord West	Address	On Site	
Tallow Merchants	Oil Reclaiming Works (Paul Heiniger)	King Street, Concord West	Street	On Site	

Oil Merchants & Mfrs.	Oil Reclaiming Works	King Street, Concord West	Street	On Site	
Oil Reconditioners	Oil Reclaiming Works	King Street, Concord West	Street	On Site	
Oil - Essential	Oil Reclaiming Works Paul Heiniger	King Street, Concord West	Street	On Site	
Oils-Lubricating	Oil Reclaiming Works Paul Heiniger	King Street, Concord West	Street	On Site	
Eucalyptus Oil Distillers	Oil Reclaiming Works (Paul Heiniger)	King Street, Concord West	Street	On Site	
Excavators	Constructors (Engineering & Industrial) Ltd	Concord Avenue & King Street, Concord West	Street	On Site	
Concrete	Constructors (Engineering & Industrial) Ltd	Concord Avenue & King Street, Concord West	Street	On Site	
Dry Cleaners and Dyers	Gordon S & Co	245a Queen, Concord West	Address	110m	East
Carriers-Light	Patching G T	20 Cavendish, Concord West	Address	122m	East
Silverware Mfrs. &/or W'salers	Burns J T	24 Victoria Avenue, Concord West	Address	134m	East
Lampshade Mfrs.	Barton Staggs&Co	30 Victoria Avenue, Concord West	Address	149m	East
Furniture - Mfrs. &/or W'salers	Barton Staggs&Co	30 Victoria Avenue, Concord West	Address	149m	East
Furniture - Mfrs. &/or W'salers	Staggs Barton&Ca	30 Victoria Avenue, Concord West	Address	149m	East
Plywoods	Barton Staggs & Co	30 Victoria Avenue, Concord West	Address	149m	East
Painters, Decorators & Glaziers	Clark & Cutmore	174 George Street, Concord West	Address	165m	South
Engineers - General	Watts H C	15 Stuart Street, West Concord	Address	178m	East
Machinery - Agricultural	McKay H V Massey Harris Pty Ltd	George Street, Concord West	Street		
Machinery - Agricultural	Mitchell-Shearer Farm Machinery Pty Ltd	George Street, Concord West	Street		
Air Equipment	Westinghouse Brake (A/sia) Pty Ltd	George Street, Concord West	Street		
Tractors	McKay H V Massey Harris Pty Ltd	George Street, Concord West	Street		
Tractors	Mitchell -Shearer Farm Machinery Pty Ltd	George Street, Concord West	Street		
Engineers - General	Westinghouse Brake (A/sia) Ltd	George Street, Concord West	Street		
Engines - Internal Combustion, Marine & Stationary	McKay H V Massey Harris Pty Ltd	George Street, Concord West	Street		
Taxis	Concord West Taxi Rank	Railway Station, Concord West	Street		

Machinery - Agricultural	International Harvester Co of Aust Pty Ltd	Concord West	Street		

* If no distance is provided, address no longer exists.

1965 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Currently being Compiled					

* If no distance is provided, address no longer exists.

1970 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
CHEMICAL CLOSET MFRS.	Australian Septic Closets Pty. Ltd.,	47 King St., Concord West	Address	On Site	
DRY CLEANERS, PRESSERS/ DYERS	Rosemark Dry Cleaners,	200 George St., Concord West	Address	On site	
LAUNDRIES &/OR LAUNDRETTES	P.L.S. INDUSTRIAL LAUNDERERS	200 George St., Concord	Address	On site	
OILS—ESSENTIAL—MERCH.	Abel, Lemon & Co. Pty. Ltd.,	204 George St., Concord West	Address	On site	
FOUNDRY SUPPLIES—MACHINERY—IMPORTERS/DISTRIBUTORS	Abel, Lemon & Co. Pty. Ltd.,	204 George St., Concord West	Address	On site	
FOUNDRY SUPPLIES—METALS	Abel, Lemon & Co. Pty. Ltd.,	204 George St., Concord West	Address	On site	
ELECTRICAL SWITCHBOARD MANUFACTURERS	Cadwallader, E. T.,	3 King St., Concord West	Address	On Site	
ENGINEERS—ELECTRICAL	Cadwallader Engineering Pty. Ltd.,	3 King St., Concord West	Address	On Site	
LAUNDRY MACHINERY & EQUIPMENT MFRS. &/OR DISTS.	McKinnon Nicholls Pty. Ltd.,	3 King St., Concord West	Address	On Site	
MANUFACTURERS' AGENTS	McKinnon, NIcholls Pty. Ltd.,	3 King St., Concord West	Address	On Site	
TRANSFORMER MFRS.	Cadwallader Engineering Pty. Ltd.,	3 King St., Concord West	Address	On Site	
MOTOR GARAGES/ENGINEERS CONCORD WEST	Pont Auto Service,	40 Victoria Ave., Concord West	Address	On Site	
MOTOR PAINTERS	Pont Auto Service,	40 Victoria Ave., Concord West	Address	On Site	
MOTOR PANEL BEATERS	Pont Auto Service,	40 Victoria Ave., Concord West	Address	On Site	
EARTH MOVING EQUIP. MFRS., IMPORTERS &/OR DISTS.	O'Donnell, F. T. S. Griffin&Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South

ELECTRIC CIRCUIT BREAKER MANUFACTURERS	O'Donnell, F. T. S. Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ELECTRIC MOTOR INSTALLATION/ MAINTENANCE SPECIALISTS	O'Donnell, F. T. S., Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ELECTRIC MOTOR WINDING/ REWINDING SPECIALISTS	O'Donnell, F. T. S., Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ELECTRIC MOTORS—REPAIRERS/ HIRERS	O'Donnell, F. T. S„ Griffin&Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ELECTRIC POWER PLANT ENGINEERS/ INSTALLERS	O'Donnell, F. T. S., Griffin&Co. Pty. Ltd,	184 George St., Concord West	Address	0m	South
ELECTRIC SWITCH & CONTROL GEAR MFRS. &/OR DISTS.	O'Donnell, F. T. S., Griffin&Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ELECTRICAL SWITCHBOARD MANUFACTURERS	O'Donnell, F. T. S., Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
ENGINEERS—ELECTRICAL	O'Donnell, F. T. S. Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
FIRE PROTECTION APPLIANCE MFRS. &/OR ENGINEERS	O'Donnell, F. T. S. Griffin & Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
FIRE PROTECTION APPLIANCE MFRS. &/OR ENGINEERS	Reichel Automatic Fire Alarm Co. of Australia,	184 George St., Concord West	Address	0m	South
RADIO &/OR TELEVISION SALES & SERVICEMEN (R090)	O'Donnell, F. T. S. Griffin&Co. Pty. Ltd.,	184 George St., Concord West	Address	0m	South
CHEMISTS—PHARMACEUTICAL	Railway Pharmacy,	74 Queen St., Concord West	Address	30m	East
CURTAIN MANUFACTURERS	Rorle, K.,	82-84 Queen St., Concord West	Address	35m	East
FURNITURE REPAIRERS/REMODELLERS	Rorie, K.,	82-84 Queen St., Concord West	Address	35m	East
ICE CREAM MFRS./DIST.	Iced Delights,	251 Queen St., Concord West	Address	70m	East
PACKAGING/PACKING SPEC.	Hall, I. D & Son Pty. Ltd.,	249 QueenSt., Concord West	Address	70m	East
PLASTIC FABRICATORS & VACUUM FORMERS	Hall, I. D. & Son Pty. Ltd.,	249 Queen St., Concord West	Address	70m	East
STOCK REMEDIES MANUFACTURERS &/OR DISTRIBUTORS	Hall, I. D. & Son Pty. Ltd.,	249 Queen St., Concord West	Address	70m	East
STOCK REMEDIES MANUFACTURERS &/OR DISTRIBUTORS	Yeh Pty. Ltd.	249 Queen St. Concord West	Address	70m	East
CYCLE DEALERS & ACCESSORIES	Fldge, W. H,	35 Victoria Ave, Concord West	Address	88m	East
ELECTRICAL SUPPLIES/APPLIANCES RETAILERS	Fidge, W. H.,	35 Victoria Ave., Concord West	Address	88m	East

TAXIS	Concord West Taxi Rank,	Railway Stn., Concord West	Street		
ENVELOPE MANUFACTURERS	Hosking, F. Pty. Ltd.,	Station Ave., Concord West	Street		
GREETING CARD MANUFACTURERS &/OR DISTRIBUTORS	Hosking, F. Pty. Ltd.,	Station Ave., Concord West	Street		
STATIONERS—MFRG.	Hosking, F. Pty. Ltd.,	Station Ave., Concord West	Street		
AGRICULTURAL MACHINERY- IMPS. &/OR DISTS.	Massey Ferguson (Australia) Limited,	George St., Concord	Street		
AGRICULTURAL MACHINERY— MFRS. &/OR DISTS.	Massey Ferguson (Aust.) Ltd.,	George St., Concord	Street		
AGRICULTURAL MACHINERY PARTS MFRS. &/OR DISTS.	Massey-Ferguson (Aust.) Ltd.,	George St., Concord	Street		
AGRICULTURAL SPRAY EQUIPMENT MFRS. &/OR DISTS.	WESTINGHOUSE BRAKE (Australasia) PTY. LTD.	GEORGE STREET, CONCORD WEST	Street		
AIR COMPRESSOR MFRS. &/OR DISTS.	Westlnghouse Brake (Australasia) Pty. Ltd.,	George St., Concord West	Street		
AUTOMATIC CONTROL EQUIPMENT IMPS. &/OR DISTS	McKenzie A Holland (Aust.) Pty. Ltd.,	George St., Concord West	Street		
BATTERY CHARGING & TESTING EQUIPMENT MFRS.	McKenzie & Holland (Australia) Pty. Ltd.,	George St., Concord West	Street		
CONFIRMING HOUSES (SEE BUYING HOUSES) CONSTRUCTION EQUIP. MFRS.	Massey-Ferguson (Aust.) Ltd.,	George St., Concord	Street		
ENGINEERS—BRAKING	Westinghouse Brake (Australasia) Pty. Ltd.,	George St., Concord West	Street		
ENGINEERS—COMPRESSED AIR	Westinghouse Brake (A/asia) Pty. Ltd.,	George St., Concord West	Street		
ENGINEERS—GENERAL &/OR MFRG. &/OR MECHANICAL	Westinghouse Brake (Australasia) Pty. Ltd.,	George St., West Concord	Street		
ENGINEERS—MARINE (E675)	Westinghouse Brake (A'asia) Pty. Ltd.,	George St., Concord West	Street		
PUMP MANUFACTURERS &/OR DISTRIBUTORS	Westinghouse Brake (A/asia) Pty. Ltd.,	George St., Concord West	Street		
RAILWAY EQUIPMENT MFRS. &/OR DISTRIBUTORS	McKenzie & Holland (Aust.) Pty. Ltd.,	George St., Concord West	Street		
RECTIFIER MANUFACTURERS	McKenzie & Holland (Aust.) Pty. Ltd.,	George St., Concord West	Street		
TRACTOR IMPORTS. &/OR MFRS. &/OR DISTS	Massey-Ferguson (Australia) Limited,	George St., Concord West	Street		
VALVES/COCKS (STEAM/LIQUID, Etc.) MFRS./DISTS.	Westinghouse Brake (A/asia) Pty. Ltd.,	George St., Concord West	Street		

PNEUMATIC EQUIPMENT-INDUSTRIAL	WESTINGHOUSE BRAKE (AUSTRALASIA) PTY LTD	George St., Concord West	Street		

* If no distance is provided, address no longer exists.

1974 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Colours & Pigments - Mfrs &/or W'salers	Abel Lemon & co Pty Ltd	204 George Street, Concord West	Address	On Site	
Electrical Switchboards - Mfrs.	Cadwallader Engineering Pty Ltd	3 King Street, Concord West	Address	On Site	
Transformers	Cadwallader Engineering Pty Ltd	3 King Street, Concord West	Address	On Site	
Abrasives	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Electrical Switchboards - Mfrs.	O'Donnell Griffin Pty Ltd	184 George Street, Concord West	Address	0m	South
Electric Motors & Generators	O'Donnell Griffin Pty Ltd	184 George Street, Concord West	Address	0m	South
Fire Protection Appliances & Engineers	Reichel Automatic Fire Alarm Co of Aust	184 George Street, Concord West	Address	0m	South
Printers - Screen	Hannis Printing Pty Ltd	82 Queen Street, Concord West	Address	35m	East
Printers - Lithographic	Hannis Printing Pty Ltd	82 Queen Street, Concord West	Address	35m	East
Printers - Letterpress	Hannis Printing	82 Queen Street, Concord West	Address	35m	East
Paints & Varnishes - Mfrs. &/or W'salers	Camfen Pty Ltd	247b Queen Street, Concord West	Address	110m	East
Rail & Railway Material	Westinghouse Brake & Signal Co (aust) Pty Ltd	George Street, Concord West	Street		

* If no distance is provided, address no longer exists.

1980 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Swimming Pool Equipment & Chemicals	Caspa (NSW) Ltd	2 Station Avenue, Concord West	Address	On Site	
Chemical Suppliers	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Colours & Pigments Mfrs &/or W'salers	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Food Products	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Foundry Equipment & Supplies	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	

Nuts-- Edible &/or Products	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Sail Makers	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Swimming Pool Equipment & Chemicals	Abel Lemon & Co Pty Ltd	204 George Street, Concord West	Address	On Site	
Laundries	Workmans Overalls Pty Ltd	200 George St., Concord West	Address	On Site	
Overall Hire Services	Workmans Overalls Pty Ltd.	200 George St., Concord West	Address	On Site	
Builders & Contractors	McAtamney A J	30 King St., Concord West	Address	On Site	
Electrical Appliances - W'sale	Dobson David Pty Ltd	3 King St., Concord West	Address	On Site	
Electrical Engineers	Cadwallader Engineering (NSW) Pty Ltd	3 King St., Concord West	Address	On Site	
Electrical Switches & Control Equipment	Thomson Trading	3 King St., Concord West	Address	On Site	
Electronic Engineers	Oryx Electronics	3 King St., Concord West	Address	On Site	
Electronic Engineers	Thomas & Walters Electronics Pty Ltd	3 King St., Concord West	Address	On Site	
Machine Tools - Engineers	J C & E R Engineering	3 King St., Concord West	Address	On Site	
Transformers	Cadwallader Engineering (NSW) Pty Ltd	3 King St., Concord West	Address	On Site	
Battery Charging Equipment	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electric Motors & Generators	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electric Motors & Generators - Repairs	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electrical Engineers	O'Donhell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electrical Switchboards - Mfrs &/or W'Salers	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electronic Engineers	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Electroplating Supplies	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Fire Protection Equipment & Consultants	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Rectifiers & Inverters	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Safety Devices - Industrial	O'Donnell Griffin Pty Ltd	184 George St., Concord West	Address	0m	South
Builders & Contractors---Alterations & Repairs	Butynol Fixers (NSW) Pty Ltd	76 Queen St., Concord West	Address	30m	East

Printers - General	Hannis Printing & Publishing Pty Ltd	76 Queen St., Concord West	Address	30m	East
Printers - General	Lilyfield Printing	76 Queen St., Concord West	Address	30m	East
Chemists - Pharmaceutical	Railway Pharmacy	74 Queen St.,Concord West	Address	30m	East
Pharmaceutical Products - Mfrs &/or W'salers	Oto Laboratories	74 Queen St.,Concord West	Address	30m	East
Glass Merchants &/or Glaziers	Ace Glass	86 Queen St., Concord West	Address	35m	East
Glass Merchants &/or Glaziers	Concord Glass	86 Queen St., Concord West	Address	35m	East
Leadlights &/or Repairs	Ace Glass	86 Queen St., Concord West	Address	35m	East
Mirrors	Ace Glass	86 Queen St., Concord West	Address	35m	East
Shower Screens	Ace Glass	86 Queen St., Concord West	Address	35m	East
Shower Screens	Concord Glass	86 Queen St., Concord West	Address	35m	East
Lighting	Composite Lighting Pty Ltd	82 Queen St., Concord West	Address	35m	East
Ice Cream Mfrs &/or W'salers	Iced Delights	251 Queen St., Concord West	Address	70m	East
Hardware - Retail	Concord West Home Centre	25 Victoria Avenue, Concord West	Address	112m	East
packaging, Filling & Sealing Equipment	Orion Electronic Equipment (NSW) Pty Ltd	17 Victoria Avenue, Concord West	Address	186m	East
Plastics - Machinery & Equipment	Orion Electronic Equipment (NSW) Pty Ltd	17 Victoria Avenue, Concord West	Address	186m	East
Seals - Oil &/or Mechanical	Flavell Pty Ltd	17 Victoria Avenue, Concord West	Address	186m	East
Envelopes - Mfrs &/or W'salers	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Photographic Supplies Mfrs &/or W'salers	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Printers Supplies & Services	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Stationers - Mfrg &/or W'sale	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Produce Merchants - W'sale	Doust & Rabbidge Pty Ltd	Concord Avenue, Concord West	Street		
Stock Feeds & Supplements	Doust & Rabbidge Pty Ltd	Concord Avenue, Concord West	Street		

* If no distance is provided, address no longer exists.

1990 HISTORICAL COMMERCIAL & TRADE DIRECTORY DATA (200m buffer)

Activity	Name	Address	Positional accuracy	Distance (m) *	Direction
Printers - General	Chippendale Printing Co Pty Ltd	204 George, Concord	Address	On Site	
Printers - Lithographic	Chippendale Printing Co Pty Ltd	204 George, Concord	Address	On Site	
Electronic Equipment Mfrs &/or W'salers	Thomas P Electronics Pty Ltd	3 King, Concord West	Address	On Site	
Transformers	Cadwallader Engineering (NSW) Pty Ltd	3 King, Concord West	Address	On Site	
Transformers	Circle-C Transformers	3 King, Concord West	Address	On Site	
Electrical Switches & Control Equipment	Thomas P	3 King Street, Concord West	Address	On Site	
Stock Feeds & Supplements	Doust & Rabbidge Pty Ltd	Cnr. Concord Avenue & King Street, Concord West	Street	On-Site	
Grain & Produce - W'sale	Doust & Rabbidge Pty Ltd	Cnr Concord Avenue & King Street, Concord West	Street	On-Site	
Electric Motors & Generators - Repairs	O'Donnell Griffin	184 George Street, Concord West	Address	0m	South
Electrical Accessories - Mfrs &/or W'salers	ANI Energy Controls	184 George, Concord West	Address	0m	South
Fire Protection Equipment & Consultants	O'Donnel Griffin	184 George, Concord West	Address	0m	South
Transformers	Ani Energy Controls	184 George Street, Concord West	Address	0m	South
Safety Equipment & Accessories	O'Donnell Griffin	184 George Street, Concord West	Address	0m	South
Leadlights &/or Repairs	Concord Glass	86 Queen, Concord West	Address	35m	East
Lighting, Fittings & Accessories- Mfrs &/or W'salers	Composite Lighting Pty Ltd	82 Queen Street, Concord West	Address	35m	East
Waste Reduction & Disposal Services	Joes Waste Disposal	20 Wunda Road, Concord West	Address	195m	East
Envelopes - Mfrs &/or W'salers	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Printers Supplies & Services	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		
Stationers - Mfrg &/or W'sale	Hosking Fred Pty Ltd	Station Avenue, Concord West	Street		

* If no distance is provided, address no longer exists.

Land Insight and resources use a number of different address georeferencing methods and characterised them according to the following criteria: completeness (match rates) and positional accuracy. When address do not contain specific street numbers or a match is not found, records identified as being in the surrounding areas are included for reference.

Historical dataset positional accuracy and georeferencing results explanation

Positional accuracy	Georeferenced	Description
Address	Located to the address level	*When street address and names fully matched.*
Street	Located to the street centroid	*When street names match but no exact address was found. Location is approximate.*
Building	Located to the structure, building or complex	*When building, residential complex or structure name match but no exact address was found. Location is approximate.*
Suburb	Located to the suburb area	*When suburb name match but no exact address was found. Location is approximate.*
Council	Located to the council area	*When council name match but no exact address was found. Location is approximate.*
Not georeferenced	Not found	*When it was not georeferenced, and address could not be found.*

Section 3 Other Environmental Constraints

3.1 FEDERAL, STATE AND LOCAL HERITAGE (200m buffer)

Local Environment Plan (LEP) Heritage

Site Name	Site ID	Significance	Type	Distance (m)*	Direction
Powell's Creek Reserve - landscape	I467	Local	Item - General	0.00	onsite
Concord West Railway Station - train station	I394	Local	Item - General	12.30	east
Concord West Railway Station park - landscape	I395	Local	Item - General	35.40	east
Shop	I466	Local	Item - General	105.70	east
Street trees - landscape	I517	Local	Item - General	107.09	east
St Ambrose School - school	I392	Local	Item - General	121.80	south-east

National Heritage List (NHL)

Site Name	Site ID	Class	Status	Distance (m)	Direction
Not identified					

Register of the National Estate (RNE)

Site Name	Site ID	Class	Status	Distance (m)	Direction
Parramatta and Lane Cove Rivers Landscapes	14309	Natural	Indicative Place	0.00	onsite
Homebush Bay Wetlands	19263	Natural	Registered	37.25	west

Non-Aboriginal heritage item (Local)

Site Name	Site ID	Class	Status	Distance (m)	Direction
Not identified					

Non-Aboriginal heritage item (SHR)*

Site Name	Site ID	Listing nº	Plan nº	Distance (m)	Direction
Not identified					

*State Heritage Register

Commonwealth Heritage List (CHL)

Site Name	Site ID	Class	Status	Distance (m)	Direction
Not identified					

World Heritage Area (WHA)

Site Name	Site ID	IUCN	Status	Distance (m)	Direction
Not identified					

3.2 BUSHFIRE PRONE LAND (200m buffer)

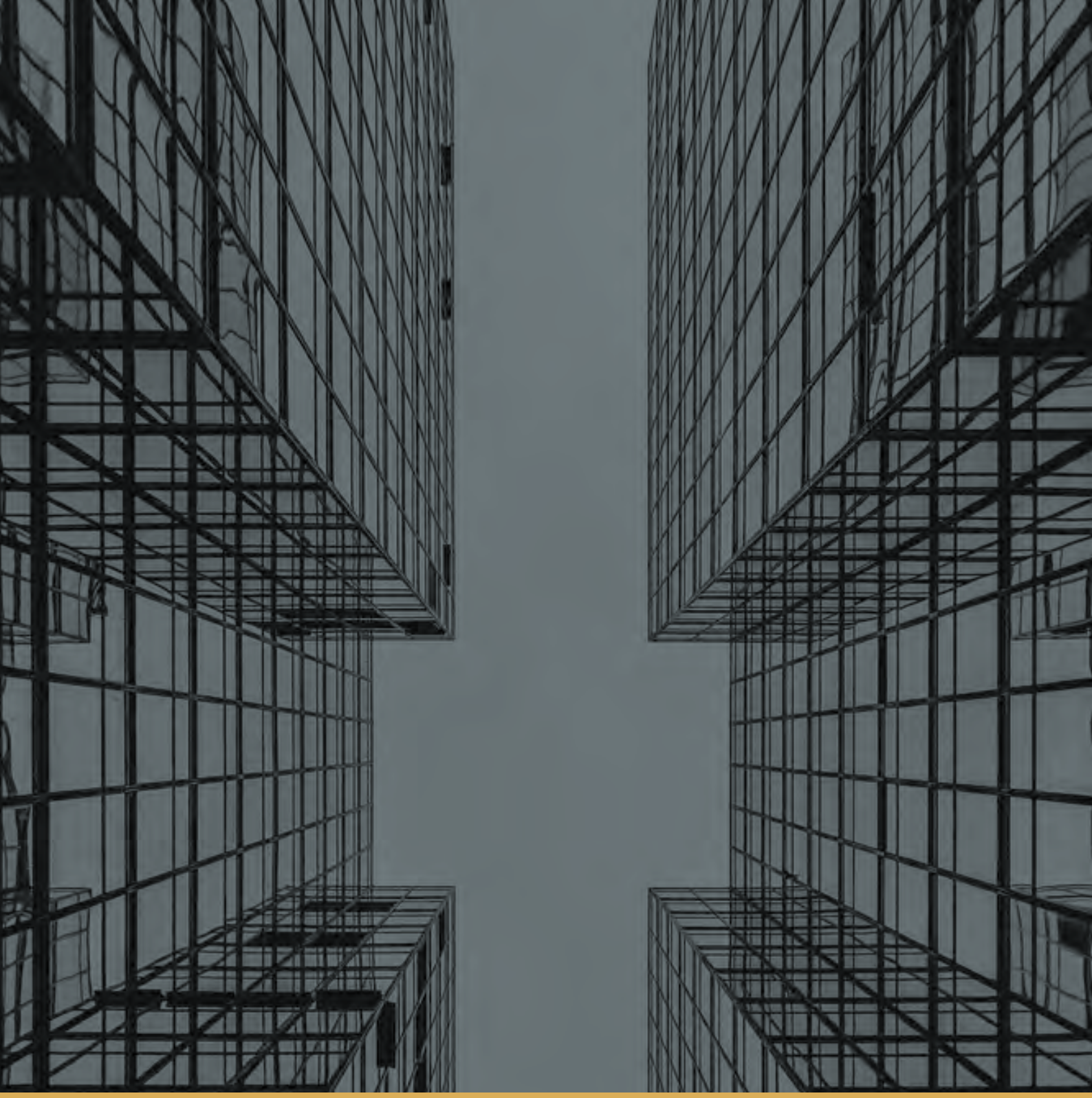
Category	On the Property?	Within Record Search Buffer?
Not identified		

3.3 STATE ENVIRONMENTAL PLANNING POLICY 14, 26 AND 71 (200m buffer)

Type	Name	ID	Effective	On the Property?	Within Record Search Buffer?
Not identified					

3.4 FLOOD HAZARD AREA (200m buffer)

Name	On the Property?	Within Record Search Buffer?
Not identified	Not identified	Not identified



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APPENDIX D DOUGLAS PARTNER PHASE 1 AND 2 CONTAMINATION ASSESSMENT

Douglas Partners
Geotechnics • Environment • Groundwater

REPORT
on
PHASE 1 & 2 CONTAMINATION ASSESSMENT

7 CONCORD AVENUE & 202-210 GEORGE STREET
CONCORD WEST

Prepared for
FRED HOSKING PTY LTD

Project 45146A
November 2007

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EXECUTIVE SUMMARY

This report, prepared by Douglas Partners Pty Ltd (DP), presents the results of a combined Phase 1 & 2 Contamination Assessment for the site located at 7 Concord Avenue & 202-210 George Street, Concord West (the site).

At the time of the investigations, the site was used being used for printing of stationery. The details of the proposed future development are unknown at this stage but it is generally understood to comprise a residential development, possibly including multi-storey buildings, and possibly basement excavation only in the eastern portion of the site

The 2 ha site is located at the western end of Station Avenue, Concord West, NSW and comprises six lots. For the purpose of this assessment, the six Lots have been identified as:

- 7 Concord Avenue, Concord West for Lot 1 DP 219742; and
- 202 – 210 George Street, Concord West for Lots 147 to 151 DP 979563.

At the time of investigation, a factory building with offices and surrounding car-parking and strip gardens occupied the southern two-thirds of Lot 1 DP 219742. The northern portion of this Lot was vacant land. An underground storage tank (UST) was located at the south of this Lot. The footprint of a former bowser was located approximately 40m to the east of the UST. An above-ground storage tank (AST) was located at the south-west corner of the building and contained heating oil. A roofed store for dangerous goods was located inside the factory building.

A factory building with offices occupied the eastern two-thirds of Lots 147 to 151 DP 979563. Car-parking was located at the west of the property. An UST and bowser was located at the north-eastern corner of the building. A roofed store was located at the north-western corner of this property.

A review of the available site information indicated that the site was undeveloped up until circa 1950. Field investigations revealed that the site has undergone significant filling to level the site prior to construction of each of the factory buildings.

From 1963 to circa 1987, Abel Lemon & Co Pty Limited operated at 202-210 George Street and was probably engaged in the manufacture and distribution of pool products.

The northern portion of the site (7 Concord Avenue) does not appear to have been developed until circa 1964, when Fred Hosking Sales Pty Limited became owners of the site. Thus, the site has probably been used as for printing since 1964.

Council records and site observations identified USTs and a roofed package store, inside the factory building, used for the storage of chemicals since 1991, and perhaps earlier. Chemicals to have been stored in this facility include Isopropanol, 'Flexol PI', ethanol, paint, acrylic thinners, solvents and petroleum products.

The potential sources of contamination identified during the site history review and site observations are: the use of fill to form/level the site; leaks from USTs and bowsers; spills of chemicals; spills from the AST; general littering and dumping; previous site uses (including chemical storage); and previous neighbouring land uses (including chemical storage). The following suite of contaminants was selected based on site history and observations made at the site: heavy metals; total petroleum hydrocarbons (TPH); Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethyl-benzene and Xylene – BTEX); Polycyclic Aromatic Hydrocarbons (PAH); Polychlorinated Biphenyls (PCBs); Organochlorine Pesticides (OCP); Volatile Organic Compounds (VOCs); phenols and asbestos.

Field investigation comprised soil sampling from thirty-four test bores. Piezometers were installed at Test Bores 203, 204, 205, 207 and 213 and groundwater was sampled from each well.

Filling was observed to be to depths of up to 2.6m below ground level. Hydrocarbon odour, a fragment of fibre-cement and slag and ash was noted in the filling. At Test Bore 221 (the previous location of a bowser), a strong hydrocarbon odour and staining was identified in the filling.

Natural materials observed to underlie filling typically included a layer of peaty clay, underlain by silty clays and, in turn, shale. A strong hydrocarbon odour was noted at Test Bore 205 (near a UST) in the peaty clay.

Three fragments of fibre-cement were noted on the ground surface in the vicinity of Test Bore 104 and 214 at the north-eastern corner of the site.

Free groundwater was observed whilst augering at numerous test bores. Groundwater levels measured in the five piezometers were noted to be at depths ranging from approximately 0.75m bgl to 2.5 m bgl. The measured groundwater depths indicate that the direction of groundwater flow is influenced by what appears to be an old creek channel. Groundwater is inferred to flow:

- in a north-west direction from 202-210 George Street;
- in a west to south-west direction from the northern third of the site; and
- in an east to north-west direction from the central third of the site.

As the future site use is probably going to be residential, the levels of contaminants in the soil were assessed against threshold concentrations for different residential development sites. Health based investigation levels (HILs) have been adopted for the following types of development:

- Column 1 - Residential with gardens and accessible soil; and
- Column 2 - Residential with minimal access to soil.

Provisional phytotoxicity-based investigation levels (PILs) have also been considered.

Concentrations of heavy metals, petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) were detected in the filling/soil samples above the HIL and PIL, at several locations. Asbestos (fibro fragments) was also detected in one sample and at the surface.

OCPs, Phenols, and PCBs were not detected in any analysed soil/filling sample. VOCs were only detected at levels well below the adopted guideline levels in one of the soil/filling samples tested.

Detected levels of arsenic, cadmium, chromium, copper, lead, nickel and zinc were noted in the groundwater samples. Results that were above the adopted guideline level (for marine waters) include:

- Copper in samples GW-203, GW-204, GW-205, GW-207, and GW-213;
- Lead in samples GW-203, and GW-207;
- Nickel in sample GW-207;
- Zinc in samples GW-203, GW-204, GW-205, GW-207, and GW-213.

Mercury was not detected in any of the groundwater samples.

The detectable levels of copper, lead, nickel and zinc in the sample from this monitoring well suggest that these concentrations are not attributable to the subject site and are likely to represent local diffuse sources of contamination (background) impacts arising from local industry, urban runoff, and road runoff or from service leakage. The only exception to this may be indicated by the (relatively) elevated concentrations for nickel and zinc in the groundwater sampled from the monitoring well at Test Bore 207.

Concentrations of BTEX and TPH C_6-C_9 were found to be below laboratory detection limits in all groundwater samples. TPH C_{10}-C_{36} was only detected in one groundwater sample (GW-205). This contamination can be attributed to leaks of petrol from the adjacent UST or associated bowser and pipes.

All analytical results for PAH and VOCs were below laboratory detection limits except for naphthalene in the groundwater sample GW-205. This detected concentration, may be attributed to leakages from the adjacent UST or associated piping and bowser.

PCBs and OCP were not detected in any groundwater sample. Phenols were detected in three of the groundwater samples at levels below the adopted guideline level.

Results for ASS analysis of natural soils suggest that acid sulphate soils are prevalent across the site. Natural soils near the groundwater level are the most susceptible to being acid sulphate soils at the site. The result for the analysed filling sample from Test Bore 207, appears to be susceptible to acid conditions, although may not be acid sulphate soils.

On the basis of site observations, testing and analytical results, it is considered that the UST and bowser at 202-210 George Street is a confirmed source of soil and groundwater contamination. It is thus recommended that all the USTs, bowser(s) and associated piping are removed from the site (thus removing sources of contamination), and that the exposed soils and imported filling material are validated by a qualified environmental consultant.

Similarly, the former bowser previously located at Test Bore 221 at 7 Concord Avenue, is considered to be the source of contamination at this location. Remedial action, which would involve "chasing out" the contamination, should be undertaken as part of site remediation.

If is difficult to determine a definite source of TPH and PAH contamination encountered in the filling at Test Bore 229. Whilst, remedial action at this location is required, further investigation is first recommended to better define the exact nature degree and extent of contamination on the basis that the observed concentration of benzo(a)pyrene is considerably elevated.

Remedial action requirements will need to be based on the type of development. If the site is to be residential with gardens and accessible soil, then more remedial action will be required (based on the more stringent HILs) than compared to a residential development with minimal access to soil. Remedial action will typically comprise "chasing out" the contamination and validation by a qualified environmental consultant.

Prior to remedial action, step-out sampling should be undertaken to better define the extent of the contamination. The locations where metal concentrations were noted to have exceeded the PILs also need to be considered if site redevelopment is to include residential development with gardens or landscaped areas using on-site soils. Clarification on remedial action requirements will need to be undertaken by an environmental consultant once firm development plans are available.

The extent of this asbestos contamination at Test Bore 216 has not yet been delineated. Two options are available to remediate the asbestos contaminated soil:

- Complete removal of the asbestos impacted filling by a suitably licensed asbestos contractor.
- Encapsulation of the asbestos impacted material with an appropriate barrier capping and implementation of a long term management plan to ensure the integrity of the capping.

The fibre-cement fragments on the ground surface in the vicinity of Test Bores 104 and 214 can be hand picked and disposed by a licensed, asbestos removal contractor.

Any excavation works at the site will need to consider the impacts on the disturbance of acid sulphate soils which appear to be prevalent at the site. An Acid Sulphate Soil Management Plan is required for site development.

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Project 45146A
30 November 2007

PHASE 1 & 2 CONTAMINATION ASSESSMENT
7 CONCORD AVENUE & 202-210 GEORGE STREET
CONCORD WEST

1. INTRODUCTION

This report, prepared by Douglas Partners Pty Ltd (DP), presents the results of a combined Phase 1 & 2 Contamination Assessment for the site located at 7 Concord Avenue & 202-210 George Street, Concord West (the site). The work was requested by Urbis Pty Ltd, town planners, on behalf of the site owner, Fred Hosking Pty Ltd, for pre-sale, due diligence purposes with the potential for a residential re-development of the site. The report has not been prepared to support a Development Application or other statutory requirement.

At the time of the investigations, the site was used being used for printing of stationery and paper. The details of the proposed future development are unknown at this stage but it is generally understood to comprise a residential development, possibly including multi-storey buildings, and possibly basement excavation only in the eastern portion of the site (advice from Fred Hosking Pty Ltd). The assessment was carried out to provide information on subsurface conditions for due diligence purposes in the pre–purchase planning.

The Phase 1 & 2 Contamination Assessment included a desktop review of site history and geological information; and field investigations including intrusive soil and groundwater sampling. Field investigations were partly carried out in conjunction with a preliminary geotechnical investigation which is reported separately.

2. SCOPE OF WORKS

The scope of works for the Phase 1 and Phase 2 Contamination Assessment was as follows:

- Identification of the property's street address and real property description(s), name and address of the owner;
- Search of the current and historical land titles and Deposited Plans to assist in identifying previous owners;
- Search of the historical aerial photos to identify land uses and changes in the land that may indicate a potential for contamination;
- Search of the Contaminated Land Register for Notices issued under the Contaminated Land Management Act, 1997;
- Search of the WorkCover database records for Dangerous Goods Licence or other approvals;
- Review of the current Council's Section 149 planning certificates;
- Review of Council's records under a Freedom of information request;
- A review of local geological and topographical features;
- A site walk-over survey, including observations made of any situations that indicate potential contamination;
- Drilling (using a bobcat-mounted drill rig) and soil sampling from 34 locations (in conjunction with the geotechnical investigations at five locations. The geotechnical investigation is reported separately);
- Convert five sampling locations into groundwater wells (piezometers);
- Developing and sampling the groundwater wells using low-flow sampling equipment;
- Screening all soil samples collected with a photoionisation detector (PID) to detect the presence of volatile organic compounds;
- Selecting soil samples (including replicate QA/QC samples) for analysis at a NATA accredited laboratory for a combination of the following potential contaminants:
  - Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn);
  - Total Petroleum Hydrocarbons (TPH);

  - Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene – BTEX);
  - Polycyclic Aromatic Hydrocarbons (PAH);
  - Phenols;
  - Polychlorinated Biphenyls (PCB);
  - Organochlorine pesticides (OCP);
  - Volatile organic compounds (VOCs); and
  - Asbestos;
- Screening the soil samples from six sampling locations for Acid Sulphate Soil (ASS) potential using peroxide screening;
- Based on the screening results, selecting samples for Suspension Peroxide Oxidation Combined Acidity and Sulphate (SPOCAS) testing to confirm the presence/ absence of ASS;
- Analysing groundwater samples (including one replicate QA/QC sample) for a combination of the following contaminants:
  - Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Zn);
  - Total Petroleum Hydrocarbons (TPH);
  - Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene and Xylene – BTEX);
  - Polycyclic Aromatic Hydrocarbons (PAH);
  - Phenols;
  - VOCs;
  - Polychlorinated Biphenyls (PCB); and
  - Organochlorine pesticides (OCP);
- Preparing a Phase 1 and Phase 2 Contamination Assessment Report providing an assessment of the contamination at the site and general recommendations for further work including the need for remediation (if required).

3. SITE INFORMATION

3.1 Site Location and Identification

The site is located at the western end of Station Avenue, Concord West, NSW. The local government authority is City of Canada Bay Council. The site comprises six Lots: Lot 1 DP 219742 and Lots 147 to 151 DP 979563. A site plan and locality map are included as Drawing 1, Appendix A.

According to Council's Section 149 certificates (Appendix B), Lot 1 DP 219742 has the address 7 Concord Avenue, Concord West, and Lot 147 DP 979563 has the address 202 George Street, Concord West. The site may be identified in various documents by different addresses such as: 204-210 George Street and Station Avenue, Concord West (as described in WorkCover records – Appendix B). For the purpose of this assessment, the six Lots have been identified as:

- 7 Concord Avenue, Concord West for Lot 1 DP 219742; and
- 202 – 210 George Street, Concord West for Lots 147 to 151 DP 979563.

Lot 1 DP 219742 occupies an area of 15,014m^2 and Lots 147 to 151 DP 979563 occupies an area of 4,942m^2 (according to surveyors drawing, S. McN. Bland Pty Ltd, dated 19 May 2006). The total land area is, therefore, 19,956m^2 or approximately 2 ha.

3.2 Site Description

The 2 ha site is an irregular shape, with Lot 1 DP 219742 broadly rectangular in shape and Lots 147 to 151 DP 979563 also broadly rectangular. The site was operational at the time of the fieldwork with two factory buildings and associated offices used for the design and printing of stationery, paper, cards and envelopes. See Drawing 1, Appendix A for the site layout.

The site is bounded by Homebush Bay Drive to the west, George Street, Station Avenue, Concord Avenue and residential properties to the east and residential properties to the north and south. Powells Creek, a tributary of Homebush Bay, is located approximately 150 m to the west of the site.

The site is relatively level (RL 4.2 m – 4.6 m) with the exception of the south-east corner that rises to RL 6.8 m. To the north, the residential properties are elevated approximately 2 – 3 m above the subject site. To the west, Homebush Bay Drive is elevated approximately 2 – 3 m above the site. To the east and south, the properties are generally at a similar level to the site although some are approximately 0.5 m lower

A concrete pipeline sewer main approximately 900 mm in diameter, and partly above-ground, separates the 7 Concord Avenue property from the 202-210 George Street property.

3.2.1 Lot 1 DP 219742 (7 Concord Avenue)

A broadly rectangular building, owned and used by Fred Hosking Pty Ltd, occupied the southern two-thirds of this Lot. The building consisted of a factory and associated offices used for printing. The building is two storeys in height and is primarily constructed of brick.

Car-parking spaces (on concrete and asphalt surfaces) and strip gardens are located on the southern and eastern sides of the building and are accessible from Station Avenue. Truck access for loading or unloading is on the eastern side of the factory. The land at the rear (west) of the building is vegetated with grass and trees. The land to the immediate north of the building is largely unsealed, but is available for vehicle access and storage of bins.

The northern portion of land is vacant and is separated from the remainder of the Lot by chain-link fencing. The land at the north-west corner of the site is vegetated with trees and shrubs. The land at the north-east corner of the site contains three concrete slabs, but is mostly unsealed with some grass and plants.

An underground storage tank (UST) is located at the south of the Lot (see Photo 1). No bowsers were present at this Lot at the time of fieldwork, but the footprint of a former bowser was located approximately 40m to the east of the UST (see Photo 2). Drawing 1, Appendix A shows the location of the UST and the bowser footprint.

An above-ground storage tank (AST) was located at the south-west corner of the building (see Photo 3). The tank was operational at the time of field work and contained heating oil. The AST was on an asphalt surface which was cracked near the building wall. The AST did not have a

bund. Associated piping was observed to be above ground. Drawing 1, Appendix A shows the location of the AST.

A roofed store for dangerous goods was located inside the factory building (see Photo 4). The store was primarily constructed of brick and was used for the storage of 'Flexol PI' (500L), Kerosene (40L) and White Spirits (40L). Drawing 1, Appendix A, shows the location of the store.

Approximately ten chemical drums, most of which were empty, were stored at the eastern boundary of the site, near the north-east corner of the building. The drums were noted to have contained resins, starches and the printing industry solvent "Flexol".

3.2.2 Lots 147 to 151 DP 979563 (202 – 210 George Street)

A broadly rectangular building consisting of a factory and offices occupied the eastern two-thirds of these Lots. The factory is two storeys in height and used for printing and packaging by Graphic Overprint (part of the Fred Hosking Group) and Ryans Express. The building was primarily constructed from brick. The concrete, factory floor was elevated (approximately 1 m) above the surrounding ground level.

Car-parking, on a concrete surface, is located at the rear (west) of this property. An awning provides shelter for cars parked along the western boundary of the property. Vehicle access is from George Street along the northern boundary. Ramp access (into the building) is located on the western side of the building and an undercover loading dock is located at the north of the building.

A UST and bowser was located at the north-east corner of the building (see Photo 5, Appendix A). The location of the bowser and UST is shown in Drawing 1, Appendix A.

A roofed store was located at the north-western corner of this property (see Photo 6, Appendix A). The store, constructed of aluminium, was elevated above the ground surface. The location of the store is shown on Drawing 1, Appendix A.

3.3 Proposed Development

The details of the proposed development are unknown at this stage, however, it is generally understood that it will comprise a residential development including multi-storey buildings and possibly basement excavation only in the eastern portion of the site.

4. REGIONAL GEOLOGY AND HYDROGEOLOGY

Reference to the Sydney 1:100 000 Geological Sheet indicates that the site lies on the boundary of areas indicated as underlain by man made fill (western side) and Ashfield Shale of Triassic Age (eastern side). Natural soils of the area are silty to peaty, quartz sand, silt, and clay with ferruginous and humic cementation in places and common shell layers. The site is also near an area noted to have soil from the Wianamatta Group, which includes black to dark-grey shale and laminite. See sections 10 and 11 for soil profiles encountered during fieldwork.

The Prospect/Parramatta River *Acid Sulphate Soils Risk Map* (DLWC, 1997) shows that the site is on the edge of an area of "Disturbed Terrain" which "may include filled areas, which often occur during reclamation of low-lying swamps for urban development. Other disturbed terrain includes areas which have been mined or dredged or have undergone heavy ground disturbance through general urban development or construction of dams or levees. Soil investigations are required to assess these areas for acid sulphate potential".

A NSW Department of Water and Energy (DWE, formerly Department of Natural Resources) groundwater bore search was conducted on the 12th September 2007 to identify registered bores located within a 1 km radius of the site. The DWE bore search results are provided in Appendix B. Eleven bores were found within the 1 km search radius. However, all the bores were located to the west of the site on the other side of Powells Creek. Therefore, the data obtained from the bore search does not provide useful information in relation to groundwater or sub-surface conditions at the site.

The site is relatively level, however, the land to the east is up-gradient of the site. Powells Creek is to the west of the site. The inferred groundwater flow at the site is thus is to the west,

towards Powells Creek. Rainfall, on the impermeable surfaces (asphalt and concrete) at the site, is likely to enter stormwater drains. See Section 11.2 for further discussion of groundwater flow.

5. SITE HISTORY

A review of the site history was obtained primarily from previous aerial photos, historical title deeds, a search of the DECC public register, WorkCover NSW Dangerous Goods Database, available Council records (including Planning Certificates), site interviews and previous DP investigations.

5.1 Aerial Photographs

Aerial photographs for the years 1930, 1951, 1970, 1992, and 2002 were obtained from the Land Information Centre of the Department of Lands. A satellite image (circa 2005) from Google Earth has also been included for comparison. The images showing the site are presented in Appendix B.

A review of the 1930 image (the earliest image available) shows that the site was undeveloped. George Street and Station Street appear in the photograph with properties to the east occupied by residential houses. Much of the land to the north, south and west of the property is also undeveloped. This undeveloped land continues to the west to Powells Creek.

Review of the 1951 image shows that much of the site remained undeveloped since 1930, except at the southern end. There appears to be a large concrete slab at the south of the site, which may indicate that construction work for a building had commenced. Other smaller structures were present along the southern boundary of the site, but cannot be clearly identified because of the poor quality of the image. The small structures may be sheds associated with construction activities. Properties to the east remained to be occupied by residential houses. Some residential houses had been built on the land adjacent the south of the site. Much of the land to the north and west of the site remained undeveloped.

The 1970 image shows that the site had undergone significant change since 1951. The south of the site, which appeared to contain a large concrete slab in 1951, contained a factory or warehouse style building. A factory style building with a saw-tooth roof occupied the centre of the site. The land surrounding the buildings appears to have been cleared for vehicle access and parking as well as storage. Some stored items or structures were located at the south-western corner of the site but cannot be identified from the low detail of the photograph Some items appeared to have been stored between the buildings and at the north-eastern corner of the site, but cannot be identified because of the poor quality of the image. Surrounding land uses appear to be relatively unchanged since 1951, with residential houses occupying the land to the south and east. The land to the north and west appears to have been largely undeveloped, although some earthworks may have occurred to the land adjacent to the west of the site.

The 1991 image shows that the building with the saw-tooth roof at the centre of the site had been expanded. The building at the south of the site appears to be unchanged since 1970. An awning occupied the south-western corner of the site. The north-east corner and south-west corners of the site appear to have been used for storage of items that cannot be identified due to the insufficient detail of the image. Homebush Bay Drive occupied the adjacent land to the west of the site. The adjacent land to the north of the site appears to have been converted into a park. The land adjacent the east and south of the site remained to be occupied by residential houses. However, what appears to be a warehouse style building had been constructed adjacent to the eastern boundary of the site, although it is difficult to determine if this building was a commercial or residential building.

The 2002 image shows that the site remained relatively unchanged since 1991. Some of the eastern side of the site contained more vegetation than from 1991. Some of the land adjacent to the north of the site contained residential houses, which were not present in 1991. What appeared to be a warehouse style building adjacent the eastern boundary in 1991 had been replaced by residential buildings. The site and surrounding land in the Google Earth image (circa 2005) appears to be very similar to that of 2002, but is shown in better resolution.

5.2 Historical Title Deeds

A historical land title deed search of the site was conducted by Peter S. Hopley Pty Limited, Legal Searches. Determination of the ownership or occupancy of the property, including company names, can assist in the identification of previous land uses and therefore establish potentially contaminating activities.

A summary of the records with the owner/ occupier details and the possible site uses is presented in Table 1. The title deed records (obtained) are included in Appendix B.

Table 1 - Summary of Title Deed Search

Summary as to Owners as Regards Lot 1 D.P. 219742		
Date	**Owner**	**Possible Site Use**
29.03.1921	Harrold Allsopp (Miller)	Nil - Land owner only
22.07.1926	Harrold Allsopp Limited	Nil - Land owner only
12.04.1927	Rachel Curotta (Widow) Florence Curotta (Spinster)	Nil - Land owner only
24.08.1928	Philip Lussich (Company Director)	Nil - Land owner only
20.12.1928	Alice Julia Clara Morris (Married Woman)	Nil - Land owner only
21.03.1930	Samuel Curotta (Merchant)	Nil - Land owner only
06.04.1937	Edith Russell (Married Woman)	Nil - Land owner only
05.04.1938	John Dalzell Wallace (Boiler Maker) Catherine Reid Wallace (Married Woman)	Nil - Land owner only, or residential
20.02.1964	Fred Hosking Sales Pty Limited	Design and print, of stationery, paper, cards and envelopes
06.05.2003	# Fred Hosking Pty Limited	Design and print, of stationery, paper, cards and envelopes
Summary as to Owners as Regards Lots 147 to 151 D.P. 979563		
Date	**Owner**	**Possible Site Use**
26.04.1905	William James Irvine *(Land Assessor)*	Nil - Land owner only
09.10.1912	Lucy Maria Burns *(Widow)*	Nil - Land owner only
25.09.1925	Quintin Sloss *(Civil Servant)* Hazel Lowrey (Hospital Matron) (Now Hazel Violet Matthews, Married Woman)	Nil - Land owner only
28.03.1933	Quintin Sloss *(Civil Servant)*	Nil - Land owner only, or residential
04.10.1949	Audrey Constance Sloss *(Widow)* *(Transmission Application not investigated)*	Land owner Development of property?
25.09.1958	Butcher & Norman Pty Limited	Unknown
17.07.1963	Abel Lemon & Co Pty Limited	Manufacture and distribution of pool products or grocery products
20.06.1984	The Adelaide Steamship Company Limited	Investment property – continued use as manufacture and distribution of pool products or grocery products
09.11.1987	Chippendale Printing Company Pty Limited	Printing
08.12.2000	# Fred Hosking Pty Limited	Design and print, of stationery, paper, cards and envelopes

Note: # Current Registered Proprietor

Historical title deeds information indicates that Lot 1, D.P. 219742 (7 Concord Avenue) was owned by individuals from 1921 up until 1964. This land parcel was owned by Fred Hosking Sales Pty Limited from 1964 and by Fred Hosking Pty Limited from 2003, which suggests that the site was used to as a printing facility (for the design, print, manufacture, and distribution of stationery, paper, cards and envelopes).

The historical title deeds information indicates that Lots 147 to 151 of D.P. 979563 (202-210 George Street) were owned by individuals from 1905 up until 1958. Butcher and Norman Pty Limited owned the property from 1958 to 1963, but the business activities of this company are unknown. From 1963 to 1984 the parcel of land was owned by Abel Lemon & Co Pty Limited, which means that the property may have been used for the manufacture or distribution of grocery products during this time.

The Adelaide Steamship Company Limited owned the property from 1984 to 1987. During this time the company was involved in property investment, which suggests that the parcel of land was purchased for investment purposes. Therefore, site operations at this time are an unknown. The Chippendale Printing Company Pty Limited owned the site from 1987 to 2000 and Fred Hosking Pty Limited owned the site from 2000, which means that the site was probably used for printing purposes since 1987.

5.3 Council Section 149 Certificates

The Section 149 (2) and (5) Certificate for Lot 147, DP 979563 and Section 149 (2) Certificate for Lot 1, DP 219742 was reviewed as part of the investigation. Note that the address for Lot 147, DP 979563 is indicated on the Certificate as 202 George Street, Concord West. The Section 149 Certificates for Lots 148 to 151, DP 979563 have not been reviewed, but are likely to be consistent with the Certificate for Lot 147, DP 979563 as these lots are occupied by the same building.

The certificates indicate that both land parcels are zoned as '4 (a) Industrial General'. Both certificates state that the land:

a) is not declared to be an investigation area or remediation site under Part 3 of the Contaminated Land Management Act 1997;

b) is not subject of a declaration of the land as an investigation site, investigation order, remediation site or remediation order, within the meaning of the Contaminated Land Management Act 1997;

c) is not subject of a voluntary investigation or voluntary remediation agreement subject to the Environmental Protection Authority's agreement under section 19 or 26 of the Contaminated Land Management Act 1997;

d) is not subject of a site audit statement within the meaning of Part 4 of the Contaminated Land Management Act 1997 that has been provided to Council; and

e) is not affected by the Unhealthy Building Land Policy, adopted by the Environmental Protection Authority.

5.4 Council Records

Records made available by the City of Canada Bay Council were reviewed and information in regards to potentially contaminating activities and other items of note is summarised below.

5.4.1 202-210 George Street

The following summarises reviewed information in regards to 202 – 210 George Street:

- In a letter to Abel Lemon & Co Pty Limited, dated 22 April 1965, Council approved the installation of a 1000 gallon UST in the entrance driveway to the loading dock.
- A letter, dated 26 August 1965, from the Town Clerk to Abel Lemon & Co Pty Limited stated "State Planning Authority has now concurred in the erection of a building at the rear of your property for alloy crushing, briquette moulding and manufacture and mixing of dextol".
- A Building Committee Report, dated 9 October 1973, noted that a tank 21 feet 2 inches in height and 6 feet 2 inches in diameter was proposed to be located at the "rear of the land" for storing muriatic acid (hydrochloric acid).
- A letter to the Mayor, dated 11 September 1981, (that appears to be from a neighbouring resident from 26 King Street) refers to a "25 – 30 ft high Hydrochloric Acid Vat not more

than 6 feet from the back fence" and "on numerous occasions, either leaked or been uncovered and fumes have been very strong and at times caused bunches of nearby trees to die". The letter also states that "On a number of occasions I have contacted State Pollution Control to have these leaks rectified". It is unclear from the description of the property and the available plans whether this tank or vat is on the subject property or a neighbouring property.

- A letter, dated 9 November 1981, from Abel Lemon & Co Pty Limited to Council makes reference to a "bleach liquor tank" as well as the "hydrochloric acid tank installed years ago".
- A letter, dated 27 August 1982, from Abel Lemon & Co Pty Limited to Council refers to the replacement of defective storage tanks and the construction of solid brick bunds.
- A letter, dated 4 October 1985, from Abel Lemon & Co Pty Limited to Council referred to an emergency in the chlorine packing plant. A "small, but violent decomposition" of Calcium Hypochlorite (Pool Chlorine) in the dust collection box at the base of the collector caused an explosion. The fire brigade applied copious amounts of water and, as a result 2.5 tonnes of Calcium Hypochlorite became wet and needed to be disposed in the factory's trade waste system. Limited quantities of the moist product were disposed via the Metropolitan Water Sewerage and Drainage Board's Malabar Works.
- Meeting Notes, dated 13 October 1987, for a Development Application referred to the occupiers, Abel Lemon & Co Pty Limited, using the site as a warehouse for chemical packing, distribution and storage.
- A plan (drawing), not dated, shows plans for a proposed petrol filling house for Abel Lemon & Co Pty Ltd. The drawing is noted to have the word "Refused" written across the petrol pump house design. The drawing shows that the pump house was not intended to be located on the subject site but on the adjacent land to the east of 7 Concord Avenue, within 10 m (on the northern side) of Station Street.
- On 7 December 1987, reference is made in a Development Application for the expansion of the parking layout. Chippendale Printing Company Pty Ltd was the property owner.
- A letter, dated 23 May 1990, from Council gave permission to re-clad a roof that was made from fibre cement.

5.4.2 7 Concord Avenue

The following summarises reviewed information in regards to 7 Concord Avenue:

- A letter, dated 26 March 1965, from Council Chambers, referred to the storage of petrol at the site.
- A letter, dated 21 January 1986, from Fred Hosking to the Town Clerk, stated that the western boundary was buried under hundreds of tonnes of earth from roadworks.
- A letter, dated 18 May 1989, from Council Chambers describes that the north-eastern corner of the site that was being used as a "builder's yard" had been filled without consent from Council, and that all the fill that had been deposited upon the land without consent Council was to be removed. A letter had been addressed to the town planner in 1966 for permission for this portion of land to be used for the storage of building materials by a Mr A Anderson.
- A Notice to Applicant of Determination of a Development Application, dated 20 March 1990, in regards to the extension of the building stated that the "existing fuel storage and dispensing facilities have to be relocated to Council's satisfaction prior to erection of the proposed addition". A letter, dated 2 May 1990, from Kenneth Reynolds Architects to the Town Clerk stated that "a new petrol tank will be provided and a tentative location will be provided and a tentative location has been shown on the plan". A plan was not attached to the letter. However, two plans (noted to be received on 22 May 1989) show that a 9000 L capacity UST was located to the south of the building, on the edge of the proposed additions. The UST was noted "to be removed". A bowser was located near the south-east corner of the building. Drawing 1, Appendix A shows the approximate location of this UST and bowser.
- A letter, dated 19 November 2002, from the Environmental Protection Authority (EPA) referred to the "dumping of 10 – 12 chemical drums in a gully" that runs along Homebush Bay Drive, Concord West with "ICI stamped on them". A Council inter-office memo, dated 19 November 2002, noted that the drums were empty and rusted to suggest that the drums had been there for an extended period (5 -10 years). Some of the drums were noted to be inside the 7 Concord Avenue property, while others were noted to be on the land adjoining Homebush Bay Drive.

5.5 WorkCover Dangerous Goods Search

A search of the Stored Chemical Information Database (SCID) and the microfiche records held by WorkCover was conducted on 18 September 2007. The search recovered information in regards to licences 35/033736 and 35/011268 relating to the storage of dangerous goods at the site.

5.5.1 Licence 35/033736

Licence 35/033736 information (dated 29 January 1999) refers to the storage of dangerous goods at 202-210 George Street, Concord West. The site occupier's name is Chippendale Printing Company Ltd and the main business is described to be Commercial Printing. The licence information makes reference to two depots.

Depot 1 is a 5000 L underground storage tank (UST), noted to be used for the storage of petroleum fuel. The UST was indicated to be located at the north-eastern corner of the factory building, adjacent the northern wall underneath a driveway. A fuel dispenser was indicated to be located at the northern wall of the site next to the UST.

Depot 2 is a roofed store with a maximum storage capacity of 2000 L. The roofed store is indicated to be located at the northern end of a roofed storage area (awning) that is located at the western boundary. The roofed store is noted to typically contain 200 L of Isopropanol (UN Number 1219), 220 L of solvent (UN Number 1993) and 200 L of solvent (UN Number 1268).

5.5.2 Licence 35/011268

Information for Licence 35/011268 refers to the storage of dangerous goods at the corner of George Street and Station Avenue, Concord West (Lot 1, DP 219742). The site occupier's name is Fred Hosking Pty Ltd and the nature of site activities is noted to be paper product manufacture and the manufacture of stationery and envelopes.

Information from 1973 refers to a 2000 gallon UST located at a car port at the south of the Lot. The UST is noted to store mineral spirit (inflammable liquid). A sketch (see Appendix B) indicates that there may be a fill point or dispenser point near the Station Avenue entrance to the site.

Information from 1982 makes reference to a Roofed Package Store with a storage capacity of 1000 L for the storage of methanol or white spirits. Reference is also made to a 10 000 L UST used to store petrol. There is no indication to the location of these storage facilities.

In 1991, a letter to the WorkCover Authority of NSW advised that the UST for the storage of petrol was no longer used. The tank was filled with sand.

Information from 1993 made reference to a Roofed Store with a maximum storage capacity of 1845 L. The chemicals noted to be stored in this facility include Isopropanol (400 L), Denatured Alcohol (400 L), Acrylic Thinners (200 L) and X55 solvent (petroleum spirit) (400 L). The roofed store is noted to be located inside the factory building, or underneath an awning, on the eastern side of the building.

Information from 2003 makes reference to a Roofed Store with a maximum capacity of 1845 L. The chemicals noted to be stored in this facility include Ethanol (400 L), Isopropanol (400 L), Paint (200 L) and Petroleum Products (400 L). A sketch of the location of the store is provided but is unclear as to its location at the site. It is probably located at inside the factory building, or underneath an awning, on the eastern side of the building as from the 1993 information.

5.6 Regulatory Notices Search

A search of the Department of Environment and Conservation (DEC) (formerly Environmental Protection Agency) Notices indicated that:

a) No Notices of Orders to investigate or remediate have been issued for the site under the *Contaminated Land Management Act* (1997).

b) A licence has been issued by NSW EPA under the *Protection of the Environment Operations Act* (1997) and there has been one listed non-compliance. Licence number 6839 was issued for Fred Hosking Pty Ltd for the premises at Station Avenue, Concord West. The Fee Based Activity was for the "Hazardous, Industrial or Group A Waste Generation or Storage (73)" from less than 10 Tonnes up to 100 Tonnes. The waste is from the "production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish" or from the "production, formulation and use of resins, latex, plasticisers, glues and adhesives". One

non-compliance was listed for the general litter of paper chips from manufacture and general paper scattered around the yard.

5.7 Site Interviews

According to employees of Fred Hoskings:

- The factory building at 202-210 George Street was used for chemical storage at some stage prior to becoming a printing factory;
- Prior to becoming residential apartments, a warehouse/factory was located adjacent to the east (up-gradient) of 7 Concord Avenue and had stored chemicals on the property;
- There was no knowledge of chemical spills at the subject site.

5.8 Previous DP Investigations

Douglas Partners Pty Ltd (DP) have previously carried out a geotechnical investigation of the site carried out for J P Cordukes Pty Ltd detailed in a report dated 23 July 1990 (Project 14042). The investigation was carried out for a two storey extension to the southern side of the building at 7 Concord Avenue.

The site was described to be a single storey brick building with a relatively level ground surface around the site partly covered in bitumen pavement.

Three test bores were drilled to depths of 4.1 m – 5.0 m in locations indicated on Drawing 1, Appendix A (Bores 1-3). All bores encountered "bitumen and sand roadbase pavement materials underlain by clay filling which overlies a thin layer of soft clayey silt at depths 0.7 – 1.3 m and extending to a depth of 1.3 m – 1.7 m. The organic layer was then underlain by the weathered Ashfield Shale sequence comprising very stiff to hard clay grading to weak shale".

Free groundwater was encountered at depths of 2.4 m – 4.0 m in Bores 2 and 3 half an hour after completion of drilling operations. No free groundwater was observed in Bore 1.

6. POTENTIAL FOR CONTAMINATION

Based on the available site information, the potential sources of contamination identified during the site history review and site observations are:

- *Use of fill to form/level the site.* According to geological information (see section 4) the site is in an area of man-made fill. Also, in 1989, the north-eastern corner of the site contained fill that had been placed without consent from Council. Imported fill material placed at the site, if uncontrolled, may contain contamination. The potential contaminants in fill material from unknown sources may include heavy metals, total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCPs), phenols and asbestos.
- *Leaks from USTs.* Historical information indicates that at least three USTs have been used on site for the storage of petrol. Leaks can occur from these USTs, associated pipework and dispenser points, and thus contaminate soils and groundwater. Potential contaminants associated with petrol fuel include heavy metals, TPH, BTEX, Volatile Organic Hydrocarbons (VOCs), PAH, and phenols.
- *Spills of chemicals.* Two Roof Stores have been used at the site for the storage of solvents and petroleum products. Spills of these chemicals, although not kept in large quantities, have the potential to contaminate soils. The potential contaminants associated with these chemicals include TPH, BTEX, PAH, and VOCs.
- *Spills from the AST.* Leaks of heating oil from the AST could migrate into soils through cracks in the asphalt surface. Potential contaminants associated with heating oil include heavy metals, TPH, PAH and phenols.
- *General littering and dumping.* In 2002, (empty) chemical drums, were found to be dumped on the western boundary of the site. A non-compliance was issued by the NSW EPA for general littering of the property surrounding the building at the northern factory building. The non-compliance was for littering of paper chips and paper. Paper is not considered to be a source of contamination, but littering or dumping of other materials, such as materials containing asbestos, may result in contamination.
- *Previous site use.* The building at 202 – 210 George Street was (probably) used to store chemicals prior to use as a printing facility. The type of chemicals stored at the site is

unknown but probably associated with pool products. Chemical spills from past site activities could potentially contaminate soils.

- *Previous neighbouring land use.* According to information from staff interviews, the land adjacent the east of 7 Concord Avenue (on the northern side of Station Avenue) was a warehouse/factory (prior to becoming residential apartments) and had stored chemicals on the property. The land to the east of the site is up (hydrogeological) gradient of the site, so spills of chemicals may potentially migrate onto the subject site via groundwater flows. The type of chemicals stored at this site is unknown, although they may be associated with pool products as activities on this property may have coincided with those at 202-210 George Street (prior to becoming a printing facility).

The following suite of contaminants has thus been selected based on site history information and observations made at the site:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc);
- Total Petroleum Hydrocarbons;
- Monocyclic Aromatic Hydrocarbons;
- Polycyclic Aromatic Hydrocarbons;
- Polychlorinated Biphenyls;
- Organochlorine Pesticides;
- Volatile Organic Compounds;
- Phenols; and
- Asbestos.

7. SITE ASSESSMENT CRITERIA

7.1 Soil Contaminants

As the future site use is probably going to be residential, but not confirmed at this stage, the levels of contaminants in the soil were assessed against threshold concentrations for different residential development sites and are indicated Table 2. These have been sourced from the DEC publication, *Guidelines for the NSW Site Auditor Scheme*, 2006 (Appendix II) and the EAP publication, *Guidelines for Assessing Service Station Sites*, 1994. The two urban land-use categories considered for this assessment are:

- Residential with gardens and accessible soil (home-grown produce contributing less than 10% fruit and vegetable intake; no poultry), including children's day-care centres, preschools, primary schools, townhouses, villas; and
- Residential with minimal access to soil including high-rise apartments and flats.

Health-based investigation levels (HILs) for each are provided in Table 2.

Provisional phytotoxicity-based investigation levels (PILs) have been provided as:

- For residential developments with gardens and accessible soil, soils are to be assessed against the lower of the appropriate health-based investigation levels and phytotoxicity-based investigation levels.
- For residential developments with minimal access to soil, soils to be retained on site, not underneath buildings or slabs, are to be assessed against the lower of the health-based investigation levels and provisional phytotoxicity-based investigation levels.

For residential developments with minimal access to soil, PILs are typically used for the surface 0.5 m – 1.0 m. PILs are designed as a screening guide and do have significant limitations because phytotoxicity depends on soil and species parameters in ways that are not fully understood. If the soil is not sandy loam or in the pH range 6-8, other tests should be undertaken. Furthermore, PILs are single number criteria and should be compared against individual data points rather than contaminant concentrations averaged, statistically across a site.

A contaminant concentration in soil/ filling material is considered to be significant from a health risk perspective if:

1. The concentration of the contaminant is more than 2.5 times the site assessment criteria (SAC). Any location more than 2.5 times the SAC is classified as a 'hotspot', requiring further assessment/ management.
2. The calculated 95% Upper Confidence Limit average (excluding any 'hotspot' concentrations) of the data set for the contaminant exceeds the SAC.
3. The standard deviation of the results is greater than 50% of the HIL.

Volatile Organic Compounds (VOCs) in soils have been assessed the adopted Australian or NSW criteria. However, where these are not available, screening values were adopted from:

- US EPA Region 9 *Preliminary Remediation Goals 2004 Table*, Soil Calculations for residential and industrial exposure scenarios.

For simplicity, only adopted guidelines for detectable VOCs have been included for assessment against concentrations of contaminants.

Table 2 - Threshold Concentrations for Soils

Contaminant	Health-based investigation levels for Residential with gardens and accessible soil[1] (Column 1)	Health-based investigation levels for Residential with minimal access to soil[2] (Column 2)	Provisional phytotoxicity-based investigation levels (Column 5)	Source
TPH				NSW EPA[3] Contaminated Sites *Guidelines for Assessing Service Station Sites* (1994) threshold concentrations for sensitive land use-soils.
$C_6 - C_9$	65 mg/kg	65 mg/kg	-	
$C_{10} - C_{36}$	1000 mg/kg	1000 mg/kg	-	
BTEX				
Benzene	1 mg/kg	1 mg/kg	-	
Toluene	1.4 mg/kg	1.4 mg/kg	-	
Ethylbenzene	3.1 mg/kg	3.1 mg/kg	-	
Xylene	14 mg/kg	14 mg/kg	-	
Metals				NSW DEC[4] (2nd Edition) Contaminated Sites *Guidelines for the NSW Site Auditor Scheme* (2006) Soil Investigation Levels for Urban Redevelopment Sites in NSW, Heath-based investigation levels and Provisional phytotoxicity-based investigation levels (Columns 1, 2, and 5).
Arsenic (total)	100 mg/kg	400 mg/kg	20 mg/kg	
Cadmium	20 mg/kg	80 mg/kg	3 mg/kg	
Chromium	12%	48%	400 mg/kg	
Copper	1000 mg/kg	4000 mg/kg	100 mg/kg	
Lead	300 mg/kg	1200 mg/kg	600 mg/kg	
Mercury	15 mg/kg	60 mg/kg	1 mg/kg	
Nickel	600 mg/kg	2400 mg/kg	60 mg/kg	
Zinc	7000 mg/kg	28000 mg/kg	200 mg/kg	
Total Phenols	85000 mg/kg	34000 mg/kg	-	
PAH				
Total	20 mg/kg	80 mg/kg	-	
Benzo(a)Pyrene	1 mg/kg	4 mg/kg	-	
PCB	10 mg/kg	40 mg/kg	-	
OCP				
aldrin + dieldrin	10 mg/kg	40 mg/kg	-	
chlordane	50 mg/kg	200 mg/kg	-	
DDD+DDE+DDT	200 mg/kg	800 mg/kg	-	
Heptachlor	10 mg/kg	40 mg/kg	-	
Asbestos	No asbestos present in soil at the surface	No asbestos present in soil at the surface	-	Correspondence from NSW EPA Director of Contaminated Sites to Accredited Site Auditors

[1] (home grown produce contributing 10% fruit and vegetable intake; no poultry), including children's day-care centres, preschools, primary schools, townhouses, villas
[2] including high-rise apartments and flats
[3] NSW EPA is now part of the NSW Department of Environment and Climate Change (DECC)
[4] DEC is now known as DECC

7.2 Groundwater Contaminants

Based on the likely receiving waters Powells Creek (which flows into Homebush Bay), and that the noted hardness results (see sections 10 and 11) indicate that the majority of groundwater at the site is saline, the Groundwater Investigation Levels (GILs) have been based on the protection of 95% of species in marine water. Table 3 shows the adopted GILs and the associated guidelines.

Table 3 - Groundwater Investigation Levels (GILs)

Contaminant	Adopted Criteria (GIL)	Source
TPH $C_6 - C_9$ $>C_9$	 150 µg/L 600 µg/L	At this stage, there are no high reliability guideline value for TPH* in ANZECC 2000 or endorsed by NSW EPA. For reference purposes, DP has referred to other available Australian guidelines for **TPH** *viz. Airport (Environment Protection) Regulations* (1997), Schedule 2 Water Pollution Accepted Limits: Table 1.03 – Accepted limits of contamination. It should be noted however that these have not been endorsed by EPA and are used as 'screening levels' only.
BTEX Benzene Toluene Ethylbenzene Xylene	 700 µg/L 300 µg/L 140 µg/L 380 µg/L	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of marine water species* NSW EPA Contaminated Sites *Guidelines for Assessing Service Station Sites* (1994) *Threshold concentrations for sensitive land use, Protection of Aquatic Ecosystem* is adopted in the absence of other comprehensive investigation levels for ethyl benzene in marine groundwater. GIL for toluene adopted from the protection of freshwater ecosystems in the absence of other investigation levels in marine groundwater.
Metals Arsenic (III) Cadmium Chromium (III) Copper Lead Mercury Nickel Zinc	 24 µg/L 5.5 µg/L 27.4 µg/L 1.3 µg/L 4.4 µg/L 0.4 µg/L 70 µg/L 15 µg/L	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of marine water species*. Adopted GIL for arsenic from *95% protection of freshwater species* in the absence of other investigation levels in marine groundwater.
Phenol	400 µg/L	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of marine water species*
PCB Aroclor 1242 Aroclor 1254	 0.6 µg/L 0.03 µg/L	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species* in the absence of other investigation levels in marine groundwater
OCP Aldrin+Dieldrin Chlordane DDT Heptachlor	 Not specified 0.08 0.01 0.09	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of freshwater species* in the absence of other investigation levels in marine groundwater
PAH Total Benzo(a)Pyrene Naphthalene	 Not specified Not specified 70 µg/L	*ANZECC (2000) Australian Water Quality Guidelines for the protection of 95% of marine water species*

* Other than a 'low reliability' final chronic value of 7 µg/L for petroleum hydrocarbon, which is not routinely achievable by NATA laboratories due to inability to meet the required detection limits

7.3 Acid Sulphate Soils

Action Criteria are adopted from *Acid Sulfate Soils: Assessment Guidelines*, NSW Acid Sulfate Soils Management Advisory Committee, August 1998. Redevelopment of the site may include possible basement excavations at the eastern portion of the site, but at this stage the volume of disturbed soil for the proposed redevelopment of the site is unknown. Thus, both Action Criteria for the disturbance of less than 1000 tonnes of ASS and for the disturbance of more than 1000 tonnes of ASS have been included for assessment purposes.

8. FIELD WORK

8.1 Data Quality Objectives and Project Quality Procedures

The data quality objectives (DQO) of the Phase 1 and Phase 2 Contamination Assessment works have been developed to define the type and quality of the data to achieve the project objectives and were based broadly in accordance with the seven step data quality objective process, as defined in Australian Standard (AS) "*Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and Semi-volatile Compounds* (AS 4482.1 – 2005).

The DQO process is outlined in the AS and defined by:

- 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.

As part of the project quality procedures, a number of Data Quality Indicators (DQI's) were established to ensure the quality of the investigation data is acceptable. Table 4 summarises how the various DQI's are assessed.

Table 4 - DQIs and Evaluation Procedures

DQI	Evaluation Procedure
Documentation completeness	Completion of field and laboratory documentation including chain of custody, test bore reports.
Data completeness	A review of site history to provide support for the current analytical regime, analysis of appropriate contaminants, analysis of appropriate soil horizons, analysis of appropriate QA samples etc
Data comparability	Use of NATA accredited analytical methods, use of consistent sampling technique, commitment to equipment decontamination, field sample storage techniques etc.
Data representativeness	Sampling from targeted areas based on site history and on-site observations in order to obtain samples representative of contamination present.
Precision and accuracy for sampling and analysis	Use of NATA accredited analytical methods, achievement of 30-50% RPD for replicate analysis (as appropriate) and achievement of laboratory QC criteria.

As indicated above, the DQI's for sampling and analysis were achieved and the quality of the data satisfactorily meets the objectives of the current assessment.

8.2 Field QA and Quality Control

The field QC procedures for sampling as prescribed in Douglas Partners *Field Procedures Manual* were generally followed during the assessment. Field QC sampling comprised replicate sampling, at a rate of approximately one replicate sample for every ten samples. Blind replicate samples were analysed by both Envirolab Services and LabMark for intra-laboratory and inter-laboratory comparison. The comparative results of analysis are summarised in Appendix E.

8.3 Laboratory QA/QC

Envirolab Services and LabMark, both laboratories accredited by the 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 reports in Appendix D and are discussed further in Appendix E.

8.4 Sample Location Rationale

The sampling locations were designed according to the known site information and to achieve representative coverage of the site area. Five sampling locations (Test Bores 101 -105) were placed to meet requirements for geotechnical investigations. Twenty-nine sampling locations (Test Bores 201 -229) were chosen using a combination of a targeted and systematic regime to complement the previous five sampling locations. One targeted sampling location was placed at each of the following potentially contaminating sources:

- UST at 207 Concord Avenue – the sampling location (Test Bore 204) placed approximately 1m down hydrogeological gradient of the UST for soil and groundwater sampling;
- The previous location of a UST at 207 Concord Avenue – the sampling location (Test Bore 229) placed where a UST was previously located (according to filed plans from Council records);
- UST and bowser at 202–210 George Street – the sampling location (Test Bore 205) placed approximately 1.5 m down hydrogeological gradient of the UST (and bowser) for soil and groundwater sampling;
- The previous location of a bowser at 207 Concord Avenue – the sampling location (Test Bore 222) placed 1 m down hydrogeological gradient of the bowser "footprint" for soil sampling;
- The previous location of a bowser at 207 Concord Avenue – the sampling location (Test Bore 221);
- The (other) previous location of bowser at 207 Concord Avenue – the sampling location (Test Bore 221) placed at the estimated location of where the bowser previously stood;
- AST - the sampling location (Test Bore 218) was placed 2 m (approximately) down hydrogeological gradient of the AST in an accessible area for soil sampling;

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REPORT
on
PHASE 1 & 2 CONTAMINATION ASSESSMENT

7 CONCORD AVENUE & 202-210 GEORGE STREET CONCORD WEST

Prepared for
FRED HOSKING PTY LTD

Project 45146A
November 2007

- Roofed store at 202 – 210 George Street – the sampling location (Test Bore 225) was placed 1.5 m (approximately) down hydrogeological gradient of the roofed store in an accessible area for soil sampling.

The remaining twenty-one sampling locations were designed in a loose grid pattern to compliment the eight targeted sampling locations and five previous geotechnical sampling locations. This is considered to provide a suitable sampling density for a Phase 2 Contamination Assessment based on the NSW EPA *Sampling Design Guidelines* (1995). The *Guidelines* recommend a minimum of 30 sample locations for a site of 2ha. The sampling locations were designed to accommodate drill-rig accessibility, the location of underground services and site operations (traffic and staff movements). Sampling locations are shown on Drawing 1, Appendix A.

All sample points were cleared of detectable services and pipes using Dial-before-you-dig information and an electro-magnetic sweep. Ground Penetrating Radar (GPR) was used to determine the extremities of the UST at 7 Concord Avenue. GPR could not locate the extremities of the UST at 202 – 210 George Street due to interference from a thick concrete slab.

Five sampling locations were designated to be converted into groundwater monitoring wells. As listed above, two of the groundwater monitoring wells were located to target potential groundwater contamination from the USTs. One of the groundwater monitoring wells was located on the eastern boundary of the site in an attempt to determine the (limited) chemical composition of groundwater flowing onto the site (this groundwater well was located near the previous location of a factory/warehouse that previously neighboured the site to the east). The remaining two groundwater wells were located on the western and northern sides of the site to aid in determining the chemical composition and direction of groundwater flowing away from the site.

8.5 Soil Sampling Procedures

The field investigation comprised soil sampling from thirty-four test bores, including:

- Five sampling locations (Test Bores 101 - 105) drilled as part of concurrent geotechnical investigations, using a Multi-Access rig. The bores were drilled using a 100mm solid flight auger until refusal on shale (and then the shale was cored using NMLC-Coring). Samples from auger returns were generally collected at nominal depths of 0.2m, 0.5m, and 1.5m. Samples from Standard Penetration Tests were generally collected from depths of around 1.0m, 2.0m and 3.0m and 4.0m (until refusal of solid flight auger drilling).
- Twenty-eight sampling locations (Test bores 201 – 227 and 229) drilled using a Bobcat-mounted drill rig. The bores were drilled using a 100mm solid flight auger. Samples were generally collected from auger returns at identifiable horizons of filling/soil or upon signs of contamination until drilling refusal or a target depth (usually in natural soil) was reached.
- One sampling location (Test bore 228) that was inaccessible for a drill rig due to dense vegetation and the surrounding man-proof fence. Soil/filling samples of identifiable horizons of soil/filling were taken from hand auger returns until hand auger refusal.

Environmental sampling was performed according to standard operating procedures outlined in the DP *Field Procedures Manual*. All sampling data was recorded on DP chain-of-custody sheets. Each sample (including 10% replicate samples for QA/QC purposes) was placed into laboratory prepared glass jars with a minimum of disturbance and capped immediately with Teflon lined lids. Disposable gloves were used to limit the potential for cross-contamination. A replicate sample was collected in a zip-lock plastic bag for PID testing. Additional replicate soil/filling samples were also collected in zip-lock bags (with minimal air in the bag) from seven sampling locations (Test Bores 203, 204, 205, 213, 224, and 225) for screening for Acid Sulphate Soils. After labelling the sample containers with individual and unique identification, including project number, sample location and sample depth, samples were placed into a cooled and insulated container for transport to the laboratory.

8.6 Groundwater Piezometer Construction Details and Sampling Procedures

The piezometers (at Test Bores 203, 204, 205, 207 and 213) were constructed using 50 mm diameter acid washed, class 18, PVC casing and machine-slotted well screen. Joints were screw threaded, thereby avoiding the use of glues and solvents which may contaminate the well waters. As well construction was designed to accommodate shallow groundwater (of around 1m

below ground level [bgl]) noted whilst augering, a gravel pack could only be extended approximately 0.1 m to 0.3 m above the well screen (instead of a standard 0.5m) to accommodate a bentonite plug of approximately 0.5m thickness. End caps were placed to seal each of the piezometers. Gatic covers were set in concrete at the ground surface for each well.

Each well was developed by the removal of all available water from the piezometers using disposable bailers. Groundwater was sampled using a "low-flow" pump once stable parameters were reached as indicated by a "multi-probe". The sample containers were labelled with individual and unique identification, and placed into a cooled, insulated and sealed container for transport to the laboratory. Groundwater samples for heavy metal analysis were filtered on site using a 45 μm filter prior to analysis [except the sample collected from Test Bore 205 which contained a significant amount of suspended solids: this sample was sent to the laboratory unfiltered to be centrifuged prior to analysis].

9. ANALYTICAL RATIONALE

9.1 Contaminants

The analytical scheme for soil was designed around assessing the potential for contamination which may have arisen from current and past use of the site as well as from observations made during field investigations. The analytical scheme is summarised in Table 5. Of particular note:

- Filling sample 101/0.5-0.6 was analysed for asbestos as some bricks were noted in the filling material in Test Bore 101 at depths of 0.3 m bgl to 0.8 m bgl. [Soil materials containing building rubble can potentially contain materials that contain asbestos].
- Filling sample 104/0.5-0.6 was analysed for asbestos as some concrete fragments were noted to be in the filling material in Test Bore 104 at depths of 0.4 m bgl to 0.8 m bgl.
- Filling sample 105/0.1-0.2 was analysed for heavy metals and PAH as gravel comprising slag with some ash was noted in the filling material at Test Bore 104 to a depth of 0.3 m bgl, underneath a layer of asphaltic concrete.

- Filling sample 105/0.4-0.5 was analysed for asbestos as a trace of brick fragments were noted in the filling at Test Bore 105 at depths of 0.3 m bgl to 1.0 m bgl.
- Filling sample 203/0.2-0.5 was analysed for asbestos as trace brick pieces were noted in the filling in Test Bore 203 at depths of 0.15 m bgl to 0.8 m bgl.
- Natural soil sample 204/1.4-1.5 was analysed for VOCs as Test Bore 204 was drilled next to a UST and free groundwater was observed at a depth of 1.4 m whilst augering.
- Natural soil sample 205/1.0-1.5 was analysed for VOCs as soil in Test Bore 205 at depths of 0.6 m bgl to 1.5 m bgl was noted to have a strong hydrocarbon odour. Sample 205/2.5-3.0 was analysed to attempt to determine the vertical extent of the contamination.
- Filling sample 208/0.0-0.1 was analysed for asbestos as some concrete pieces and a trace of plastic was noted in the filling at the surface to a depth of 0.2 m bgl.
- Filling sample 209/0.5-1.0 was analysed for VOCs as a slight hydrocarbon odour was detected in the filling material from a depth of 0.5 m bgl to 1.0 m bgl.
- Filling sample 213/0.0-0.2 was analysed for asbestos as the filling at Test Bore 213 was noted to have some concrete fragments and a trace of wire. Test Bore 213 was drilled near an area noted to contain fibre cement fragments on the ground surface.
- Filling sample 214/0.0-0.2 was analysed for asbestos as some concrete fragments were noted in the surface filling material at Test Bore 214 to a depth of 0.2 m bgl. Test Bore 214 was drilled in an area noted to contain fibre cement fragments on the ground surface.
- Filling sample 216/0.0-0.5 was analysed for asbestos as a fibre-cement fragment (sample A216/0.3) was noted in the filling material at a depth of approximately 0.3 m bgl. The fibre-cement sample was also analysed for asbestos.
- Sample 218/0.4-0.7 was analysed for VOCs as this Test Bore was drilled near the AST.
- Filling sample 221/1.2-1.7 was analysed for VOCs as a strong hydrocarbon odour was detected in the filling at Test Bore 221 from a depth of 0.8 m bgl to 1.7 m bgl.
- Natural soil sample 222/1.0-1.3 was analysed for VOCs as Test Bore 222 was drilled near a former bowser.
- Filling sample 225/0.2-0.5 was analysed for VOCs as Test Bore 225 was drilled near a roofed store.

- Filling sample 227/0.2-0.3 was analysed for asbestos as concrete pieces were encountered at Test Bore 227 at a depth of 0.17 m bgl to 0.3 m bgl underneath a concrete slab.
- Filling sample 228/0.0-0.1 was analysed for asbestos metal pieces and tile fragments were noted in the surface layer of filling at Test Bore 228, to a depth of 0.1 m.
- Filling sample 229/1.1-1.5 was analysed for VOCs as Test Bore 229 was drilled where the previous UST was located.

The remainder of chemical analysis, as detailed in Table 5, was designed to achieve a general coverage of the site with the focus of investigation being on encountered filling materials.

Table 5 - Summary of Analytical Scheme for Soil

Sample ID (Test Bore/depth)	Filling (F) Natural (N) Building Material (M)	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Zn, Ni)	BTEX / TPH	PAHs	PCB	OCP	Phenols	Asbestos	VOCs
101/0.5-0.6	F	✓	✓	✓	✓	✓	✓	✓	-
102/0.5-0.6	F	✓	✓	✓	✓	✓	✓	-	-
103/0.2-0.3	F	✓	✓	✓	-	-	-	-	-
103/0.5-0.6	F	✓	✓	✓	✓	✓	✓	-	-
104/0.5-0.6	F	✓	✓	✓	✓	✓	✓	✓	-
Z-180907	F	✓	✓	✓	-	-	-	-	-
105/0.1-0.2	F	✓	✓	✓	-	-	-	-	-
105/0.4-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
201/0.2-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
202/0.5-1.0	F	✓	✓	✓	✓	✓	✓		-
203/0.2-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
204/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
204/1.4-1.5	N	✓	✓	✓	-	-	-	-	✓
205/1.0-1.5	N	✓	✓	✓	✓	✓	✓	-	✓
205/2.5-3.0	N	✓	✓	✓	-	-	-	-	-
206/0.5-1.0	F	✓	✓	✓	✓	✓	✓	✓	-
206/1.5-2.0	F	✓	✓	✓	-	-	-	-	-
207/0.5-1.0	F	✓	✓	✓	-	-	-	-	-
207/1.0-1.5	F	✓	✓	✓	✓	✓	✓	-	-
208/0.0-0.1	F	✓	✓	✓	-	-	-	✓	-
208/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
209/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	✓
210/0.7-1.2	F	✓	✓	✓	✓	✓	✓	✓	-
211/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
212/0.2-0.5	F	✓	✓	✓	✓	✓	✓	-	-
213/0.0-0.2	F	✓	✓	✓	✓	✓	✓	✓	-
213/0.2-0.5	F	✓	✓	✓	-	-	-	-	-

Sample ID (Test Bore/depth)	Filling (F) Natural (N) Building Material (M)	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Zn, Ni)	BTEX / TPH	PAHs	PCB	OCP	Phenols	Asbestos	VOCs
214/0.0-0.2	F	-	-	-	-	-	-	✓	-
214/0.2-0.5	F	✓	✓	✓	✓	✓	✓	-	-
215/0.1-0.3	F	✓	✓	✓	-	-	-	✓	-
215/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
216/0.0-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
A216/0.3	M	-	-	-	-	-	-	✓	-
216/0.5-1.0	F	✓	✓	✓	-	-	-	-	-
217/0.0-0.5	F	✓	✓	✓	-	-	-	✓	-
217/2.0-2.3	N	✓	✓	✓	-	-	-	-	-
BD3-101007	N	✓	✓	✓	-	-	-	-	-
218/0.4-0.7	F	✓	✓	✓	✓	✓	✓	-	✓
218/0.7-1.0	F	✓	✓	✓	-	-	-	-	-
BD4-101007	F	✓	✓	✓	-	-	-	-	-
219/0.2-0.4	F	✓	✓	✓	-	-	-	✓	-
219/0.5-0.9	F	✓	✓	✓	✓	✓	✓	-	-
220/0.3-0.5	F	✓	✓	✓	✓	✓	✓	-	-
221/0.1-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
221/1.2-1.7	F	✓	✓	✓	-	-	-	-	✓
222/0.2-0.5	F	✓	✓	✓	✓	✓	✓	✓	-
222/1.0-1.3	N	✓	✓	✓	-	-	-	-	✓
BD2-111007	N	✓	✓	✓	-	-	-	-	-
223/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
224/0.5-1.0	F	✓	✓	✓	✓	✓	✓	-	-
225/0.2-0.5	F	✓	✓	✓	-	-	-	✓	✓
226/0.2-0.5	F	✓	✓	✓	-	-	-	-	-
BD4-111007	F	✓	✓	✓	-	-	-	-	-
227/0.2-0.3	F	✓	✓	✓	✓	✓	✓	✓	-
227/1.0-1.5	F	✓	✓	✓	✓	✓	✓	-	-
228/0.0-0.1	F	✓	✓	✓	-	-	-	✓	-
229/0.6-1.0	F	✓	✓	✓	-	-	-	-	-
229/1.1-1.5	F	✓	✓	✓	-	-	-	-	✓

Notes:
Z-180907 blind replicate of 104/0.5-0.6
A216/0.3 fibre cement material sample from Test Bore 216, depth 0.3m
BD3-101007 blind replicate of 217/2.0-2.3
BD4-101007 blind replicate of 218/0.7-1.0
BD2-111007 blind replicate of 222/1.0-1.3
BD4-111007 blind replicate of 226/0.2-0.5

9.2 Groundwater Contaminants

The groundwater analytical scheme, as shown in Table 6, was designed to provide information, from each of the five wells, in regards to potential groundwater contamination at the site.

Table 6 – Summary of Analytical Scheme for Groundwater

Sample ID (Test Bore)	Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Zn, Ni)	BTEX / TPH	PAHs	PCB	OCP	Phenols	VOCs	Hardness
GW-203	✓	✓	✓	✓	✓	✓	✓	✓
BD1-171007	✓	✓	-	-	-	-	-	✓
GW-204	✓	✓	✓	✓	✓	✓	✓	✓
GW-205	✓	✓	✓	✓	✓	✓	✓	✓
GW-207	✓	✓	✓	✓	✓	✓	✓	✓
GW-213	✓	✓	✓	✓	✓	✓	✓	✓

Note: BD1-171007 is a blind replicate sample of GW-203

9.3 Acid Sulphate Soils

Samples that were screened for ASS are listed in Table 8. Filling samples, as well as natural soil samples, were screened (using peroxide) as some of the filling on the site could be dredged material from the Homebush Bay area and may potentially be ASS.

Table 7 – Samples screened for ASS and selected for sPOCAS and Chromium Reducible Sulphur analysis

Samples screened for ASS (Test Bore/depth)	Filling (F) or Natural (N)	Selected for SPOCAS and Chromium Reducible Sulphur	Samples screened for ASS (Test Bore/depth)	Filling (F) or Natural (N)	Selected for SPOCAS and Chromium Reducible Sulphur
203/0.2-0.5	F	-	205/2.5-3.0	N	-
203/0.8-1.0	N	-	207/0.0-0.5	F	-
203/1.0-1.3	N	-	207/0.5-1.0	F	-
203/1.5-2.0	N	-	207/1.0-1.5	F	✓
203/2.5-3.0	N	-	207/1.7-2.0	N	-
204/0.1-0.3	F	-	213/0.2-0.5	F	-
204/0.5-1.0	F	-	213/0.7-1.0	N	-
204/1.0-1.2	N	-	213/1.1-1.5	N	✓
204/1.2-1.4	N	✓	213/1.5-2.0	N	-
2041.4-1.5	N	-	224/0.3-0.5	F	-

Samples screened for ASS (Test Bore/depth)	Filling (F) or Natural (N)	Selected for SPOCAS and Chromium Reducible Sulphur	Samples screened for ASS (Test Bore/depth)	Filling (F) or Natural (N)	Selected for SPOCAS and Chromium Reducible Sulphur
204/1.9-2.2	N	-	224/0.5-1.0	F	-
205/0.3-0.5	F	-	224/1.2-1.4	N	✓
205/0.6-1.0	N	-	224/1.6-2.0	N	-
205/1.0-1.5	N	-	225/2.0-2.5	N	-
205/1.5-2.0	N	-			

Based on the screening results, SPOCAS analysis was undertaken on four samples that were more likely to be ASS and were of different soil descriptions:

- Sample 204/1.2-1.4 was noted to be grey silty clay from less than 0.5 m below the observed groundwater level.
- Sample 207/1.0-1.5 was noted to be brown clay filling from approximately 0.7 m above the observed groundwater level.
- Sample 213/1.1-1.5 was noted to be red brown and grey silty clay from marginally below (within 0.3m of) the observed groundwater level.
- Sample 224/1.2-1.4 was noted to be mottled grey and brown peaty clay from marginally below (within 0.4 m of) the observed groundwater level.

10. RESULTS OF INVESTIGATION

10.1 Field Observations

10.1.1 Soil

Details of the sub-surface conditions encountered during the course of the investigation are included in the Test Bore Reports (Appendix C) along with related notes to accompany the report. Table 8 provides a summary of the lithological sequence observed at each Test Bore.

Table 8 - Summary of Lithological Sequence

Test Bore	Concrete Depth (m)	Asphaltic Concrete Depth (m)	Filling (m)	Natural (m)				Test bore completion depth (m)
				Peaty Clay	Silty Clay(s)	Gravelly Clay	Shale	
101	0-0.19	-	0-0.8	0.8-1.2	1.2-3.5	-	3.5-7.43**	7.43
102	0-0.11	-	0-1.8^^	-	1.8-3.8	-	3.8-7.25**	7.25
103	-	-	0-1.3	1.3-1.9	1.9-4.9	-	4.9-9.0**	9.0
104	-	-	0-0.4	-	0.4-0.8	-	3.2-7.5**	7.5
105	-	0-0.03	0.03-1.0	-	1.0-3.9	1.5-2.0##	3.9-7.58**	7.58
201	0-0.15	-	0.15-0.8	0.8-1.0	1.0-3.0	-	-	3.0
202	0-0.14	-	0.14-1.0	-	-	-	-	1.0*
203	-	0-0.07	0.07-0.8	0.8-1.0	1.0-4.3	-	-	4.3^
204	-	0-0.05	0.05-1.0	1.0-1.2	1.2-2.5	-	-	2.5^
205	0-0.16	-	0.16-0.6	0.6-1.5	1.5-3.2	-	-	3.2^
206	0-2.5	-	2.5-3.0	-	2.5-3.0	-	-	3.0
207	-	-	0-1.6	1.6-1.7	1.7-4.3	-	-	4.3
208	-	-	0-1.1	-	1.1-1.6	-	-	1.5
209	0-0.15		0.15-1.2	1.2-1.7	1.7-2.0	-	-	2.0
210	0-0.16	-	0.16-1.2	-	-	-	-	1.2*
211	0-0.16	-	0.4-1.3	1.3-1.7	1.7-2.0	-	-	2.0
212	0-0.15	-	0.15-0.7	-	-	-	-	0.7*
213	0-0.7	-	0.7-2.7	0.7-1.1	1.1-2.7	-	2.7-2.9	2.9^
214	-	-	0-0.8	0.8-1.2	1.2-1.5	-	-	1.5
215	-	-	0-1.1	1.1-1.2	1.2-1.7	-	-	1.7
216	-	-	0-1.0	-	1.0-3.0#	-	-	3.0
217	-	-	0-1.0	-	1.0-2.3	-	-	2.3
218	-	0-0.05	0.05-1.0	1.0-1.2	1.2-2.2	-	-	2.2
219	0-0.15	-	0.15-0.9	0.9-1.1	1.1-1.7	-	-	1.7
220	0-0.17	-	0.17-0.6	0.6-0.8	0.8-1.9	-	-	1.9
221	-	-	0-1.7	-	-	-	-	1.7
222	-	0-0.05	0.05-1.0	-	1.0-1.5	-	-	1.5
223	0-0.12	-	0.12-1.1	-	1.1-1.5	-	-	1.5
224	0-0.16	-	0.16-1.2	1.2-1.4	1.4-2.0	-	-	2.0
225	0-0.16	-	0.16-0.9	0.9-1.2	1.2-2.5	-	-	2.5
226	0-0.15	-	0.15-0.7			-	-	0.7*
227	0-0.17	-	0.17-1.7	-	1.7-2.6	-	-	2.6
228	-	-	0-0.12	-	-	-	-	0.12*
229	-	0-0.05	0.05-2.6	-	2.6-2.9	-	-	2.9^

* Refusal in filling
\# Possibly filling from 1.0m bgl - 2 4m bgl
^ Refusal on weathered shale
** NMLC-Coring
##Possibly peat layer
^^Possibly natural from 1.5m bgl

Filling materials observed underneath the building at 7 Concord Avenue consisted, mainly, of a thin layer of sand (underneath a concrete slab) underlain by clay type fills with smaller proportions of gravel and silt. Filling was observed to be at depths of up to 1.3m bgl. However,

refusal in filling materials was encountered at three test bores (202, 210 and 212). A slight hydrocarbon odour was noted in the filling at Test Bore 209 from 0.5 m – 1.0 m bgl.

Filling materials at the north-eastern corner of the site (at Test Bores 213, 214 and 104) were observed to be a layer of sand, gravel and recycled concrete filling with trace amounts rootlets and wire; underlain by a clay or gravelly clay type filling to a depth of up to 0.8 m. Three fragments of fibre-cement were noted on the ground surface in the vicinity of Test Bores 104 and 214.

The north-western corner of the site was inaccessible for the Bobcat-mounted drill rig because of the dense vegetation and surrounding man-proof fencing. Hand tools were used to take a surface filling sample (to a depth of 0.1 m bgl) which was identified to be a silty clay material with trace amounts of gravel, rock pieces, metal pieces, tile fragments and bone. The surface material was underlain by compacted clay filling which could not be penetrated with a hand auger. Refusal was at 0.12 m bgl.

Filling materials observed along the western boundary of the site (at Test Bores 207, 216 and 217) were observed to be a clay type fills with some gravel and trace amounts of sand, timber and rootlets to a depth of up to 1.6 m bgl. A fragment of fibre-cement (sample A216/0.3) was collected from Test Bore 216 from a depth of approximately 0.3 m bgl.

Filling materials adjacent to the north of the building at 7 Concord Avenue (at Test Bores 103, 208 and 215) were identified to consist of sand, gravelly sand, gravelly clay, sandy gravel, clay and sandy clay up to a depth of 1.3 m bgl. Trace amounts of concrete fragments were noted in the filling at the surface at Test Bores 208 and 215. A trace amount of plastic was also noted in the surface filling at Test Bore 208.

Filling materials adjacent the east of the building at 7 Concord Avenue (at Test Bores 105, and 203, 219 and 220; underneath a concrete slab or asphaltic concrete) were observed to be sand, silty clay, clay, gravelly clay, clayey gravel (roadbase) and sandy gravel materials up to a depth of 1.0 m bgl. Traces of brick pieces were noted in the filling at Test Bore 203, depth 0.2 m – 0.8 m bgl. Some slag and ash was noted in the filling at Test Bore 105 beneath the layer of asphaltic concrete to a depth of 0.3 m bgl.

Test Bore 221 was drilled on a garden surface at the south-west corner of the building at a former bowser at 7 Concord Avenue. A surface layer of silty sand filling, to a depth of 0.5 m bgl, was observed to be underlain by a gravelly sand filling, to a depth of 1.7 m bgl, identified with a strong hydrocarbon odour from 0.8 m to 1.7 m bgl and stained grey from 1.0 m bgl to 1.7 m bgl. Drilling refusal was on concrete at 1.7 m bgl. It is unlikely, given the information to hand, that the concrete represents the concrete anchors over a UST.

Filling materials (underneath an asphaltic concrete layer) adjacent the south of building (at Test Bores 222, 204, 218 and 229) at 7 Concord Avenue were observed to be gravelly sand (roadbase), clay, clayey sand, silty clay and sand. The yellow sand filling identified at Test Bore 222, at depth 0.8 m – 1.0 m bgl, appeared to be a service trench backfill material. The depth of filling (2.6 m bgl) at Test Bore 229 indicates that this sampling location was the likely previous location of a UST.

Filling material (underneath a concrete slab) at the south-east corner of the building at 202-210 George Street (at Test Bore 102) was observed to be sand and gravelly clay materials to a depth of 1.8 m bgl. Test Bore 206 was drilled on a garden surface at the east of the building. The silty sand filling at the surface, to a depth of 0.5 m bgl, was underlain by layers of clay filling to a depth of 2.5 m bgl.

Filling, underneath a concrete slab, at Test Bore 205 (at the north of building at 202-210 George Street, near the bowser) was observed to be sand and clay materials up to a depth of 0.6 m bgl.

Filling materials (underneath a concrete slab) adjacent the west of the building at 202-210 Concord Avenue (at Test Bores 223, 225, 224 and 101) were observed to be sand, sandy clay and gravelly clay up to a depth of 1.1 m bgl. Brick pieces were noted in the filling at Test Bore 101 from a depth of 0.3 m -0.8 m bgl.

Filling observed underneath the building at 202-210 George Street were noted to be clay, sand and sandstone boulder materials up to a depth of 1.7 m bgl. However, drilling refusal occurred at Test Bore 227 on timber (or a tree stump) at 0.7 m bgl.

Natural materials observed to underlie filling typically included a layer of peaty clay (up to 0.9m thick) underlain by silty clays and, in turn, shale. Typically, the peaty clay layer tended to be

relatively soft, as well as an underlying layer of silty clay. Silty clays, at greater depths, tended to be relatively stiffer and were usually mottled grey and brown (red or red-brown). Trace amounts of (ironstone) gravel were noted in some of the Test Bores, typically in the relatively stiffer silty clays.

Natural materials at Test Bores 217, 216 and 105 were observed to be slightly different to the typical natural soil profiles at the site, with:

- trace amounts of gravel and sand noted in the silty clay at Test Bore 217;
- trace amounts of gravel, sand and rootlets in the silty clay at Test Bore 216; and
- slightly sandy silty clay with ironstone gravel and a gravely clay observed at Test Bore 105.

A strong hydrocarbon odour was noted at Test Bore 205 in the peaty clay at a depth of 0.6m bgl to 1.5m bgl. A mild hydrocarbon odour was noted in the silty clay, at the same location, at a depth of 1.5m to 2.0m bgl.

10.1.2 Groundwater

Free groundwater was observed whilst augering at numerous test bores. Free groundwater was commonly, but not always, observed in the relatively softer layers of natural soils (typically peaty clay and silty clay).

Measured groundwater levels for the monitoring wells at Test Bores at 203, 204, 205, 207 and 213 are presented in Table 9. The groundwater levels were measured on:

- 15 October 2007 – four days after well installation, immediately prior to well development;
- 17 October 2007 – two days after well development, prior to groundwater sampling; and
- 22 October 2007 – five days after groundwater sampling.

Table 9 – Piezometric Levels

Monitoring Well (MW)	Surface Height (m AHD)	Groundwater Depth					
		15/10/07		17/10/07		22/10/07	
		(m bgl)	(m AHD)	(m bgl)	(m AHD)	(m bgl)	(m AHD)
203	4.42	1.16	3.26	1.93	2.49	1.16	3.26
204	4.39	0.75	3.64	0.82	3.57	0.76	3.63
205	4.69	0.73	3.96	0.78	3.91	0.74	3.95
207	4.28	2.27	2.01	2.87	1.41	2.16	2.12
213	4.22	1.06	3.16	1.13	3.09	1.08	3.14

The groundwater sampled from Test Bores 203, 204, 205, and 207 was observed to be clear and colourless, except water from near the base of each well which contained some brown silt/clay. Groundwater sampled from Test Bore 213 was observed to be cloudy and a pale brown colour and had a mild hydrocarbon odour.

10.1.3 PID Results

All soil samples were screened for the presence of Total Photo-Ionisable Compounds (TOPIC) using a Pre-Calibrated Photo-Ionisation Detector (PID). The TOPIC results give a general indication of the likely presence of volatile organic compounds prior to dispatch to the laboratory. It should be noted that the TOPIC results should only be used for indicative purposes only as the accuracy of PID screening can be affected by the presence of interferences in the soil gas, including elevated moisture levels.

The replicate soil samples collected in zip-lock plastic bags were allowed to equilibrate under ambient temperatures before TOPIC screening. Results of sample screening are shown in the Test Bore Reports in Appendix C. The PID readings were generally low and typical of Australian background levels. Slightly (relatively) elevated levels were observed from the samples at Test Bores 201, at a depth of 0.6 m – 3.0 m bgl, and at Test Bore 221, at depths of 1.0 m – 1.7 m bgl.

10.2 Analytical Results for Soil Samples

The results of laboratory analysis for filling samples are summarised in Table 10. The results of laboratory analysis for natural soils are summarised in Table 11. Appendix D provides copies of laboratory certificates/reports, together with Chain of Custody Documentation.

Table 10 - Results of Analysis on Filling Samples (All results in mg/kg unless otherwise stated)

Sample ID (Test Bore/Depth)	Heavy Metals								PAH		TPH		Benzene	Toluene	Ethylbenzene	Total Xylene	Total PCB	OCP^	Phenols	VOCs					Asbestos
	As	Cd	Cr-	Cu	Pb	Hg	Ni	Zn	B(a)P	Total (+ve) PAH	C6-C9	C10-C36								n-propyl benzene	1,2,4-trimethyl benzene	n-butyl benzene	naphthalene	All Other VOCs	
101/0.5-0.6	11	<1	24	6100	160	<0.1	42	580	<0.05	<PQL	<25	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
102/0.5-0.6	18	<1	13	22	38	<0.1	3.3	33	0.2	1.9	<25	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
103/0.2-0.3	<4	<1	19	65	13	<0.1	100	62	0.1	0.3	<25	<PQL	<1	<1	<1	<PQL	-	-	-	-	-	-	-	-	-
103/0.5-0.6	8.2	<1	18	21	30	<0.1	7.3	33	<0.05	<PQL	<25	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
104/0.5-0.6	5.8	<1	26	19	37	<0.1	17	41	0.6	5.7	<25	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
Z-180907	6.1	<1	29	20	35	<0.1	18	41	1	13.8	<25	<PQL	<1	<1	<1	<PQL	-	-	<5	-	-	-	-	-	-
105/0.1-0.2	<4	<1	10	47	7.2	<0.1	54	46	<0.05	<PQL	<25	330	<1	<1	<1	<PQL	-	-	-	-	-	-	-	-	-
105/0.4-0.5	12	<1	17	180	69	<0.1	15	120	0.1	0.7	<25	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
201/0.2-0.5	<4	<1	26	57	72	0.12	8.4	100	5.6	85.1	<25	450	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
202/0.5-1.0	4.6	<1	14	22	330	0.13	6.8	160	0.7	7.8	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
203/0.2-0.5	7.4	<1	12	44	35	0.1	24	78	<0.05	<PQL	<25	420	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
204/0.5-1.0	5.5	<1	17	15	54	<0.1	3.1	9	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
206/0.5-1.0	4.1	<1	8	15	12	<0.1	6.4	24	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
206/1.5-2.0	34	<1	18	21	41	<0.1	6.5	95	0.3	3.4	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
207/0.5-1.0	9.8	<1	16	25	27	<0.1	4.6	26	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
207/1.0-1.5	10	<1	15	21	27	<0.1	6.4	32	<0.05	0.3	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
208/0.0-0.1	<4	<1	27	39	41	<0.1	36	74	0.7	6.8	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	ND
208/0.5-1.0	5.7	<1	8.4	18	54	<0.1	2.3	14	0.1	1	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
209/0.5-1.0	5.5	<1	10	20	130	<0.1	8.2	61	0.3	3.5	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	<1	<1	<1	<1	<PQL	-
210/0.7-1.2	5.2	<1	13	17	21	<0.1	8.8	37	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
211/0.5-1.0	6.5	<1	15	7.4	31	<0.1	1.6	6.6	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
212/0.2-0.5	<4	<1	2.4	<1	2	<0.1	1.6	3.8	0.05	0.25	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
213/0.0-0.2	6.6	<1	14	42	82	<0.1	27	250	0.7	5.7	<25	260	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
213/0.2-0.5	6.4	<1	11	22	62	0.13	2.2	28	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL		-	-	-	-	-	-	-	-
214/0.0-0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND
214/0.2-0.5	8.1	<1	25	7.3	27	<0.1	2.9	13	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
215/0.1-0.3	10	<1	16	21	41	<0.1	9.4	25	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	ND
215/0.5-1.0	6.8	<1	13	12	37	<0.1	2.5	11	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
216/0.0-0.5	13	<1	25	31	41	<0.1	13	67	0.3	3.7	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
A216/0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D

Sample ID (Test Bore/Depth)	Heavy Metals								PAH		TPH		Benzene	Toluene	Ethylbenzene	Total Xylene	Total PCB	OCP^	Phenols	VOCs					Asbestos
	As	Cd	Cr~	Cu	Pb	Hg	Ni	Zn	B(a)P	Total (+ve) PAH	C6-C9	C10-C36								n-propyl benzene	1,2,4-trimethyl benzene	n-butyl benzene	naphthalene	All Other VOCs	
216/0.5-1.0	13	<1	13	28	32	<0.1	19	130	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
217/0.0-0.5	9.4	<1	17	23	28	<0.1	14	66	<0.05	0.5	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	ND
218/0.4-0.7	18	<1	30	26	62	<0.1	4.9	39	0.06	0.46	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	<1	<1	<1	<1	<PQL	-
218/0.7-1.0	7.2	<1	15	12	41	<0.1	2.2	9.6	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
BD4-101007	8.6	<1	24	9.3	40	<0.1	2.2	9.8	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
219/0.2-0.4	7.7	<1	12	49	120	<0.1	13	85	**12**	**166.1**	<25	880	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	ND
219/0.5-0.9	4.3	<1	11	30	25	<0.1	7.7	49	0.2	2.3	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
220/0.3-0.5	10	<1	15	28	60	<0.1	12	55	0.08	0.68	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
221/0.1-0.5	12	<1	19	73	**1800**	<0.1	25	**220**	2	16.8	<25	170	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
221/1.2-1.7	12	<1	12	50	190	0.11	12	160	**5.1**	**60.4**	**83**	670	<0.5	<0.5	<1	<PQL	-	-	-	4.8	6.5	1.7	5.1	<PQL	-
222/0.2-0.5	7.5	<1	12	**350**	66	<0.1	20	**300**	**1.2**	13.8	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
223/0.5-1.0	10	<1	30	**1100**	73	<0.1	23	**470**	<0.05	0.8	<25	89	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
224/0.5-1.0	11	1.3	20	**3100**	130	<0.1	23	**380**	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	-
225/0.2-0.5	6.8	<1	3.6	12	3.5	<0.1	2	26	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	<1	<1	<1	<1	<PQL	ND
226/0.2-0.5	<4	<1	6.2	11	8.5	<0.1	3.5	12	<0.05	<PQL	<25	67	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
BD4-111007	4	<0.1	7	12	7	<0.05	4	18	<0.5	<PQL	<10	90	<0.2	<0.5	<0.5	<PQL	-	-	-	-	-	-	-	-	-
227/0.2-0.3	6.5	<1	3.1	1.9	2.2	<0.1	2	4.8	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	-	-	-	-	-	ND
227/1.0-1.5	**40**	<1	10	27	27	<0.1	30	40	0.3	5.2	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
228/0.0-0.1	14	<1	18	54	90	0.14	20	180	0.5	6.7	<25	<PQL	<0.5	<0.5	<0.5	<PQL	-	-	-	-	-	-	-	-	ND
229/0.6-1.0	9.8	<1	15	**200**	97	0.17	14	**280**	**32**	**369.8**	<25	**2390**	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-	-
229/1.1-1.5	**40**	<1	14	20	24	<0.1	3.7	8.8	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	<1	<1	<1	<1	<PQL	-
HIL Column 1	100	20	12%	1000	300	15	600	7000	1	20	65	1000	1	1.4	3.1	14	10	10/50 /200/10	85000	580	52	580	see total PAH	-	NA
HIL Column 2	400	80	48%	4000	1200	60	2400	28000	4	80	65	1000	1	1.4	3.1	14	40	40/200 /800/40	34000	580	52	580		-	NA
PIL Column 5	20	3	400	100	600	1	60	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
~ All Chromium are assumed to exist in the stable Cr(III) oxidation state, as Cr(VI) will be too reactive and unstable under the normal environment
HIL Health based Investigation Level
PIL Provisional Phytotoxicity Investigation Level
^ Denotes Aldrin+Dieldrin/Chlordane/ DDD+DDE+DDT/Heptachlor
ND Asbestos Not Detected
D Asbestos Detected
NA No asbestos present on the ground surface (Correspondence from NSW EPA Director of Contaminated Sites to Accredited Site Auditors)
PQL Practical Quantitation Limit
Z-180907 blind replicate sample of 104/0.5-0.6

BD4-101007 blind replicate sample of 218/0.7-1.0
BD4-111007 blind replicate sample of 226/0.2-0.5
BOLD Exceeds PIL
BOLD Exceeds HIL Column 1
BOLD Exceeds HIL Column 2
A216/0.3 Fibre cement sample from Test Bore 216, depth 0.3m
- Not tested

Table 11 - Results of Analysis on Natural Soil Samples (All results in mg/kg unless otherwise stated)

Sample ID	Heavy Metals								PAH		TPH		Benzene	Toluene	Ethylbenzene	Total Xylene	Total PCB	OCP^	Phenols	VOCs				
	As	Cd	Cr~	Cu	Pb	Hg	Ni	Zn	B(a)P	Total (+ve) PAH	C6-C9	C10-C36								n-propyl benzene	1,2,4-trimethyl benzene	n-butyl benzene	naphthalene	All Other VOCs
204/1.4-1.5	**65**	<1	19	18	24	<0.1	5.6	16	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	<1	<1	<1	<1	<PQL
205/1.0-1.5	**14**	<1	22	27	84	0.11	8.2	66	**2.5**	**42.9**	<25	**3150**	<0.5	<0.5	<1	<PQL	<PQL	<PQL	<5	<1	<1	<1	1.9	<PQL
205/2.5-3.0	<4	<1	5	34	20	<0.1	3.5	21	<0.05	1	<25	400	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-
217/2.0-2.3	8.7	<1	13	16	28	<0.1	1.4	3.3	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-
BD3-101007	<4	<1	10	15	20	<0.1	1.5	4.7	<0.05	<PQL	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	-	-	-	-	-
222/1.0-1.3	**67**	<1	18	38	36	<0.1	6.5	32	0.5	5.8	<25	<PQL	<0.5	<0.5	<1	<PQL	-	-	-	<1	<1	<1	<1	<PQL
BD2-111007	**29**	0.2	17	59	34	0.07	6	63	**4**	**44**	<10	510	<0.2	<0.5	<0.5	<PQL	-	-	-	-	-	-	-	-
HIL Column 1	100	20	12%	1000	300	15	600	7000	1	20	65	1000	1	1.4	3.1	14	10	10/50/ 200/10	85000	580	52	580	see total PAH	-
HIL Column 2	400	80	48%	4000	1200	60	2400	28000	4	80	65	1000	1	1.4	3.1	14	40	40/200/ 800/40	34000	580	52	580		-
PIL Column 5	20	3	400	100	600	1	60	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- ~ All Chromium are assumed to exist in the stable Cr(III) oxidation state, as Cr(VI) will be too reactive and unstable under the normal environment
- HIL Health based Investigation Level
- PIL Provisional Phytotoxicity Investigation Level
- ^ Denotes Aldrin+Dieldrin/Chlordane/ DDD+DDE+DDT/Heptachlor
- PQL Practical Quantitation Limit
- BD3-101007 blind replicate sample of 217/2.0-2.3
- BD2-111007 blind replicate sample of 222/1.0-1.3
- **BOLD** Exceeds PIL
- **Shaded** Exceeds HIL Column 1
- **Shaded** Exceeds HIL Column 2
- - Not tested

10.3 Analytical Results for Groundwater

The analytical results for inorganic and organic contaminants in groundwater are summarised in Table 12. The laboratory certificates are provided in Appendix D.

Table 12 - Results of Groundwater Analysis (all results in ug/L unless otherwise stated)

Sample ID (GW-Test Bore)	Heavy Metals								PAH		TPH		Benzene	Toluene	Ethylbenzene	Xylene	PCBs*	OCP^	Phenols	All other VOCs	Hardness ($mgCaCO_3/L$)
	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	B(a)P	Naphthalene	C6-C9	C10-C36									
GW-203	3	0.7	<1	7	12	<0.5	32	85	<1	<1	<10	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<50	<PQL	4800
BD1-171007	3	0.5	<1	4	10	<0.5	36	61	-	-	<10	<PQL	<1	<1	<1	<PQL	-	-	-	-	5300
GW-204	2	0.3	<1	2	1	<0.5	4.1	21	<1	<1	<10	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	62	<PQL	1200
GW-205	3	<0.1	1.2	7	3	<0.5	5.9	52	<1	3.7	<10	2560	<1	<1	<1	<PQL	<PQL	<PQL	70	<PQL	35
GW-207	14	0.4	<1	3	9	<0.5	140	150	<1	<1	<10	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	60	<PQL	12000
GW-213	2	0.5	<1	3	4	<0.5	10	21	<1	<1	<10	<PQL	<1	<1	<1	<PQL	<PQL	<PQL	<50	<PQL	13000
Guideline	24	5.5	27.4	1.3	4.4	0.4	70	15	-	70	150	600	700	300	140	380	0.6/0.03	ID/0.08/ 0.01/ 0.09	400	-	-

Notes: ID Insufficient data
PQL Practical Quantitation Limit
BD1-171007 Blind replicate sample of GW-203
* PCBs: Aroclor 1242 and Aroclor 1254
^ OCPS: Aldrin+ Dieldrin/ Chlordane/ DDT/ Heptachlor

10.4 Analytical Results for Acid Sulphate Soils

Analytical results for Acid Sulphate Soil analysis is provided in Table 13. Laboratory certificates are provided in Appendix D.

Table 13 - Analysis for ASS

Sample ID (Test Bore/depth)	Description	Acid Trail TAA (mol H^+/t)	Acid Trail TPA (mol H^+/t)	Acid Trail TSA (mol H^+/t)	Sulphur Trail S_{pos} (%)	Sulphur Trail S_{CR} % w/w
204/1.2-1.4	Grey silty clay (<0.5m below observed groundwater level - 22/11/07)	17	**1353**	**1335**	**2.6**	**1.2**
207/1.0-1.5	Brown clay filling (<1m above observed groundwater level – 22/11/07)	**188**	**85**	<5	**0.072**	0.022
213/1.1-1.5	Red brown and grey silty clay (<0.5m below observed groundwater level – 22/11/07)	**22**	**128**	**105**	**0.27**	**0.15**
224/1.2-1.4	Mottled grey and brown peaty clay (<0.5m below the observed groundwater level – 11/10/07)	<5	**40**	**40**	**0.96**	**0.54**
Action Criteria	1-1000 tonnes disturbed*	62	62	62	0.1	0.1
	More than 1000 tonnes disturbed	18	18	18	0.03	0.03

Notes: * Action criteria is based on the main type of soil on the site considered to be of a "Fine Texture", that being medium to heavy clays and silty clays.
Results in bold exceed the Action Criteria for 1-1000 tonnes of disturbed ASS.
Results in bold and shaded exceed the Action Criteria for both 1-1000 tonnes of disturbed ASS and more than 1000 tonnes of disturbed ASS.

11. DISCUSSION OF RESULTS

11.1 Site History

A review of the available site information indicated that the site was undeveloped up until circa 1950. Field investigations revealed that the site has undergone significant filling to level the site prior to construction of each of the factory buildings. The 1951 aerial photograph shows that the south of the site appeared to be undergoing construction activities at this time with the formation of a large concrete slab at 202-210 George Street.

From 1963 to circa 1987, Abel Lemon & Co Pty Limited operated at 202-210 George Street and was probably engaged in the manufacture and distribution of pool products. The use of this land prior to 1963 is unknown. Council records suggest that Abel Lemon & Co Pty Limited also owned a neighbouring property on the other side of Station Avenue (to the east of 7 Concord Avenue) during the 1970s and 1980s. Thus, a proportion of the reviewed Council records may in fact refer to the neighbouring property rather than the subject site. Despite this, it is assumed that the reference to Council approving the installation of a 1000 gallon (5000 L) UST in the entrance driveway to the loading dock in 1965 is the same UST for the storage of petrol that is referred to in WorkCover Dangerous Goods Licence 35/033736 (see Drawing 1, Appendix A) and was present at the time of fieldwork.

It also inferred (but not confirmed) that references to the hydrochloric acid tank/vat and possibly other chemical storage tanks in reviewed Council records were not located on the subject site, but rather located on the neighbouring property (to the east of 7 Concord Avenue). The 1991 aerial photograph shows what appears to be a factory/warehouse building on the neighbouring property which may have previously been used by Abel Lemon & Co Pty Limited for the storage of chemicals. Staff interviews at the subject site also suggest that chemicals were stored at this neighbouring property.

From 1987 onwards, the 202-210 George Street property was used as a printing facility. The roofed store for the storage of solvents and Isopropanol, referred to in WorkCover Dangerous Goods Licence 35/033736, has been located at the west of the property since 1999, perhaps earlier.

The northern portion of the site (7 Concord Avenue) does not appear to have been developed until circa 1964, when Fred Hosking Sales Pty Limited became owners of the site. Thus, the site has probably been used as a printing facility since 1964.

Council records make reference to the storage of petrol on the 7 Concord Avenue property in 1965. This may be in reference to the 9000 L UST that was to be removed as part of factory building extensions in 1990 and also the 2000 gallon UST referred to in WorkCover Dangerous Goods Licence 35/011268 (1973). The bowser for this tank was not present at the site during fieldwork and is assumed to have been removed as part of building extensions (see Drawing 1, Appendix A for the estimated location of this UST and bowser). The other UST (10 000L), still

present at the site, was probably filled with sand in 1991. The associated bowser may have been removed at the same time.

According to Council records, in 1986, the western boundary of the site had been buried in "hundreds of tonnes of earth" from roadworks associated with Homebush Bay Drive. In 1989, the north-eastern corner of the site that had been used as a "builder's yard" since 1966, was filled without consent from the Council. This fill material appeared to have been removed before the time of fieldwork. In 2002, 10-12 empty chemical drums were found at the western boundary of the site but had probably been there for an extended period (5 -10 years) as the drums were rusted.

A roofed package store, inside the factory building, has been used for the storage of chemicals since 1991, and perhaps earlier. Chemicals to have been stored in this facility include Isopropanol (400 L), 'Flexol PI', ethanol, paint, acrylic thinners, solvents and petroleum products.

11.2 Groundwater Flow Direction

The measured groundwater depths from the five piezometers indicate that the direction of groundwater flow is influenced by what appears to be an old creek channel which may have been present prior to the importation of filling for site development.

Test Bores 105 and 216 have natural soil horizons that are slightly different from the other natural soil profiles observed at the site. At Test Bore 105, a slightly sandy silty clay with ironstone gravel and a gravelly clay were observed at depths of between 1 m – 2 m bgl. At Test Bore 216, silty clay with trace gravel and rootlets was observed at a depth of 1.0 m - 2.4 m bgl. This may indicate that an old creek channel once flowed from the vicinity of Test Bore 105, in the approximate direction of Test Bore 216 and then into Homebush Bay.

Based on the measured groundwater levels and observations of sub-surface soil conditions, groundwater is inferred to flow:

- in a north-west direction from 202-210 George Street;
- in a west to south-west direction from the northern third of the site; and

- in an east to north-west direction from the central third of the site.

The inferred groundwater flow direction is indicated on Drawing 1, Appendix A.

11.3 Soil Results

11.3.1 Heavy Metals

Elevated levels of some heavy metals were detected in analysed soil/filling samples. Concentrations of heavy metals above the PIL and HILs are summarised below.

Arsenic was detected in the following samples above the PIL (20 mg/kg), but below the HILs:

- In the filling at Test Bore 206, depth 1.5-2.0m bgl (34 mg/kg);
- In the filling at Test Bore 227, depth 1.0-1.5m bgl (40 mg/kg);
- In the filling at Test Bore 229, depth 1.1-1.5m bgl (40 mg/kg);
- In the natural soil at Test Bore 204, depth 1.4-1.5m bgl (65 mg/kg); and
- In the natural soil at Test Bore 222, depth 1.0-1.3m bgl (67mg/kg) and in the replicate sample (29 mg/kg).

Concentrations of copper that were detected above either of the HILs (as well as the PIL) are as follows:

- In the filling at Test Bore 101, depth 0.5 - 0.6 m bgl (6100 mg/kg). This concentration is a hot spot when compared against the Column 1 HIL (1000 mg/kg). However, this is not a significant concentration when compared against the Column 2 HIL (4000mg/kg) according to statistical analysis (using 99% Chebyshev statistics) on filling samples. The 95% UCL is 1731 mg/kg (standard deviation 1001 mg/kg).
- In the filling at Test Bore 223, depth 0.5-1.0 bgl (1100 mg/kg). This concentration is below the Column 2 HIL, but above the Column 1 HIL. However, this is not a significant concentration when compared against the Column 1 HIL according to statistical analysis (using 99% Chebyshev statistics) on filling samples. The 95% UCL is 322 mg/kg (standard deviation 171 mg/kg).

- In the filling at Test Bore 224, depth 0.5 - 1.0 m bgl (3100 mg/kg). This concentration is below the Column 2 HIL. However, this concentration is a hot spot when compared against the Column 1 HIL. This sampling location is in the vicinity of Test Bore 223 which had an elevated concentration of copper detected at a similar depth (0.5 - 1.0 m bgl).

Concentrations of copper that were detected at levels above the PIL (100 mg/kg) but below the HILs are as follows:

- In the filling at Test Bore 105, depth 0.4-0.5 m bgl (180 mg/kg);
- In the filling at Test Bore 222, depth 0.2-0.5 m bgl (350 mg/kg); and
- In the filling at Test Bore 229, depth 0.6-1.0 m bgl (200 mg/kg).

Concentrations of lead that were detected above the HILs are as follows:

- In the filling at Test Bore 202, depth 0.5 - 1.0 m bgl (330 mg/kg). This concentration is below the Column 2 HIL (1200 mg/kg) but above the Column 1 HIL (300 mg/kg). However, this is not a significant concentration when compared to the Column 1 HIL according to statistical analysis (Approximate Gamma UCL) on filling samples. The 95% UCL is 73 mg/kg (standard deviation 59 mg/kg).
- In the filling at Test Bore 221, depth 0.1 - 0.5 m bgl (1800 mg/kg). This concentration is hot spot when compared to the Column 1 HIL. This concentration is also above the Column 2 HIL. However, this is not a significant concentration when compared against the Column 2 HIL according to statistical analysis (99% Chebyshev) on filling samples. The 95% UCL is 482 mg/kg (standard deviation 263 mg/kg).

No concentrations of nickel were detected above either of the HILs. The only concentration of nickel that was detected above the PPIL (60 mg/kg) was at Test Bore 103, depth 0.2-0.5m bgl with a concentration of 100mg/kg.

Zinc was not detected above either the Column 1 or Column 2 HILs. However, zinc concentrations were detected above the PIL (200 mg/kg) and are as follows:

- In the filling at Test Bore 101, depth 0.5-0.6m bgl (580 mg/kg);
- In the filling at Test Bore 213, depth 0.0-0.2m bgl (250 mg/kg);

- In the filling at Test Bore 221, depth 0.1-0.5m bgl (220 mg/kg);
- In the filling at Test Bore 222, depth 0.2-0.5m bgl (300 mg/kg);
- In the filling at Test Bore 223, depth 0.5-1.0m bgl (470 mg/kg);
- In the filling at Test Bore 224, depth 0.5-1.0m bgl (380 mg/kg); and
- In the filling at Test Bore 229, depth 0.6-1.0m bgl (280mg/kg).

Concentrations of cadmium, chromium and mercury were all below the PILs and HILs.

Elevated copper was detected at three locations in the concrete paved area to the west of the building at 202-210 George Street indicating a former source of contamination in this area.

11.3.2 TPH and BTEX

Analytical results indicated that only one sample had a detectable level of TPH C_6-C_9. The sample from Test Bore 221, depth 1.2-1.7m bgl had a concentration of 83 mg/kg which is above both the adopted Column 1 and Column 2 HILs (65 mg/kg). A hydrocarbon odour and stained filling material was also noted at this location and depth. According to historical information, this was the former location of a petrol bowser. The contamination appeared to have been perched on top of buried concrete in the filling material. Drilling refusal occurred on this concrete, as a result the underlying filling and/or natural soils could not be investigated. TPH C_{10}-C_{36} was also detected at a concentration of 670 mg/kg (below the adopted HILs).

TPH C_{10}-C_{36} was detected in the filling at Test Bore 229, depth 0.6-1.0 (2390 mg/kg) above the adopted Column 1 and Column 2 HIL (1000 mg/kg). This Test Bore appeared to have been drilled in the previous location of a UST, where filling material had been used to backfill the void following removal of the UST. Closer inspection of the filling sample revealed a slight oily sheen and a trace of a dark brown, unidentified material of approximately 15mm diameter that had fractured faces. The unidentified material may be a material from a furnace. Review of the chromatogram showed that the organic chemical composition was similar to petrol, but also included other contamination from an unknown source (possibly the unidentified material). This contamination was not identified in the same sampling location at a depth of 1.1-1.5m bgl. High concentrations of PAHs were also detected at this location (refer to S. 11.3.3)

TPH C_{10}-C_{36} was detected in the natural soil at Test Bore 205, depth 1.0-1.5 (3150 mg/kg) above the adopted HILs. This contamination is most likely associated from leaks from the adjacent UST and associated bowser and piping, as a hydrocarbon odour was detected in the soil. TPH C_{10}-C_{36} was also detected in the sample at the same location at a depth 2.5-3.0m bgl, but at a concentration (400 mg/kg) below the adopted HILs. This would suggest that the majority of the TPH contamination in soils is perched (as with the groundwater) on top of the relatively stiffer silty clay, in the overlying relatively softer material.

TPH C_{10}-C_{36} was detected in the replicate sample, but not the parent sample, from Test Bore 205, depth 1.0-1.5m bgl. The concentration (510 mg/kg) in the replicate sample, BD2-111007, was below the adopted HIL. Test bore 205 was drilled near the previous location of a bowser, which may suggest that some leakage of petrol from the bowser or associated piping has occurred. However, the result may be an anomaly in the soil material as hydrocarbon odours were not detected at this location.

Test Bores 105, 201,203, 213, 219, 223, and 226 all had filling samples with detectable TPH C_{10}-C_{36}, although at levels below the adopted HIL. The spread of these Test Bores suggest that the source of these detectable concentrations is from imported filling rather than from point sources such as tanks or fuel lines.

BTEX was not detected in any sample.

11.3.3 PAH

PAH, including benzo(a)pyrene, was detected in numerous samples taken from across the site. Concentrations of PAH (and benzo(a)pyrene) that were detected at levels above the adopted HILs are summarised below.

A PAH concentration of 85.1 mg/kg and a benzo(a)pyrene concentration of 5.6 mg/kg was detected in the filling at Test Bore 201, depth 0.2-0.5m bgl. These concentrations are above both of the adopted HILs. These concentrations are considered to be a hot spot when compared against the Column 1 HIL (20 mg/kg). However, these concentrations are not considered to be significant when compared against the Column 2 HIL (80 mg/kg) according to statistical analysis (using 99% Chebyshev UCLs). The 95% UCL for benzo(a)pyrene is

2.2 mg/kg (standard deviation 1.1 mg/kg) and the 95% UCL for PAH is 51 mg/kg (standard deviation 28 mg/kg).

A PAH concentration of 12 mg/kg and a PAH concentration of 166 mg/kg was detected in the sample from Test Bore 219, depth 0.2-0.4m bgl. The concentration of benzo(a)pyrene means that this is a hot spot when compared against both of the HILs.

A benzo(a)pyrene concentration of 2 mg/kg and a PAH concentration of 16.8 mg/kg was detected in the sample from Test Bore 221, depth 0.1-0.5m bgl. The PAH concentration is below the HILs. The benzo(a)pyrene concentration is below the Column 2 HIL but above Column 1 HIL. The benzo(a)pyrene concentration is not considered significant when compared against the Column 1 HIL according to statistical analysis (Chebyshev 99% UCL). The 95% UCL is 0.8 mg/kg (standard deviation 0.4 mg/kg).

A PAH concentration of 60.4 mg/kg and a benzo(a)pyrene concentration of 5.1 mg/kg was detected in the sample from Test Bore 221, depth 1.2-1.7m bgl. These concentrations may be associated with the TPH contamination probably associated with leaks from the bowser that was previously at this location. The benzo(a)pyrene concentration is above both of the HILs and is considered a hot spot when compared against the Column 1 HIL. The PAH concentration is also considered to be a hot spot when compared against the Column 1 HIL, but is below the Column 2 HIL.

A benzo(a)pyrene concentration of 1.2 mg/kg and a PAH concentration of 13.8 mg/kg was detected in the sample from Test Bore 222, depth 0.2-0.5m bgl. These detectable levels of may be from leaks from the bowser that was previously at this location. The PAH concentration is below both of the HILs. The benzo(a)pyrene concentration is above the Column 1 HIL, but is not considered a significant concentration according to statistical analysis.

A PAH concentration of 369.8 mg/kg and a benzo(a)pyrene concentration of 32 mg/kg was detected in the sample from Test Bore 229, depth 0.6-1.0m bgl. These concentrations are considered to be at hot spot levels. This is associated with TPH contamination and may be from petrol or the unidentifiable material described in section 11.3.2.

11.3.4 OCPs, Phenols, and PCB

OCPs, Phenols, and PCBs were not detected in any analysed sample.

11.3.5 VOCs

VOCs were only detected in one of the samples tested i.e. from Test Bore 221, depth 0.1-0.5m bgl. The VOCs (n-propyl benzene, 1,2,4-trimethylbezene, n-butyl benzene and naphthalene) detected were well below the adopted guideline levels. The detected VOCs are associated with petroleum hydrocarbons. No chlorinated compounds were detected.

11.3.6 Asbestos

Asbestos was not detected in any soil sample but was detected in the fibre-cement material sample A216/0.3. This fibre-cement sample was collected from the filling in Test Bore 216, at a depth of approximately 0.3m below the ground surface. The corresponding soil sample was tested for asbestos, but no asbestos fibres were detected.

11.4 Groundwater Results

Results for hardness indicated that the majority of groundwater at the site is saline (except for that sampled from Test Bore 205). The receiving waters are marine and, therefore, the guidelines for marine water ecosystems for groundwater have been adopted.

11.4.1 Heavy Metals

Detected levels of arsenic, cadmium, chromium, copper, lead, nickel and zinc were noted in the groundwater samples. The following results were above the adopted guideline level:

- Copper in samples GW-203 (7 µg/L), GW-204 (2 µg/L), GW-205 (7 µg/L), GW-207 (3 µg/L) and GW-213 (3 µg/L);
- Lead in samples GW-203 (12 µg/L) and GW-207 (9 µg/L);
- Nickel in sample GW-207 (140 µg/L); and
- Zinc in samples GW-203 (85 µg/L), GW-204 (21 µg/L), GW-205 (52 µg/L), GW-207 (150 µg/L) and GW-213 (21 µg/L).

Mercury was not detected in any of the groundwater samples.

The results for groundwater sampled from the monitoring well at Test Bore 203 gives an indication of the (selected) chemical composition of groundwater flowing onto the site, as it is located near the eastern boundary. The detectable levels of copper, lead, nickel and zinc in the sample from this monitoring well suggest that these concentrations are not attributable to the subject site and are likely to represent local diffuse sources of contamination (background) impacts arising from local industry, urban runoff, and road runoff or from service leakage. The only exception to this may be indicated by the (relatively) elevated concentrations for nickel and zinc in the groundwater sampled from the monitoring well at Test Bore 207. Review of the analytical soil results from nearby (up-gradient) test bores, however, indicate that the levels of nickel and zinc in surrounding soils/filling are generally low. Further, longer term monitoring would be required to determine how representative these results are of groundwater conditions and their significance.

11.4.2 TPH and BTEX

Concentrations of BTEX and TPH C_6-C_9 were found to be below laboratory detection limits in all groundwater samples and thus within the adopted GIL.

TPH C_{10}-C_{36} was only detected in one groundwater sample (GW-205). The groundwater sample from the monitoring well at Test Bore 205 had a TPH C_{10}-C_{36} concentration of 2560 µg/L, which comprised a TPH C_{10}-C_{14} concentration of 360 µg/L and a TPH C_{15}-C_{28} concentration of 2,200 µg/L, and is above the adopted TPH C_{10}-C_{36} screening value of 600 µg/L. This contamination can be attributed to leaks of petrol from the UST or associated bowser and pipes at the 202-210 George Street property, as Test Bore 205 was located within 2m (down hydro-geological gradient) of the UST and a hydrocarbon odour was present at this location during field investigations.

11.4.3 PAH and VOCs

All analytical results for PAH and VOCs were below laboratory detection limits except for a naphthalene concentration of 3.7 µg/L in the groundwater sample GW-205. The result was only detected as part of VOC analysis and was not detected as part of PAH analysis. This detected naphthalene concentration, below the adopted guideline value of 70 µg/L, may be attributed to leakages from the UST or associated piping and bowser at the 202-210 George Street property.

Overall the analytical results for PAH and VOC indicate that the groundwater is not significantly contaminated with PAH or VOCs.

11.4.4 PCBs, OCP and Phenols

PCBs and OCP were not detected in any groundwater sample. Phenols were detected in three of the groundwater samples at levels marginally above detection limits and below the adopted guideline level.

11.5 Acid Sulphate Soils

Results suggest that acid sulphate soils are prevalent across the site. Each of the analysed natural soil samples (204/1.2-1.4, 213/1.1-1.5 and 224/1.2-1.4) show chromium reducible sulphur trail (S_{CR}) values to be significantly above the action criteria values of 0.03 and 0.1. The relatively high values for Acid Trails (TAA, TPA and TSA) and Sulphur Trail (S_{pos}) also agree that the natural soils encountered at Test Bore 204, depth 1.2-1.4 m bgl, Test Bore 213, depth 1.1-1.5 m bgl and 224/1.2-1.4m bgl are acid sulphate soils. These natural soil samples were taken from less than 0.5m below the observed groundwater levels. It thus appears, when taking into account the initial screening results, that natural soils near the groundwater level are the most susceptible to being acid sulphate soils at the site.

The results for the filling sample from Test Bore 207, depth 1.0-1.5 m bgl appears to be susceptible to acid conditions, although may not be acid sulphate soils. The Acid Trails (TAA and TPA) suggest acidic conditions, although the chromium reducible sulphur trail (S_{CR}) value (0.022) is below both of the action criteria values (0.03 and 0.1), which suggests that this filling material is not considered as ASS.

12. CONCLUSION AND RECOMMENDATIONS

On the basis of site observations, testing and analytical results, it is considered that the UST and bowser at 202-210 George Street is a confirmed source of soil and groundwater

contamination. The extent of this contamination has not yet been delineated. It is thus recommended that all the USTs, bowser(s) and associated piping are removed from the site (thus removing sources of contamination), and that the exposed soils and imported filling material are validated by a qualified environmental consultant.

Similarly, the former bowser previously located at Test Bore 221 at 7 Concord Avenue, is considered to be the source of TPH (and probably PAH) contamination in the soil (and groundwater) encountered at this location. Remedial action, which would involve "chasing out" the contamination, should be undertaken as part of site remediation.

If is difficult to determine a definite source of TPH and PAH contamination encountered in the filling at Test Bore 229. This Test Bore appears to have been drilled at the former UST. However, it is possible that there is more than one source of contamination in the filling, that being petrol (possibly left *in situ* when the UST was removed) and from an unidentified material present in the filling at this location. Whilst, remedial action at this location is required, further investigation is first recommended to better define the exact nature degree and extent of contamination on the basis that the observed concentration of benzo(a)pyrene is considerably elevated. Further investigation is currently restricted because of the building near this location.

Remedial action on hot spots, as outlined in Section 11.3, will need to be based on the type of development. If the site is to be residential with gardens and accessible soil (HIL Column1), then more remedial action will be required (based on the more stringent HILs) than compared to a residential development with minimal access to soil. Remedial action will typically comprise "chasing out" the contamination and validation by a qualified environmental consultant.

Prior to remedial action, step-out sampling should be undertaken to better define the extent of the contamination. The locations where metal concentrations were noted to have exceeded the PILs also need to be considered if site redevelopment is to include residential development with gardens or landscaped areas using on-site soils. Clarification on remedial action requirements (based on results from this investigation) will need to be undertaken by an environmental consultant once firm development plans are available.

Asbestos was detected in a fibre-cement fragment in the filling material at Test Bore 216, at approximately 0.3 m bgl. The extent of this asbestos contamination has not yet been

delineated. Isolated fragments of fibre-cement may occur throughout the fill and delineation may not be practical. Two options are available to remediate the asbestos contaminated soil:

- Complete removal of the asbestos impacted filling by a suitably licensed asbestos contractor. The removal/clearance of the asbestos impacted material would have to be validated by a qualified occupational hygienist.
- Encapsulation of the asbestos impacted material with an appropriate barrier capping and implementation of a long term management plan to ensure the integrity of the capping. This remedial option is endorsed by enHealth in *'Management of Asbestos in the Non-Occupational Environment; p23 (2005).*

Fibre-cement fragments were encountered at the ground surface in the vicinity of Test Bores 104 and 214. The fibre-cement fragments (and materials suspected to contain asbestos) on the surface of the site can be hand picked ("emu-picked") and disposed by a licensed, asbestos removal contractor. The resultant "remediated" ground would need to be validated by a qualified occupational hygienist.

Any excavation works at the site will need to consider the impacts on the disturbance of acid sulphate soils which appear to be prevalent at the site. Possible basement excavations at the eastern portion of the site may occur as part of site redevelopment. An Acid Sulphate Soil Management Plan will need to be prepared prior to any such excavation works. The soils that are most likely to be ASS are below the observed groundwater level, which is at less than 1 m bgl in some places at the site.

Any soils that are to be disposed off site will need to be classified and managed in accordance with the Department of Environment and Conservation's *Environmental Guidelines: Assessment, Classification & Management of Liquid and Non-Liquid Wastes* (1999).

13. LIMITATIONS OF THIS REPORT

The scope of the site assessment activities and consulting services undertaken by DP were limited to those detailed in the proposal dated 16 August 2007 and accepted by Urbis on 10 September 2007 on behalf of Fred Hosking Pty Ltd.

DP's assessment is necessarily based upon the result of a limited site investigation and the restricted programme of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. DP cannot provide unqualified warranties with regards to contamination nor does DP assume any liability for site conditions not observed or accessible during the time of the investigations.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change over time due to activities such as spillages of contaminating substances. These changes may occur subsequent to DP's investigations and assessment. This report, its associated documentation and the information herein have been prepared solely for the use of Urbis and Fred Hosking Pty Ltd. Any reliance assumed by third parties on this report shall be at such parties' own risk.

DOUGLAS PARTNERS PTY LTD

Reviewed by:

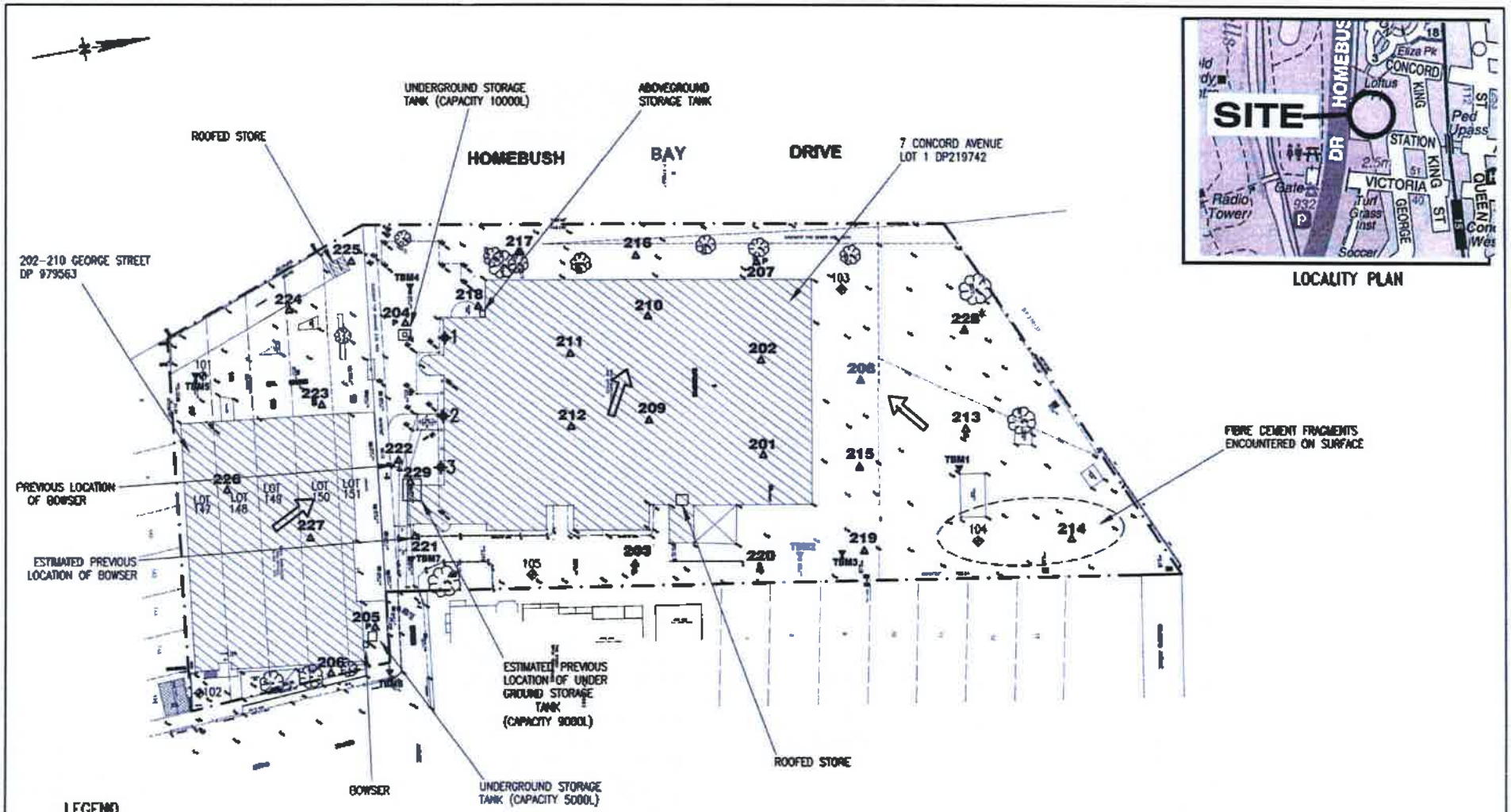
David Walker
Environmental Engineer

J M Nash
Principal

APPENDIX A

Site Drawing

Site Photographs



LEGEND

- ◆ PREVIOUS TEST BORE LOCATION (1990)
- ◆ TEST BORE LOCATION (Geotechnical Investigation Sept 2007)
- ◆ CURRENT TEST BORE LOCATION
- * HAND AUGER ONLY AT TEST BORE 228
- ⇦ INFERRED GROUNDWATER FLOW DIRECTION
- ▼ TEMPORARY BENCH MARK (TBM)
- ● PIEZOMETER INSTALLED AT TEST BORE LOCATION

SCALE 0 10 20 30 40 50m 1:1000

Douglas Partners
Geotechnics, Environment, Groundwater

Sydney, Newcastle, Brisbane, Melbourne, Wyong, Canberra, Campbelltown, Townsville, Perth, Cairns, Wollongong, Darwin, Gold Coast, Sunshine Coast

TITLE:
Location of Test Bores
Phase 1 & 2 Contamination Assessment
7 Concord Avenue & 202-210 George Street
CONCORD WEST

CLIENT: Fred Hastings Pty Ltd			
DRAWN BY: PSCH	SCALE: As shown	PROJECT No: 45146A	OFFICE: SYDNEY
APPROVED BY:		DATE: 16.10.2007	DRAWING No: 1

P:\45146A CONCORDE WEST, Phase 1 and 2 Investigation Fred Hastings Site LFV\Drawings\45146A-1.dwg, 11/9/2007 1:58:40 PM

Photo 1: Fill & dip points of underground storage tank at 7 Concord Avenue
(painted lines on ground surface indicate approximate extremities of the tank)

Photo 2: Previous location of bowser at 7 Concord Avenue

Phase 1 and Phase 2 Contamination Assessments 7 Concord Avenue and 202-210 George Street Concord West	Project 45146A	October 2007	Plate 1

Photo 3: Above ground storage tank for heating oil at 7 Concord Avenue

Photo 4: Roofed package store, inside factory building at 7 Concord Avenue

Phase 1 and Phase 2 Contamination Assessments 7 Concord Avenue and 202-210 George Street Concord West	Project 45146A	October 2007	Plate 2

Photo 5: Bowser and fill point for underground storage tank at 202-210 George Street

Photo 6: Roofed store at 202-210 George Street

Phase 1 and Phase 2 Contamination Assessments 7 Concord Avenue and 202-210 George Street Concord West	Project 45146A	October 2007	Plate 3

Douglas Partners
Geotechnics · Environment · Groundwater

APPENDIX B

Site History - Historical Title Deed Information, Aerial Photographs, WorkCover Dangerous Goods Search, Council 149 Certificates and Groundwater Bore Search

Peter S. Hopley Pty Limited
Legal Searchers

ACN: 093 398 611
ABN: 61 093 412 474

1 Boronia Avenue
Mount Annan , NSW , 2567
Mobile: 0412 199 304
Fax 9233 4590 (Attn Box 29)

SUMMARY AS TO OWNERS.

Property: Station Avenue, Concord West

Description: - Lot 1 D.P. 219742 also Lots 147 to 151 D.P. 979563

As regards Lot 1 D.P. 219742

29.03.1921	Harrold Allsopp *(Miller)*	Vol 3167 Fol 98
22.07.1926	Harrold Allsopp Limited	Vol 3167 Fol 98
12.04.1927	Rachel Curotta *(Widow)* Florence Curotta *(Spinster)*	Vol 3167 Fol 98
24.08.1928	Philip Lussich *(Company Director)*	Vol 3167 Fol 98
20.12.1928	Alice Julia Clara Morris *(Married Woman)*	Vol 3167 Fol 98
21.03.1930	Samuel Curotta *(Merchant)*	Vol 3167 Fol 98
06.04.1937	Edith Russell *(Married Woman)*	Vol 4937 Fol 19
05.04.1938	John Dalzell Wallace *(Boiler Maker)* Catherine Reid Wallace *(Married Woman)*	Vol 4937 Fol 19
20.02.1964	Fred Hosking Sales Pty Limited	1/219742
06.05.2003	# Fred Hosking Pty Limited	1/219742

 # Current Registered Proprietor

email: grolly1@bigpond.net.au

12/09/2007

Peter S. Hopley Pty Limited
Legal Searchers

ACN: 093 398 611
ABN: 61 093 412 474

1 Boronia Avenue
Mount Annan , NSW , 2567
Mobile: 0412 199 304
Fax 9233 4590 (Attn Box 29)

As regards Lots 147 to 151 D.P. 979563

26.04.1905	William James Irvine *(Land Assessor)*	Vol 1603 Fol 175
09.10.1912	Lucy Maria Burns *(Widow)*	Vol 1603 Fol 175
25.09.1925	Quintin Sloss *(Civil Servant)* Hazel Lowrey *(Hospital Matron)* *(Now Hazel Violet Matthews, Married Woman)*	Vol 1603 Fol 175
28.03.1933	Quintin Sloss *(Civil Servant)*	Vol 4930 Fol 77
04.10.1949	Audrey Constance Sloss *(Widow)* *(We have not investigated the Transmission Application)*	Vol 4930 Fol 77
25.09.1958	Butcher & Norman Pty Limited	Vol 4930 Fol 77
17.07.1963	Abel Lemon & Co Pty Limited	Vol 4930 Fol 77
20.06.1984	The Adelaide Steamship Company Limited	Vol 4930 Fol 77
09.11.1987	Chippendale Printing Company Pty Limited	A/C 4930-77
08.12.2000	# Fred Hosking Pty Limited	A/C 4930-77

 # Current Registered Proprietor

email: grolly1@bigpond.net.au

12/09/2007

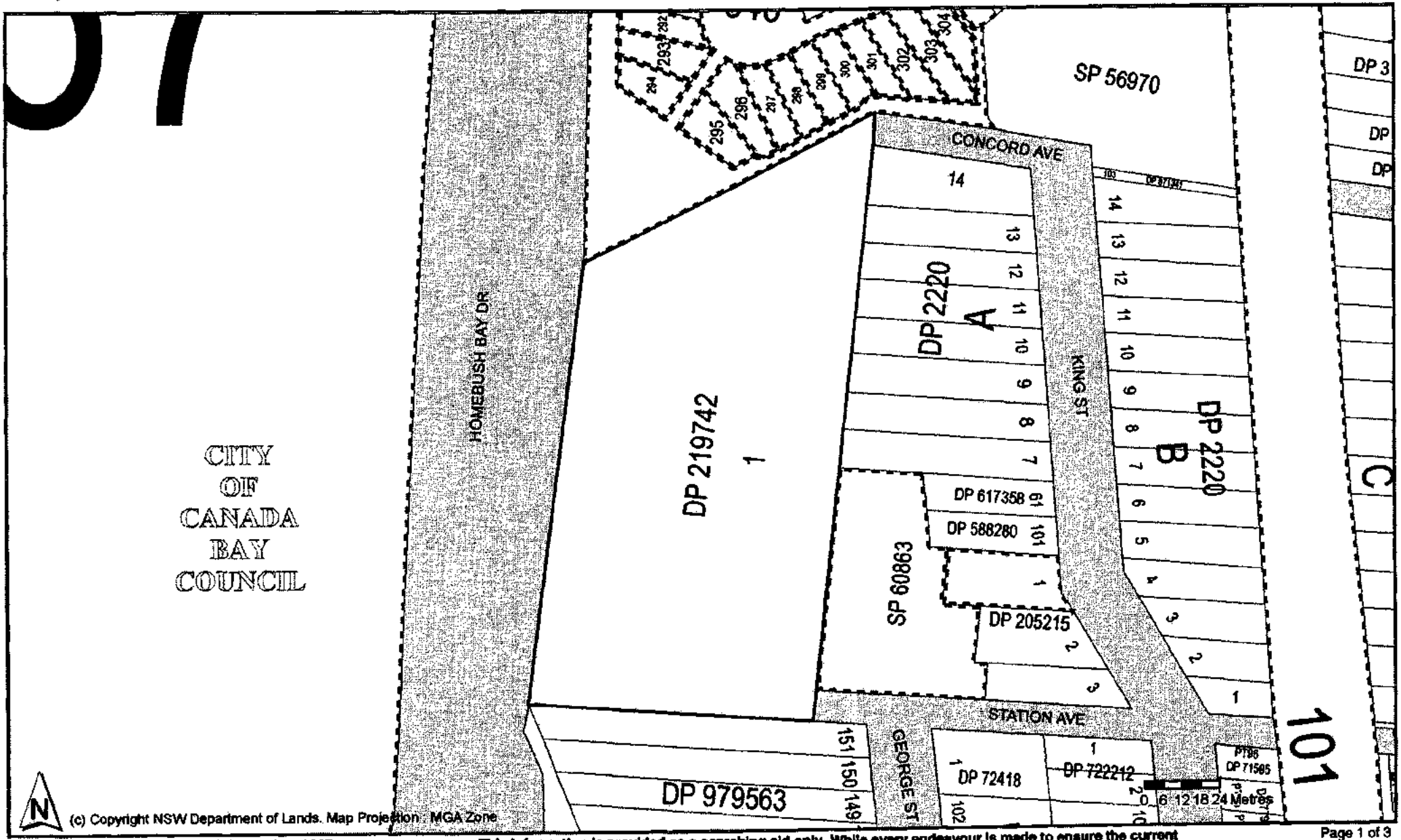
Department of Lands
Reliable from the ground up

Cadastral Records Enquiry Report

Ref : 29

Requested Parcel : Lot 1 DP 219742 **Identified Parcel** : Lot 1 DP 219742

Locality : CONCORD WEST **LGA** : CANADA BAY **Parish** : CONCORD **County** : CUMBERLAND



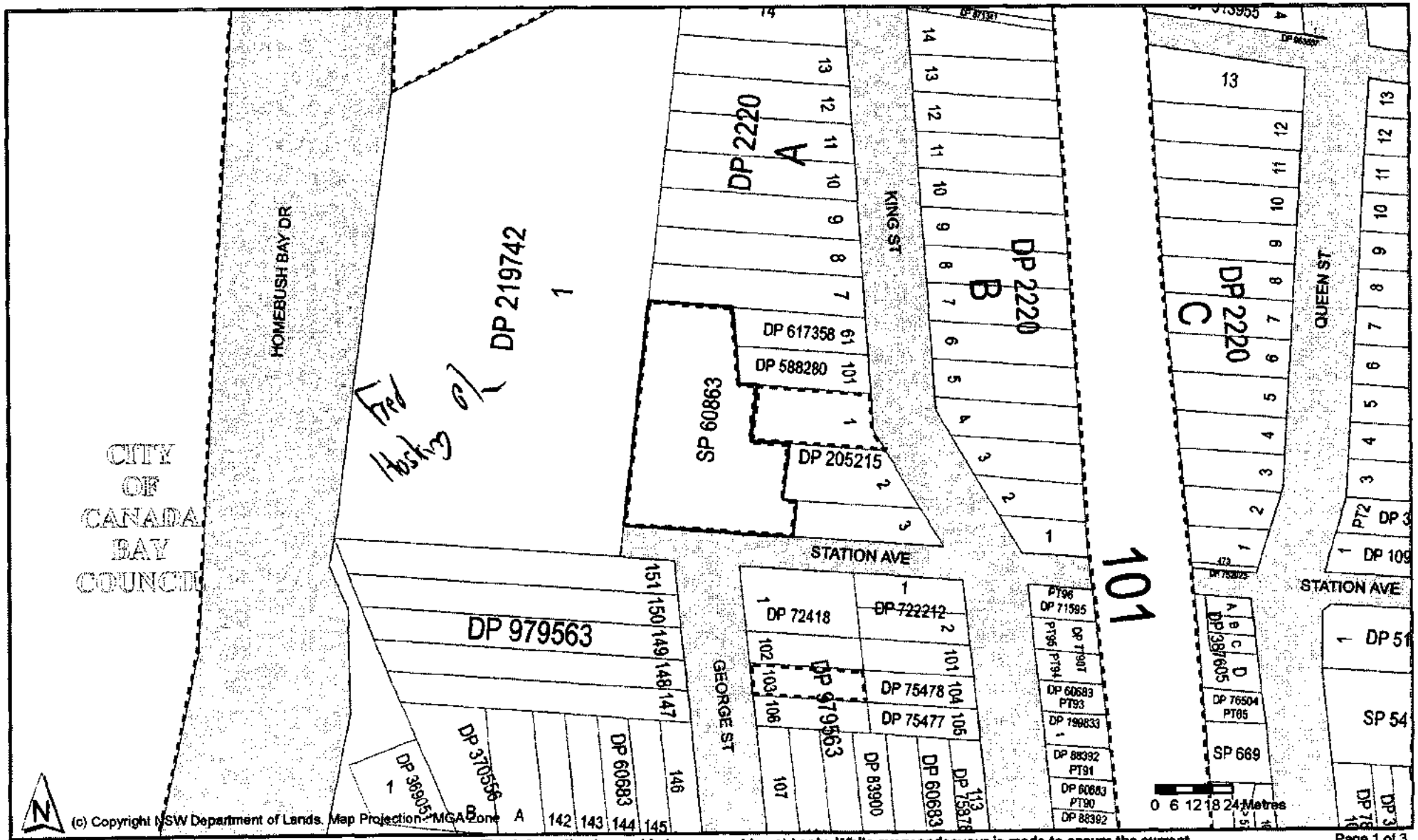
Report Generated 1:00:12 PM, 12 September, 2007

Department of Lands
Reliable from the ground up

Cadastral Records Enquiry Report

Requested Parcel : SP 60863 **Identified Parcel** : SP 60863

Locality : CONCORD WEST **LGA** : CANADA BAY **Parish** : CONCORD **County** : CUMBERLAND



(c) Copyright NSW Department of Lands. Map Projection - MGA Zone A

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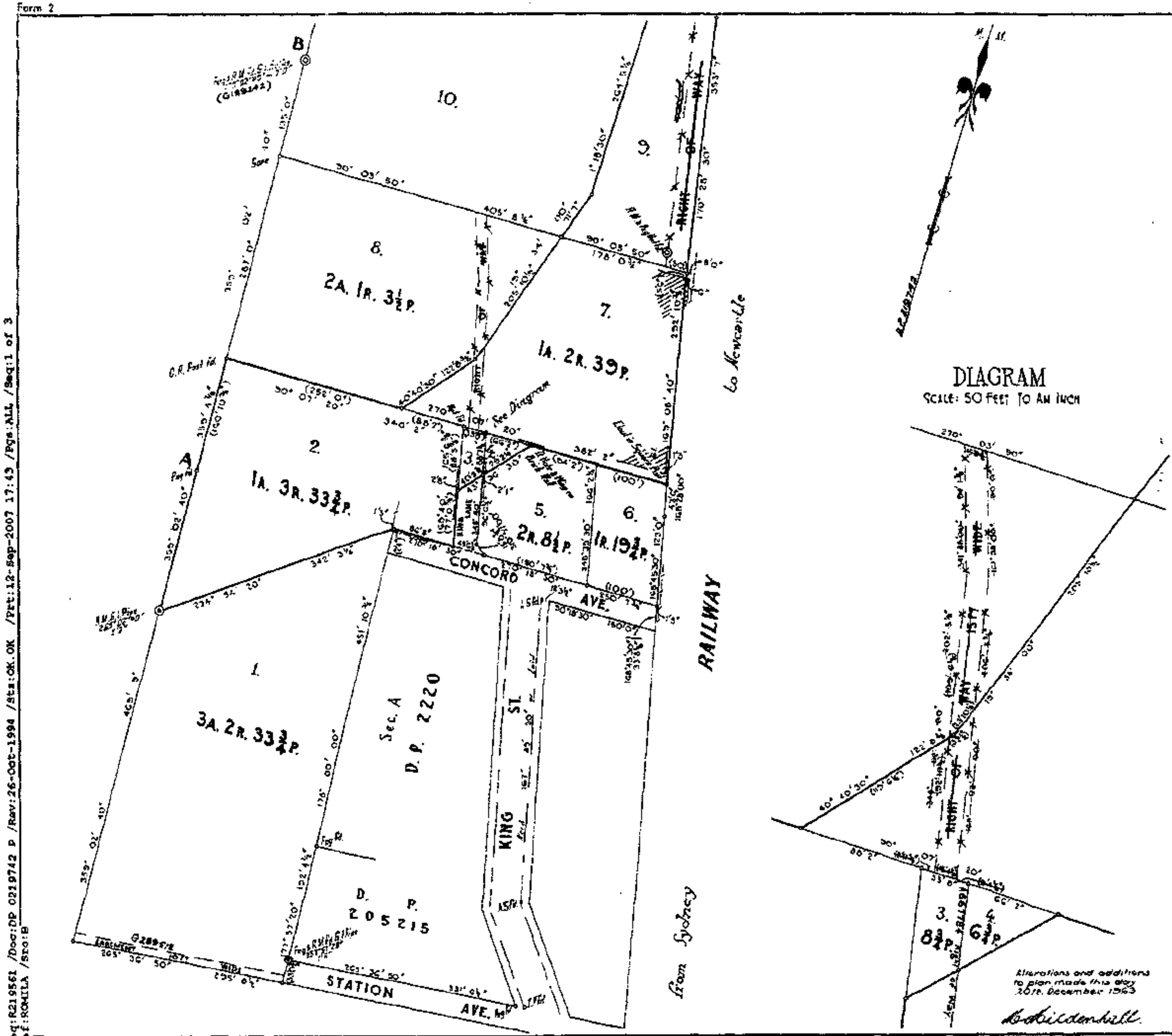
Form 2



DP219742 1 of 2 (E)

Registered: 8-1-64

~~C.A.~~

Title System: Torrens

Purpose: Resumption

Ref. Map: Concord Sh. 2

Last Plan A546197 A667784 A795624 (D.P. 2220 Pt.)(Concord Sh.2 Pt.)

PLAN OF LAND IN C.T. Vol. 3056 Fol. 250
" 3259 " 217
" 3920 " 133
" 4937 " 15
" 5398 " 55
& " 3301 " 40

Scale: 100 Feet to an inch

Mun./Shire
~~City:~~ CONCORD

Locality: HOMEBUSH BAY

Parish: CONCORD

County: CUMBERLAND

I, Mervyn Thomas Mildenhall of DEPT. OF RAILWAYS N.S.W. a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made in accordance with the Survey Practice Regulations, 1933, and was completed on 4-6-1958

Signature M. Mildenhall

Surveyor registered under Surveyors Act, 1929, as amended.

Datum Line of Azimuth A.B

Statements of Proposed Easements.

DEPART. OF RAILWAYS N.S.W.
Fol. CO/58312 M.G.H.
C.O. 1G2828 & 1G3/112
F.B. No. 4126

Approved by the Council and Certified in accordance with the provisions of Section 327 of the Local Government Act, 1919.

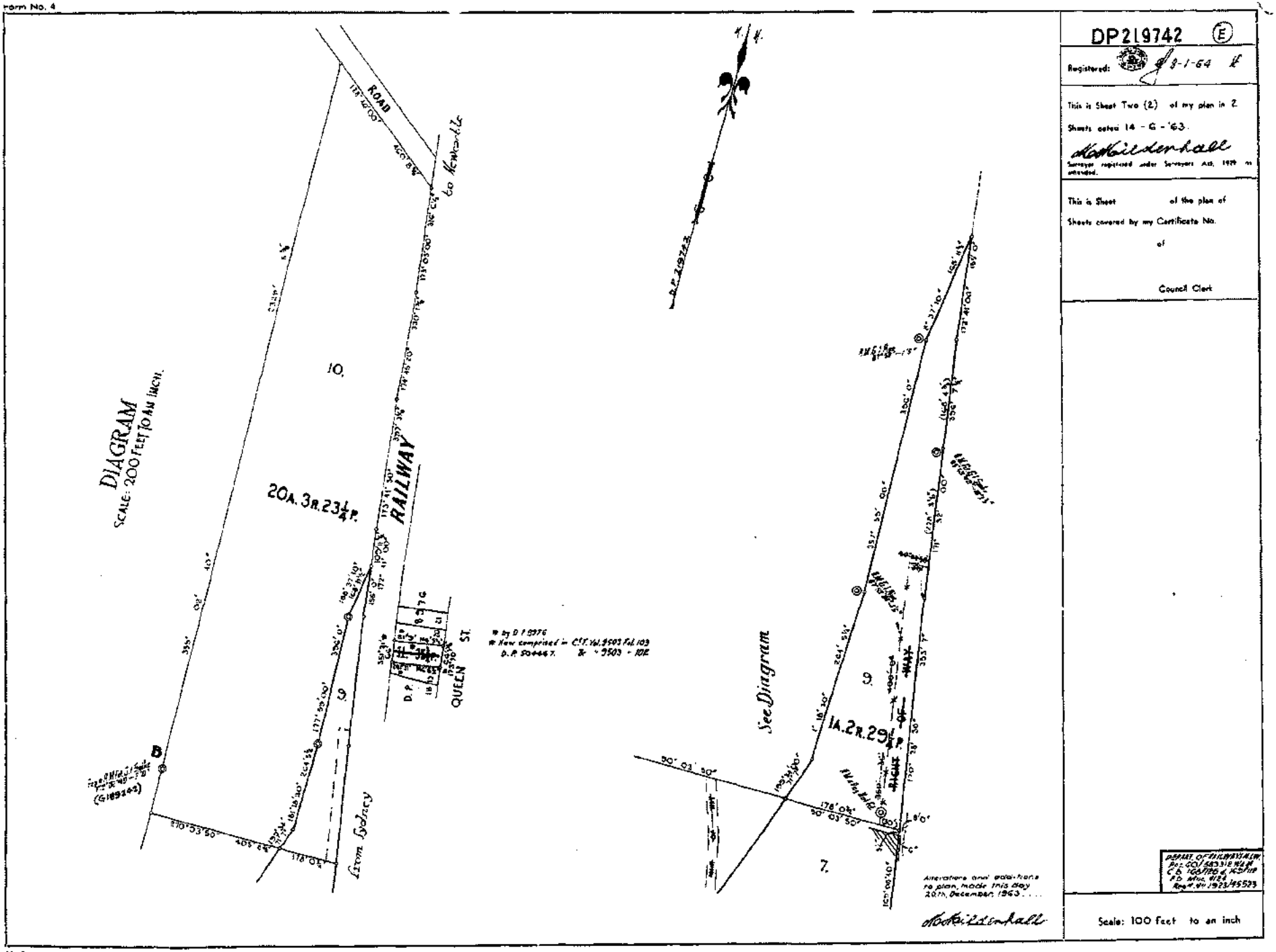
Date

Subdivision No.

Council Clerk

OFFICE USE ONLY

Form No. 4



DP219742 (E)

Registered: 8-1-64

This is Sheet Two (2) of my plan in 2 Sheets dated 14 - 6 - '63.

Surveyor registered under Surveyors Act, 1929 as amended.

This is Sheet of the plan of Sheets covered by my Certificate No. of

Council Clerk

Scale: 100 Feet to an inch

M.P.D

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 219742 SH 1/2

FEET	INCHES		METRES
-	6		0.152
1	3		0.381
1	5		0.432
1	6		0.457
2	1		0.635
2	4		0.711
3	-		0.914
3	2	1/8	0.968
5	3		1.600
5	6		1.676
8	-		2.438
9	9	5/8	2.886
10	-		3.048
12	3	1/2	3.797
15	8	3/4	4.794
23	10	1/8	7.268
30	-		9.144
33	9	3/8	10.066
33	8		10.262
33	8	1/8	10.265
40	3	3/4	12.287
43	6		13.259
43	6	1/8	13.262
56	7	1/2	17.469
66	2		20.168
71	7		21.819
77	0	3/4	23.489
79	2	1/8	24.136
86	0		26.416
88	2		26.873
88	5	5/8	26.965
88	7	1/2	27.013
94	2		28.702
96	6	1/2	29.426
100	-		30.480
119	6	1/4	36.436
122	8	3/8	37.598
123	-		37.490
135	-		41.148
150	-		45.720
150	7	3/8	45.907
160	10	3/4	49.091
185	6	3/8	56.454
166	2	1/4	50.654
176	6	3/4	54.273
192	4	1/2	58.636
205	10	1/2	62.751
250	7	3/8	76.387
252	-		76.810
264	5	1/4	80.601
287	-		87.478
292	10	3/4	89.275
295	6	1/2	90.132
331	6	1/2	101.054
348	2		105.668
342	3	1/4	104.324
353	7		107.772
359	4	7/8	109.347
382	2		116.484
405	8	3/4	123.466
451	10	3/4	137.738
469	9		143.180

AC	RD	P	SQ M
-	-	6 3/4	170.7
-	-	8 3/4	221.3
-	1	19 3/4	1511
-	2	6 1/2	2236
1	2	39	7057
1	3	35 3/4	7936
2	1	3 1/2	9194

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 219742 SH 1/2 CONTD

AC	RD	P	HA
3	2	33 3/4	1.5

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 219742 SH 2/2

FEET	INCHES		METRES
-	6		0.152
1	6		0.457
3	-		0.914
5	6		1.676
8	-		2.438
10	3	3/8	3.134
30	-		9.144
40	6	7/8	12.367
66	-		20.117
66	0	1/4	20.123
68	11	1/2	21.019
71	7		21.819
109	11	5/8	33.512
146	4	3/4	44.672
148	5	1/2	45.250
155	-		47.244
168	4	5/8	51.324
168	11	1/2	51.499
178	9	3/4	54.273
228	3	1/8	69.574
264	5	1/4	80.601
316	4	1/2	96.482
331	1	3/8	100.619
353	7		107.772
396	-		120.761
396	7	3/4	120.898
397	3	1/8	121.005
405	8	3/4	123.666
464	8	5/8	140.427
2329	5	5/8	710.082

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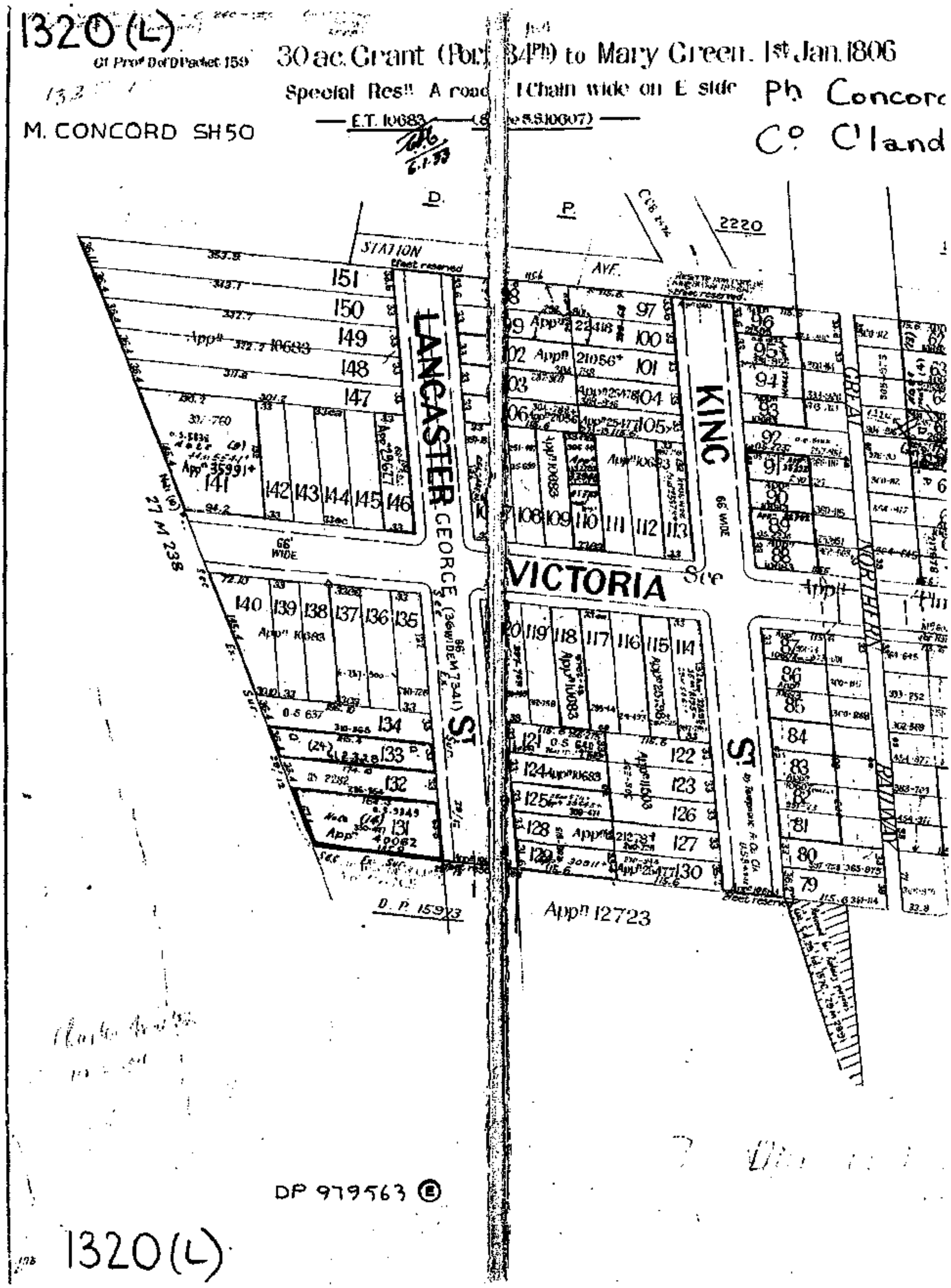
AC	RD	P	HA
20	3	23 1/4	8.456



BRUNSWICK PARK

REDMYRE NORTH.

At:

PARISH OF CONCORD COUNTY OF CUMBERLAND
MUNICIPALITY OF CONCORD (Shire of)
- AT CONCORD WEST -

1320L

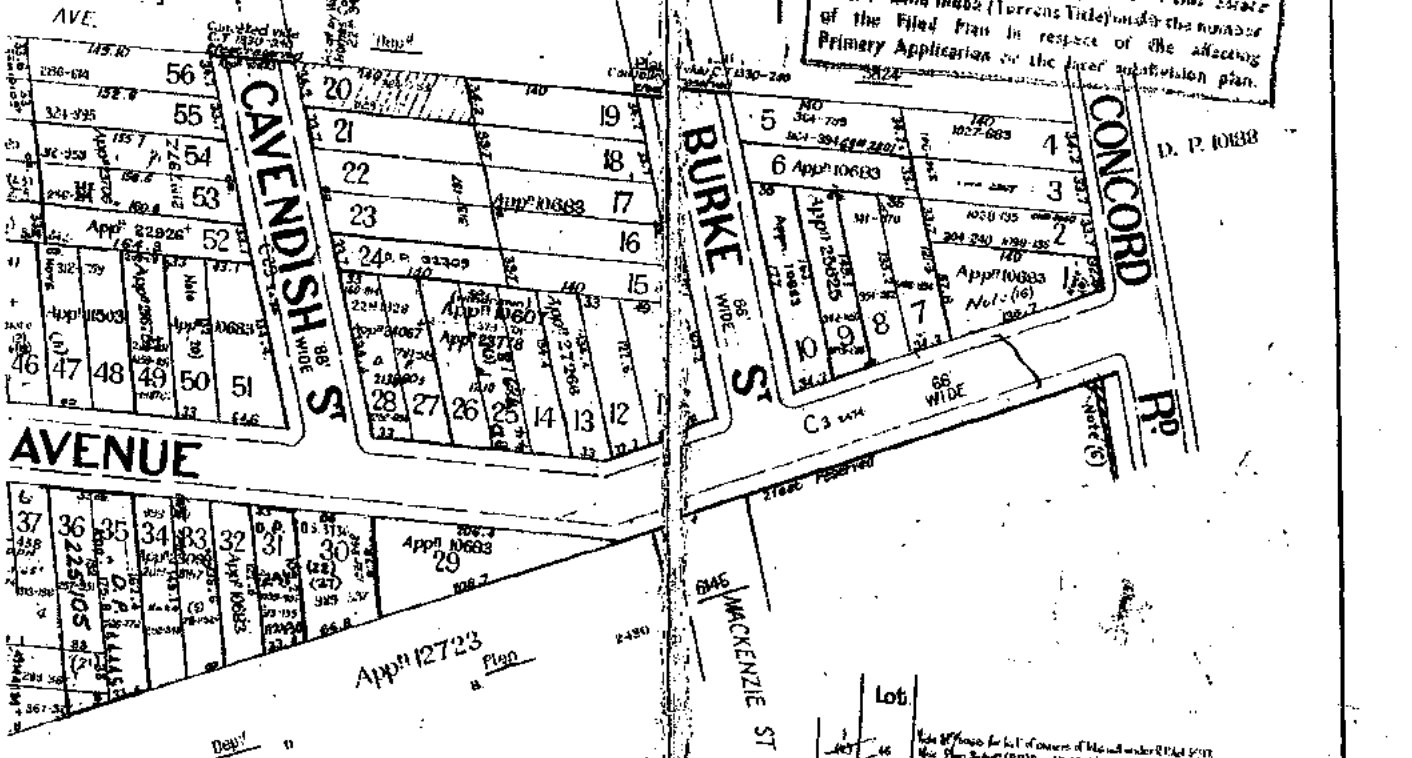
FP979563 17M5068

Charting Map since 12-12-1950

19563

2220

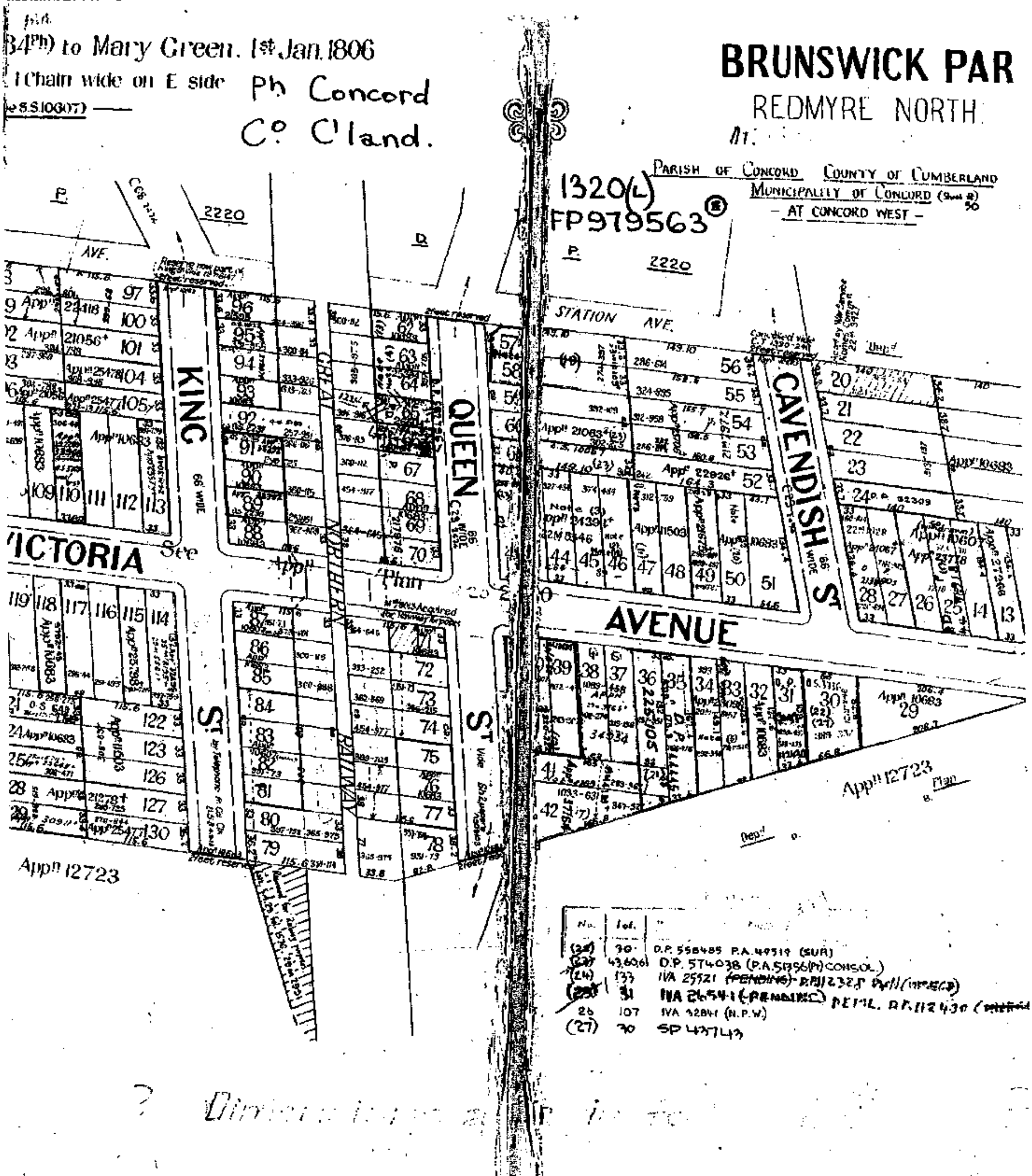
For reference to current Certificates of Title (Volume 9450 onwards) for parcels in this Survey of the Filed Plan in respect of the adjoining Primary Application or the later subdivision plan.



Lot.	
30	D.P. 558485 P.A. 49519 (SUR)
43,60,61	D.P. 574038 (P.A. 51356(P) CONSOL.)
133	IVA 25521 (PENDING - RP) 12328 Hyll (WITHDR)
31	IVA 25491 (PENDING) DEMR. D.P. 112430 (WITHDR)
107	IVA 52811 (N.P.W)
30	SP 49743

Lot.	
(5)	46 Note of Purchase for Lot 5 of Consent of Council under Plan 9450 Also Plan Subst (RP) Reg No 8546 (819319)
(4)	44,45,64 Misc. Plan. Subst (R.P.) Ref. No. 1442 (B302717)
	P.S.A. 64 - - - - - - - - - - 14797 (B337524) 828305
(5)	33&34 - - - - - - - - - - 37113 (E597264)
(6)	Proof (Rest for Road widening, S.D. B 47 - 189 Gaz 12.3.47 Fo. 212E
(7)	44 M. P. S. (R. P.) 58170 (D673123) Survey see FP 956170
(8)	M-1 Record & declared Public Rd. Bk. 663-S.B. 48 Fo. 255-S.B.B 48-55
(9)	141 M. P. S. (RR) 70556 (F 286421)
(10)	Lod. adj. - - - - 69051 (F 271768) Survey - 11921(4)
(11)	47 - - - - 77335 (F593765)
(12)	35&46 - - - (DS) 3654 Survey - 228650
(13)	62,63,64 - - - (RR) 87605 (F949412) Survey - 3615(6)
(14)	131 - - - (DS) 11197 Survey - 378418
(15)	Plan in G424990 Survey
(16)	1 M.P.S. (RR) 91835 (F27491) - 310806
(17)	P.A. 42 - - - 101844 (D772460)
(18)	P. 45,46 - - - 101318 (G925745) Survey - 49396(1)
(19)	57a 58 D.P. 519153 (P.A) Sur. Plan in Tube No. A162049 - See F.P. 105531
(20)	56
(21)	34 SP 6289

FP979563


34Ph) to Mary Green. 1st Jan.1806
1 Chain wide on E side
Ph Concord
Co C'land.
BRUNSWICK PAR
REDMYRE NORTH
1320(L)
FP979563
Parish of Concord County of Cumberland
Municipality of Concord
- AT CONCORD WEST -
2220
STATION AVE.
KING
66 WIDE
QUEEN
66 WIDE
CAVENDISH
66 WIDE
ST
VICTORIA
AVENUE
GREAT NORTHERN RAILWAY
App.n 12723
App.n 10683
App.n 25477
App.n 21278
App.n 11503
App.n 21063
App.n 22926
App.n 27368
App.n 23778
App.n 21067
No. | Lot. |
(24) 30 D.P. 556485 P.A. 49519 (SUB)
(23) 43,60,61 D.P. 574038 (P.A.51956(Pt) CONSOL.)
(21) 133 IVA 25521
(25) 31 IVA 26541
26 107 IVA 42841 (N.P.W.)
(27) 70 SP 43743

B29 /Req: B353190 /Doc: CT 09747-096 /Pt: 12-Sep-2007

NEW SOUTH WALES
Appln. No.17833
Prior Title Vol.4937 Fol.19.

[redacted]TIFICATE OF TITLE
[redacted]PERTY ACT, 1900, as amended.

(Page 1) Vol. 9747 Fol. 96

Vol. 9747 Fol. 96
1st Edition issued 19-7-19..
EN. J599756.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are ...

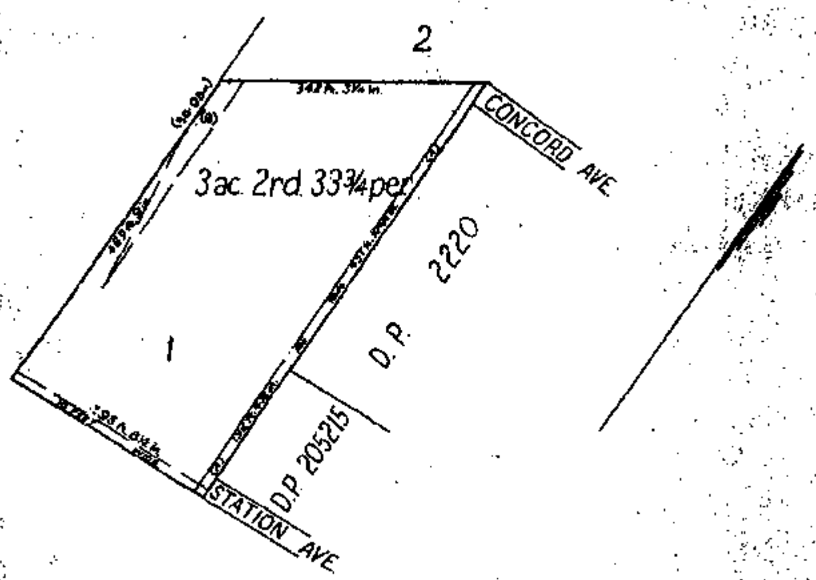
Witness

CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



(B) EASEMENT FOR SEWER 4 METRES WIDE AND VAR-Q 953580

J599756

Scale: 160 feet to one inch

ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 1 in Deposited Plan 219742 at Homebush Bay in the Municipality of Concord Parish of Concord and County of Cumberland being part of Portion 181 granted to Edward Powell on 11-11-1794.

Registrar General.

FIRST SCHEDULE (Continued overleaf)

FRED HOSKING SALES PTY. LIMITED.

Registrar General.

SECOND SCHEDULE (Continued overleaf)

GRY

1. Reservations and conditions, if any, contained in the Crown Grant(s) above referred to.
2. ~~The registered proprietor holds subject to Section 604 Local Government Act, 1919.~~
EA 3. Easement created by Transfer No.G289512 affecting the piece of land 10 feet wide in DP219742 the plan hereon.

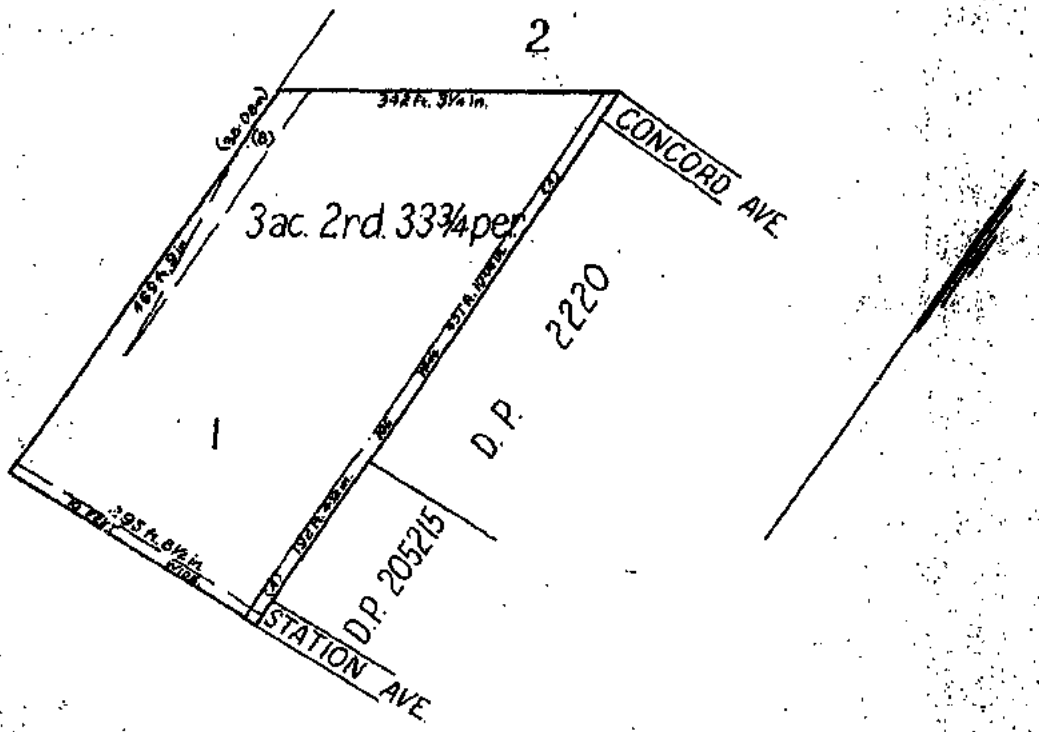
Registrar General.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Registrar General.
SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



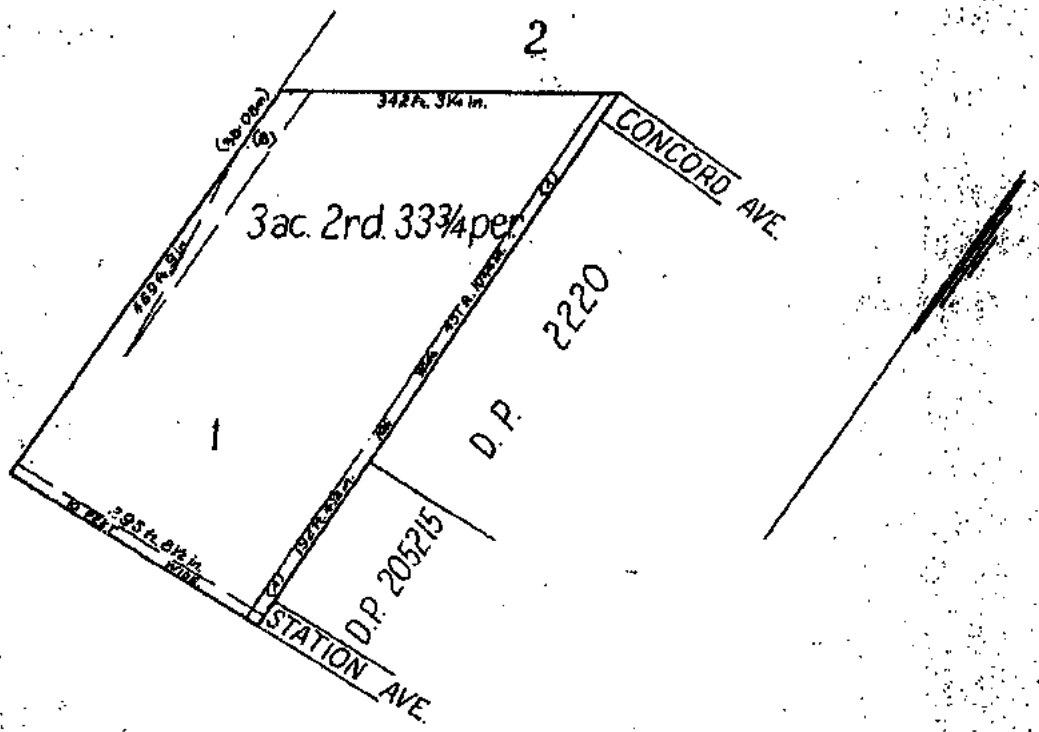
(B) EASEMENT FOR SEWER 4 METRES WIDE AND VAR-Q 933867

J599756 M.M.

Scale: 160 feet to one inch

Registrar General.
SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND



(B) EASEMENT FOR SEWER 6 METRES WIDE AND VAR-Q 733817

J599756 M.M.

Scale: 160 feet to one inch

J662429

Vol. 9747 Fol. 96

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Mortgage	J662429 P	6-5-1964	to The Commercial Banking Company of Sydney Limited.	23-7-1964	[signature]	
Transfer	J966546 P	28-1-1965	Easement for drainage (as more fully set out in the said instrument) affecting the piece of land within designated (B) in the plan hereon (with consent of mortgagee)	15-7-1965	[signature]	
Transfer	Q933817 P	–	Easement for sewer (as more fully set out in the said instrument) affecting that part of the land within described shown so burdened in the plan hereon D.P. 585589	14-12-1978	[signature]	

CANCELLED

SEE AUTO FOLIO

Q26/2/65
J966546 TF
D.P. 585589
Q 29/8/78
Q933817 TF

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

LegalStream Australia Pty Ltd

ABN: 80 002 801 498
Level 10, 135 King Street, SYDNEY NSW 2000, AUSTRALIA * DX654, SYDNEY
Tel: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

An Approved
LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE

12/9/2007 5:35PM

FOLIO: 1/219742

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 9747 FOL 96

Recorded	Number	Type of Instrument	C.T. Issue
4/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
10/6/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
1/7/1993	I398440	LEASE	EDITION 1
11/11/1993		AMENDMENT: LOCAL GOVT AREA	
19/1/1998		AMENDMENT: LOCAL GOVT AREA	
27/3/2001	7408114	DEPARTMENTAL DEALING	
2/5/2003	9570666	DEPT DEALING TO UPLIFT CT	EDITION 2
6/5/2003	9580796	TRANSFER	
6/5/2003	9580797	MORTGAGE	EDITION 3

*** END OF SEARCH ***

romila PRINTED ON 12/9/2007

LegalStream Australia Pty Ltd

ABN: 80 002 801 498
Level 10, 135 King Street, SYDNEY NSW 2000, AUSTRALIA * DX654, SYDNEY
Tel: (02) 9231 0122 Fax: (02) 9233 5411 www.legalstream.com.au

An Approved
LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: 1/219742

SEARCH DATE	TIME	EDITION NO	DATE
12/9/2007	5:35 PM	3	6/5/2003

LAND

LOT 1 IN DEPOSITED PLAN 219742
AT HOMEBUSH BAY
LOCAL GOVERNMENT AREA CANADA BAY
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM DP219742

FIRST SCHEDULE

FRED HOSKING PTY LIMITED (T 9580796)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 J662429 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED (FORMERLY THE COMMERCIAL BANKING COMPANY OF SYDNEY LIMITED)
3 G289512 EASEMENT CREATED BY TRANSFER NO G289512 AFFECTING THE PIECE OF LAND 10 FEET WIDE IN DP219742
4 J966546 EASEMENT FOR DRAINAGE AFFECTING THE PIECE OF LAND 10 FT WIDE DESIGNATED (A) IN DP219742
5 Q933817 EASEMENT FOR SEWER AFFECTING THAT PART OF THE LAND WITHIN DESCRIBED SHOWN SO BURDENED IN DP585589
6 I398440 LEASE TO SYDNEY ELECTRICITY OF SUBSTATION PREMISES NO 7189 AS SHOWN ON PLAN WITH I398440 TOGETHER WITH RIGHT OF WAY & EASEMENT FOR ELECTRICITY OVER ANOTHER PART OF THE LAND DESCRIBED. EXPIRES 31-1-2043
7 9580797 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

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: NIL

*** END OF SEARCH ***

romila PRINTED ON 12/9/2007

LegalStream Australia Pty Ltd

ABN: 80 002 801 498
Level 10, 135 King Street, SYDNEY NSW 2000, AUSTRALIA * DX654, SYDNEY
Tel: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

An Approved
LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
12/9/2007 5:35PM

FOLIO: AUTO CONSOL 4930-77

Recorded	Number	Type of Instrument	C.T. Issue
29/4/1994		CONSOL HISTORY RECORD CREATED FOR AUTO CONSOL 4930-77 PARCELS IN CONSOL ARE: 147-151/979563.	
2/5/1994	U225169	DEPARTMENTAL DEALING	EDITION 1
30/11/1994	U831039	VARIATION OF MORTGAGE	EDITION 2
23/10/1995	0629237	VARIATION OF MORTGAGE	EDITION 3
9/5/1996	2143740	DISCHARGE OF MORTGAGE	
9/5/1996	2143741	MORTGAGE	
9/5/1996	2143742	MORTGAGE	EDITION 4
9/2/1999	5581932	MORTGAGE	EDITION 5
8/12/2000	7275719	DISCHARGE OF MORTGAGE	
8/12/2000	7275720	TRANSFER	
8/12/2000	7275721	MORTGAGE	EDITION 6
19/7/2007	AD281647	DISCHARGE OF MORTGAGE	
19/7/2007	AD281648	MORTGAGE	EDITION 7

*** END OF SEARCH ***

romila PRINTED ON 12/9/2007

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Tel: (02) 9231 0122 Fax: (02) 9233 6411 www.legalstream.com.au

An Approved
LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: AUTO CONSOL 4930-77

SEARCH DATE	TIME	EDITION NO	DATE
12/9/2007	5:35 PM	7	19/7/2007

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT CONCORD WEST
LOCAL GOVERNMENT AREA CANADA BAY
PARISH OF CONCORD COUNTY OF CUMBERLAND
TITLE DIAGRAM DP979563

FIRST SCHEDULE

FRED HOSKING PTY LIMITED (T 7275720)

SECOND SCHEDULE (2 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 AD281648 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS

LOTS 147-151 IN DP979563.

*** END OF SEARCH ***

romila PRINTED ON 12/9/2007

WorkCover NEW SOUTH WALES

Our Ref: D07/092597
Your Ref: Romila Lobo

DOUGLAS PARTNERS
20 SEP 2007

18 September 2007

Attention: Romila Lobo
Douglas Partners
PO Box 472
WEST RYDE NSW 1685

Dear Douglas

RE SITE: Station Ave & George St, Concord West

I refer to your search request of 14 September 2007 requesting information on a Licence to Keep Dangerous Goods on the above site.

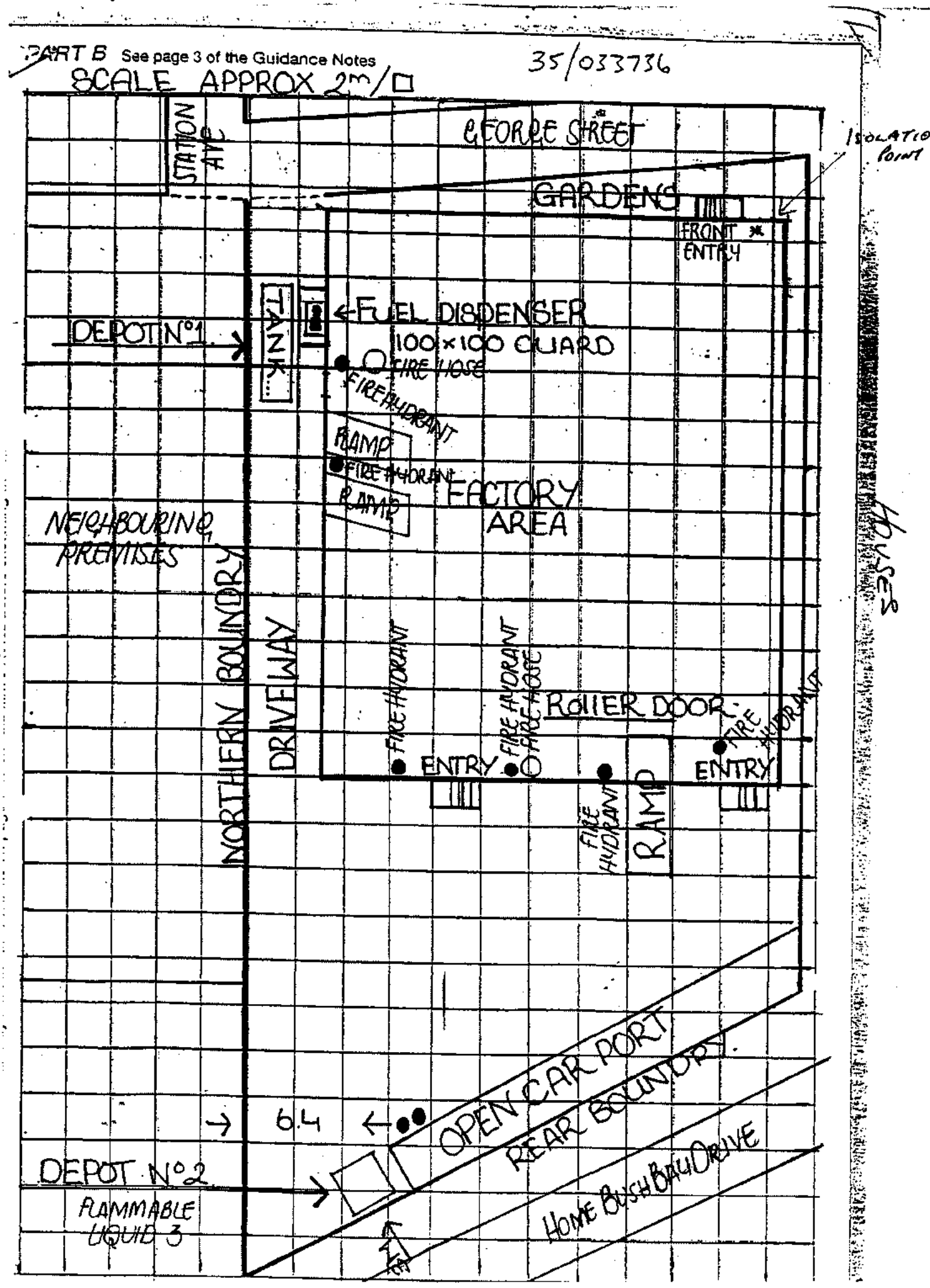
Enclosed are copies of the documents, which WorkCover holds on Dangerous Goods Licence **35/033736** and **35/011268** relating to the storage of dangerous goods at the above-mentioned premises as listed on the Stored Chemical Information Database (SCID).

If you have any further queries, please contact WorkCover's Dangerous Goods Licensing staff on (02) 4321 5500.

Kim Brearley
A/Licensing Officer
Dangerous Goods

PART B See page 3 of the Guidance Notes

35/033736



Application for Licence to Keep Dangerous Goods

WORKCOVER NEW SOUTH WALES

Application for ☑ **new licence** ☐ **amendment** ☐ **transfer** ☐ **renewal of expired licence**

Exp date 4/2/2000 Conditional original site sketch .../3/99

PART A – Applicant and site information See page 2 of Guidance Notes

1 Name of applicant: CHIPPENDALE PRINTING COMPANY LTD — ACN: 001265372

2 Postal address of applicant: 204-210 GEORGE ST — Suburb/Town: CONCORD WEST — Postcode: 2138

Trading name or site occupier's name: CHIPPENDALE PRINTING COMPANY LTD

4 Contact for licence inquiries — Phone: 9736 3555 — Fax: 9736 1337 — Name: KEVIN HISLOP

RECEIVED - 4 FEB 1999 SCIENTIFIC SERVICES

5 Previous licence number (if known): 35/033736 N/A

6 Previous occupier (if known): N/A.

7 Site to be licensed — No: 204-210 — Street: GEORGE STREET

Suburb / Town: CONCORD WEST NSW — Postcode: 2138

8 Main business of site: COMMERCIAL PRINTING. 2412

9 Site staffing: Hours per day: 24 — Days per week: 6

10 Site emergency contact — Phone: 9736 3555 — Name: KEVIN HISLOP

11 Major supplier of dangerous goods:

12 If a new site or for amendments to depots – see page 4 of Guidance Notes.
Plan stamped by: Name of Accredited Consultant: J S BONE — Date stamped: 27.1.99
depot 1&2

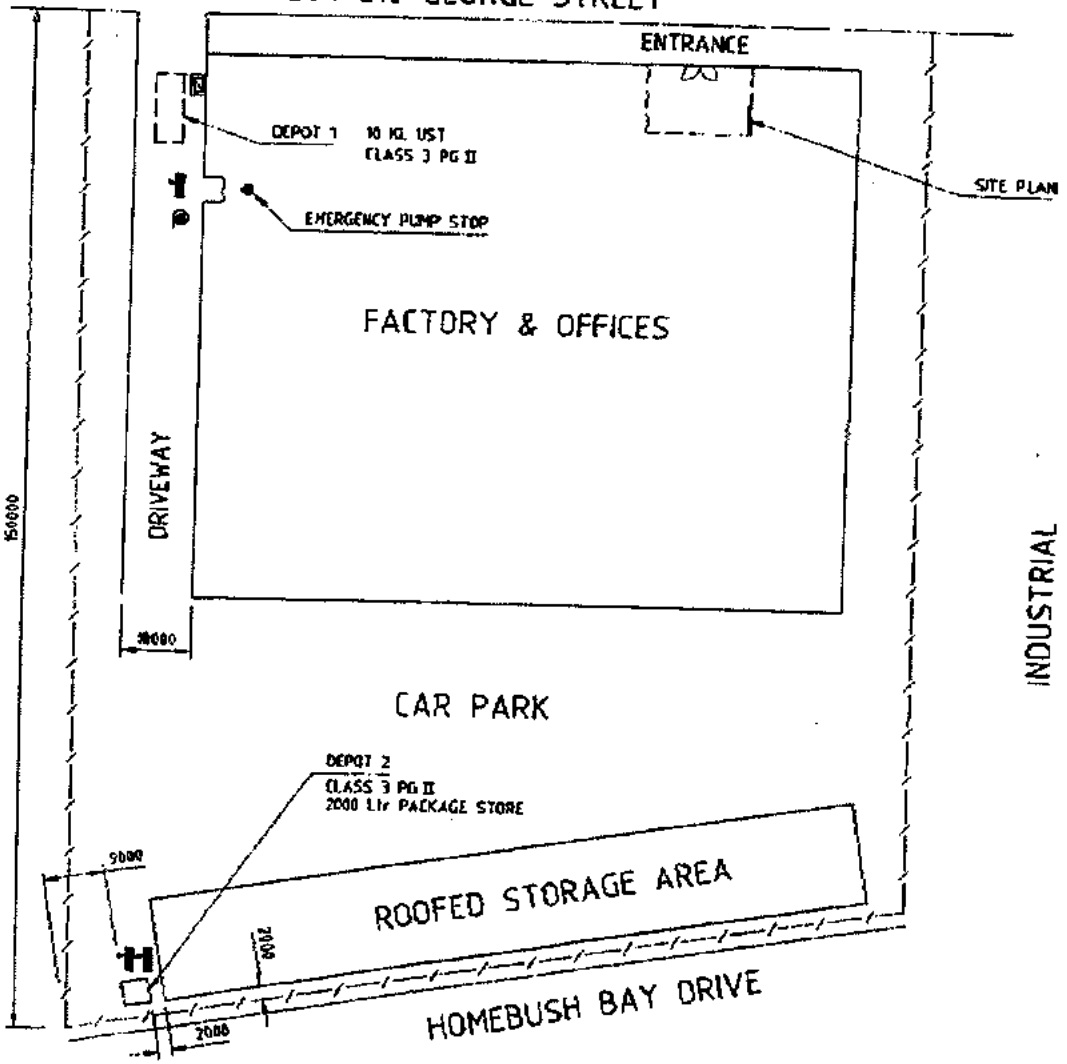
I certify that the details in this application (including any accompanying computer disk) are correct and cover all licensable quantities of dangerous goods kept on the premises.

13 Signature of applicant: [signature] — Printed name: KEVIN HISLOP — Date: 29.1.99

Please send your application, marked *CONFIDENTIAL*, to:
Dangerous Goods Licensing, Level 3, Locked Bag 10, Clarence Street, SYDNEY NSW 2000

DO NOT SCALE - IF IN DOUBT ASK

204-210 GEORGE STREET



KEY

- DCP FIRE EXTINGUISHER
- HOSE REEL

REFERENCE DRAWINGS | DRAWING No. | No. | REVISIONS | DATE | BY | CHD

DRAFTING BY :
R.T. DAVIDSON & ASSOC PTY LTD

SCALE	NTS	DATE
Drawn	K DAVIDSON	23-1-98
Checked		
Proj.Eng.		
Draft.Sup.		

OILSAFE PTY LTD

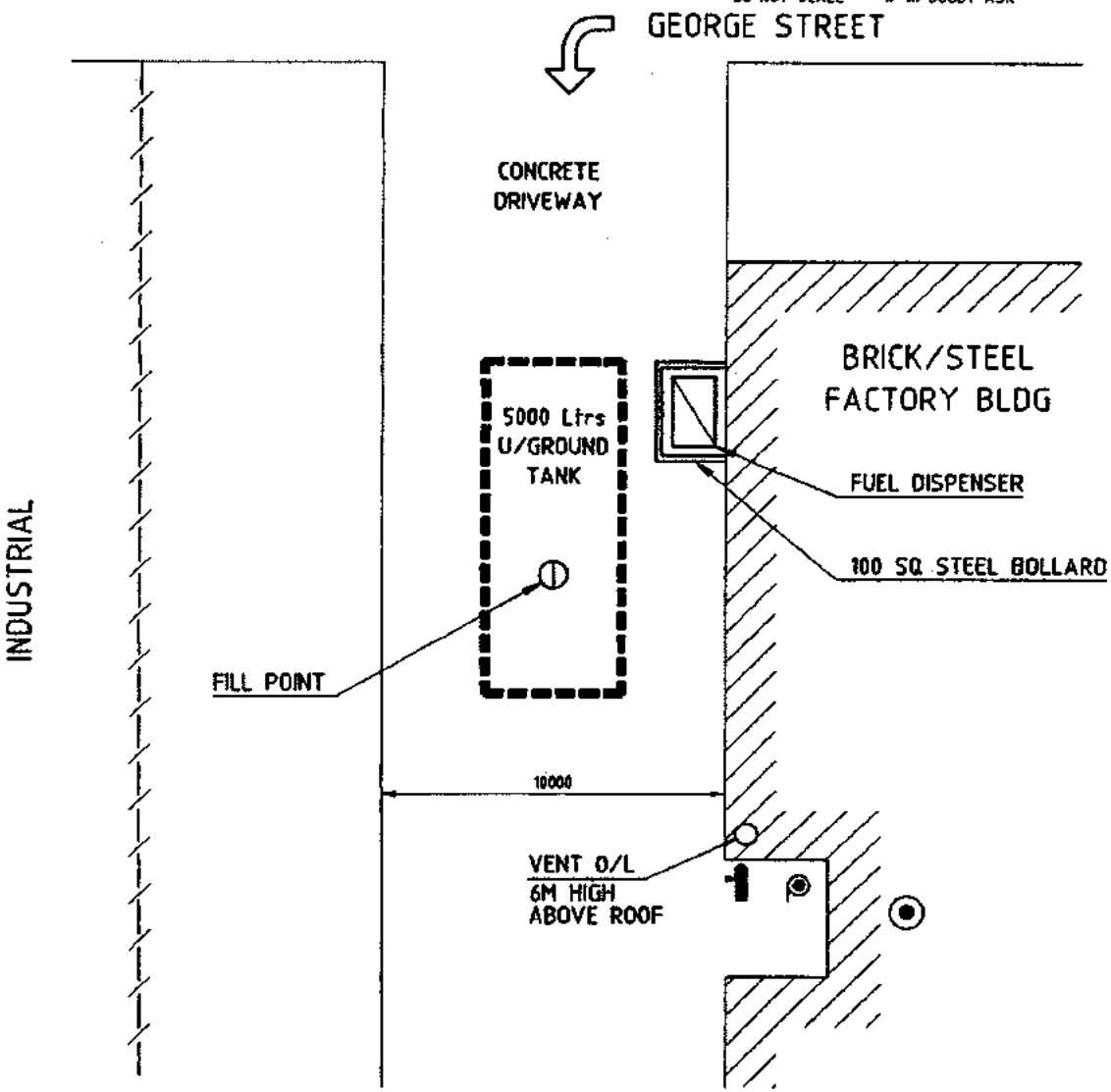
CHIPPENDALE PRINTING Co. P/L
204-210 GEORGE STREET
CONCORD WEST NSW
DANGEROUS GOODS SITE PLAN

A2

DRAWING No.	REV.
990501	A

SHEET of

DO NOT SCALE - IF IN DOUBT ASK



KEY

- DCP FIRE EXTINGUISHER
- HOSE REEL
- EMERGENCY STOP

This plan conforms with the Dangerous Goods Act NSW 1975 and Australian Standard AS 1940-1993
signed for Oilsafe P/L

..... Date 27/1/99

REFERENCE DRAWINGS	DRAWING No.	No.	REVISIONS	DATE	BY	CKD

DRAFTING BY :
R.T. DAVISON & ASSOC PTY LTD

SCALE	NTS	DATE
Drawn	R DAVISON	22-1-99
Checked		
Proj.Eng.		
Draft.Sup.		

OILSAFE PTY LTD

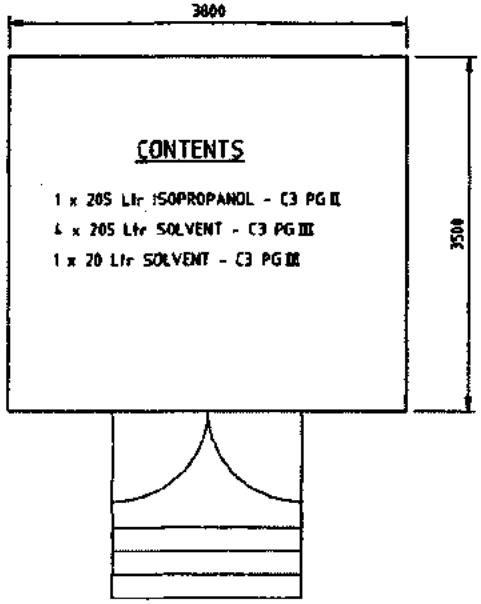
CHIPPENDALE PRINTING Co. P/L
204-210 GEORGE ST CONCORD WEST
DEPOT 1 - 10 KL UNDERGROUND TANK & DISPENSER

A2

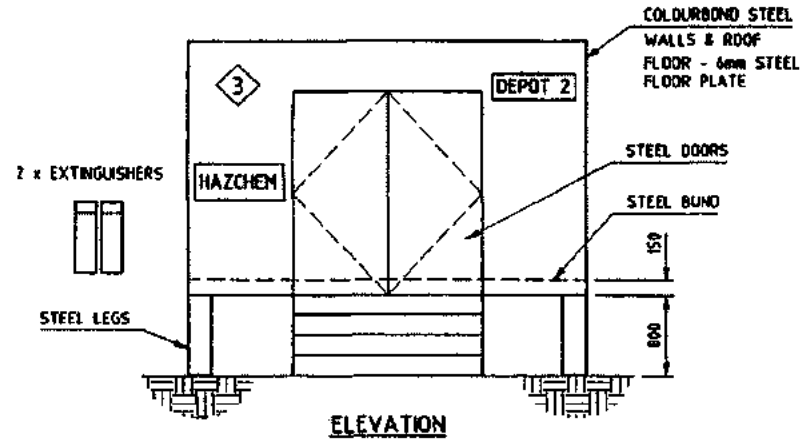
DRAWING No.	REV.
980502	A

SHEET OF

DO NOT SCALE - IF IN DOUBT ASK



PLAN



ELEVATION

This plan conforms with the Dangerous Goods Act NSW 1975 and Australian Standard AS 1940-1993..
signed for Oilsafe P/L.

..... Date 27/1/99..

THIS DRAWING REMAINS THE PROPERTY OF OILSAFE PTY LTD AND MUST NOT BE USED OR COPIED WITHOUT WRITTEN PERMISSION

REFERENCE DRAWINGS	DRAWING No.	No.	REVISIONS	DATE	BY	CHK

DRAFTING BY :
R.T. DAVISON & ASSOC PTY LTD

SCALE	NTS	DATE
Drawn	R DAVISON	23-1-99
Checked		
Proj.Eng.		
Draft.Sup		

OILSAFE PTY LTD

CHIPPENDALE PRINTING Co. P/L
204-210 GEORGE ST CONCORD WEST
DEPOT 2 - 2000 Ltr CLASS 3
PACKAGE STORE

A2

DRAWING No.	REV.
980503	A

SHEET OF

PART C – Dangerous Goods Storage *Complete one section per depot.*

If you have more depots than the space provided, photocopy sufficient sheets first.

P2	~~PACKAGE~~ KOOLED STORE	3	2000L.

UN Number	Proper Shipping Name	Class	PG I, II, III	Product or common name	Maximum storage quantity	Unit e.g. L, kg, m³
1219	ISOPROPANOL	3	II	ISOPROPANOL	200	L
1993	FLAMMABLE LIQUID NOS	3	III	SOLVENT	220	L
1268	PETROLEUM DISTILLATE NOS	3	III	SOLVENT	200	L

→ P40

Type of depot	Class	Maximum storage quantity

UN Number	Proper Shipping Name	Class	PG I, II, III	Product or common name	Maximum quantity	Unit e.g. L, kg, m³

PART C – Dangerous Goods Storage *Complete one section per depot.*

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot Number	Type of depot	Depot Class	Maximum storage capacity
1	UNDERGROUND TANK	3	5000 L

UN Number	Correct Shipping Name	Class	PG (I, II, III)	Product or common name	Typical quantity	Unit, e.g. L, kg, m³
1270	PETROLEUM FUEL	3	II	UNLEADED PETROL	4000	L.

Depot Number	Type of depot	Depot Class	Maximum storage capacity

UN Number	Correct Shipping Name	Class	PG (I, II, III)	Product or common name	Typical quantity	Unit, e.g. L, kg, m³

Depot Number	Type of depot	Depot Class	Maximum storage capacity

UN Number	Correct Shipping Name	Class	PG (I, II, III)	Product or common name	Typical quantity	Unit, e.g. L, kg, m³

Depot Number	Type of depot	Depot Class	Maximum storage capacity

UN Number	Correct Shipping Name	Class	PG (I, II, III)	Product or common name	Typical quantity	Unit, e.g. L, kg, m³

Licence No. 35/011268

APPLICATION FOR RENEWAL
OF LICENCE TO KEEP DANGEROUS GOODS

ISSUED UNDER AND SUBJECT TO THE PROVISIONS OF THE DANGEROUS GOODS ACT, 1975 AND REGULATION THEREUNDER

DECLARATION: Please renew licence number 35/011268 to 2/06/2004 . I confirm that all the licence details shown below are correct (amend if necessary).

Allan G. Powell ..... ALLAN POWELL 23.4.03

(Signature) *(Please print name)* *(Date signed)*

for: FRED HOSKING P/L

*THIS **SIGNED** DECLARATION SHOULD BE **RETURNED TO:***

WorkCover New South Wales
Dangerous Goods Licensing Section
LOCKED BAG 2906
LISAROW NSW 2252

Enquiries:ph (02) 43215500
fax (02) 92875500

Details of licence on 17 April 2003

Licence Number 35/011268 **Expiry Date** 2/06/2003

Licensee FRED HOSKING P/L ACN 000 043 498

Postal Address: P O BOX 117 CONCORD WEST NSW 2138

Licensee Contact ALLAN POWELL Ph. 9743 3099 Fax. 9736 3061

Premises Licensed to Keep Dangerous Goods
FRED HOSKING P/L
GEORGE ST & STATION AVE CONCORD WEST 2138

Nature of Site PAPER PRODUCT MANUFACTURING N.E.C.

Major Supplier of Dangerous Goods NOT APPLICABLE

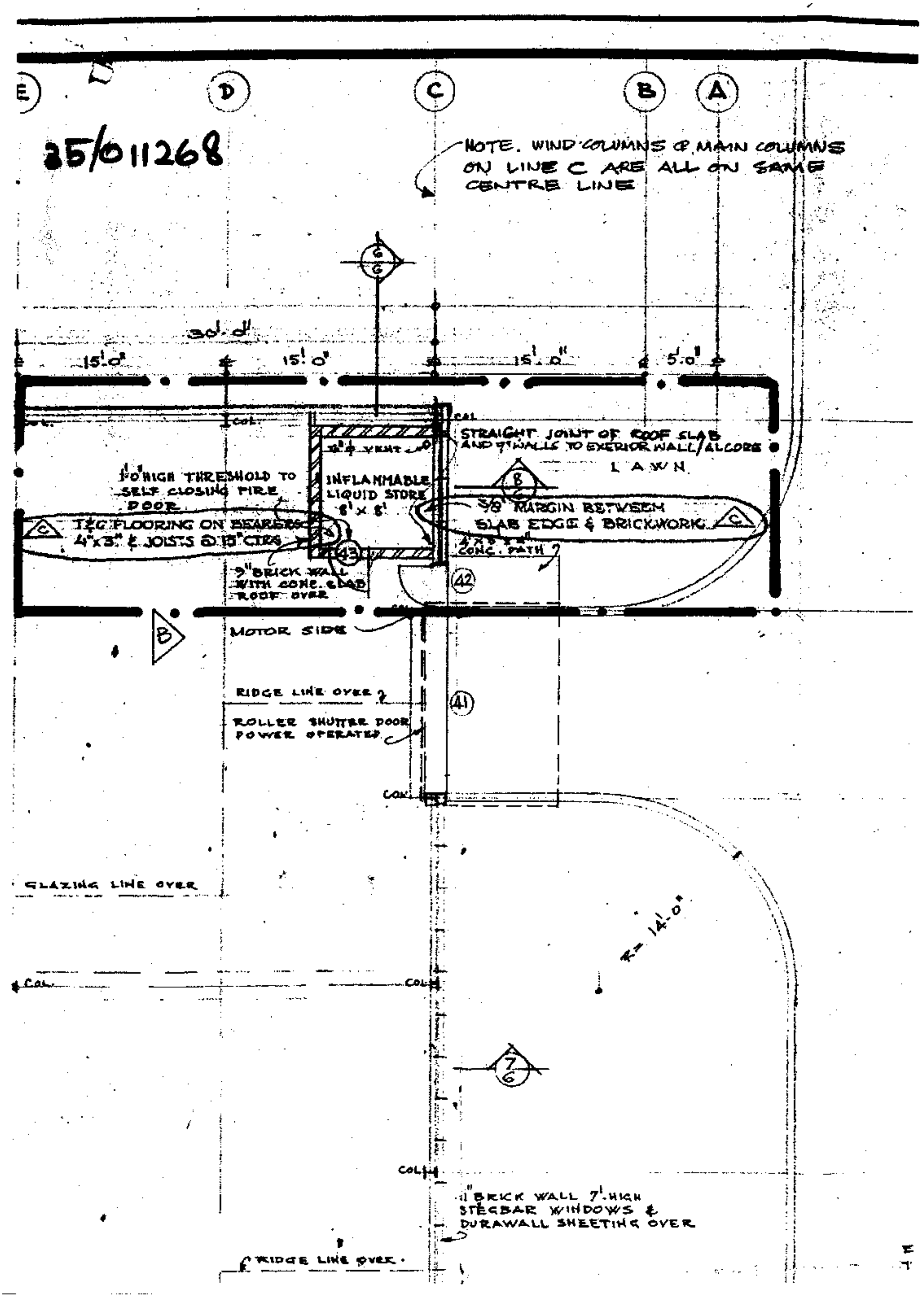
Emergency Contact for this Site ALLAN POWELL (A.H 0418332500) Ph. 9743 3099

Site staffing 16 HRS 5 DAYS

Details of Depots

Depot No.	Depot Type	Goods Stored in Depot	Class	Qty
1	ROOFED STORE		Class 3	1845 L
		UN 1170 ETHANOL (ETHYL ALCOHOL)		400 L
		UN 1219 ISOPROPANOL (ISOPROPYL ALCOHOL)		400 L
		UN 1263 PAINT, (ZINC RICH KIT)		200 L
		UN 1268 PETROLEUM PRODUCTS, N.O.S.		400 L

ATP



E
D
C
B
A
35/011268
NOTE. WIND COLUMNS & MAIN COLUMNS ON LINE C ARE ALL ON SAME CENTRE LINE
G
G
30'.0"
15'.0"
15'.0"
15'.0"
5'.0"
COL.
COL
STRAIGHT JOINT OF ROOF SLAB AND 9" WALLS TO EXERIOR WALL/ALCOVE
LAWN
1'0" HIGH THRESHOLD TO SELF CLOSING FIRE DOOR
INFLAMMABLE LIQUID STORE 8' x 8'
VENT
3/8" MARGIN BETWEEN SLAB EDGE & BRICKWORK
T&G FLOORING ON BEARERS 4"x3" & JOISTS @ 15" CTRS
C
C
8
43
42
41
CONC. PATH
9" BRICK WALL WITH CONC. SLAB ROOF OVER
B
MOTOR SIDE
RIDGE LINE OVER
ROLLER SHUTTER DOOR POWER OPERATED
CON
GLAZING LINE OVER
R = 14'.0"
COL
COL
COL
7
6
11" BRICK WALL 7' HIGH STEGBAR WINDOWS & DURAWALL SHEETING OVER
RIDGE LINE OVER.

THE NEW SOUTH WALES GOVERNMENT

SCIENTIFIC SERVICES BRANCH
-3 JUN 1993
DANGEROUS GOODS

PART A

WORKCOVER AUTHORITY

LICENCE TO KEEP DANGEROUS GOODS

(Dangerous Goods Act 1975)

Application for new licence, amendment or transfer

EXPIRY: 3/6/96

1. Name of applicant — ACN
   FRED HOSKING PTY. LTD. | 000 043 498
2. Site to be licensed
   No | Street
   | STATION AVENUE
   Suburb/Town | Postcode
   CONCORD WEST | 2138
3. Previous licence number (if known) 35/011268
4. Nature of site MANUFACTURE - STATIONERY & ENVELOPES 2635
5. Emergency contact on site:
   Phone | Name
   (02) 743 3099 | DENNIS PARKES
   HOME PH 773 0159
6. Site staffing: Hours per day 16 | Days per week 5
7. Major supplier of dangerous goods
8. If new site or significant modification
   Plan stamped by: | Accredited consultant's name: | Date stamped
   DATA 27 FEB 1995 ENTERED
9. Number of dangerous goods depots at site 1
10. Trading name or occupier's name
    FRED HOSKING PTY. LTD.
11. Postal address of applicant | Suburb/Town | Postcode
    P.O. BOX 117 | CONCORD WEST | 2138
12. Contact for licence enquiries:
    Phone | Fax | Name
    (02) 743 3099 | 736 1534 | DENNIS PARKES

I certify that the details contained in this application (or the accompanying computer disk) are true and correct

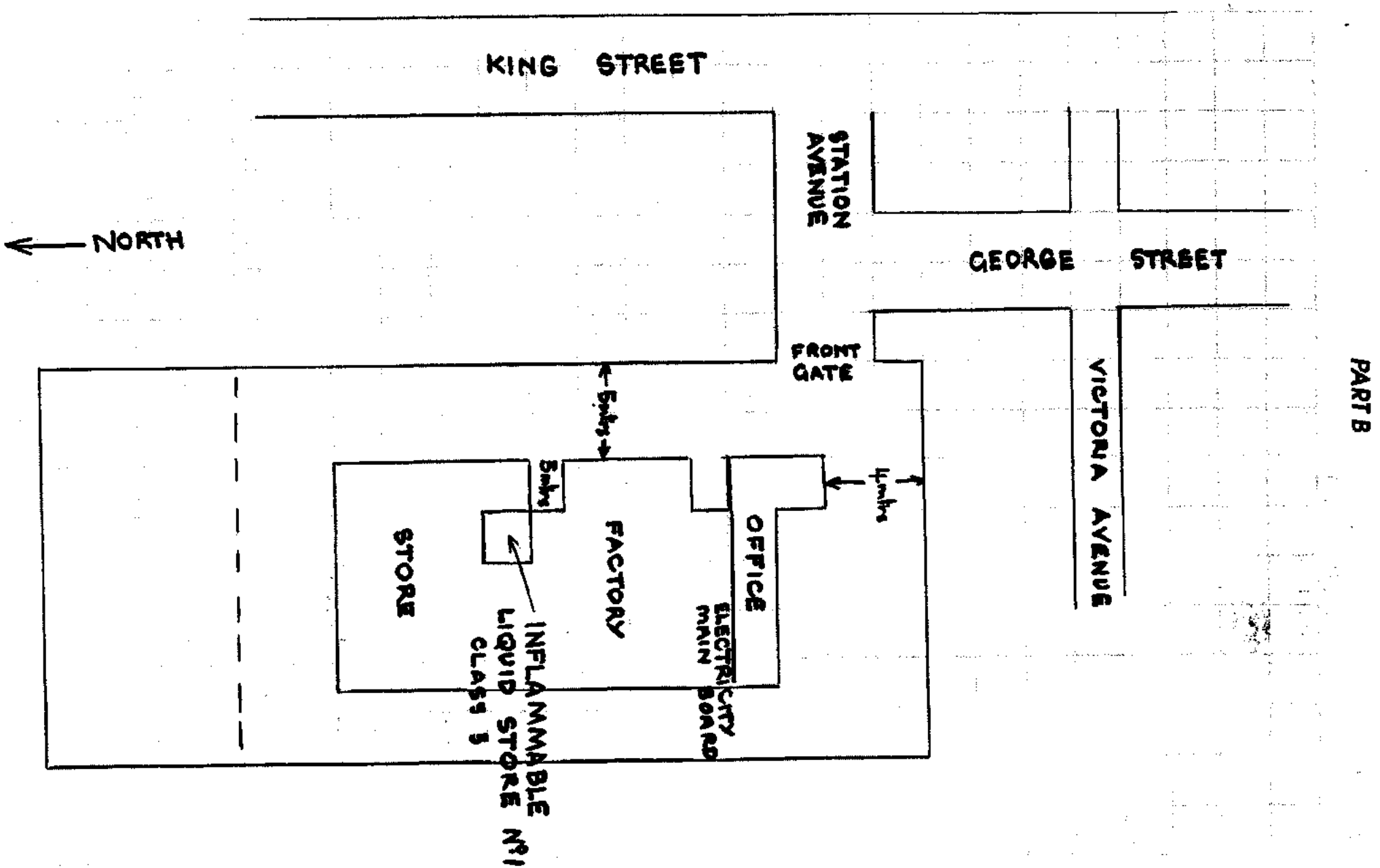
13. Signature of applicant Dennis Parkes | Date 1-6-93

Please complete attached site sketch, depot listing and check sheet (if required) and return to WorkCover Authority in envelope provided.

27 FEB 1995 BA

Site Sketch

Please carefully read the instructions in Part B of the guide before sketching the site.



PART C TO CHANGE **CHEMICAL STORAGE**

Complete 1 section per depot

If you have more depots than the space provided, photocopy sufficient sheets first.

Depot number	Type of depot	Class	Licensed maximum storage capacity
1	~~INFLAMMABLE LIQUID~~ Roofed Store	3	~~1,500 litres~~ 1845L

	UN number	Shipping name	Pkg. Class	Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
1.	1219	ISO PROPANOL	3	2SE	II	~~ISO PROPANOL~~	400	L
2.	1170	100SG/F3	3	II		DENATURED ALCOHOL 100SG/F3	400	L

Depot number	Type of depot	Class	Licensed maximum storage capacity
2	Roofed Store	3	2000 L

	UN number	Shipping name	Pkg. Class	Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³
3	1263	~~ACRYLIC~~ SUPERFLOW THINNERS	3	II		ACRYLIC THINNERS	200	L
4	1271	~~X55~~	3	II	3A1	X55 SOLVENT PETROLEUM SPIRIT	400	L

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

Depot number	Type of depot	Class	Licensed maximum storage capacity

UN number	Shipping name	Pkg. Class	Group	EPG	Product or common name	Typical quantity	Unit eg. L, kg, m³

FRED HOSKING
PTY. LIMITED
SUBSIDIARY COMPANY FRED HOSKING SALES PTY. LTD

C/R

"BAY SERIES" FANCY CARDS & STATIONERY

EST 1892

STATION AVENUE, CONCORD WEST, N.S.W. 2138
P.O. BOX 117.
TELEPHONE: 743 0291
TELEGRAMS: "BASERIES" SYDNEY
TELEX: 127873
FAX: 7361534

DB:HE

26th March 1991.

WorkCover Authority of N.S.W.
Locked Bag 2, Post Office
ROSEBERY NSW 2018

Dear Sir,

This is to advise that we are no longer using Depot No. 2 underground petrol tank and this tank may be removed from our Licence for the Keeping of Dangerous Goods under the provisions of the Dangerous Goods Act, 1975.

The tank has been filled with sand by Gamacol, as per the regulations.

Yours faithfully
FRED HOSKING PTY LIMITED

Don Boden

Don Boden
PURCHASING OFFICER

Data Entered
04 Apr 91

DD. 001. 020

6.020. 1X3

Dang. Goods

INFLAMMABLE LIQUID ACT, 1915 (AS AMENDED)

Application for Registration of Premises or Store Licence under Division A. or for the transfer Alteration or amendment of any such Registration or Licence, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

SEE PAGE 4 FOR DETAILS OF FEES PAYABLE AND DISTANCES FROM PROTECTED WORKS

DIRECTIONS

H.C.S.

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Box R.216, Royal Exchange Sydney, N.S.W. 2000 and must be accompanied by the prescribed fee.

Registration of Premises – For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil

Store Licence, Div. A – For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.

Store Licence, Div. B (Fee, See Regulation 7) – For quantities exceeding 4,000 gallons of mineral spirit, and/or Dangerous Goods of Classes 1 and 2, and/or Dangerous Goods of Class 3.

For the keeping of Dangerous Goods of Classes 3 and/or 4. new licence from 25/6/73

1. Name of occupier including full christian names. FRED HOSKING PTY. LTD.

Trading Name (if any)

3. Locality of the premises in which the depot or depots are situated

No. or Name ~~FOOT OF~~ cnr GEORGE St & STATION Ave

Street ~~VICTORIA AVE~~

Town CONCORD.

6.

4. Postal address P/O BOX 117 CONCORD WEST Postcode 2138

5. Occupation Mfrs. of greeting cards & stationery

6. Nature of premises (dwelling, garage etc.) Factory

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

~~PLEASE~~ ATTACH PLAN OF PREMISES

Depot No.	Construction of depots*			Inflammable liquid		Dangerous goods						
	Walls	Roof	Floor	Mineral spirit gallons	Mineral oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gal	Class 5B water gal	Class 9 gallons
1	Underground Tank			2000								
2												
3												
4												
5												
6												
7												
8												
9												
10												

PUBLIC REVENUE Vic.
CHQ 9.00
11/10/73
Date of receipt
No. 4833

*If product is kept in tanks describe depots as underground or aboveground tanks.

Signature of applicant X D Boden

Date of application X _____, 19___

CERTIFICATE OF INSPECTION

I, L. Leonard Barnett being an Inspector under the Inflammable

INSPECTION RECORD

Licence No. _____

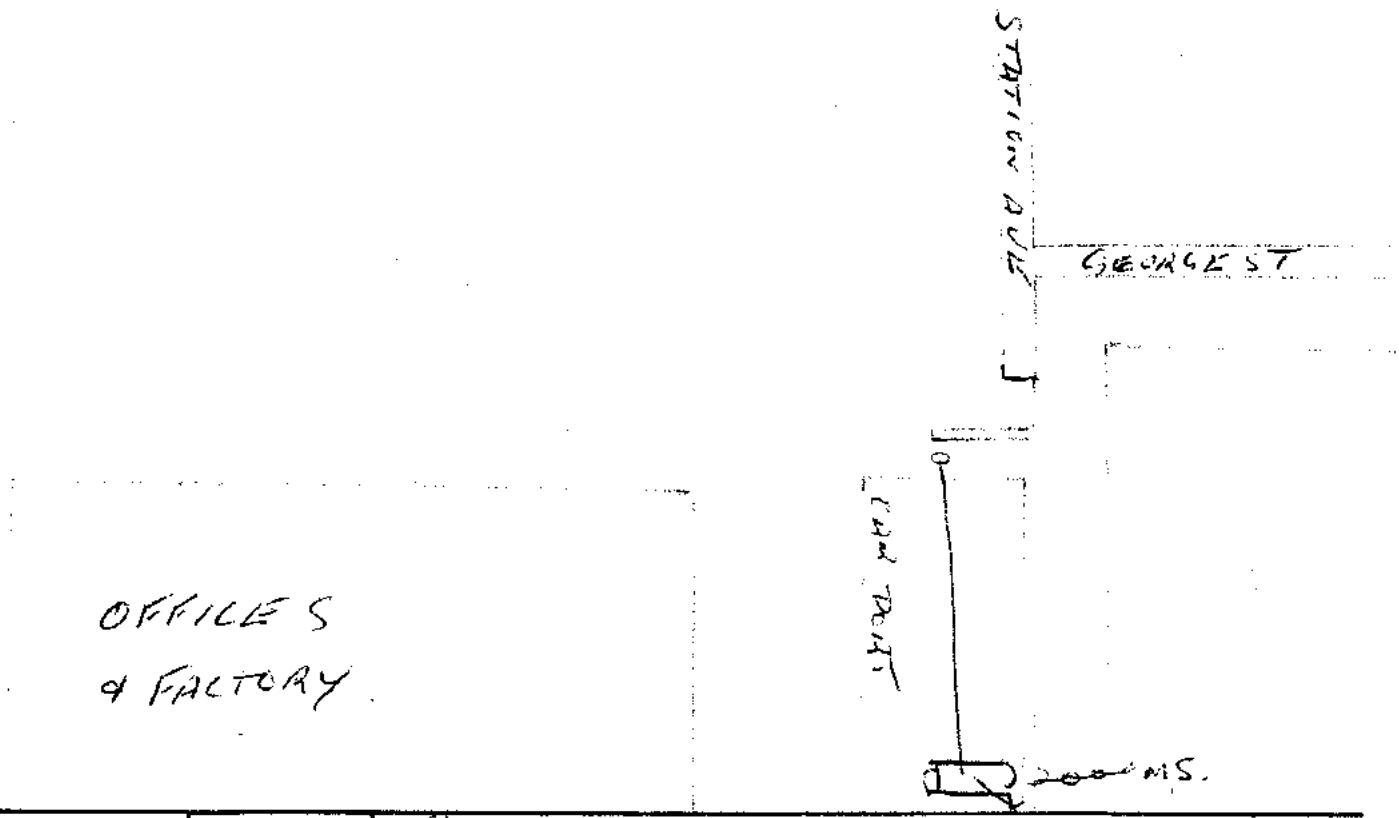
Licensee: FRED HOSKING P/L.
FANCY CARDS & STATIONERY.

Address: FOOT OF STATION AVE & GEORGE ST

Storage licensed: 1/2000 MS

H.C.S.

Sketch of Premises (Dimensions of depot and distance of same from adjoining "protected works" to be shown).



Inspected	Initials	Requisitions made or state of depot
21-9-13	A.P.B	To be applied for.

LICENCE No. M 8206

DANGEROUS GOODS ACT, 1975

APPLICATION FOR LICENCE (or AMENDMENT or TRANSFER of LICENCE) FOR THE KEEPING OF DANGEROUS GOODS

Application is hereby made for— *a licence (or amendment of the licence) *the transfer of the licence for the keeping of dangerous goods in or on the premises described below.

(*delete whichever is not required)

FEE: ~~$10.00 per Depot for new licence~~. $10.00 for amendment ~~or transfer~~.

Name of Applicant in full (see over)	
Trading name or occupier's name (if any)	FRED HOSKING PTY LTD.
Postal address	PO BOX 117 STATION AVE. CONCORD WEST Postcode 2138
Address of the premises including street number (if any)	AS ABOVE Postcode
Nature of premises (see over)	PRINTERS STATIONERY MANUF
Telephone number of applicant	STD Code Number

Particulars of type of depots and maximum quantities of dangerous goods to be kept at any one time.

Depot number	Type of depot (see over)	Storage capacity	Dangerous goods: Product being stored	C & C Office use only
1	ROOFED PACKAGE STORE	1000 LITRES	CLASS 3.1 METHYLATED SPIRITS	DG002 020 C 602013
2	UNDERGROUND TANK	10000 LITRES	CLASS 3.1 PETROL	202093
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

2

COLLECTION RECEIPT No. 16756 16.11.82 $10.00

Has site plan been approved? Yes / No — If yes, no plans required. If no, please attach site plan.

Have premises previously been licensed? Yes / ~~No~~ — If yes, state name of previous occupier. AS ABOVE

Name of company supplying flammable liquid (if any) CALTEX

Signature of applicant X ..... Date 16-11-82

For external explosives magazine(s), please fill in side 2.

PAID 18442

FOR OFFICE USE ONLY

CERTIFICATE OF INSPECTION

I, John Richard Chivers being an Inspector under the Dangerous Goods Act, 1975, do hereby certify that the premises described above do comply with the requirements of the Dangerous Goods Act, 1975, and the Dangerous Goods Regulation with regard to their situation and construction for the keeping of dangerous goods of the nature and in the quantity specified.

Signature of Inspector ..... Date 22.7.83

City of Canada Bay Council
Canada Bay Civic Centre Drummoyne
1a Marlborough Street, Drummoyne NSW 2047
Locked Bag 1470 Drummoyne NSW 1470
DX 21021 Drummoyne
Tel: 9911 6555
Fax: 9911 6550
council@canadabay.nsw.gov.au
www.canadabay.nsw.gov.au

PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Douglas Partners Pty Ltd
96 Hermitage Road
WEST RYDE NSW 2114

Certificate number:	**11610**	**Certificate date:**	**14/09/2007**
Receipt number:	**510080**	**Certificate fee:**	**$100.00**
Property Number:	**28142**	**Applicant's reference:**	

DESCRIPTION OF PROPERTY

Title:	**LOT: 147 DP: 979563**
Property:	**202 George Street, CONCORD WEST 2138**

LAND TO WHICH CERTIFICATE RELATES

The land to which this certificate relates, being the lot or lots described in the corresponding application, is shown in the Council's records as being situated at the street address described above. The information contained in this certificate relates only to the lot or lots described on this certificate.

SECTION 149(2) DETAILS

In accordance with section 149(2) of the Environmental Planning and Assessment Act 1979, at the date of this certificate the following information is provided in respect of the prescribed matters to be included in a planning certificate.

1. RELEVANT PLANNING INSTRUMENTS

(a) **The following Environmental Planning Instrument(s) applies to the land:**

CONCORD PLANNING SCHEME. Gazetted 22nd August,1969.
CONCORD LOCAL ENVIRONMENTAL PLAN No.12 Government Gazette No. 40 of 15th February,1985. Requires development consent for subdivisions.
CONCORD LOCAL ENVIRONMENTAL PLAN No.47 Government Gazette No. 130 of 30th October, 1992 Enables child care services to be established without development consent in dwelling houses in residential zones.
CONCORD LOCAL ENVIRONMENTAL PLAN No.50 Government Gazette No. 97 of 7th August, 1992 Enables centre based child care services to be established within Open Space 6(a) Recreation Existing zoning under the Concord Planning Scheme Ordinance.
CONCORD LOCAL ENVIRONMENTAL PLAN No.92 Government Gazette No. 59 of 19th May, 2000. This Plan enables temporary uses of land within the local government area of Concord which are currently not permissible under the Concord Planning Scheme Ordinance and Interim Development Orders.
CONCORD LOCAL ENVIRONMENTAL PLAN No.99 Government Gazette No. 35 of 10th March, 2000. This Plan provides for exempt and complying development in the local Government area of Concord.
CONCORD LOCAL ENVIRONMENTAL PLAN No. 103 (HERITAGE). Government Gazette No. 155 of 1st December, 2000. This Plan identifies heritage items, heritage conservation areas and special character areas and includes, but is not limited to, provisions to give protection to those items and areas, matters to be considered by Council for development applications, including applications for development in the vicinity of those items and areas, procedures and conservation incentives.
CONCORD LOCAL ENVIRONMENTAL PLAN No. 108 Government Gazette No. 57 of 12th May,2000. This Plan, in accordance with guidelines issued by the N.S.W. Acid Sulfate Soils Management Advisory Committee and information supplied by the N.S.W. Department of Urban Affairs and Planning, classifies all land in Concord in terms of criteria for works that will require development consent and require Council to consider the adequacy of a sulfate soil management plan.
CONCORD LOCAL ENVIRONMENTAL PLAN No.109 Government Gazette No. 139 of 10th December, 1999. Removes inconsistencies with respect to definitions of types of residential development permissible in accordance with the Ordinance and clarifies that the erection of dwelling houses in residential zones is permissible only with development consent.

(b) **The effect of the above Planning Instrument(s) is to zone the land:**

4(a) INDUSTRIAL GENERAL

1.Purposes for which buildings or works may be erected or carried out or used without the consent of the responsible authority

Exempt development.

2.Purposes for which buildings or works may be erected or carried out or used subject to such conditions as may be imposed by the responsible authority.

Industries referred to in Schedule 5; utility installations other than gas holders, generating works or both.

3.Purposes for which buildings or works may be erected or carried out or used only

with the consent of the responsible authority.

Any purpose other than those permitted by Clause 2 or prohibited by Clause 4.

4.Purposes for which buildings or works may not be erected or carried out or used.

Abattoirs; advertising structures; amusement parks; bed and breakfast accommodation; boarding-houses; caravan parks; centre-based child care service; commercial premises other than timber yards; dwelling-houses and residential flat buildings other than those used in conjunction with industry and situated on the same land as the industry; educational establishments; extractive industries; home-based child care services; hospitals; institutions; mines; motels; motor showrooms; offensive or or hazardous industries; places of assembly; places of public worship; road side stalls; shops other than those referred to in Schedule 3; stock and sale yards; swimming pools.
Schedule 3
Chemist's shop.Confectionery shop and milk bar.Fish and chip shop.Fruit shop.Newsagent's shop.Smallgoods and sandwich shop.Tobacconist's and hairdresser's shop.
Schedule 5
Abrasives manufacture.Brooms and brushes manufacture.Boots, shoes and accessories manufacture.Clothing, knitted goods and hats manufacture.Drawing and writing materials manufacture.Drugs, patent medicines, cosmetics and other toilet preparations (excluding soap) manufacture.Food, drink and tobacco manufacture (other than meat and fish processing, grain milling, sugar milling and refining).Furniture and fittings, bedding and furnishing drapery manufacture.Haberdashery articles manufacture.Jewellery manufacture, watchmaking, electroplating and mining.Job and general printing, bookbinding.Linoleum and leather cloth manufacture.Manufacture of bicycles, parts and accessories.Manufacture of goods of leather and leather substitutes.Manufacture of parts and accessories for motor vehicles, caravans and trailers.Manufacture and repair of machinery and machinery parts other than agricultural and earthmoving machines (including tractors), stationary machines and power transmitting equipment.Manufacture and repair of radio and electronic apparatus, electrical machinery and cables.Manufacture of textile products other than bags and sacks.Manufacture of cutlery and small tools (not machine), stoves, heaters, metal furniture and builder's hardware.Musical, surgical and scientific instrument and apparatus manufacture.Paper products manufacture.Toys, games and sporting requisites manufacture.

ADDITIONAL SCHEDULES

No additional schedules apply to this land.

(c) Does the land include or comprise 'critical habitat' under the provision of the local environmental plan applying to the land?

No

(d) Is there a heritage item situated on the land under the provisions of the local environmental plan applying to the land?

No

(e) Is the land located within a heritage conservation area under the provisions of the local environmental plan applying to the land?

No

(f) **Is the land located within a heritage special character area under the provisions of the local environmental plan applying to the land?**

No

(g) **Is the land adjoining or opposite a heritage item under the provisions of the local environmental plan applying to the land?**

Yes

(h) **Is the land adjoining or opposite a heritage conservation area under the provisions of the local environmental plan applying to the land?**

No

(i) **Is the item in the State Heritage Register?**

No

(j) **Where the land is vacant, is the erection of a dwelling house on that land prohibited by reason of a development standard relating to the minimum area on which a dwelling house may be erected?**

Refer to Clause 42 of the Concord Planning Scheme Ordinance.

---

2 RELEVANT EXHIBITED DRAFT LOCAL ENVIRONMENTAL PLANS

Listed below are draft local environmental plans that have been placed on exhibition under Section 66(1)(b) of the Environmental Planning and Assessment Act. Please check the list to determine the relevancy of the draft plans to the land that is the subject of this certificate.

DRAFT LOCAL ENVIRONMENTAL PLAN No.116 This plan aims to regulate advertising & signs in the Concord Local Government area but does exclude that land to which Sydney Regional Environmental Plan No.24 - Homebush Bay Area & Sydney Regional Environmental Plan No.29 - Rhodes Peninsula apply

Draft City of Canada Bay Local Environmental Plan (LEP).
This LEP consolidates and updates the planning controls which applied to the former Drummoyne and Concord Local Government Areas and has been prepared in a format consistent with the Standard Instrument (Local Environmental Plans) Order 2006.

The draft land use zoning, purposes that are permissible without consent, permissible only with development consent and prohibited in the zone, are shown in the attached 'ANNEXURE 1', extracted from the Draft Canada Bay Local Environmental Plan.

3 NAMES OF RELEVANT DEVELOPMENT CONTROL PLANS

Listed below are the development control plans applying to the land that have been made by the relevant planning authority under Division 6 of Part 3 of the Act (including any made by the council under section 72, or the Director-General under section 51A, before the repeal of those sections).

CONCORD DEVELOPMENT CONTROL PLAN No.1
Specialist Medical Clinics
Prohibits establishment of Specialist Medical Clinics in all residential zones.

CONCORD DEVELOPMENT CONTROL PLAN No.23
Alterations & additions to existing multi-unit residential development.
Outlines Council's requirements for the external alteration or modification of existing multiple dwelling residential developments.

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Provides criteria and prescribed conditions for exempt and complying development in Concord.

CONCORD DEVELOPMENT CONTROL PLAN No.36
Advertising & Signs
Provides guidelines for the outdoor display of advertisements, including advertising structures and commercial signs.

CONCORD DEVELOPMENT CONTROL PLAN No.38
Waste minimisation & management
Provides guidelines and controls for the minimisation and management of waste.

CITY OF CANADA BAY DEVELOPMENT CONTROL PLAN for Bicycle Parking & Storage Facilities.

City of Canada Bay Notification & Advertising of Development Applications Development Control Plan.

City of Canada Bay Development Control Plan for Telecommunications & Radiocommunications.

City of Canada Bay Development Control Plan Child Care Centres.

4. RELEVANT REGIONAL ENVIRONMENTAL PLANS

Listed below are the regional environmental plans that apply to the land within the City of Canada Bay. Please check the list to see the relevancy of the plans to the land that is the subject of this certificate.

Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

5. EXHIBITED DRAFT REGIONAL ENVIRONMENTAL PLANS

Listed below are the draft regional environmental plans applying to the land within the City of Canada Bay that have been placed on exhibition under section 47 (b) of the Environmental Planning and Assessment Act 1979. Please check the list to see the relevancy of the plans to the land that is the subject of this certificate.

Not applicable.

6. RELEVANT STATE AND DRAFT STATE ENVIRONMENTAL PLANNING POLICIES APPLYING TO THE LAND.

Listed below are the State and Draft State Environmental Planning Policies (SEPPs) that apply to the City of Canada Bay. The policy or draft policy may or may not be specifically applicable to the land that is the subject of this certificate. You will need to examine the policy or draft policy for the necessary details.

Any enquiries regarding State Environmental Planning Policies and Regional Environmental Plans should be directed to the Department of Planning on:
1300 305 695 or see Department of Planning Website at – http://www.planning.nsw.gov.au

State Environmental Planning Policy No. 1 – Development Standards.
State Environmental Planning Policy No. 4 – Development Without Consent and Miscellaneous Complying Development
State Environmental Planning Policy No. 6 - Number of Storeys in a Building.
State Environmental Planning Policy No. 8 – Surplus Public Land.
State Environmental Planning Policy No. 9 – Group Homes.
State Environmental Planning Policy No. 10 – Retention of Low-cost Rental Accommodation.
State Environmental Planning Policy No. 11 – Traffic Generating Development.
State Environmental Planning Policy No. 16 – Tertiary Institutions.
State Environmental Planning Policy No. 19 – Bushland in Urban Areas.
State Environmental Planning Policy No. 21 – Caravan Parks.
State Environmental Planning Policy No. 22 – Shops and Commercial Premises.
State Environmental Planning Policy No. 30 – Intensive Agriculture.
State Environmental Planning Policy No. 32 – Urban Consolidation (Redevelopment of Urban Land)
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development.
State Environmental Planning Policy No. 35 – Maintenance Dredging of Tidal Waterways.
State Environmental Planning Policy No. 48 – Major Putrescible Landfill Sites.
State Environmental Planning Policy No. 50 – Canal Estate Development.
State Environmental Planning Policy No. 55 – Remediation of Land.
State Environmental Planning Policy No. 64 – Advertising and Signage.
State Environmental Planning Policy No. 65 – Design of Residential Flat Development
State Environmental Planning Policy No. 70 – Affordable Housing (Revised Schemes)
State Environmental Planning Policy – (Seniors Living) 2004
State Environmental Planning Policy – Building Sustainability Index: BASIX 2004
State Environmental Planning Policy – (ARTC Rail Infrastructure) 2004
State Environmental Planning Policy – (Sydney Metropolitan Water Supply) 2004
State Environmental Planning Policy – (Repeal of Concurrence and Referral Provisions) 2004
State Environmental Planning Policy – (Major Projects) 2005
State Environmental Planning Policy – (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy No. 64 - Advertising and Signage (Amendment No. 2)

DRAFT STATE ENVIRONMENTAL PLANNING POLICIES
Draft State Environmental Planning Policy No. 66 – Integrating Land Use and Transport Planning Policy.
Draft State Environmental Planning Policy (Application of Development Standards) 2004
Draft State Environmental Planning Policy (Infrastructure) 2006
Draft State Environmental Planning Policy - Major Projects Amendment
Draft State Environmental Planning Policy - Seniors Living Amendment
Draft State Environment Planning Policy (Temporary Structures and Places of Public Entertainment) 2007

7. FORESHORE BUILDING LINE

Is the land affected by a fixed foreshore building line?

No

8. COASTAL PROTECTION

Is the land affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that Council has been so notified by the Department of Public Works?

No

9. MINE SUBSIDENCE

Is the land proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961?

No

10. ROAD WIDENING AND ROAD REALIGNMENT

Is the land affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993; or
(b) Any environmental planning instrument; or
(c) Any resolution of the council?

No

11. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES RESTRICTING DEVELOPMENT DUE TO RISKS OR HAZARDS

Is the land affected by a policy adopted by the Council or adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council, that restricts the development of the land because of the likelihood of:

(a)	**Land slip**	**No**
(b)	**Bushfire**	**No**
(c)	**Flooding**	**No**
(d)	**Tidal inundation**	**No**
(e)	**Subsidence**	**No**
(f)	**Contamination**	**Yes**

Council has adopted by resolution a policy on contaminated land. This policy will restrict development of land:

(i) which is affected by contamination;
(ii) which has been used for certain purposes;
(iii) in respect of which there is not sufficient information about contamination;
(iv) which is proposed to be used for certain purposes;
(v) in other circumstances contained in the policy

(g) Acid sulphate soils CLASS 2 ACID SULPHATE SOIL Works prohibited without Council approval (except as provided by subclause 4)include :
Works below the natural ground surface.
Works by which the watertable is likely to be lowered.

12. LAND RESERVED FOR ACQUISITION

Is there an environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land providing for the acquisition of the land by a public authority, as referred to in section 27 of the Environmental Planning and Assessment Act 1979?

No

13. CONTRIBUTIONS PLANS

The following Section 94 Contributions Plans apply to the land.

Section 94 Contributions plan for the Concord Area

The City of Canada Bay Section 94A Levy Contributions Plan.

14. CONTAMINATED LAND

(a) Is the land to which this certificate relates within land declared to be an investigation area or remediation site under Part 3 of the Contaminated Land Management Act 1997?

No

(b) Is the land to which this certificate relates the subject of a declaration of the land as an investigation site, investigation order, remediation site or remediation order, within the meaning of the Contaminated Land Management Act 1997?

No

(c) Is the land to which this certificate relates the subject of a voluntary investigation or voluntary remediation agreement subject to the Environmental Protection Authority's agreement under section 19 or 26 of the Contaminated Land Management Act 1997?

No

(d) Is the land to which this certificate relates the subject of a site audit statement within the meaning of Part 4 of the Contaminated Land Management Act 1997 that has been provided to Council?

No

(e) Is the land affected by the Unhealthy Building Land Policy, adopted by the Environment Protection Authority? If yes, development of this land may be restricted because of landfilling, chemical, biological or radioactive hazards or spontaneous combustion.

No

15. DEMOLITION OF BUILDINGS

Under the local environmental plan applying to the land, development consent is required for the demolition of any building on the land except in those circumstances for exempt development specified in either (as applicable) DCP No.34 – Exempt and Complying Development (Concord) or the Drummoyne Exempt Development Policy.

16. PROPERTY VEGETATION PLANS

Does a Property Vegetation Plan under the Native Vegetation Act 2003 apply to this land?

No

17. FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(a) **Whether or not development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.**

No

(b) **Whether or not development on the land or part of the land for any other purpose is subject to flood related development controls.**

No

18. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

No

19. DIRECTIONS UNDER PART 3A

Is there a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect?

No

SECTION 149(5) : SUBJECT TO SECTION 149 (5) THE FOLLOWING ADDITIONAL INFORMATION IS FURNISHED IN RESPECT OF THE ABOVEMENTIONED LAND

20. TREE PRESERVATION ORDER

The land is affected by a Tree Preservation Order.

21. MISCELLANEOUS INFORMATION

The property could be affected by aircraft noise. For further details contact Airservices Australia
Web site www.airservices.gov.au.

Does the property have a fixed minimum building line?

Yes

Council Resolution to prepare a Local Environmental Plan to revise & update the Concord Planning Scheme, (Council Ref.:- H.30/21/82).

Council Resolution to adopt the 'RTA Guidelines to Traffic Generating Developments' as Council's Interim Policy for the assessment of traffic generating developments (Council Ref.:TPE&I 1/16/96 - 25th June, 1996).

Gary Sawyer
General Manager

Per:-

Zone IN1 General Industrial

1 Objectives of zone

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To recognise the close proximity of this zone to adjoining residential areas and to reduce potential conflict between industrial and residential uses.

2 Permitted without consent

Nil.

3 Permitted with consent

Advertisements; Advertising structures; Animal boarding or training establishments; Building identification signs; Business identification signs; Car parks; Community facilities; Depots; Earthworks; Freight transport facilities; Horticulture; Landscape and garden supplies; Light industries; Liquid fuel depots; Materials recycling and recovery centres; Medical centres; Mortuaries; Neighbourhood shops; Passenger transport facilities; Public utility undertakings; Rainwater tanks; Recreation areas; Recreational facilities (indoor); Recreational facilities (outdoor); Roads; Service stations; Timber and building supplies; Transport depots; Truck depots; Utility installations; Vehicle body repair workshops; Vehicle repair stations; Veterinary Hospitals; Warehouse or distribution centres; Waste management facilities.

4 Prohibited

Any other development not otherwise specified in item 3.

DOUGLAS PARTNERS
19 SEP 2007

City of Canada Bay Council
Canada Bay Civic Centre Drummoyne
1a Marlborough Street, Drummoyne NSW 2047
Locked Bag 1470 Drummoyne NSW 1470
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PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

Douglas Partners Pty Ltd
96 Hermitage Road
WEST RYDE NSW 2114

Certificate number:	**11609**	**Certificate date:**	**14/09/2007**
Receipt number:	**510080**	**Certificate fee:**	**$40.00**
Property Number:	**22067**	**Applicant's reference:**	

DESCRIPTION OF PROPERTY

Title:	**LOT: 1 DP: 219742**
Property:	**7 Concord Avenue, CONCORD WEST 2138**

LAND TO WHICH CERTIFICATE RELATES

The land to which this certificate relates, being the lot or lots described in the corresponding application, is shown in the Council's records as being situated at the street address described above. The information contained in this certificate relates only to the lot or lots described on this certificate.

SECTION 149(2) DETAILS

In accordance with section 149(2) of the Environmental Planning and Assessment Act 1979, at the date of this certificate the following information is provided in respect of the prescribed matters to be included in a planning certificate.

1. RELEVANT PLANNING INSTRUMENTS

(a) **The following Environmental Planning Instrument(s) applies to the land:**

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(b) **The effect of the above Planning Instrument(s) is to zone the land:**

4(a) INDUSTRIAL GENERAL

1.Purposes for which buildings or works may be erected or carried out or used without the consent of the responsible authority

Exempt development.

2.Purposes for which buildings or works may be erected or carried out or used subject to such conditions as may be imposed by the responsible authority.

Industries referred to in Schedule 5; utility installations other than gas holders, generating works or both.

3.Purposes for which buildings or works may be erected or carried out or used only with the consent of the responsible authority.

Any purpose other than those permitted by Clause 2 or prohibited by Clause 4.

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Abattoirs; advertising structures; amusement parks; bed and breakfast accommodation; boarding-houses; caravan parks; centre-based child care service; commercial premises other than timber yards; dwelling-houses and residential flat buildings other than those used in conjunction with industry and situated on the same land as the industry; educational establishments; extractive industries; home-based child care services; hospitals; institutions; mines; motels; motor showrooms; offensive or or hazardous industries; places of assembly; places of public worship; road side stalls; shops other than those referred to in Schedule 3; stock and sale yards; swimming pools.
Schedule 3
Chemist's shop.Confectionery shop and milk bar.Fish and chip shop.Fruit shop.Newsagent's shop.Smallgoods and sandwich shop.Tobacconist's and hairdresser's shop.
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Abrasives manufacture.Brooms and brushes manufacture.Boots, shoes and accessories manufacture.Clothing, knitted goods and hats manufacture.Drawing and writing materials manufacture.Drugs, patent medicines, cosmetics and other toilet preparations (excluding soap) manufacture.Food, drink and tobacco manufacture (other than meat and fish processing, grain milling, sugar milling and refining).Furniture and fittings, bedding and furnishing drapery manufacture.Haberdashery articles manufacture.Jewellery manufacture, watchmaking, electroplating and mining.Job and general printing, bookbinding.Linoleum and leather cloth manufacture.Manufacture of bicycles, parts and accessories.Manufacture of goods of leather and leather substitutes.Manufacture of parts and accessories for motor vehicles, caravans and trailers.Manufacture and repair of machinery and machinery parts other than agricultural and earthmoving machines (including tractors), stationary machines and power transmitting equipment.Manufacture and repair of radio and electronic apparatus, electrical machinery and cables.Manufacture of textile products other than bags and sacks.Manufacture of cutlery and small tools (not machine), stoves, heaters, metal furniture and builder's hardware.Musical, surgical and scientific instrument and apparatus manufacture.Paper products manufacture.Toys, games and sporting requisites manufacture.
RESERVATION 2(a) COUNTY ROAD PROPOSED

ADDITIONAL SCHEDULES

No additional schedules apply to this land.

(c) **Does the land include or comprise 'critical habitat' under the provision of the local environmental plan applying to the land?**

No

(d) **Is there a heritage item situated on the land under the provisions of the local environmental plan applying to the land?**

No

(e) **Is the land located within a heritage conservation area under the provisions of the local environmental plan applying to the land?**

No

(f) **Is the land located within a heritage special character area under the provisions of the local environmental plan applying to the land?**

No

(g) **Is the land adjoining or opposite a heritage item under the provisions of the local environmental plan applying to the land?**

Yes

(h) **Is the land adjoining or opposite a heritage conservation area under the provisions of the local environmental plan applying to the land?**

No

(i) **Is the item in the State Heritage Register?**

No

(j) **Where the land is vacant, is the erection of a dwelling house on that land prohibited by reason of a development standard relating to the minimum area on which a dwelling house may be erected?**

Refer to Clause 42 of the Concord Planning Scheme Ordinance.

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2 RELEVANT EXHIBITED DRAFT LOCAL ENVIRONMENTAL PLANS

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3 NAMES OF RELEVANT DEVELOPMENT CONTROL PLANS

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Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

5. EXHIBITED DRAFT REGIONAL ENVIRONMENTAL PLANS

Listed below are the draft regional environmental plans applying to the land within the City of Canada Bay that have been placed on exhibition under section 47 (b) of the Environmental Planning and Assessment Act 1979. Please check the list to see the relevancy of the plans to the land that is the subject of this certificate.

Not applicable.

6. RELEVANT STATE AND DRAFT STATE ENVIRONMENTAL PLANNING POLICIES APPLYING TO THE LAND.

Listed below are the State and Draft State Environmental Planning Policies (SEPPs) that apply to the City of Canada Bay. The policy or draft policy may or may not be specifically applicable to the land that is the subject of this certificate. You will need to examine the policy or draft policy for the necessary details.

**Any enquiries regarding State Environmental Planning Policies and Regional Environmental Plans should be directed to the Department of Planning on:
1300 305 695 or see Department of Planning Website at – http://www.planning.nsw.gov.au**

State Environmental Planning Policy No. 1 – Development Standards.
State Environmental Planning Policy No. 4 – Development Without Consent and Miscellaneous Complying Development
State Environmental Planning Policy No. 6 - Number of Storeys in a Building.
State Environmental Planning Policy No. 8 – Surplus Public Land.
State Environmental Planning Policy No. 9 – Group Homes.
State Environmental Planning Policy No. 10 – Retention of Low-cost Rental Accommodation.
State Environmental Planning Policy No. 11 – Traffic Generating Development.
State Environmental Planning Policy No. 16 – Tertiary Institutions.
State Environmental Planning Policy No. 19 – Bushland in Urban Areas.
State Environmental Planning Policy No. 21 – Caravan Parks.
State Environmental Planning Policy No. 22 – Shops and Commercial Premises.
State Environmental Planning Policy No. 30 – Intensive Agriculture.
State Environmental Planning Policy No. 32 – Urban Consolidation (Redevelopment of Urban Land)
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development.
State Environmental Planning Policy No. 35 – Maintenance Dredging of Tidal Waterways.
State Environmental Planning Policy No. 48 – Major Putrescible Landfill Sites.
State Environmental Planning Policy No. 50 – Canal Estate Development.
State Environmental Planning Policy No. 55 – Remediation of Land.
State Environmental Planning Policy No. 64 – Advertising and Signage.
State Environmental Planning Policy No. 65 – Design of Residential Flat Development
State Environmental Planning Policy No. 70 – Affordable Housing (Revised Schemes)
State Environmental Planning Policy – (Seniors Living) 2004
State Environmental Planning Policy – Building Sustainability Index: BASIX 2004
State Environmental Planning Policy – (ARTC Rail Infrastructure) 2004
State Environmental Planning Policy – (Sydney Metropolitan Water Supply) 2004
State Environmental Planning Policy – (Repeal of Concurrence and Referral Provisions) 2004
State Environmental Planning Policy – (Major Projects) 2005
State Environmental Planning Policy – (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy No. 64 - Advertising and Signage (Amendment No. 2)

DRAFT STATE ENVIRONMENTAL PLANNING POLICIES
Draft State Environmental Planning Policy No. 66 – Integrating Land Use and Transport Planning Policy.

Draft State Environmental Planning Policy (Application of Development Standards) 2004
Draft State Environmental Planning Policy (Infrastructure) 2006
Draft State Environmental Planning Policy - Major Projects Amendment
Draft State Environmental Planning Policy - Seniors Living Amendment
Draft State Environment Planning Policy (Temporary Structures and Places of Public Entertainment) 2007

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7. FORESHORE BUILDING LINE

Is the land affected by a fixed foreshore building line?

No

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8. COASTAL PROTECTION

Is the land affected by the operation of section 38 or 39 of the Coastal Protection Act 1979, but only to the extent that Council has been so notified by the Department of Public Works?

No

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9. MINE SUBSIDENCE

Is the land proclaimed to be a mine subsidence district within the meaning of section 15 of the Mine Subsidence Compensation Act 1961?

No

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10. ROAD WIDENING AND ROAD REALIGNMENT

Is the land affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993; or
(b) Any environmental planning instrument; or
(c) Any resolution of the council?

No

11. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES RESTRICTING DEVELOPMENT DUE TO RISKS OR HAZARDS

Is the land affected by a policy adopted by the Council or adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council, that restricts the development of the land because of the likelihood of:

(a)	Land slip	No
(b)	Bushfire	No
(c)	Flooding	No
(d)	Tidal inundation	No
(e)	Subsidence	No
(f)	Contamination	Yes

Council has adopted by resolution a policy on contaminated land. This policy will restrict development of land:

(i) which is affected by contamination;
(ii) which has been used for certain purposes;
(iii) in respect of which there is not sufficient information about contamination;
(iv) which is proposed to be used for certain purposes;
(v) in other circumstances contained in the policy

(g) Acid sulphate soils CLASS 2 ACID SULPHATE SOIL Works prohibited without Council approval (except as provided by subclause 4)include :
Works below the natural ground surface.
Works by which the watertable is likely to be lowered.

12. LAND RESERVED FOR ACQUISITION

Is there an environmental planning instrument, deemed environmental planning instrument or draft environmental planning instrument applying to the land providing for the acquisition of the land by a public authority, as referred to in section 27 of the Environmental Planning and Assessment Act 1979?

Yes

13. CONTRIBUTIONS PLANS

The following Section 94 Contributions Plans apply to the land.

Section 94 Contributions plan for the Concord Area

The City of Canada Bay Section 94A Levy Contributions Plan.

14. CONTAMINATED LAND

(a) **Is the land to which this certificate relates within land declared to be an investigation area or remediation site under Part 3 of the Contaminated Land Management Act 1997?**

No

(b) **Is the land to which this certificate relates the subject of a declaration of the land as an investigation site, investigation order, remediation site or remediation order, within the meaning of the Contaminated Land Management Act 1997?**

No

(c) **Is the land to which this certificate relates the subject of a voluntary investigation or voluntary remediation agreement subject to the Environmental Protection Authority's agreement under section 19 or 26 of the Contaminated Land Management Act 1997?**

No

(d) **Is the land to which this certificate relates the subject of a site audit statement within the meaning of Part 4 of the Contaminated Land Management Act 1997 that has been provided to Council?**

No

(e) **Is the land affected by the Unhealthy Building Land Policy, adopted by the Environment Protection Authority? If yes, development of this land may be restricted because of landfilling, chemical, biological or radioactive hazards or spontaneous combustion.**

No

15. DEMOLITION OF BUILDINGS

Under the local environmental plan applying to the land, development consent is required for the demolition of any building on the land except in those circumstances for exempt development specified in either (as applicable) DCP No.34 – Exempt and Complying Development (Concord) or the Drummoyne Exempt Development Policy.

16. PROPERTY VEGETATION PLANS

Does a Property Vegetation Plan under the Native Vegetation Act 2003 apply to this land?

No

17. FLOOD RELATED DEVELOPMENT CONTROLS INFORMATION

(a) Whether or not development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No

(b) Whether or not development on the land or part of the land for any other purpose is subject to flood related development controls.

No

18. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

Has Council been notified that an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

No

19. DIRECTIONS UNDER PART 3A

Is there a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect?

No

Gary Sawyer
General Manager

Per:-

Zone IN1 General Industrial

1 Objectives of zone

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To recognise the close proximity of this zone to adjoining residential areas and to reduce potential conflict between industrial and residential uses.

2 Permitted without consent

Nil.

3 Permitted with consent

Advertisements; Advertising structures; Animal boarding or training establishments; Building identification signs; Business identification signs; Car parks; Community facilities; Depots; Earthworks; Freight transport facilities; Horticulture; Landscape and garden supplies; Light industries; Liquid fuel depots; Materials recycling and recovery centres; Medical centres; Mortuaries; Neighbourhood shops; Passenger transport facilities; Public utility undertakings; Rainwater tanks; Recreation areas; Recreational facilities (indoor); Recreational facilities (outdoor); Roads; Service stations; Timber and building supplies; Transport depots; Truck depots; Utility installations; Vehicle body repair workshops; Vehicle repair stations; Veterinary Hospitals; Warehouse or distribution centres; Waste management facilities.

4 Prohibited

Any other development not otherwise specified in item 3.

Groundwater Bores at a 1km radius at Cnr George Street and Station Avenue - Concord West dated 12/09/2007

N

- Groundwater Bores
- Rail.shp
- Streams.shp
- SCC Main Roads
- Roads.shp
- Suburbs
- Sydney_suburbs.shp

1 0 1 Kilometers

Date/Time :12-Sep-2007 11:44 AM
User :STANNER
Report :RMGW001D.QRP
Executable :S:\G5\PROD32\Ground.exe
Exe Date :30-Jul-2007
System :Groundwater
Database :Edbp

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102550

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE

Work Type : Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.80 m
Salinity :
Yield :

Site Details

Site Chosen By
County **Parish** **Portion/Lot DP**
Form A :
Licensed :CUMBERLAND CONCORD LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6253109
Easting :322033
Latitude (S) :33° 50' 50"
Longitude (E) :151° 4' 35"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;
H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102550

Remarks

Form A Remarks
DATA FROM AG APPLICATION ONLY

*** End of GW102550 ***

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102553

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type :Bore
Work Status :(Unknown)
Constract. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County: Form A : Licensed :CUMBERLAND
Parish: CONCORD
Portion/Lot DP: LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6253267
Easting :322210
Latitude (S) :33° 50' 45"
Longitude (E) :151° 4' 42"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type		From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102553 ***

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102554

Licence : 10BL157703
Licence Status Activ
Work Type : Bore
Work Status : (Unknown)
Construct. Method :
Owner Type :
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE

Commenced Date :
Completion Date : 01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name : MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County **Parish** **Portion/Lot DP**
Form A :
Licensed : CUMBERLAND CONCORD LOTS 2,6&7 DP740600

Region : 10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing : 6253239
Easting : 322365
Latitude (S) : 33° 50' 46"
Longitude (E) : 151° 4' 48"

GS Map :
MGA Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	0.00	4.00				
1	1	Casing	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AQ APPLICATION ONLY

***** End of GW102554 *****

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102555

Licence :10BL157703

Licence Status Activ

Work Type :Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -

Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :		
Licensed :CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :

CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :

Northing :6253143
Easting :322187

Latitude (S) :33° 50' 49"
Longitude (E) :151° 4' 41"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102555 ***

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102556

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE

Work Type : Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County Form A : Licensed :CUMBERLAND
Parish CONCORD
Portion/Lot DP LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6252900
Easting :322371
Latitude (S) :33° 50' 57"
Longitude (E) :151° 4' 48"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

***** End of GW102556 *****

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102557

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE

Work Type :Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level :
Salinity :
Yield :

Site Details

Site Chosen By
County Form A : Licensed :CUMBERLAND
Parish CONCORD
Portion/Lot DP LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6252778
Easting :322425
Latitude (S) :33° 51' 1"
Longitude (E) :151° 4' 50"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102557 ***

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102558

Licence : 10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE

Work Type : Bore
Work Status : (Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date : 01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name : MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By

County	Parish	Portion/Lot DP
Form A :		
Licensed : CUMBERLAND	CONCORD	LOTS 2,6&7 DP740600

Region : 10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing : 6252682
Easting : 322272
Latitude (S) : 33° 51' 4"
Longitude (E) : 151° 4' 44"

GS Map :
MGA Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	0.00	4.00				
1	1	Casing P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

*** End of GW102558 ***

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102559

Licence :10BL157703 **Licence Status** Activ

Work Type : Bore **Authorised Purpose(s)** MONITORING BORE **Intended Purpose(s)** MONITORING BORE

Work Status :(Unknown)

Construct. Method :

Owner Type :

Commenced Date : **Final Depth :** 4.00 m

Completion Date :01-Jan-1996 **Drilled Depth :**

Contractor Name :MACQUARIE DRILLING

Driller :

Assistant Driller's Name :

Property : - N/A **Standing Water Level :** 1.83 m

GWMA : - **Salinity :**

GW Zone : - **Yield :**

Site Details

Site Chosen By **County** **Parish** **Portion/Lot DP**

Form A :

Licensed :CUMBERLAND CONCORD LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST **CMA Map :**

River Basin : **Grid Zone :** **Scale :**

Area / District :

Elevation : **Northing :**6252559 **Latitude (S) :**33° 51' 8"

Elevation Source : **Easting :**322275 **Longitude (E) :**151° 4' 44"

GS Map : **MGA Zone :**56 **Coordinate Source :**

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

***** End of GW102559 *****

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102560

Licence : 10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE
Work Type : Bore
Work Status : (Unknown)
Construct. Method :
Owner Type :
Commenced Date :
Completion Date : 01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :
Contractor Name : MACQUARIE DRILLING
Driller :
Assistant Driller's Name :
Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County **Parish** **Portion/Lot DP**
Form A :
Licensed : CUMBERLAND CONCORD LOTS 2,6&7 DP740600
Region : 10 - SYDNEY SOUTH COAST
CMA Map :
River Basin :
Grid Zone :
Scale :
Area / District :
Elevation :
Elevation Source :
Northing : 6251632
Easting : 322112
Latitude (S) : 33° 51' 38"
Longitude (E) : 151° 4' 37"
GS Map :
MGA Zone : 56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level,

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

***** End of GW102560 *****

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102561

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type :Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County: Form A : Licensed :CUMBERLAND
Parish: CONCORD
Portion/Lot DP: LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6252741
Easting :322117
Latitude (S) :33° 51' 2"
Longitude (E) :151° 4' 38"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type		From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	Hole	0.00	4.00				
1	1	Casing	P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

***** End of GW102561 *****

DEPARTMENT OF WATER AND ENERGY
Work Summary

GW102562

Licence :10BL157703
Licence Status Activ
Authorised Purpose(s) MONITORING BORE
Intended Purpose(s) MONITORING BORE
Work Type : Bore
Work Status :(Unknown)
Construct. Method :
Owner Type :

Commenced Date :
Completion Date :01-Jan-1996
Final Depth : 4.00 m
Drilled Depth :

Contractor Name :MACQUARIE DRILLING
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : -
GW Zone : -
Standing Water Level : 1.83 m
Salinity :
Yield :

Site Details

Site Chosen By
County **Parish** **Portion/Lot DP**
Form A :
Licensed :CUMBERLAND CONCORD LOTS 2,6&7 DP740600

Region :10 - SYDNEY SOUTH COAST
River Basin :
Area / District :
CMA Map :
Grid Zone :
Scale :

Elevation :
Elevation Source :
Northing :6252830
Easting :321935
Latitude (S) :33° 50' 59"
Longitude (E) :151° 4' 31"

GS Map :
MGA Zone :56
Coordinate Source :

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1		Hole	0.00	4.00				
1	1	Casing P.V.C.	0.00	0.00	50			

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)

(No Water Bearing Zone Details Found)

Drillers Log

From (m)	To (m)	Thickness(m)	Drillers Description	Geological Material	Comments

(No Drillers Log Details Found)

Pumping Tests - Summaries

Pumping Test Type	Date	Duration (hr)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Summary Details Found)

Pumping Tests - Readings

Pumping Test Type	Date	Time (mins)	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Intake Depth (m)	Test Method	To Measure Water Level	To Measure Discharge	Tested By

(No Pumping Test Reading Details Found)

Chemical Treatment

Treatment	Method	Quantity (L)	Name

(No Chemical Treatment Details Found)

Development

Method	Time Taken	Other Development Method

(No Development Details Found)

Remarks

Form A Remarks:
DATA FROM AG APPLICATION ONLY

***** End of GW102562 *****

***** End of Report *****

APPENDIX C
Notes Relating to this Report
Test Bore Reports

Douglas Partners
Geotechnics · Environment · Groundwater

NOTES RELATING TO THIS REPORT

Introduction

These notes have been provided to amplify the geotechnical report in regard to classification methods, specialist field procedures and certain matters relating to the Discussion and Comments section. Not all, of course, are necessarily relevant to all reports.

Geotechnical reports are based on information gained from limited subsurface test boring 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.

Description and Classification Methods

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

Soil types are described according to the predominating particle size, qualified by the grading of other particles present (eg. sandy clay) on the following bases:

Soil Classification	Particle Size
Clay	less than 0.002 mm
Silt	0.002 to 0.06 mm
Sand	0.06 to 2.00 mm
Gravel	2.00 to 60.00 mm

Cohesive soils are classified on the basis of strength either by laboratory testing or engineering examination. The strength terms are defined as follows.

Classification	Undrained Shear Strength kPa
Very soft	less than 12
Soft	12—25
Firm	25—50
Stiff	50—100
Very stiff	100—200
Hard	Greater than 200

Non-cohesive soils are classified on the basis of relative density, generally from the results of standard penetration tests (SPT) or Dutch cone penetrometer tests (CPT) as below:

Relative Density	SPT "N" Value (blows/300 mm)	CPT Cone Value (q_c — MPa)
Very loose	less than 5	less than 2
Loose	5—10	2—5
Medium dense	10—30	5—15
Dense	30—50	15—25
Very dense	greater than 50	greater than 25

Rock types are classified by their geological names. Where relevant, further information regarding rock classification is given on the following sheet.

Sampling

Sampling is carried out during drilling 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 with 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.

Details of the type and method of sampling are given in the report.

Drilling Methods.

The following is a brief summary of drilling methods currently adopted by the Company and some comments on their use and application.

Test Pits — these are excavated with a backhoe or a tracked excavator, allowing close examination of the in-situ soils if it is safe to descent into the pit. The depth of penetration is limited to about 3 m for a backhoe and up to 6 m for an excavator. A potential disadvantage is the disturbance caused by the excavation.

Large Diameter Auger (eg. Pengo) — the hole is advanced by a rotating plate or short spiral auger, generally 300 mm or larger in diameter. The cuttings are returned to the surface at intervals (generally of 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 sampling.

Continuous Sample Drilling — the hole is advanced by pushing a 100 mm diameter socket into the ground and withdrawing it at intervals to extrude the sample. This is the most reliable method of drilling in soils, since moisture content is unchanged and soil structure, strength, etc. is only marginally affected.

Continuous Spiral Flight Augers — the hole 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 in sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are very disturbed and may be contaminated. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively lower reliability, due to remoulding, contamination or softening of samples by ground water.

Non-core Rotary Drilling — the hole is advanced by a rotary bit, with water 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 'feel' and rate of penetration.

Rotary Mud Drilling — similar to rotary drilling, but using drilling mud as a circulating fluid. The mud tends to mask the cuttings and reliable identification is again only possible from separate intact sampling (eg. from SPT).

Continuous Core Drilling — a continuous core sample is obtained using a diamond-tipped core barrel, usually 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in very weak rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation.

Standard Penetration Tests

Standard penetration tests (abbreviated as SPT) are used mainly in non-cohesive soils, but occasionally also in cohesive soils as a means of determining density or strength 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 short of full penetration, 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 tests can be related empirically to the engineering properties of the soil.

Occasionally, the test method is used to obtain samples in 50 mm diameter thin walled sample tubes in clays. In such circumstances, the test results are shown on the borelogs in brackets.

Cone Penetrometer Testing and Interpretation

Cone penetrometer testing (sometimes referred to as Dutch cone — abbreviated as CPT) described in this report has been carried out using an electrical friction cone penetrometer. The test is described in Australian Standard 1289, Test 6.4.1.

In the tests, a 35 mm diameter rod with a cone-tipped end is pushed continuously into the soil, the reaction being provided by a specially designed truck or rig which is fitted with an hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the friction resistance on a separate 130 mm long sleeve, immediately behind the cone. Transducers in the tip of the assembly are connected by electrical wires passing through the centre of the push rods to an amplifier and recorder unit mounted on the control truck.

As penetration occurs (at a rate of approximately 20 mm per second) the information is plotted on a computer screen and at the end of the test is stored on the computer for later plotting of the results.

The information provided on the plotted results comprises: —

- Cone resistance — the actual end bearing force divided by the cross sectional area of the cone — expressed in MPa.
- Sleeve friction — the frictional force on the sleeve divided by the surface area — expressed in kPa.
- Friction ratio — the ratio of sleeve friction to cone resistance, expressed in percent.

There are two scales available for measurement of cone resistance. The lower scale (0—5 MPa) is used in very soft soils where increased sensitivity is required and is shown in the graphs as a dotted line. The main scale (0—50 MPa) is less sensitive and is shown as a full line.

The ratios of the sleeve friction to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1%—2% are commonly encountered in sands and very soft clays rising to 4%—10% in stiff clays.

In sands, the relationship between cone resistance and SPT value is commonly in the range:—

q_c (MPa) = (0.4 to 0.6) N (blows per 300 mm)

In clays, the relationship between undrained shear strength and cone resistance is commonly in the range:—

q_c = (12 to 18) c_u

Interpretation of CPT values can also be made to allow estimation of modulus or compressibility values to allow calculation of foundation settlements.

Inferred stratification as shown on the attached reports is assessed from the cone and friction traces and from experience and information from nearby boreholes, etc. This information is presented for general guidance, but must be regarded as being to some extent interpretive. The test method provides a continuous profile of engineering properties, and where precise information on

soil classification is required, direct drilling and sampling may be preferable.

Hand Penetrometers

Hand penetrometer tests are carried out by driving a rod into the ground with a falling weight hammer and measuring the blows for successive 150 mm increments of penetration. 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 relatively similar tests are used.

- Perth sand penetrometer — a 16 mm diameter flat-ended rod is driven with a 9 kg hammer, dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands (originating in Perth) and is mainly used in granular soils and filling.
- Cone penetrometer (sometimes known as the Scala Penetrometer) — a 16 mm rod with a 20 mm diameter cone end is driven with a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). The test was developed initially for pavement subgrade investigations, and published correlations of the test results with California bearing ratio have been published by various Road Authorities.

Laboratory Testing

Laboratory testing is carried out in accordance with Australian Standard 1289 "Methods of Testing Soil for Engineering Purposes". Details of the test procedure used are given on the individual report forms.

Bore Logs

The bore logs presented herein 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. 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 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, the frequency of sampling and the possibility of other than 'straight line' variations between the boreholes.

Ground Water

Where ground water levels are measured in boreholes, there are several potential problems;

- In low permeability soils, ground water although present, may enter the hole slowly or perhaps not at all during the time it 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.
- The use of water or mud as a drilling fluid will mask any ground water inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water observations 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.

Engineering Reports

Engineering reports are prepared by qualified personnel and are based on the information obtained and on current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal (eg. a three storey building), the information and interpretation may not be relevant if the design proposal is changed (eg. to a twenty storey building). If this happens, the Company 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 condition, discussion of geotechnical aspects and recommendations or suggestions for design and construction. However, the Company cannot always anticipate or assume responsibility for:

- unexpected variations in ground conditions — the potential for this will depend partly on bore spacing and sampling frequency
- changes in policy or interpretation of policy by statutory authorities
- the actions of contractors responding to commercial pressures.

If these occur, the Company will be pleased to assist with investigation 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, the Company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage, well after the event.

Reproduction of Information for Contractual Purposes

Attention is drawn to the document "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers,

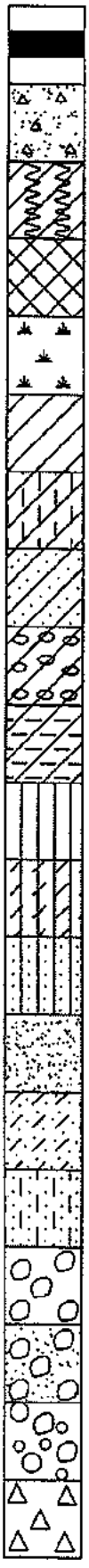
Australia. Where information obtained from this investigation is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. The Company 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 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.

GRAPHIC SYMBOLS FOR SOIL & ROCK

SOIL



BITUMINOUS CONCRETE

CONCRETE

TOPSOIL

FILLING

PEAT

CLAY

SILTY CLAY

SANDY CLAY

GRAVELLY CLAY

SHALY CLAY

SILT

CLAYEY SILT

SANDY SILT

SAND

CLAYEY SAND

SILTY SAND

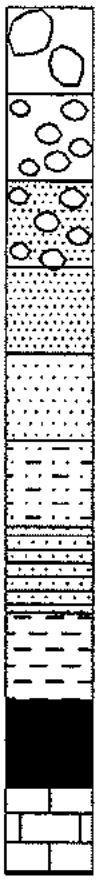
GRAVEL

SANDY GRAVEL

COBBLES/BOULDERS

TALUS

SEDIMENTARY ROCK



BOULDER CONGLOMERATE

CONGLOMERATE

CONGLOMERATIC SANDSTONE

SANDSTONE FINE GRAINED

SANDSTONE COARSE GRAINED

SILTSTONE

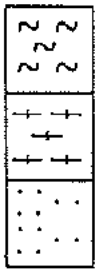
LAMINITE

MUDSTONE, CLAYSTONE, SHALE

COAL

LIMESTONE

METAMORPHIC ROCK

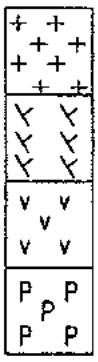


SLATE, PHYLLITE, SCHIST

GNEISS

QUARTZITE

IGNEOUS ROCK



GRANITE

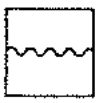
DOLERITE, BASALT

TUFF

PORPHYRY

SEAMS

SEAM >10mm



SEAM <10mm

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Geotechnics, Environment, Groundwater

BOREHOLE LOG

CLIENT: Fred Hoskings Pty Ltd
PROJECT: Investigation For Future Development
LOCATION: Station Avenue, Concord West

SURFACE LEVEL: 4.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 101
PROJECT No: 45146
DATE: 18 Sep 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drlg Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.13	CONCRETE										
	0.3	FILLING - brown sand filling, moist							A			
		FILLING - poorly compacted, brown gravelly clay filling with some bricks and sandstone fragments, moist							A			
	0.8					▼						
	1.2	PEATY CLAY - soft, black peaty clay with some organic matter, saturated							S			0,2,3 N = 5
		SILTY CLAY - stiff to very stiff, light grey mottled orange, slightly sandy, silty clay with some ironstone gravel, humid							A			
									S			4,7,8 N = 15
									S			7,9,13 N = 22
	3.5	SHALE - extremely low strength, grey shale with ironstone						Note: Unless otherwise stated, rock is fractured along rough, ironstained planar bedding planes or joints dipping 0° - 10°				
	4.3	SHALE - very low and very low to low strength, highly to slightly weathered, fractured to slightly fractured, grey shale						4.38-4.98m: B0°- 10°, ironstained				
								5.05m: J85°				
	5.22	SHALE - medium strength, fresh stained then fresh, fractured and faulted, grey shale with some sandstone laminae						5.3-6.8m: fault zone 5.8m: micro fault 5.6-5.8m: micro faults	C	100	66	PL(A) = 0.8MPa
								6.05m: J85°- 90° 6.16m: J60°- 90° slickensided 6.27m: micro fault 6.32m: J75° 6.36m: fault 60° 6.76-6.8m: crushed rock 6.88m: J85°				PL(A) = 0.4MPa
	6.9	SHALE - high strength, fresh, slightly fractured, grey shale with some sandstone laminae						7.2m: J60° clay smear 7.35m: J85°				PL(A) = 3MPa
	7.43	Bore discontinued at 7.43m										

RIG: Multi-Access Rig **DRILLER:** Traccess **LOGGED:** Boyd/Islam **CASING:** HQ to 4.5m

TYPE OF BORING: Solid flight auger (100mm) to 4.3m; NMLC-Coring to 7.43m

WATER OBSERVATIONS: Free groundwater observed at 0.8m

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: GRB
Date: 16/10/07

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BOREHOLE LOG

CLIENT: Fred Hoskings Pty Ltd
PROJECT: Investigation For Future Development
LOCATION: Station Avenue, Concord West

SURFACE LEVEL: 6.7 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 102
PROJECT No: 45146
DATE: 18 Sep 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.11	CONCRETE										
	0.2	FILLING - yellow brown, medium grained sand filling, moist							A			
		FILLING - poorly compacted, orange brown gravelly clay filling, humid (possibly natural from 1.5m)							A			
									S			2,2,2 N = 4
	1.8	SILTY CLAY - very stiff, light grey mottled orange, slightly sandy silty clay with some ironstone gravel, humid							A			
									S			11,13,11 N = 24
									S			10,11,14 N = 25
	3.8	SHALE - extremely low strength, grey shale						Note: Unless otherwise stated, rock is fractured along ironstained planar bedding planes or joints dipping 0°- 10°				
	4.25	SHALE - very low and low strength, highly and moderately weathered, fractured, grey shale						Fragmented in parts (possibly by drilling) 4.93m: J25° 5.05m: J85°- 90°	C	100	21	
	5.3	SHALE - medium strength, moderately to slightly weathered, highly fractured, grey brown shale						5.6m: J30° ironstained 5.72m: J85°				PL(A) = 0.5MPa
	6.0							6m: CORE LOSS: 250mm 6.12m: J85°	C	81	59	
	6.65	SHALE - high strength, fresh stained, slightly fractured, grey shale						6.5m: J75° 6.6m: J75° 6.95m: J45° 7.05m: J45°				PL(A) = 1.1MPa
	7.25	Bore discontinued at 7.25m										

RIG: Multi-Access Rig **DRILLER:** Traccess **LOGGED:** Boyd/Islam **CASING:** HQ to 4.3m

TYPE OF BORING: Solid flight auger (100mm) to 4.25m; NMLC-Coring to 7.25

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: GRB
Date: 16/10/07

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BOREHOLE LOG

CLIENT: Fred Hoskings Pty Ltd
PROJECT: Investigation For Future Development
LOCATION: Station Avenue, Concord West

SURFACE LEVEL: 4.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 103
PROJECT No: 45146
DATE: 18 Sep 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW Fs FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.3	FILLING - well compacted, brown and grey gravelly sand filling with some clay, humid							A			
		FILLING - variably compacted, red, yellow brown, grey gravelly clay filling with some ironstone gravel and timber pieces at 1.0-1.3m depth, damp							A			
	1.3	PEATY CLAY - soft, black peaty clay, moist							S			12,6,3 N = 9
	1.9	SILTY CLAY - stiff to very stiff, light grey mottled orange silty clay, moist							A			
									S			2,4,7 N = 11
									S			5,8,10 N = 18
		- saturated from 4.3m							S			3,8,7 N = 15
	4.9	SHALE - extremely low strength, grey mottled orange shale						Note: Unless otherwise stated, rock is fractured along rough ironstained planar bedding planes or joints dipping 0° - 10°	S			16/130mm refusal
	5.95	SHALE - extremely low to very low strength, extremely to highly weathered, grey brown shale						5.95-7.8m: extremely to highly weathered, obscuring discontinuities	C	100	0	
	7.5	SHALE - low to medium strength, moderately to slightly weathered, highly fractured to fractured, grey brown shale						7.72m: B0°- 5°, 10mm clay 7.78m: J85° smooth 8.04m: J30° smooth 8.4m: J30°	C	100	41	PL(A) = 0.3MPa PL(A) = 0.3MPa
	9.0	Bore discontinued at 9.0m						8.85-8.95m: fragmented				

RIG: Multi-Access Rig **DRILLER:** Traccess **LOGGED:** Boyd/Islam **CASING:** HQ to 6.0m

TYPE OF BORING: Solid flight auger (100mm) to 5.95m; NMLC-Coring to 9.0m

WATER OBSERVATIONS: Free groundwater observed at 4.3m whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▽ Water level

CHECKED	
Initial:	GRB
Date:	16/10/07

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BOREHOLE LOG

CLIENT: Fred Hoskings Pty Ltd
PROJECT: Investigation For Future Development
LOCATION: Station Avenue, Concord West

SURFACE LEVEL: 4.3 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 104
PROJECT No: 45146
DATE: 18 Sep 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW, HW, MW, SW, FS, FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.4	FILLING - well compacted, brown and grey recycled concrete, gravel and sand filling, humid							A			
	0.8	FILLING - poorly compacted, red brown mottled grey gravelly clay filling with some concrete fragments, humid							A*			
		SILTY CLAY - stiff to very stiff, light grey mottled orange and red slightly sandy silty clay, humid							S			2,4,6 N = 10
									S			6,10,12 N = 22
	3.2	SHALE - extremely low to very low strength, grey mottled orange shale						Note: Unless otherwise stated, rock is fractured along rough, ironstained planar bedding planes or joints dipping 0°- 10°	S			12,20,5/20mm refusal
	4.3	SHALE - medium strength, fresh stained, fractured, grey brown shale with some sandstone laminae						4.3-5.19m: B0° ironstained & clay veneer 5.1m: J25° 5.35m: J25° 5.6m: J40° 5.77m: J20° 5.8m: J20° 5.9m: J45° 6.1m: J20° 6.16-6.56m: J70°- 90°	C	100	77	PL(A) = 0.8MPa PL(A) = 0.7MPa
	6.6	SHALE - high strength, fresh, slightly fractured, dark grey shale						6.56m: J30° smooth 6.56-6.65m: J80° 7.26m: J75°				PL(A) = 1.4MPa
	7.5	Bore discontinued at 7.5m										

RIG: Multi-Access Rig **DRILLER:** Traccess **LOGGED:** Boyd/Islam **CASING:** HQ to 4.3m

TYPE OF BORING: Solid flight auger (100mm) to 4.3m; NMLC-Coring to 7.5m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: "Duplicate sample Z-160907 collected

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: GRB
Date: 16/10/07

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BOREHOLE LOG

CLIENT: Fred Hoskings Pty Ltd
PROJECT: Investigation For Future Development
LOCATION: Station Avenue, Concord West

SURFACE LEVEL: 4.4 AHD
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 105
PROJECT No: 45146
DATE: 18 Sep 07
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities (B - Bedding, J - Joint, S - Shear, D - Drill Break)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.05	ASPHALTIC CONCRETE							A			
	0.3	FILLING - well compacted, dark grey slightly clayey, sandy gravel filling (roadbase). Gravel of slag with some ash, humid							A			
	1.0	FILLING - variably compacted, brown gravelly clay filling, with a trace of brick fragments, moist										
	1.5	SILTY CLAY - stiff, light grey slightly sandy silty clay with ironstone gravel, wet							S			2,5,7 N = 12
	2.0	GRAVELLY CLAY - soft, brown black gravelly clay, saturated (possibly peat layer)							A			
		SILTY CLAY - very stiff, light grey slightly sandy silty clay, moist							S			9,18,16 N = 34
								Note: Unless otherwise stated, rock is fractured along rough ironstained planar bedding planes or joints dipping 0°- 10°	S			7,9,9 N = 18
	3.9	SHALE - extremely low strength, grey mottled orange shale										
	4.15	SHALE- medium strength, moderately to slightly weathered, highly fractured to fractured, grey brown shale with some sandstone laminae						4.15-4.6m: B0° ironstained 4.67m: J25° healed 4.81m: J35° 5.34m: J40° 5.64m: J60° 6.04m: J35° 6.12-6.30m: J75°- 85° rough, irregular 6.33-6.50m: J25°- 35° with micro faults 6.78m: J45° 6.81m: J50° 6.92m: J85° 7.15m: J45° 7.43m: B0° 10mm clay	C	100	66	PL(A) = 0.5MPa PL(A) = 0.8MPa PL(A) = 1.4MPa
	6.5	SHALE - high strength, fresh, slightly fractured, grey shale with some sandstone laminae							C	100	100	
	7.58	Bore discontinued at 7.58m							C	100	66	PL(A) = 1.3MPa

RIG: Multi-Access Rig **DRILLER:** Traccess **LOGGED:** Boyd/Islam **CASING:** HQ to 4.4m

TYPE OF BORING: Solid flight auger (100mm) to 4.2m; NMLC-Coring to 7.58m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: GRB
Date: 16/10/07

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Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.52 AHD^ **BORE No:** 201
EASTING: **PROJECT No:** 45146A
NORTHING: **DATE:** 09 Oct 07
DIP/AZIMUTH: 90°/-- **SHEET** 1 OF 1

R.L	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.15	CONCRETE							
		FILLING - brown clay filling with some sand, silt and trace gravel		A	0.2		PID=2ppm		
	0.8				0.5				
		PEATY CLAY - soft, black peaty clay with trace gravel, moist							
1	1.0	SILTY CLAY - soft, brown silty clay, with trace ironstone gravel, moist		A	1.0		PID<1ppm		1
					1.5				
2		- saturated from 2.0m to 2.5m						▼	2
	2.5	SILTY CLAY - stiff to very stiff, mottled brown and grey silty clay, moist		A	2.5		PID=2ppm		
3	3.0				2.8				3
		Bore discontinued at 3.0m - target depth reached							
4									4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.15m then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 2.0m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 15/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.48 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 202
PROJECT No: 45146A
DATE: 09 Oct 07
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
	0.14	CONCRETE							
		FILLING - brown sandy clay filling, with trace silt and gravel			0.2				
				A			PID<1ppm		
					0.5				
				A			PID=2ppm		
	1.0	Bore discontinued at 1.0m - refusal on concrete			1.0				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.14m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ∓ Water level

CHECKED
Initials: DW
Date: 25/10/07

Douglas Partners
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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.42 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 203
PROJECT No: 45146A
DATE: 09 Oct 07
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
	0.07	ASPHALTIC CONCRETE							Gatic cover; Concrete
	0.15	FILLING - brown and grey clayey gravel filling with some sand (roadbase)							
		FILLING - light brown silty clay filling, with trace gravel and brick pieces		A	0.2		PID<1ppm		
					0.5				Bentonite
	0.8	PEATY CLAY - soft, black peaty clay with trace rootlets, moist		A	0.8		PID=2ppm		
1	1.0	SILTY CLAY - soft, grey silty clay with trace gravel, moist to wet		A	1.0		PID=3ppm	22-10-07	
	1.3	SILTY CLAY - stiff to very stiff, mottled red and grey silty clay with trace ironstone gravel, moist			1.3				
					1.5				Backfilled with gravel
				A*			PID<1ppm		
2					2.0				
					2.5				Machine slotted PVC screen
				A			PID<1ppm		
3					3.0				
4									End cap
	4.3	Bore discontinued at 4.3m - refusal on weathered shale							

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.07m then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.1m whilst augering. Groundwater measured at 1.16m bgl on 22/10/07

REMARKS: *BD1-091007 blind replicate 1.5-1.0m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: A.L
Date: 25/10/07

Douglas Partners
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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.39 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: 204
PROJECT No: 45146A
DATE: 09 Oct 07
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							Gatic cover
		FILLING - brown gravelly sand filling with trace silty clay and concrete pieces (roadbase)		A	0.1		PID<1ppm		Concrete
	0.3	FILLING - mottled brown and grey clay filling, with trace gravel			0.3				
					0.5				Bentonite
				A			PID=3ppm	▼ 22-10-07	
	1.0	PEATY CLAY - soft, black peaty clay with trace of organic matter, moist		A	1.0		PID<1ppm		Backfilled with gravel
	1.2	SILTY CLAY - soft, grey silty clay, moist		A	1.2		PID=2ppm		
	1.4	SILTY CLAY - soft, grey silty clay with some shell fragments, wet to saturated		A	1.4 1.5		PID=2ppm		
									Machine slotted PVC screen
	1.9	SILTY CLAY - stiff to very stiff, brown and grey silty clay, with trace sand and gravel, moist		A	1.9		PID<1ppm		
					2.2				
	2.5	Bore discontinued at 2.5m - refusal on weathered shale							End cap

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.4m whilst augering. Groundwater measured at 0.76m bgl on 22/10/07

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

Douglas Partners
Geotechnics · Environment · Groundwater

BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 4.69 AHD^	**BORE No:** 205
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 09 Oct 07
		DIP/AZIMUTH: 90°/--	**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							Gatic cover Concrete
	0.16	FILLING - yellow grey sand filling							
	0.25	FILLING - brown and grey clay filling, with trace gravel		A	0.3		PID<1ppm		Bentonite
					0.5				
	0.6	PEATY CLAY - soft, dark grey peaty clay, wet - strong hydrocarbon odour at 0.6m to 1.5m		A	0.6		PID=5ppm	22-10-07	Backfilled with gravel
4	1			A	1.0		PID=5ppm		1
	1.5	SILTY CLAY - soft to firm, brown and grey silty clay - moist to wet from 1.5m to 2.0m - mild hydrocarbon odour at 1.5m to 2.0m		A	1.5		PID=4ppm		Machine slotted PVC screen
3	2				2.0				2
		- stiff to very stiff from 2.5m to 3.2m		A	2.6		PID=4ppm		
2	3				3.0				End cap 3
	3.2	Bore discontinued at 3.2m - refusal on weathered shale							
1	4								4
0									

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.16m then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.6m whilst augering. Groundwater measured at 0.74m bgl on 22/10/07

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: RW
Date: 25/10/07

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BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 5.62 AHD^	**BORE No:** 206
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 09 Oct 07
		DIP/AZIMUTH: 90°/--	**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
		FILLING - brown silty sand filling, with trace roots (leaves on garden surface)		A	0.0		PID<1ppm		
	0.6	FILLING - mottled yellow and grey clay filling		A	0.5		PID=2ppm		
	1				1.0				1
	1.5	FILLING - brown clay filling, with trace of gravel		A	1.5		PID<1ppm		
	2				2.0				2
	2.5	SILTY CLAY - soft, grey brown silty clay, moist		A*	2.5		PID=3ppm		
	2.7	SILTY CLAY - stiff, mottled grey and brown silty clay, with trace gravel, wet		A	2.7		PID=1ppm		
	3				3.0				3
	3.0	Bore discontinued at 3.0m - target depth reached							
	4								4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 2.7m whilst augering

REMARKS: *BD2-091007 blind replicate of 206/2.5-2.7m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D-L
Date: 25/10/07

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BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 4.28 AHD^	**BORE No:** 207
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 09 Oct 07
		DIP/AZIMUTH: 90°/--	**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
		FILLING - brown silty clay filling, with some gravel and trace sand and rootlets (grass surface)		A	0.0		PID<1ppm		Gatic cover; Concrete
				A	0.5		PID=1ppm		Bentonite
	1.0	FILLING - brown clay filling		A	1.0		PID<1ppm		Backfilled with gravel
	1.6	PEATY CLAY - soft, black peaty clay, moist			1.5				
	1.7	SILTY CLAY - stiff to very stiff, mottled red brown and grey silty clay, moist		A*	1.7		PID=1ppm		
					2.0			22-10-07	
					3.0		- insufficient soil from auger to sample from depths of 3.0m & 4.0m		Machine slotted PVC screen
	4.3	Bore discontinued at 4.3m - target depth reached							End cap

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering. Groundwater measured at 2.16m bgl on 22/10/07

REMARKS: *BD3-091007 blind replicate of 207/1.7-2.0m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: DW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.47 AHD^ **BORE No:** 208
EASTING: **PROJECT No:** 45146A
NORTHING: **DATE:** 10 Oct 07
DIP/AZIMUTH: 90°/-- **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
	0.2	FILLING - grey sandy gravel filling, with some concrete pieces, trace plastic and roots		A	0.0 0.1		PID=1ppm		
		FILLING - yellow brown sandy clay filling, with trace gravel		A	0.2		PID<1ppm		
				A	0.5		PID<1ppm		
	1.1	SILTY CLAY - soft, dark grey and brown silty clay, moist to wet		A	1.0 1.1		PID=3ppm	▼	
	1.6	Bore discontinued at 1.6m - target depth reached			1.6				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.1m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 15/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.53 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 209
PROJECT No: 45146A
DATE: 10 Oct 07
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
	0.15	CONCRETE							
	0.2	FILLING - yellow sand filling			0.2				
		FILLING - brown grey clay filling, with trace sand and gravel		A			PID=1ppm		
		- slight hydrocarbon odour from 0.6m to 1.0m			0.5				
				A			PID=3ppm		
	1				1.0				1
	1.2	PEATY CLAY - soft, black peaty clay, moist			1.2				
		- slight odour of organic matter		A			PID=3ppm		
					1.5				
	1.7	SILTY CLAY - stiff to very stiff, mottled red and grey silty clay, moist			1.7				
				A			PID=2ppm		
	2 2.0	Bore discontinued at 2.0m			2.0				2
		- target depth reached							
	3								3
	4								4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.15m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: P. W
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.57 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 210
PROJECT No: 45146A
DATE: 10 Oct 07
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							
	0.16	FILLING - grey sandy clay filling, with trace gravel			0.2				
				A			PID=2ppm		
					0.7				
				A			PID<1ppm		
	1.2	Bore discontinued at 1.2m - refusal on ironstone probably in filling			1.2				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.16m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.49 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 211
PROJECT No: 45146A
DATE: 10 Oct 07
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
	0.16	CONCRETE							
	0.4	FILLING - yellow sand filling		A	0.2		PID<1ppm		
		FILLING - brown grey clay filling, with trace sand and gravel		A	0.4 0.5		PID=2ppm		
	1.3	PEATY CLAY - soft, black peaty clay, moist - slight odour of organic matter		A	1.0 1.3 1.5		PID=3ppm		
	1.7	SILTY CLAY - stiff to very stiff, red and grey silty clay		A	1.7		PID=2ppm		
	2.0	Bore discontinued at 2.0m - target depth reached			2.0				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.16m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: IW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.57 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 212
PROJECT No: 45146A
DATE: 10 Oct 07
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
	0.16	CONCRETE							
		FILLING - yellow sand filling			0.2				
	0.35	FILLING - brown and grey clay filling, with some sand and gravel		A			PID=2ppm		
	0.5	FILLING - concrete rubble filling?			0.5		- no auger returns at 0.5m-0.7m		
	0.7	Bore discontinued at 0.7m - refusal on concrete rubble filling?							

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.15m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 4.22 AHD^	**BORE No:** 213
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 10 Oct 07
		DIP/AZIMUTH: 90°/--	**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
	0.2	FILLING - grey sand filling, with some concrete fragments and trace gravel and wire		A	0.0		PID<1ppm		Gatic cover; Concrete
		FILLING - grey and brown clay filling, with trace gravel		A	0.2		PID<1ppm		Bentonite
					0.5				Backfilled with gravel
	0.7	PEATY CLAY - soft, black peaty clay, moist to wet		A	0.7		PID=2ppm		
	1.1	SILTY CLAY - stiff to very stiff, red brown and grey silty clay, damp		A*	1.0 1.1		PID=2ppm	22-10-07	
				A	1.5		PID<1ppm		Machine slotted PVC screen
					2.0				
		- trace gravel from 2.6m to 2.7m							End cap
	2.7	SHALE - extremely low to very low strength, grey brown shale							
	2.9	Bore discontinued at 2.9m - refusal on weathered shale							

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering. Groundwater measured at 1.08m bgl on 22/10/07

REMARKS: *BD2-101007 blind replicate of 213/1.1-1.5m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.W
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.4 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: 214
PROJECT No: 45146A
DATE: 10 Oct 07
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
	0.0	FILLING - grey sand filling with some clay and concrete fragments, trace gravel and rootlets		A	0.0		PID=1ppm		
	0.2	FILLING - brown clay filling with trace gravel, sand and rootlets		A	0.2		PID<1ppm		
					0.5				
	0.8	PEATY CLAY - soft, black peaty clay - very slight organic matter odour		A	0.8		PID=2ppm		
	1.0				1.0				
	1.2	SILTY CLAY - stiff, grey silty clay, humid		A	1.2		PID=3ppm		
	1.5	Bore discontinued at 1.5m - target depth reached			1.5				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: DW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.51 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 215
PROJECT No: 45146A
DATE: 10 Oct 07
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
	0.1	FILLING - grey sand filling with some gravel, concrete fragments and trace clay			0.1				
		FILLING - grey sand filling, with some gravel and clay		A			PID=1ppm		
	0.3	FILLING - brown and grey clay filling, with trace sand			0.3				
					0.5				
				A			PID<1ppm		
					1.0				
	1.1				1.1				
	1.2	PEATY CLAY - soft, black peaty clay, moist		A			PID=1ppm		
		SILTY CLAY - stiff, grey and red silty clay, moist			1.2				
				A			PID<1ppm		
	1.7	Bore discontinued at 1.7m - target depth reached			1.7				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.L
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.38 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 216
PROJECT No: 45146A
DATE: 10 Oct 07
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
		FILLING - mottled orange brown and grey clay filling with trace of sand, fibre cement fragment, timber and rootlets			0.0				
				A	0.3		PID<1ppm A216/0.3m fibre cement sample from 0.3m		
	0.5	FILLING - grey clay filling, with trace of gravel			0.5				
				A			PID=3ppm		
	1.0	SILTY CLAY - soft, grey silty clay with trace gravel, sand and rootlets, moist (possibly filling)			1.0				
				A			PID=2ppm		
		- wet to saturated from 1.5m to 2.4m - organic matter odour from 1.5m to 2.0m			1.5				
				A			PID=3ppm		
					2.0			▼	
							PID=1ppm		
	2.4	SILTY CLAY - stiff, mottled red and grey silty clay, with trace of gravel			2.5				
				A			PID=2ppm		
	3.0	Bore discontinued at 3.0m - target depth reached			3.0				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 2.0m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.W
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.42 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 217
PROJECT No: 45146A
DATE: 10 Oct 07
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
		FILLING - brown and grey clay filling, with some gravel and trace of sand		A	0.0		PID<1ppm		
				A	0.5		PID=2ppm		
	1.0	SILTY CLAY - moist, brown silty clay, with trace of gravel and sand		A	1.0		PID=3ppm		
		- wet at 1.8m			1.5			▼	
	2.0	SILTY CLAY - stiff, mottled red and grey silty clay, moist		A*	2.0		PID=4ppm		
	2.3	Bore discontinued at 2.3m - target depth reached			2.3				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.8m whilst augering

REMARKS: *BD3-101007 blind replicate of 217/2.0-2.3m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.V
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.44 AHD^ **BORE No:** 218
EASTING: **PROJECT No:** 45146A
NORTHING: **DATE:** 10 Oct 07
DIP/AZIMUTH: 90°/-- **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							
		FILLING - mottled grey, brown and red clay filling with some sand, trace gravel and roots		A	0.1 0.2		PID=3ppm		
	0.25	FILLING - yellow brown sand filling, with some gravel and trace of clay			0.4				
				A			PID=3ppm		
	0.7	FILLING - brown clay filling, with trace gravel			0.7				
				A*			PID<1ppm		
1	1.0	PEATY CLAY - soft, black peaty clay, moist		A	1.0		PID=2ppm		1
	1.2	SILTY CLAY - soft, dark grey silty clay, moist			1.2 1.3				
				A			PID=2ppm		
	1.7	SILTY CLAY - stiff, mottled grey and brown silty clay, damp			1.5				
2					2.0				2
				A			PID=2ppm		
	2.2	Bore discontinued at 2.2m - target depth reached			2.2				
3									3
4									4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD4-101007 blind replicate of 218/0.7-1.0m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: DW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.42 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 219
PROJECT No: 45146A
DATE: 11 Oct 07
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
	0.15	CONCRETE							
		FILLING - brown clay filling, with some gravel and trace sand		A	0.2		PID<1ppm		
	0.4	FILLING - mottled brown and grey clay filling, with trace of gravel			0.4				
				A	0.5		PID=2ppm		
	0.9	PEATY CLAY - soft, black peaty clay, moist - slight organic matter odour		A	0.9		PID=4ppm		
	1.1	SILTY CLAY - soft, grey silty clay, moist			1.1				
	1.2	SILTY CLAY - stiff, mottled grey and brown silty clay, with trace of gravel, moist			1.2				
		- wet at 1.5m to 1.7m		A			PID=2ppm	▼	
	1.7	Bore discontinued at 1.7m - target depth reached			1.7				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (120mm diameter) to 0.15 then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.5m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.V
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.3 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 220
PROJECT No: 45146A
DATE: 11 Oct 07
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							
	0.17	FILLING - dark grey sand filling, with some clay and trace gravel		A	0.2		PID<1ppm		
	0.3	FILLING - mottled brown and grey clay filling, with trace gravel		A	0.3		PID<1ppm		
					0.5				
	0.6	PEATY CLAY - soft, black clay, moist - organic matter odour		A	0.6		PID=2ppm		
	0.8	SILTY CLAY - soft, brown and grey silty clay, moist - wet at 1.0m to 1.3m		A	0.8		PID=1ppm	▼	
	1.3	SILTY CLAY - stiff, mottled red brown and grey clay, with trace ironstone gravel			1.3				
					1.5				
				A*			PID=1ppm		
	1.9	Bore discontinued at 1.9m - target depth reached			1.9				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.17 then100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.0m whilst augering

REMARKS: *BD1-111007 blind replicate of 220/1.5-1.9m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.W
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.45 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 221
PROJECT No: 45146A
DATE: 11 Oct 07
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
	0.1	FILLING - brown silty sand filling with trace clay, gravel and rootlets (garden surface)			0.1				
		FILLING - brown gravelly sand filling with trace of silt, clay and timber		A			PID=2ppm		
					0.5				
		- strong hydrocarbon odour from 0.8m to 1.7m							
		- stained grey from 1.0m to 1.7m			1.0			▼	
				A			PID=8ppm		
					1.2				
				A			PID=9ppm		
	1.7	Bore discontinued at 1.7m - refusal on unknown object			1.7				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.0m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.W
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.43 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: 222
PROJECT No: 45146A
DATE: 11 Oct 07
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							
	0.15	FILLING - brown clayey sand, with trace of gravel							
		FILLING - brown, orange and grey clay filling, with some gravel and trace sand		A	0.2		PID=3ppm		
					0.5				
	0.8	FILLING - yellow sand filling, with trace clay		A	0.8		PID=2ppm		
	1.0	SILTY CLAY - soft, grey silty clay, moist		A*	1.0		PID=2ppm	▼	
		- wet at 1.2m to 1.3m							
	1.3	SILTY CLAY - stiff, mottled grey and brown clay, humid		A	1.3		PID=4ppm		
	1.5	Bore discontinued at 1.5m - target depth reached			1.5				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.2m whilst augering

REMARKS: *BD2-111007 blind replicate of 222/1.0-1.3m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 4.41 AHD^	**BORE No:** 223
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 11 Oct 07
		DIP/AZIMUTH: 90°/--	**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
	0.12	CONCRETE							
	0.2	FILLING - brown sand filling, with trace gravel							
		FILLING - brown sandy clay filling, with some gravel		A	0.2		PID<1ppm		
				A	0.5		PID=2ppm	▼	
	1.1	SILTY CLAY - soft, grey silty clay, wet			1.0				
	1.2	SILTY CLAY - stiff, brown and grey silty clay, moist		A	1.2		PID<1ppm		
	1.5	Bore discontinued at 1.5m - target depth reached			1.5				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.12m then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 0.9m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.44 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: 224
PROJECT No: 45146A
DATE: 11 Oct 07
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
	0.16	CONCRETE							
	0.25	FILLING - yellow sand filling							
		FILLING - yellow and dark grey sand filling with some gravel, clay and trace of roots		A	0.3		PID<1ppm		
				A	0.5		PID=2ppm	▼	
	1.2	PEATY CLAY - soft, mottled grey and brown peaty clay, moist to wet		A	1.0		PID=1ppm		
	1.4	SILTY CLAY - stiff, mottled grey and brown silty clay, moist		A*	1.6		PID<1ppm		
	2.0	Bore discontinued at 2.0m - target depth reached			2.0				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.16m then 100mm diameter solid flight auger

WATER OBSERVATIONS: Free groundwater observed at 1.0m whilst augering

REMARKS: *BD3-111006 blind replicate of 224/1.6-2.0m. ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U$_x$	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: DW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.41 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 225
PROJECT No: 45146A
DATE: 11 Oct 07
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
	0.16	CONCRETE							
		FILLING - yellow and orange sand filling		A	0.2		PID<1ppm		
					0.5				
	0.9	PEATY CLAY - stiff, brown and black peaty clay, moist		A	0.9		PID=2ppm		
	1.2	SILTY CLAY - soft, grey silty clay, with trace of shell fragments			1.2				
				A	1.3		PID<1ppm		
					1.5				
	1.7	SILTY CLAY - stiff, mottled grey and red brown silty clay, with trace of sand							
				A	2.0		PID=2ppm		
	2.5	Bore discontinued at 2.5m - target depth reached			2.5				

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.16m then100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo Ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT:	Fred Hosking Pty Ltd	**SURFACE LEVEL:** 5.46 AHD^	**BORE No:** 226
PROJECT:	Phase 1 and 2 Contamination Assessment	**EASTING:**	**PROJECT No:** 45146A
LOCATION:	7 Concord Avenue & 202-210 George Street Concord West	**NORTHING:**	**DATE:** 11 Oct 07
		DIP/AZIMUTH: 90°/--	**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
	0.15	CONCRETE							
		FILLING - yellow and grey clay filling, with trace silt and sand		A*	0.2 0.5		PID=2ppm		
	0.7	Bore discontinued at 0.7m - refusal on timber/tree stump							

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.15m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD4-111007 blind replicate of 226/0.2-0.5m. ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: DW
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 5.54 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/–

BORE No: 227
PROJECT No: 45146A
DATE: 11 Oct 07
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							
	0.17	FILLING - yellow sand filling, with trace of gravel			0.2				
	0.3	- some cobble sized concrete and rock pieces at 0.25m		A	0.3		PID=1ppm		
		FILLING - white sandstone boulder filling		A			PID<1ppm		
	0.5	FILLING - brown and grey sand filling, with some gravel and trace of silt			0.5				
				A			PID=2ppm		
1					1.0				1
				A			PID=2ppm		
					1.5				
	1.7	SILTY CLAY - soft, dark grey silty clay, moist		A	1.7		PID=2ppm		
2	2.0	SILTY CLAY - soft, brown grey silty clay, moist			2.0				2
	2.4	SILTY CLAY - stiff, mottled orange brown and grey silty clay, with trace gravel, damp		A	2.4		PID=2ppm		
	2.6	Bore discontinued at 2.6m - target depth reached			2.6				
3									3
4									4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Concrete coring (150mm diameter) to 0.17m then 100mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.47 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 228
PROJECT No: 45146A
DATE: 15 Oct 07
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
	0.1 0.12	FILLING - brown silty clay filling, with some sand and trace gravel, cobble sized rock pieces, metal pieces, tile fragments and bone		A	0.0 0.1		PID<1ppm		
		FILLING - mottled grey and yellow clay filling, with some rock fragments							
		Bore discontinued at 0.12m - refusal in filling							

RIG: Hand tools **DRILLER:** DW **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING: Hand auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS: ^Benchmark obtained from survey plan provided by client

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U_x	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials:
Date: 25/10/07

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BOREHOLE LOG

CLIENT: Fred Hosking Pty Ltd
PROJECT: Phase 1 and 2 Contamination Assessment
LOCATION: 7 Concord Avenue & 202-210 George Street Concord West

SURFACE LEVEL: 4.4 AHD^
EASTING:
NORTHING:
DIP/AZIMUTH: 90°/--

BORE No: 229
PROJECT No: 45146A
DATE: 30 Oct 07
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							
	0.15	FILLING - brown gravelly sand filling, with trace of clay (roadbase)							
		FILLING - mottled grey, black and brown clay filling, with trace of rootlets		A	0.2		PID<1ppm		
					0.5				
	0.6	FILLING - grey clayey sand filling			0.6			▼	
				A			PID=2ppm		
	1				1.0				1
	1.1	FILLING - grey silty clay filling			1.1				
				A			PID<1ppm		
					1.5				
	1.7	FILLING - mottled grey and red-brown silty clay filling			1.7				
				A			PID=2ppm		
	2				2.0				2
	2.6	SILTY CLAY - grey mottled brown silty clay, humid			2.6				
				A			PID=1ppm		
	2.9	Bore discontinued at 2.9m - refusal in shale			2.9				
	3								3
	4								4

RIG: Bobcat **DRILLER:** S Gregor **LOGGED:** DW **CASING:** Uncased

TYPE OF BORING:

WATER OBSERVATIONS: Free groundwater observed at 0.7m whilst augering

REMARKS: ^Benchmark obtained from survey plan provided by client
Important Note: Soil strengths were determined subjectively in the field and are not to be used for geotechnical purposes

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U,	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	▷	Water seep ▼ Water level

CHECKED
Initials: D.W
Date: 7/11/07

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