



Fire & Rescue NSW
Alexandria PFAS Investigation
Preliminary Site Investigation and Sampling & Analysis
Quality Plan

September 2016

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1. Introduction

GHD Pty Ltd (GHD) was commissioned by Fire and Rescue NSW to undertake a combined preliminary and detailed site investigation at a land parcel identified located at 189 Wyndham St, Alexandria, NSW 2015 (the 'site').

The site has previously been used for the training of firefighters, which has potentially included the use of aqueous film forming foams (AFFF). The AFFF used may have contained perfluoro alkyl substances (PFASs) including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), which are potentially harmful to human health and the environment.

1.1 Background

The site is approximately 14 500 m² and comprises three lots and DPs including Lot 2 DP 1243773, Lot 2 DP 552864 and Lot 701 DP 713555. The approximate site boundaries are presented in Figure 1, Appendix A.

The site is currently used as the state training college for firefighting training and is one of the main training sites of Fire and Rescue NSW. The site also consists of the Alexandria Fire Station and offices (Figure 1, Appendix A). The site is bound by Mandible Street and commercial developments to the north, commercial developments to the east, Bourke street then commercial and industrial developments to the south, and Wyndham street then commercial and industrial developments to the west.

GHD understands AFFF and other firefighting foams potentially containing PFASs have historically been used at a number FRNSW locations in NSW for firefighting training purposes. For this reason, PFAS may have been released to the environment, which may have resulted in contamination.

GHD has conducted a desktop-based preliminary site investigation (PSI) and a site inspection to develop a preliminary conceptual site model (CSM) for contamination issues at the site (refer to Section 2.6). This information was used to develop a sampling analysis and quality plan (SAQP), for assessing the potential impacts and risks at the site (refer to Section 3).

This report documents the findings of the PSI and presents a preliminary CSM and SAQP. The SAQP has been prepared to assess potential impacts from the use of PFAS at the site and its potential impacts off-site. It is understood that the SAQP will be provided to the NSW EPA for consideration prior to implementation of the investigations at the site.

1.2 Objectives

The overall objective of the investigation is to characterise impacts and subsequently assess the potential risks to human health and the environment from historical firefighting training activities at the site and the likelihood of impacts off-site.

The specific objectives of this PSI and SAQP are to:

- Describe the site (including boundaries and title descriptions)
- Document the history of the site
- Identify potential on and off-site sources of contamination
- Characterise pathways for impact migration
- Identify potentially sensitive receptors/environment

- Develop a preliminary CSM using the preliminary investigation data to assess potential source, receptor linkages
- Develop a SAQP to define future intrusive investigations to obtain quantitative data on contamination.

1.3 Scope of work

The scope of works undertaken by GHD to address the project objectives is described below.

The works were completed in accordance with GHD proposal 214723 dated 30 March 2016, which was approved for completion by FRNSW on 16 May 2016.

Limitations associated with GHD's work are provided in Section 4.

1.3.1 Task 1 - Information and Data Review (preliminary site investigation)

A detailed review of relevant information and data sources was undertaken to identify property details and potentially contaminating sources and activities.

The information reviewed was in general accordance with that recommended in *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011) and included:

- Local Council (heritage register, LEPs, zoning and permissible land use).
- Department of Lands (aerial photographs).
- Office of Environment and Heritage (including notices under *Contaminated Land Management (CLM) Act 1997*, *Pollution of the Environment Operations (POEO) Act 1997* Environment Protection License Register, environmental incidents and State Heritage Register).
- NSW Department of Primary Industries (DPI) Water (local and regional groundwater information, including groundwater bore search).

Further to this, a review of historical investigation reports provided by FRNSW was completed. This included a review of the NSW EPA investigation at the site.

The data reviewed was used to:

- Characterise the environmental setting for the site (see Section 2.3) to understand potential contaminant migration pathways and sensitive receptors in the receiving environment.
- Understand the site history and potential sources of impact (see Section 2.4)
- Review regulatory information pertaining to previous contaminating activities undertaken at the site to characterise potential sources of impact (See Section 2.5)
- Develop a preliminary CSM highlighting the pollutant linkages between sources and receptors. This was used to inform development of the SAQP (see Section 2.6).

1.3.2 Task 2 - Preparation of SAQP

The CSM developed from the PSI was used to prepare a SAQP. The SAQP outlines the strategy for assessing the nature and extent of contamination at the site.

The SAQP includes the following:

- Data Quality Objectives (DQO'S) which have been prepared in accordance with Appendix IV of the *Guidelines for the NSW Site Auditor Scheme* and the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) (as amended 2013 – NEPM, 2013) to ensure that field investigations and analyses are undertaken in a way

that enables the collection and reporting of reliable data on which to base the site assessment and remediation requirements (if required) – See Section 3.1.

- The basis of the assessment including details of the guidelines, policies and legislation that the investigation has been developed for (See Section 3.2).
- The requirements for sampling and assessment at the site (see Section 3).
- Assessment of potential sources of contamination and contaminants of concern including presentation of the preliminary CSM (see Section 2.6).
- Assessment of potential groundwater impacts (see Section 3).
- Proposed sampling and analytical program (see Section 3).
- Proposed sampling methodology (see Section 3).
- Quality Assurance and Control protocols (see Sections 3).

1.3.3 Reporting

GHD has prepared this report to present the preliminary site investigation and SAQP

1.4 Report Structure

The report includes the following key sections:

- Section 2 – Preliminary Site Investigation
- Section 3 – Sampling and analytical program

1.5 Limitations

GHD's limitations to the assessment are provided in Section 4.

2. Preliminary site investigation

2.1 Site identification

A summary of site identification details is provided in Table 1. The site location is presented in Figure 1 in Appendix A.

Table 1 – Site identification summary

Information	Details
Street Address	189 Wyndham St, Alexandria, NSW 2015
Lot and DP number	Lot 2 Deposited Plan 1243773, Lot 2 DP 552864 and Lot 701 DP 713555
Site Area	Approximately 14 500 m ² , with a perimeter of approximately 513 m
Local Government Area	City of Sydney
Local Land Use Zoning	B7 - Business Park
Current Land Use	Training site
Surrounding Land Use	To the north is Mandible Street and commercial developments. Commercial developments are located to the east, Bourke street then commercial and industrial developments to the south, and Wyndham street then high density residential and commercial and industrial developments to the west.

2.2 Site inspection

Prior to undertaking site investigations, a questionnaire was issued to FRNSW staff to prompt collation of relevant information from appropriate personnel prior to the site visit.

The site inspection was completed on 13 July 2016 by an experienced environmental professional from GHD's contamination and environmental management team. The site inspection included a site walkover with site staff to identify areas of potential contamination based on surface conditions and evidence of current or former potentially contaminating activities or site operations. Further observations of AFFF impacts/use will be made during preparation and completion of field works, using visual observations of site conditions in previously uninspected areas.

The site inspection works provided the following information. The site features discussed are presented in Figures 2 and 3 of Appendix A:

- The site is used for training of new firefighting recruits. The main training area where AFFF has consistently been used in the past is in the southern western area where the gas fire training props are located. The area is surrounded by drains that collect in a central pit underneath the bitumen near the southern area of the site (Photographs 13, 14 and 18, Plate A).
- The pit was used to recycle the water on the site until the pump sumps were getting clogged by the clay and foam. At the time of our inspection, there was no access to this pit. Based on discussions with site personnel, GHD understands that the water still drains and collects within the pit. However, owing to the presence of sediments in the sump preventing it from operating effectively, the sump overflows and water flows into the stormwater system (Photograph 8, Plate A).
- During site interviews, it was said that fire stations across NSW would send back their AFFF when the foam was about to expire, for use at the Alexandria site. Nearby fire

stations would use the site for additional training exercises using AFFF when the site was not in use.

- AFFF was also used in the training tower located adjacent to the north of the fire training ground. There is a basement area within the tower that would be filled with foam.
- Storage cages containing fire extinguishers are located on the western boundary of the site behind the train tower building at the former truck wash area. There is also an oil/ water interceptor located at this area (Photograph 1, 2 and 3, Plate A).
- Following discussions with site personnel, GHD understands that there used to be an area in the middle of the site near the fire training ground that was previously grassed. This area was likely to have been exposed to fire training activities and there is no current evidence of exposed soils being remediated prior to sealing of the area with asphalt.
- There is a fire station located on site facing Wyndham Street.
- The site occupies the area from Bourke Road to Mandible Street. The area mostly consists of asphalted areas for the training with buildings on the perimeter of the site. The buildings are mostly associated with training rooms, truck garage and storage. The building alongside Wyndham Street are the fire station and communication centre.
- Underground fuel storage tanks were previously located on the site. Further discussion relating to the former tanks is provided in Section 2.4 of this report. GHD understands that four of the six tanks were decommissioned in situ and one was removed from the site. The status of the remaining tank could not be confirmed as part of these works. The approximate locations of the former tanks are shown on Figure 2, Appendix A.
- Sheas Creek runs underneath the site and is an open culvert near Bourke Road and then runs to the west off-site. The creek is concrete lined and is stormwater fed by the surrounding area (Photographs 10, 11, 12 and 24, Plate A).
- The area surrounding the site is mostly commercial / industrial with one residential medium density apartment block located to the north east of the site.

The findings of the site inspection are summarised in Table 2.

Table 2 - Site inspection summary

Items		Comments
General	Site use	The site is used for fire training exercises for new recruits. There are fire training gas props and the training tower that are located in the south western corner of the site. There are training rooms located around the site, a fire station off Wyndham Street and the communication centre.
	Fencing	The perimeter of the site is either fences or buildings securing the site. There are three entre/exits from the site with a boom gates off Bourke Road and Wyndham Street and a gated fence off Mandible Street. Pedestrian access is possible into the site though the boom gates.
Ground surface	Ground cover:	The site is mostly sealed with asphalt with the exception near the entry point off Bourke Road where there is grassed landscaped area near the communication centre. The general ground cover relative to site areas is presented in Figure 2, Appendix A.
	Topography	The site is relatively flat with a slight slope to the west following the local topography of the area. The topography is presented in Figure 3, Appendix A.
	Vegetation	There is little vegetation on the site. There are several mature trees located along the perimeter of the site. All vegetation appeared healthy at the time of the site inspection.

Items		Comments
	Surface water / Drainage	There is a culvert of Sheas Creek located onsite with water flowing to the west (approximately at 3 m below ground level). This culvert runs underneath the site. There are drains running along the southern part of the site that collect surface water and collects in a pit underground. Historically the water was recycled through a pump house located near the communication centre. However, the pumps kept getting blocked and therefore was removed. This water still collects in the underground pit and overflows into the stormwater system. An interceptor is located near the former truck wash area.
Evidence of contamination	Litter	The site was generally clean and free of litter. There are skip bins for waste located on site.
	Waste drums or bulk storage facilities	There were three storage places where AFFF has been stored in the past. One is located within the training tower, one near the communication centre and one on the southern side of the fire training ground. All areas are able to be secured and on hard stand. The two storage areas that were accessible were clean with no evidence of any spills.
	Fill	No fill was observed during the site inspection.

Plate A – Photographic record



▲ **Photograph 1:** A drain and fire extinguishers holding cage located at the former truck wash behind the training tower on the western boundary.



▲ **Photograph 2:** An interceptor for the site, located in the former truck wash area.



▲ **Photograph 3:** The former truck wash area located on the western boundary of the site.



▲ **Photograph 4:** Storage area near the comms centre. AFFF has been stored here.



▲ **Photograph 5:** Storage area near the fire training ground in the south western corner. AFFF has been stored here.



▲ **Photograph 6:** Foam training crate used for training exercises.



▲ **Photograph 7:** The drain the surrounds the fire training area that flows to an underground holding tank..



▲ **Photograph 8:** The possible area where the underground water storage tank is. Former points have been concreted in. Located in the southern area of the site near the fire training ground.



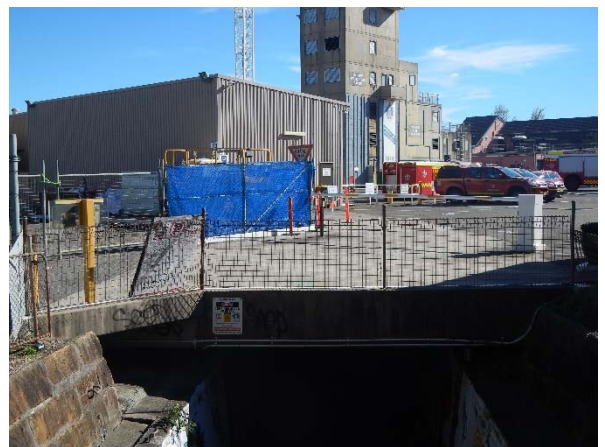
▲ **Photograph 9:** Facing west in the southern area of the site - construction in progress.



▲ **Photograph 10:** Facing south east at the culvert of Sheas Creek where it enters the site.



▲ **Photograph 11:** Facing north west of Sheas Creek culvert where the culvert runs underneath the site.



▲ **Photograph 12:** Same as photograph 11 except with the site in the background.



▲ **Photograph 13:** The south western fire training area with training foam used in an exercise.



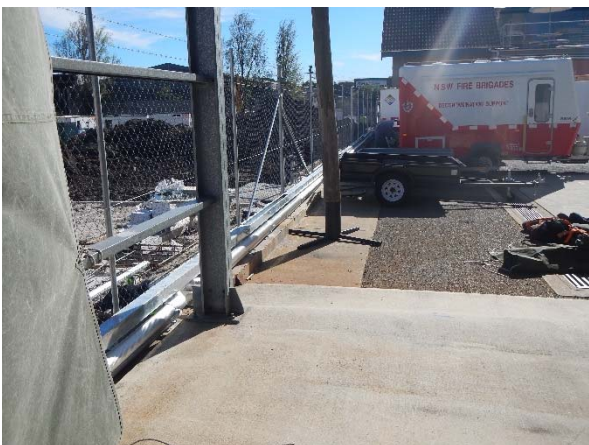
▲ **Photograph 14:** The training tower located adjacent to the fire training area where foam was used in the basement of the building.



▲ **Photograph 15:** The drain running adjacent to the training tower. Cars that are used in training exercises nest to the training tower



▲ **Photograph 16:** The drain running alongside the training centre with a groundwater monitoring (BH9A) well in the foreground installed by Douglas Partners.



▲ **Photograph 17:** At the western perimeter of the site facing north with the adjacent property. Of note there is a 1 – 1.5 m drop to the neighbouring property



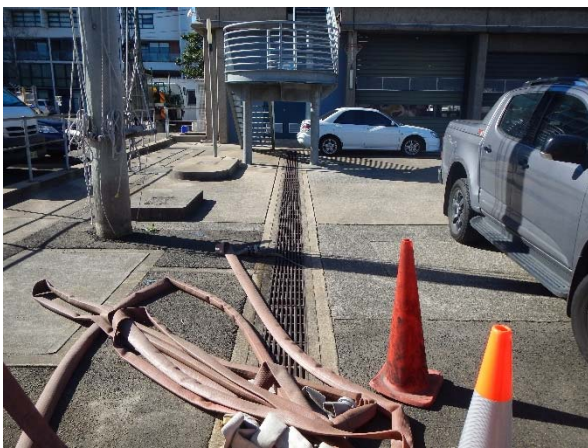
▲ **Photograph 18:** Training foam draining into the drain in the fire training ground.



▲ **Photograph 19:** Facing east at the fire training ground.



▲ **Photograph 20:** Storage area that may have stored AFFF within the training tower.



▲ **Photograph 21:** The drain running to the east towards the fire station.



▲ **Photograph 22:** Facing south towards the fire training ground



▲ **Photograph 23:** Fire drill in the fire training ground.



▲ **Photograph 24:** Sheas Creek down gradient near on Mandible Street near Bowden Street.

2.3 Environmental Setting

This section outlines relevant information relating to the environmental setting of the site.

2.3.1 Topography

The site lies approximately at 10 m Australian Height Datum (AHD), according to the *NSW Globe* from Land and Property Information. This information suggests that the natural ground level across the site is relatively flat. The general topography of the area is presented in Figure 3, Appendix A.

The regional topography appears to rise to the north and east from the site.

2.3.2 Soils

General

According to eSPADE from Office of Environment & Heritage, the site is within the Aeolian 'tg' Tuggerah soil landscape. The Tuggerah soil landscape has the following characteristics:

- **Landscape:** gently undulating to rolling coastal dunefields. Local relief to 20 m, slope gradients generally 1-10%, but occasionally up to 35%. North— south oriented dunes with convex narrow crests, moderately inclined slopes and broad gently inclined concave swales. Extensively cleared open-forest and eucalypt/apple woodland
- **Soils:** deep (>200 cm) Podzols on dunes and Podzols/Humus Podzol intergrades on swales.
- **Limitations:** extreme wind erosion hazard, non-cohesive, highly permeable soil, very low soil fertility, localised flooding and permanently high watertables.

Acid Sulphate Soils

Disturbed terrain (greater than four metres elevation) underlies the whole site (Land and Water Conservation 1997a). Disturbed terrain 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.

Intrusive site investigations undertaken by Douglas Partners (2015) identified the presence of acid sulphate soils beneath the site.

2.3.3 Hydrology

Surface water flow is expected to follow the local topography on-site and flow south and west into Sheas Creek located in the southern area of site, which eventually discharges into Alexandra Canal, located approximately 1 km south-west of site. Dial before you dig information presented in Appendix D shows Sheas Creek as being the stormwater infrastructure through the site as well as receiving stormwater from areas upgradient of the site. The general catchment hydrology and slope is presented in Figure 3, Appendix A.

The nearest waterway is Sheas Creek located in the southern area of the site, which then intersects with Alexandra Canal approximately 1 km south-west. It is expected that the stormwater systems will intercept surface water flowing from the site before it reaches either of these receptors.

2.3.4 Geology

The regional geology of the area is transgressive dunes and within the Botany Sands. This lithology is part of the Quaternary Group that is characteristic of alluvium, gravel, sand, silt and clay (Department of Mineral Resources and Energy 1983). A previous intrusive investigation undertaken by Douglas Partners (DP, 2015) characterised the site geology as peat dominant in the western area of the site and underlain by quaternary sands, clays and sandstone. Further discussion regarding the scope and findings of the previous investigation is provided in Section 2.4.

2.3.5 Hydrogeology

The site is located within the Botany Sands, which are expected to have a high overall hydraulic conductivity. However, the site is located in Zone 2 of the Botany Groundwater Management Zone, which bans the abstraction of groundwater for domestic use (NSW Department of Primary Industries website, 2015). This ban was caused by a range of industries that have operated in the Botany area over the last 100 years which has resulted in solvents, petroleum hydrocarbons, and heavy metals that may have contaminated the aquifer.

Existing Groundwater Bores

GHD conducted a review of existing groundwater borehole records using the NSW Department of Primary industries, Office of Water, groundwater database. The search was conducted to identify registered groundwater boreholes in close proximity and to record information such as use and standing water level. A total of eighteen (18) groundwater boreholes were identified within a 500 metre radius of the site (summarised in Table 3). None of these groundwater boreholes are within the site boundary. Details of the groundwater borehole search are presented in Appendix B.

Table 3 – Review of existing groundwater data

Borehole ID	Purpose	Depth (m)	Standing Water Level (m)	Approx. Distance from Site	Drillers Log
GW017342	Industrial	No details	No details	80 m north	Fill (<0.3m) underlain by peaty sand and clay
GW017684	Industrial	14.9	No details	45 m south east	Peaty sand underlain by sand and clay
GW106046	Domestic		No details	265 m south	No details
GW109789	Monitoring Bore	5	No details	190 m south east	Concrete (<0.1m) underlain by fill (<3m) then clay and shale
GW109790	Monitoring Bore	4	No details	200 m south east	Concrete (<0.1m) underlain by fill (<3m) then clay and shale
GW109791	Monitoring Bores	4.1	No details	210 m south east	Concrete (<0.2m) underlain by fill (<3m) then clay
GW109792	Monitoring Bore	4.2	No details	190 m south east	Concrete (<0.2m) underlain by fill (<3.5m) then silt and clay
GW112478	Monitoring Bore	4.5	3.7	310 south east	Fill (<1.8m) underlain by clay
GW112479	Monitoring Bore	7	5.1	310 m south east	Fill (<5.5m) underlain by clay
GW112480	Monitoring Bore	7	5.5	305 m south east	Fill (<4.6m) underlain by clay

Borehole ID	Purpose	Depth (m)	Standing Water Level (m)	Approx. Distance from Site	Drillers Log
GW113035	Monitoring Bore	No details	No details	260 m north west	No details
GW113036	Monitoring Bore	No details	No details	270 m north west	No details
GW113037	Monitoring Bore	No details	No details	295 m north	No details
GW113038	Monitoring Bore	No details	No details	290 m north	No details
GW113039	Monitoring Bore	No details	No details	320 m north	No details
GW114167	Monitoring Bore	No details	No details	420 m east	No details
GW114168	Monitoring Bore	No details	No details	400 m east	No details
GW114169	Monitoring Bore	No details	No details	390 m east	No details

Groundwater risk map

The 1:2,000,000 Groundwater in New South Wales, Assessment of Pollution Risk Map (Department of water resources 1987) indicates that the site is likely to be underlain coastal dune sands, with high potential for groundwater movement. The map also indicates that groundwater salinity is likely to be between 0-1,000 mg/L (in the deeper sandstone aquifer), which is suitable for stock, domestic and some irrigation purposes.

2.4 Site history

2.4.1 Summary of previous investigations

Douglas Partners conducted a detailed site investigation (DP, 2015) at the site on behalf of Sydney Trains. The investigation was undertaken for the northern part of the site (Lot 2 DP 552864 and Lot 701 DP 713555) however it included results for the whole site. The report summarised a previous preliminary site investigation undertaken by Douglas Partners in 2014 which documented that underground fuel storage tanks, an underground water tank and previous commercial and industrial land uses were the main sources of contamination for the site.

Douglas Partners (2015) reported that six underground fuel storage tanks were previously located on the site. Four out of the six tanks were reportedly decommissioned in situ in 1998 and one was removed. No details were provided for the final tank, however, the status of this tank is unclear. The locations of these former fuel storage tanks are shown on Figure 2, Appendix A. Both areas where the fuel storage were located have newly laid concrete where the tanks are located. A summary of the size and product is shown in Table 4. The tank decommissioned *in-situ* were filled with a sand and cement slurry.

Table 4 - Summary of fuel storage tanks (DP, 2015)

Depot No.	Depot Type	Size (L)	Product stored	Comments
D1	Cabinet	250	Paint	-
D2	UST	9,200	Diesel	Decommissioned in-situ
D3	UST	11,450	Unleaded	Decommissioned

Depot No.	Depot Type	Size (L)	Product stored	Comments
				in-situ
D4	UST	2,000	LPG	Decommissioned in-situ
D5	UST	4,500	Thinners	Decommissioned in-situ
D6	AST	1,000	LPG	Removed
D2	UST	10,000	Diesel	Application made

The Douglas Partners (2015) investigation included the drilling of nine boreholes of which three were converted into groundwater wells. Soil samples were analysed for total recoverable hydrocarbons (TRH), heavy metals, benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), phenols, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs) and asbestos. PFCS were analysed in groundwater during the second sampling event. The soil results were all below the commercial / industrial human health investigations and some exceedances of the ecological investigation levels. Asbestos was detected in one borehole at a depth of 2.9 metres below ground level (m bgl). The presence of acid sulfate soils was also confirmed during this investigation. Groundwater results were below the nominated screening criteria with the exception of arsenic and zinc at two locations. There were detections of chlorinated solvents, however these were below the nominated screening levels. PFAS were analysed and the following results were noted:

- 6:2 FtS and 8:2 FtS were recorded at concentrations below the nominated screening criteria.
- PFOS was recorded at concentrations exceeding the nominated screening level (for drinking water) of 0.2 µg/L in all wells with the highest concentration of 3.8 µg/L.
- PFOA was recorded at a concentration exceeding the nominated screening level (for drinking water) of 0.4 µg/L in one well; and
- No concentrations of PFOS or PFOA were recorded above ecological nominated screening levels.

It is noted that the highest PFOS and PFOA concentrations were recorded at a well located closest to the fire training ground.

2.4.2 Aerial photographs

A selection of historical aerial photographs was examined in order to assess past activities and land uses at the site. A review of historical aerial photography is provided in Table 5.

The aerial photographs are presented in Appendix C.

Table 5 – Review of historical aerial photographs

Year	Site	Surrounds
1943 (black and white)	A large building, most likely of warehouse nature, appeared in the north western corner of site. A commercial building was located along the eastern boundary of site. Sheds were noted in the northern corner and southern section of the site. A creek appeared to cross the	The site appeared surrounded by warehouse structures to the north and west. The creek going through site appeared to travel to the west. The south and eastern boundaries of site were bound by a street, and then warehouse structures.

Year	Site	Surrounds
	site from the western boundary and ended in the south portion of site.	
1956 (black and white)	No substantial changes were observed in the site other than the addition of shrubs and trees along the southern boundary of the site.	No substantial change occurred other than increased warehouse development to the west and south of the site.
1970 (black and white)	The commercial building, trees and sheds within site appeared to have been removed. A substantial number of vehicles appeared to be parked in the south and eastern portion of site. The large warehouse building and creek remain the same as the previous aerial photograph.	No substantial changes were observed in the surrounding area since the previous aerial photograph.
1986	The large warehouse appeared to have been demolished and was replaced by a smaller building. The carpark in the eastern portion of the site has been replaced by buildings. A building also appeared in the western portion of site. The centre of the site consisted of a grass rectangle surrounded by asphalt. The creek appeared to be covered by concrete, but kept opened at its end to the south.	No substantial changes were observed in the surrounding area, although there seems to have been some renovations to the structures to the east of site.
1998	The structures within the site appeared the same. The grass rectangle has been replaced by asphalt so that the majority of the site is an asphalt surface. Vehicles can be seen parked near the developments and in the south western corner.	No substantial changes were observed in the surrounding area, other than to the north where the warehouse seems to have been replaced by smaller buildings and a carpark. The roads bordering the site also appeared to be decorated with more trees.
2005	No substantial changes were observed within the site since the previous aerial photograph.	No substantial changes were observed in the surrounding area, although there seems to have been some renovations to the warehouses to the west and south of site.
2016	No substantial changes were observed within the site since the previous aerial photograph.	No substantial changes were observed in the surrounding area since the previous aerial photograph.

In summary, the following observations were made:

- The site appears to have been developed as an industrial property prior to 1943. Up to 1998, substantial changes occurred within the site in the form of continuous development, increased number of buildings and infrastructure.
- The site appears to have been continuously surrounded by an industrial setting, with minor changes in warehouse and infrastructure development.

2.5 Regulatory information review

2.5.1 Overview

As part of the desk based review, information was obtained from a number of sources to enable a greater understanding of historical land use at the site, including former site practices which

may have the potential to cause contamination. The desk based review included the following sources of information:

- Council information including land zoning and permissible use.
- NSW EPA contaminated sites register (notifications or incidents).
- NSW EPA Protection of the Environment Operations (POEO) licence register.

2.5.2 Council information

Local Environment Plan (LEP)

The site is located in the Sydney Municipal Council. Reference to the Sydney Local Environmental Plan 2012 indicates that the site is zoned as B7 - Business Park.

2.5.3 Environment Protection Authority

GHD reviewed datasets maintained by the Environment Protection Authority (EPA) including notices under *Contaminated Land Management Act 1997*, POEO Environment Protection License Register and State Heritage Register. Results are presented in Appendix B where applicable and summarised below.

Contaminated sites register

A site will be on the Contaminated Land: Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the *Contaminated Land Management Act 1997*. GHD undertook a search of the register on 17 June 2016. No contaminated lands records are listed for the site. The search did not list any premises within a one kilometre radius of the site.

POEO environment protection license register

GHD undertook a search of the register on 23 June 2016. No records were found for the site. The search showed eleven premises within a 500 metre radius of the site with licences. Table 6 provides a summary of the licence.

Table 6 – Summary of POEO license register

Applicant	Site Address	Activity Type	Licence Status	Proximity to the site
Australian Metal Co Pty Ltd	15 Bourke Road, Alexandria, NSW 2015	Hazardous, Industrial or Group A Waste Generation or Storage	No longer in force 7 February 2000	100 m west
Cardinal Group Pty Ltd	3-7 O'Riordan Street, Alexandria, NSW 2015	Waste storage - other types of waste Non-thermal treatment of general waste	Revoked 2 May 2000	100 m south
Concrete Pty Ltd	25 Mandible Street, Alexandria, NSW 2015	Concrete works	No longer in force 14 April 2000	200 m north west
Metromix Pty Ltd.	131 Wyndham Street, Alexandria, NSW 2015	Concrete works	No longer in force 27 June 2000	350 m north

List of NSW contaminated sites notified to EPA

The sites appearing on the EPA "List of NSW contaminated sites notified to the EPA" indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA

However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review information before it can make a determination as to whether the site warrants regulation.

GHD undertook a search of the listing on 17 June 2016. The search showed five premises within a one kilometre radius of the site. The listings are summarised in Table 7.

Table 7 - Summary of contaminated sites notified to EPA

Site Description	Site Address	Contamination Type	Proximity to the Site	EPA Assessment and Management
Caltex Service Station	133 Wyndham St Alexandria, NSW 2015	Service Station	300 m north	Under assessment
Alexandria Gardens	146-156 Wyndham St, Alexandria, NSW 2015	Unclassified	600 m north	Under assessment
Perry Park	1B Maddox St, Alexandria, NSW 2015	Landfill	600 m south west	Regulation under CLM Act not required
Former Mobil Service Station	20 O'Riordan St, Alexandria, NSW 2015	Service Station	200 m south	Regulation under CLM Act not required
Former Cadbury Schweppes	49-59 O'Riordan St, Alexandria, NSW 2015	Other Industry	900 m south west	Contamination formerly regulated under the CLM Act

State heritage register

GHD undertook a search of the register on 28 June 2016. The search showed twenty-three premises within a one kilometre radius of the site. The listings are summarised in Table 8.

Table 8 - Summary of state heritage register

Item name	Address	Proximity to the site	Owner
Alexandria Town Hall Including Interior	73 Garden St, Alexandria, NSW 2015	880 m north	No details
Alignment Pin, Alexandria	In front of 298 Botany Road, Alexandria, NSW 2015	80 m south east	Roads and Maritime Services / State Government
Cricketers Arms Hotel Including Interior	56-58 Botany Road, Alexandria, NSW 2015	980 m north	No details
Electricity Substation No 20	151 Buckland Street, Alexandria, NSW 2015	870 m north west	Ausgrid / State Government
Electricity Substation No 117	16 Euston Road, Alexandria, NSW 2015	740 m north west	Ausgrid / State Government
Former Alexandria Spinning Mills including interiors of west part and internal structure of east part	40a-42 Maddox Street, Alexandria, NSW 2015	750 m south west	Alexandria Spinning Mills Ltd
Former CBC Bank Including Interior	60 Botany Road, Alexandria, NSW 2015	910 m north	No details
Former Electric Light Substation No 89	212-214 Wyndham Street, Alexandria, NSW 2015	480 m north	No details

Item name	Address	Proximity to the site	Owner
including interiors			
Former Electricity Substation No 152 including interiors	124 McEvoy Street, Alexandria, NSW 2015	540 m north west	No details
Former industrial building including interiors	111-117 McEvoy Street, Alexandria, NSW 2015	460 m north west	No details
Former Mayor's Residence Including Interior	71 Garden Street, Alexandria, NSW 2015	880 m north west	No details
Former Standard Telephones & Cables industrial building including interiors	1-3 Mandible Street, Alexandria, NSW 2015	810 m north west	No details
HABS – stonemasonry tools & machinery	92 Burrows Road, Alexandria, NSW 2015	990 m south west	Department of Commerce / State Government
Industrial Building "Eclipse House" Including Interior	8-22 Bowden Street, Alexandria, NSW 2015	440 m north west	No details
Industrial Building "Frank G Spurway" Including Interior	20-30 Maddox Street, Alexandria, NSW 2015	790 m west	No details
Lord Raglan Hotel including interior	12 Henderson Road, Alexandria, NSW 2015	900 m north	Tooths & Co
Terrace Group (17A-29 Retreat Street) Including Interiors	16-29 Retreat Street, Alexandria, NSW 2015	300 m north	No details
Terrace Group Including Interiors	79-89 Mitchell Road, Alexandria, NSW 2015	880 m north west	No details
Terrace Group Including Interiors	91-95 Mitchell Road, Alexandria, NSW 2015	880 m north west	No details
The Glenroy Hotel Including Interior	246-250 Botany Road, Alexandria, NSW 2015	280 m north east	No details
Warehouse Including Interior	32-42 McCauley Street, Alexandria, NSW 2015	350 m north west	No details
Yiu Ming Temple	16-22 Retreat Street, Alexandria, NSW 2015	270 m north	Yiu Ming Society
Yiu Ming Temple Including Building, Interior and Front Court	16-22 Retreat Street, Alexandria, NSW 2015	270 m north	Yiu Ming Society

2.6 Preliminary conceptual site model

Based on the information obtained during the course of this PSI, the following preliminary CSM has been developed for the site.

The primary contaminants of potential concern (CoPC) are PFAS, notably PFOS and PFOA, which were components of AFFF. Other CoPCs include components of fuels and oils used as ignition sources such as total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and toluene (BTEX), polycyclic aromatic hydrocarbons (PAHs) and metals (notably lead). Asbestos was detected during the previous site investigation undertaken by Douglas Partners (DP, 2015), however, exposure to asbestos is considered to be unlikely given that the site is sealed and the site is not currently planned for development (and hence excavation). As such

asbestos has not considered further as part of this investigation. The CSM concentrates mainly on PFAS as the main CoPC for the site and likely to be the key driver for any additional work at the site. The other CoPCs will be considered in the SAQP.

2.6.1 Sources

Based on anecdotal evidence, historical aerial photographs and the history of the Alexandria Fire and Rescue NSW site, the following historical contamination sources could have affected the site:

- The site has historically been used as a firefighting training site since at least the early 1970's.
- Potential source areas include:
 - The training pad in the south west corner of site, near the current training gas props, and the large high rise tower training prop where most firefighting foams and fuel for ignition are likely to have been used.
 - Sheas creek entering site from the south eastern boundary and ending in the south western area of site
 - Designated storage of AFFF and locations where extinguishers were filled
 - Drainage or containment components (underground water tank) receiving AFFF contaminated wastewater at designated equipment wash down areas after foam was used for firefighting training
- The former fuel underground storage tanks and minor spills of petroleum hydrocarbons and oils from vehicles traversing the site. The primary contaminants of concern are expected to include petroleum hydrocarbons and polycyclic aromatic hydrocarbons.

Currently, the site is occupied by Fire and Rescue NSW and is used by staff as a firefighting training site and is thought to be of moderate contamination potential.

2.6.2 PFAS fate and transport

PFAS forms a component of AFFF which is sprayed onto fires during training events. The mode of use of AFFF through roof monitors and hoses allows for it to spread through airborne dispersion beyond the training area. Typically, this results in diffuse low levels of PFAS over a wider area. Generally, the highest soil concentrations tend to be at the point source.

PFAS are stable and persistent compounds that do not readily degrade in the environment.

Once in soil, PFAS can leach from soil to water (due to its solubility in water) as water migrates downward through soil to the water table, resulting in contaminated groundwater. Generally, the shorter chain PFAS species are more soluble than the longer chain PFAS. Groundwater will migrate and discharge into the nearest downgradient surface water body – in the case of the site the main discharge area is likely to be Sheas Creek located in the south western corner of the site.

Studies have indicated that as fresh water contacts sea water, PFAS's can partition into sediments suggesting a significant mass of dissolved phase PFAS's may partition into the sediment rather than become dissolved in sea water (You et al 2010, Zhang and Lerner 2012). This, combined with tidal effects, makes the discharge mechanisms in coastal regions very complex. Benthic organisms living in the sediment may then be impacted through ingestion of the sediments.

Migration through the soil will depend on the attenuation properties of the soil. Some components of the soil (notably organic carbon) can sorb PFAS components. Generally, the longer chain PFAS species will sorb more readily. This, combined with the lower solubility of the

longer PFAS species, can result in mainly shorter chain PFAS species being dissolved in water while the large molecules remain in the soil.

The surface water on-site collects in the onsite drainage that collects within the underground water tank location in the south of the site. This then is assumed to overflow into Sheas Creek culvert.

Plants (including aquatic plants) have the ability to uptake PFAS in through impacted soil water. Grasses and other flora can be consumed by micro- and macro-fauna which may in turn be predated.

The main risks to human health mainly arise through ingestion of impacted media i.e. soil, water or organisms.

In terms of risks to ecological receptors, while contamination can give rise to direct toxic effects on ecosystems, the limiting factor can be the bioaccumulation of contaminants in fish or other species affecting persons or other animals that consume these fish or other species.

2.6.3 Pathways

The primary pathways by which receptors could be exposed to the sources of contamination outlined above are considered to be:

- Dermal contact with contaminated soil, surface water and groundwater.
- Incidental ingestion of contaminated soils, surface water and groundwater.
- Ingestion of groundwater, impacted plant and animal material.
- Terrestrial animal consumption of impacted animals, water, soils and plants.
- Inhalation of contaminated soils or dust and water (aquatic animals). (PFAS are not considered to be a vapour hazard due to their low volatility).
- Surface runoff and sediment transport into storm water drainage and subsequent transport and discharge to surface waters. This may be enhanced during significant rain events.

2.6.4 Receptors

When evaluating potential adverse health / environmental effects from exposure to a contaminated site, all potentially exposed populations should be considered. For this site, the key populations or receptors of interest are considered to include:

- Current and future on-site workers and visitors to the site.
- Current and future construction/intrusive maintenance (utility) workers (on-site and off-site).
- Commercial / Industrial properties down gradient of the site.
- Aquatic ecological receptors – invertebrates, molluscs, fish, eels etc.
- Terrestrial ecological receptors – local invertebrates (worms, insects etc), mammals, birds, reptiles that might consume impacted animals, plants and surface water and groundwater.

2.6.5 Potential source-pathway-receptor linkages

Based on the current information, the following preliminary contamination conceptual site model (CSM) has been developed for potential on site sources of contamination in Table 9 below and presented in Figure 4, Appendix A.

Table 9 – Preliminary Conceptual Site Model

Potential Source	Potential Contaminants	Potential Pathway	Potential Receptor
Current and former: Firefighting training activities	<i>Primary contaminants of concern:</i> • PFASs	Human exposure: • Ingestion of soils and dust.	Human: • Site users and visitors.
Former: Chemical spills, storage of AFFF and filling of fire extinguishers	<i>Other potential contaminants:</i> • TRH • BTEX • PAHs	• Indoor and outdoor inhalation of soil and dust. • Dermal contact with surface water, soil and groundwater.	• Persons undertaking construction, demolition and maintenance works.
Current and former: Contaminated equipment cleaning and wash down	Heavy Metals (primarily lead)	• Ingestion of groundwater, impacted plant and animal material.	Nearby and commercial/industrial users.
Underground water storage tank			
Former underground fuel storage onsite			
Current/Historical: Neighbouring commercial/industrial land uses (off site)		Ecological exposure: • Surface Water runoff. • Vertical migration through the unsaturated zone into the saturated zone and horizontal migration within the groundwater.	Ecological: • Ecology of Sheas Creek and Alexandra Canal • Terrestrial organisms on-site and off-site

3. Sampling and analytical program

3.1 Overview

A process for establishing data quality objectives for an investigation-site has been defined by the NSW DEC *Guidelines for the NSW site Auditor Scheme (2nd edition, 2006)*. The Data Quality Objective (DQO) process will be applied to the site investigation, as described below, to ensure that data collection activities are appropriate and achieve the project objectives. The DQO process involves seven steps as follows:

- Step 1: State the problem
- Step 2: Identify the decision
- Step 3: Identify inputs to the decision
- Step 4: Define the study boundaries
- Step 5: Develop a decision rule
- Step 6: Specify limits on decision errors
- Step 7: Optimise the design for obtaining data

The seven DQO steps for this project are defined in Table 10.

Table 10 – Data Quality Objectives

Step	Description
1	<p>State the problem to be resolved</p> <p>What is the likelihood that PFAS sources have contaminated the environment and what risks does it pose?</p>
2	<p>Identify the decision/s to be made</p> <p>To address the problem set out in Step 1, the following decisions are required to achieve the task objective and to identify data gaps and additional information that may be required:</p> <ul style="list-style-type: none"> • What are the potential sources of PFAS contamination at the site? • Do the concentrations of PFAS in the samples collected exceed adopted guideline criteria? • Do the results of the sampling and analysis indicate there is a potential risk to human health and ecological receptors on-site and off-site?
3	<p>Identify the inputs to the decision</p> <p>To inform the decisions and identify key data gaps and needs, the following information is considered necessary:</p> <ul style="list-style-type: none"> • The location of potential PFAS contamination sources. • The concentrations of PFAS in soil, groundwater and surface water from laboratory analysis. • Identify potential exposure routes and contamination migration pathways. • The likelihood of PFAS migrating to groundwater and thence off-site.

Step		Description
4	Define the boundaries of the study	The study boundary comprises soil, groundwater and surface water within the on-site areas in the vicinity of the identified potential PFAS sources as shown in Figure 2. Appendix A. The study boundaries also extend to surface water impacts between the site and Sheas Creek.
5	Develop a decision rule	<p>The key decision rules are:</p> <p>Is PFAS present at concentrations above laboratory level of reporting (LOR) in soil and surface water?</p> <ul style="list-style-type: none"> • If NO – risks to on-site receptors is low and the potential for PFAS contamination to migrate off-site is low. Further assessment is not supported. • If YES – assess the risks to on-site and off-site receptors; AND: <p>Do the concentrations of PFAS in on-site samples exceed the adopted guideline criteria?</p> <ul style="list-style-type: none"> • If NO – risks to on-site receptors is low and off-site impact is less likely. Assess the adequacy of the investigations to quantify risk. • If YES – conduct further assessment of risks to on-site receptors. Assess the likelihood of contamination migrating to groundwater and thence off-site.
6	Specify the tolerable limits on decision errors	<p>A detailed assessment of potential for sampling and measurement errors will be undertaken based on investigation scope, methodology and results. Data quality will be assessed as detailed in Schedules B2 and B3 of the NEPM (2013). Implications for data quality with respect to the task objective will be identified and discussed.</p> <p>Due to the margin of error associated with analytical methods, any results close to the threshold (within the margin of error either over or under) are more likely to be incorrectly considered either “contaminated” or “uncontaminated”.</p> <p>As targeted samples are to be collected as part of a judgemental approach, greater confidence in results will be achieved through knowledge of the site and the likely location of PFAS sources. As such, the following tolerable limits on decision making are proposed for targeted sampling locations:</p> <ul style="list-style-type: none"> • For results <i>within</i> the margin of error (either above or below the threshold) the initial classification would be considered valid (unless for a chemical not considered to be a contaminant of potential concern). • Any results <i>above</i> the threshold would require further investigation and delineation to determine the size of the impact identified.
7	Optimise the design for	<p>The sample design will be optimised through:</p> <ul style="list-style-type: none"> • Identification of potential PFAS sources from existing

Step	Description
obtaining the data	<p>information and investigations conducted by GHD and others i.e. results of PSI.</p> <ul style="list-style-type: none"> • A review of the surface water pathways across and leaving the site. • Collection of soil, groundwater and surface water samples. • Appropriate laboratory analysis methodologies. • Evaluation and interpretation of results with respect to relevant guidelines.

3.2 Basis for assessment

3.2.1 Relevant guidelines

The framework for the contamination assessment made herein, was developed in accordance with guidelines “made or approved”, by the NSW EPA under Section 105 of the *Contaminated Land Management Act, 1997*. These guidelines include, but are not limited to the following:

- NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*
- NSW DEC (2006) *Contaminated Sites: Guidelines for NSW Site Auditor Scheme*
- NSW DECC (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*
- NSW EPA (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*
- NEPM (2013) *National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1)*, National Environment Protection Council (NEPC)

3.2.2 Potential contaminants of concern

Based on the findings of the PSI and the key aims of this investigation the following contaminants of concern have been identified for the investigation:

- Primary potential contaminants of concern:
 - PFASs
- Other potential contaminants of concern:
 - Total recoverable hydrocarbons (TRH)
 - Benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN)
 - Polycyclic aromatic hydrocarbons (PAHs)
 - Metals (primarily lead)

The assessment criteria selected for these chemicals are discussed below.

3.2.3 Contamination assessment criteria

Screening levels – PFAS

There are no approved screening levels for concentrations of PFASs in soil, groundwater or surface water in Australian guidance. Recent documentation released by the Government of the Western Australia Department of Environment Regulations (DER, 2016) provides some interim guidance screening values. The Australian Department of Defence has also developed interim

guidance based on a review of available literature on PFOS and PFOA toxicity to human and aquatic ecosystems, however, while this information has been viewed it is not currently in the public domain.

GHD has also undertaken a review of available PFOS and PFOA information from Australia and overseas and developed interim screening levels (ISLs) which have been adopted for this investigation. The ISLs are presented in Table 11 below.

Table 11 – Adopted PFOS/PFOA ISLs – Soil and Groundwater

Media	Exposure Scenario	PFOS 1	PFOA	Source	Comments
Soil	Human Health Interim Screening Level (HISL) – Industrial Commercial (mg/kg)	100	240	USEPA Region 4 2009 (in USEPA 2014) - PFOA DER (2016) - PFOS	A scaling factor of 15 applied to residential criteria for PFAS
	Human Health Interim Screening Level (HISL) – Residential (mg/kg)	4	-	DER (2016) - PFOS	
	Ecological Interim Screening Level (EISL) – terrestrial (mg/kg)	0.373	3.73	UK Environment Agency 2009	
Water	Human Health Interim Screening Level (HISL) – Drinking water (µg/L)	0.5	5	Enhealth (2016) – PFOA DER (2016) - PFOS	
	Human Health Interim Screening Level (HISL) – Secondary contact (µg/L)	5	20	Enhealth (2016) – PFOA DER (2016) - PFOS	
	Ecological Interim Screening Level (EISL) – Fresh/Marine water (µg/L)	0.13	220	DER (2016)	For protection of slightly disturbed ecological systems

¹ Enhealth (June 2016) recommends PFOS and PHxS exposures should be summed and the total compared to the TDI for PFOS

Soil assessment criteria – other CoPCs

Site investigation levels have been adopted from assessment criteria presented in NEPM (2013) Given the site zoning is Business Park, health screening levels (HSL) and health investigation levels (HILs) for commercial / industrial will be used as the investigation screening criteria. Ecological investigation levels (EILs) and ecological screening levels (ESL) for commercial / industrial use are also used.

Assessment criteria – groundwater – other CoPCs

The NEPM (2013) Groundwater Investigation Levels (GILs) are based on the Australian Drinking Water Quality Guidelines 2015 and the Guidelines for Managing Risk in Recreational Waters (NHMRC, 2008). The guidelines provide a framework for risk-based assessment of groundwater contamination.

Groundwater beneath the site is not used for drinking due to the embargo on the extraction of the groundwater. There is the potential for the underlying aquifer to be in hydraulic continuity with surface water features on-site (Sheas Creek). Therefore, ecological receptors could come into contact with groundwater discharging from the site. Risks to these receptors will be assessed based on screening groundwater results against the NEPM (2013) GILs for marine waters.

The HSLs, presented in NEPM (2013) are based on CRC CARE 2011, HSL D (for sand soils), adopted for this investigation are consistent with the soil investigation criterion detailed previously.

3.3 Field Investigation objective

The objective of the intrusive investigation is to provide information on the contamination status of the soil, groundwater and surface water and whether human and ecological receptors on the site and in the surrounding area may be at risk from site impact.

The investigation will also consider mechanisms that might enhance or inhibit contamination migration such as soil type, grain size, sorption capacity, hydraulic conductivity and water salinity. This site-specific information will inform our understanding of contaminant fate and transport which is essential to understanding risks. To achieve this samples of the soil will also be analysed for cation exchange capacity (CEC), total organic carbon and leachability.

3.4 Sampling rationale

To address the investigation objectives outlined above and based on the key risk identified in the preliminary CSM (see Section 2.6) the investigation has been designed to target:

- On site contamination status associated with AFFF to help FRNSW understand the residual issues to human health and the environment.
- Understand the risks to onsite employees and intrusive maintenance workers.
- On-site drainage and stormwater contamination status on-site as this will aid understanding of risks to down gradient surface water receptors (on-site drainage and stormwater is understood to flow into the Sheas Creek).
- Groundwater to assess potential impacts to surface water (Sheas Creek) (if any).
- A tiered approach is proposed for field investigations, with initial works focusing on areas of most likely impact and characterising key on-site and offsite migration pathways. Information from these studies will be used to inform the requirement for further site investigations and to target residual data gaps in the CSM identified by initial the investigations.

3.5 Scope of intrusive investigations

The scope of the intrusive investigation is summarised as follows:

- Soil sampling at five on site locations (including two bitumen samples) (MW01, SB01 to SB04).

- Groundwater sampling at four on site locations. This will include one newly installed monitoring well and three existing monitoring wells (DP, 2015) (MW01, BH1A, BH7A and BH9A).
- Surface water (stormwater) sampling at one on-site and two off-site locations (SW01, SW02 and SW03). If sediment is able to be collected at these locations, then this will be collected in conjunction with the surface water (SS01 to SS03).
- A visual inspection of the culvert and the underground water tank on-site to understand the outflow from the tank to the culvert of Sheas Creek.

The sample locations are provided on Figure 5 in Appendix A. Details of the investigation methodology are outlined below.

The rationale for the proposed sampling program is outlined in Table 12.

Table 12 – Sampling Program

Media	Location	Rationale	Laboratory Analysis
Fire training area			
Soil Bore / Groundwater well	MW01	Located within the fire training ground. Assess groundwater quality directly beneath the main area of AFFF use	PFAS, TRH, BTEX, PAHs, metals, pH, TDS, major ions, alkalinity
		Opportunistic soil sampling of locations	Bitumen – PFAS only PFAS, TRH, BTEX, PAHs, metals, TOC, CEC, pH ASLP – PFAS **
Former grassed area in the middle of the site			
Soil Bore	SB01	Assess contamination underneath a former softscape area	Bitumen – PFAS only PFAS, TRH, BTEX, PAHs, metals, TOC, CEC, pH ASLP – PFAS **
Downgradient of storage area of AFFF			
Soil	SB04	Assess contamination downgradient of a storage area of AFFF	Bitumen – PFAS only PFAS, TRH, BTEX, PAHs, metals, TOC, CEC, pH ASLP – PFAS **
Former fuel underground storage tanks – 2 areas			
Soil	SB02	Located near the former USTs Assess the soil quality around the former tanks	PFAS, TRH, BTEX, PAHs, metals, TOC, CEC, pH ASLP – PFAS **
	SB03		
Sheas Creek			
Surface water / sediment	SW01 and SS01 (if sediment is able to be obtained)	Sheas Creek upgradient of the fire training ground Assess surface water and sediment quality along the length of Sheas Creek	Sediment - PFAS, TRH, BTEX, PAHs, metals, TOC, pH Surface water – PFAS, TRH, BTEX, PAHs, metals, pH, TDS, major ions, alkalinity
	SW02 and SS02 (if sediment is able to be obtained)	Sheas Creek – off-site in neighbouring property (where the culvert is exposed again)	
	SW03 and SS03 (if sediment is able to be obtained)	Sheas Creek where it meets Mandible Street	
Northern area of site - sampling of the previously installed groundwater wells (DP, 2015)			
Groundwater	BH1A, BH7A and BH9A	Assess groundwater quality directly across the site for AFFF use (with the full suite of PFAS)	PFAS, TRH, BTEX, PAHs, metals, pH, TDS, major ions, alkalinity
Waste Classification			

Media	Location	Rationale	Laboratory Analysis
Waste Drums	WC01 to WC02	Classification of soil and water waste prior to disposal.	PFAS, TRH, BTEX, metals, PAHs, asbestos and Acid sulfate soils.

3.6 Sampling Methods

3.6.1 Field work preparations

Health safety and environmental management

Prior to the commencement of field works a health, safety and environmental management plan will be prepared in accordance with GHD's health safety and environmental management policies and procedures.

Underground service location

A qualified service locator will be commissioned to clear all proposed intrusive locations prior to the commencement of drilling.

Hardstand coring

Where hardstand coring is likely to be required, a qualified subcontractor will be engaged to conduct these works. Each location will be reinstated with the same material surrounding the location.

3.6.2 Soil Locations

Soil locations will be advanced by hand auger to approximately 1.5 m deep or until refusal. Each location will be checked against services plans and cleared by a service locator prior to commencement of augering.

The soil profile will be described in general accordance with the Unified Soil Classification System (USCS) and GHD's standard logging procedures, with features such as seepage, discolouration, staining, odours and other indications of contamination being noted on the borehole log, as well as soil sampling information.

All auger holes will be re-instated with spoil from the auger hole and packed down to ground surface.

3.6.3 Borehole drilling

The water bearing zone is expected to be shallow although no site-specific data is available, monitoring wells on neighbouring properties encountered ground water at <6 m below ground level. GHD proposes to install groundwater wells based on field observations so as to enable the well screen to intercept the water table. It is envisaged that groundwater will be no deeper than 6 m below ground surface. Therefore, it is proposed to drill boreholes to nominal depths of 6 m below ground level (bgl), or at least 1.5 m below the first water bearing unit (whichever is shallower).

The selected drilling technique will be dependent on the underlying geology and is likely to comprise concrete coring of the hardstand surface (where required) followed by hand augering in soils to a maximum depth of 1.5 m bgl, followed by push tube/solid stem auger to the desired depth.

The soil profile will be described in general accordance with the Unified Soil Classification System (USCS) and GHD's standard logging procedures, with features such as seepage,

discolouration, staining, odours and other indications of contamination being noted on the borehole log, as well as soil sampling information.

3.6.4 Groundwater well installation

The monitoring wells will be installed in accordance with industry standards, including guidance provided in the Minimum Construction Requirements for Water Bores in Australia (NUDLC, 2011). Groundwater wells will be designed to ensure that the potential presence of light non aqueous liquid (LNAPL) can be measured.

Wells will be constructed using 50 mm, Class 18 uPVC flush jointed, threaded well screen and blank casing, a gravel pack surrounding the screened zone extending 0.5 m above the screened interval, a bentonite plug above the screen as a seal and cement grout to the surface. Wells will be completed with flush mounted, traffic rated, cast iron gatic covers. Following installation, the well will be developed using a submersible pump to remove silt introduced during drilling and for alignment of the gravel pack surrounding the well screens.

Following installation, the monitoring wells will be professionally surveyed according to the Australian Height Datum (AHD) and the location will be plotted on a plan.

A borehole log will be prepared for the monitoring well locations showing the geology and well construction details.

3.6.5 Soil and sediment sampling

Soil and sediment samples will be collected using the following methodology:

- All sampling will be undertaken by an appropriately experienced GHD environmental scientist in general accordance with GHD's Standard Field Operating Procedures to allow representative samples to be collected, information accurately recorded and quality control is maintained throughout the investigation.
- Soil samples will be collected directly from the hand auger or push tube, using dedicated disposable gloves, at the surface (0.0 to 0.2 m bgl), 0.5 m bgl, 1.0 m bgl and every metre thereafter to the base of the borehole. Additional samples will be collected should visual or olfactory evidence of contamination be identified. A photoionisation detector (PID) will be used to assess for the presence of VOCs at each sampling interval.
- Two soil samples will be selected for analysis from each borehole, based on the results of PID screening and visual/olfactory evidence of contamination.
- Sample jars will be filled to minimise headspace. The containers will be labelled with the job number, sample identification and date collected. All sampling equipment will be Teflon free as this is understood to potentially interact with and impact PFAS concentrations in samples media.
- Following the collection of each sample, the jars will be placed immediately into coolers for preservation prior to and during transportation to the project laboratory.
- Samples will be accompanied with chain of custody documentation to the project laboratory and will be submitted within holding times appropriate to the analysis required.
- Decontamination procedures will be used during the soil sampling including the use of new disposable gloves for the collection of each sample, decontamination of sampling equipment between each sampling location (using DECON N) and the use of dedicated sampling containers provided by the laboratory.

3.6.6 Groundwater sampling

Groundwater sampling will be carried out as follows:

- The newly installed well MW01 will be sampled approximately one week following installation. The other three existing wells will be sampled at the same time (BH1A, BH7A and BH9A)

The groundwater wells will be sampled as follows:

- Prior to gauging the standing water level (SWL) in each monitoring well. The well will be allowed to stand for a few minutes to allow the SWL to stabilise under atmospheric conditions.
- The depth of the SWL and LNAPL, if present, will be measured at each monitoring well using an electronic interface meter, along with the total well depth with all measures recorded from the top of casing.
- Representative groundwater samples will be collected from the monitoring wells using the following sampling techniques:
 - Each well will be purged using low-flow sampling techniques with dedicated tubing, that is Teflon free. The depth of placement of the groundwater sample inlet tube will be recorded during sampling and will be consistent across monitoring locations.
 - Field parameters (pH, electrical conductivity (EC), oxygen redox potential, dissolved oxygen (DO) and temperature) will be measured and recorded during purging to ensure that extracted groundwater is representative of the surrounding groundwater conditions. When field parameters reach equilibrium, i.e. consecutive measurements are within 10% of each other for EC, redox and pH, groundwater will be deemed to be representative and groundwater samples will be collected.
 - Visual observations will be recorded, in particular, the absence or presence of a hydrocarbon sheen or odour will be recorded during purging.
 - Retrieved groundwater samples will immediately be placed into laboratory prepared bottles suitable for the requested analyses.
 - Sample bottles will be filled directly from the pump with a minimal amount of air contact and vials for volatile organic analysis will be filled to minimise headspace. Samples that are to be analysed for dissolved metals will be field filtered with a dedicated filter prior to placing the sample into the sample bottle.
 - The containers will be labelled with the job number, sample identification and date collected.
 - Following the collection of each sample, the bottles will be placed immediately into ice-filled coolers for preservation prior to and during transportation to the project laboratory.
 - Samples will be accompanied with chain of custody documentation to the project laboratory and will be submitted within holding times appropriate to the analysis required.
 - Dedicated sampling equipment (i.e. tubing, bailers, filters etc.) will be disposed of after each well is sampled with other sampling equipment decontaminated using a mixture of Decon N solution and potable water and then rinsed with potable tap water between each well location.

3.6.7 Surface water (stormwater) sampling

Surface water present within Sheas Creek will be undertaken as follows:

- Surface water samples will be collected by grab sampling with a dedicated sample bottle attached to an extendable arm.
- Samples from the culvert will be collected from the centre of the drain and centre of the water column to the extent practicable.
- Surface water samples will be placed in laboratory supplied bottles appropriate for the particular analyte. The bottles will be immediately stored in chilled insulated containers. All samples will be transferred to the nominated laboratory and accompanied by chain of custody documents which will specify the tests required and the appropriate levels of reporting (LOR).
- Dedicated sample bottles will be used to collect surface water samples, eliminating the need for decontamination of equipment and rinsate samples.
- Collection of Quality Assurance (QA) / Quality Control (QC) samples for groundwater including duplicate and split samples as discussed in Section 3.7.

3.7 Laboratory Analysis

The analytical schedule proposed for each sampling location is presented in Table 12.

In summary, soil samples will be analysed as follows:

- Two soil samples from each borehole will be submitted for laboratory analysis of COPC including PFAS, TRH, BTEXN, PAHs, 8 heavy metals, cation exchange capacity (CEC), total organic carbon (TOC), pH.
- QA/QC sampling will include one intra-laboratory duplicate sample, one inter laboratory duplicate sample and one trip spike sample.
- Bitumen core samples will be scheduled for soils and leachate analysis using the Australian standard leaching procedure (ASLP) method.

Analysis of soil samples will be undertaken by a NATA accredited for the required analysis.

Groundwater and surface water samples will be analysed as follows:

- All groundwater samples (five) will be submitted for laboratory analysis of COPC including PFOS/PFOA, TRH, BTEXN, PAHs and eight heavy metals, major ions, total dissolved solids and alkalinity (standard laboratory limit of reporting).
- QA/QC sampling will include one inter-laboratory duplicate, one intra-laboratory duplicate and one trip spike per round. Analysis of groundwater samples will be undertaken by a NATA accredited for the required analysis.

3.7.1 Waste handling

Waste generated onsite will be stored in 205 L drums until such time as the waste can be characterised and transported off-site to an appropriately licenced waste facility.

A combination of in situ soil and water data and further soil analysis of generated waste will be used for characterising drilling waste and groundwater sampling generated.

3.7.2 Contingency plan

A contingency plan is outlined below, listing potential unexpected events that may arise during the fieldwork and actions that will be undertaken if unexpected conditions occur:

- Stakeholder engagement processes will be used to facilitate any off-site investigations on private property (should they be required), however, if any incidents or conflict occur with

site owners or the public, GHD will cease works and vacate the site, until further direction from the stakeholder engagement team and FRNSW.

- Environmental controls will be implemented at all sites to migration of potentially impacted material to the surrounding environment.
- If evidence of contamination other than that expected is encountered, additional samples will be collected for assessment pending discussion with FRNSW.
- If friable asbestos is encountered, works will cease and the area made safe in consultation with GHD's licensed asbestos assessors and FRNSW. This will be undertaken as a variation to the existing scope and cost.

3.7.3 Reporting

The findings of the works documented in this PSI and SAQP will be combined with the site investigations report and presented as a site investigation report summarising the results of the investigation in general accordance with the *NSW Guidelines for Consultants Reporting on Contaminated Sites* (OEH, 2011). The report will include the following:

- The preliminary site investigation findings.
- Data quality objectives for the works, including a description of the basis for the additional investigations.
- Description of the works undertaken.
- Results of the desktop assessment (information and data review)
- Assessment of potential areas of concern and chemicals of concern including a Tier 1 Risk Assessment for ongoing industrial/commercial use.
- Refined CSM.
- Provision of recommendations on remediation, site management or further investigation, as required.

The report will also contain figures illustrating results of sampling, highlighting exceedances against the adopted guidelines, groundwater flow contours and direction (if possible), and diagrammatic presentation of contaminant results where required.

4. Limitations

This report has been prepared by GHD Pty Ltd (GHD) for Fire & Rescue NSW and may only be used and relied on by Fire & Rescue NSW for the purpose agreed between GHD and Fire & Rescue NSW as set out in **Section 1** of this report.

GHD otherwise disclaims responsibility to any person other than Fire & Rescue NSW arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

GHD was commissioned to undertake a preliminary site investigation and develop a SAQP for the site as outlined in Section 3.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by Fire & Rescue NSW and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

5. References

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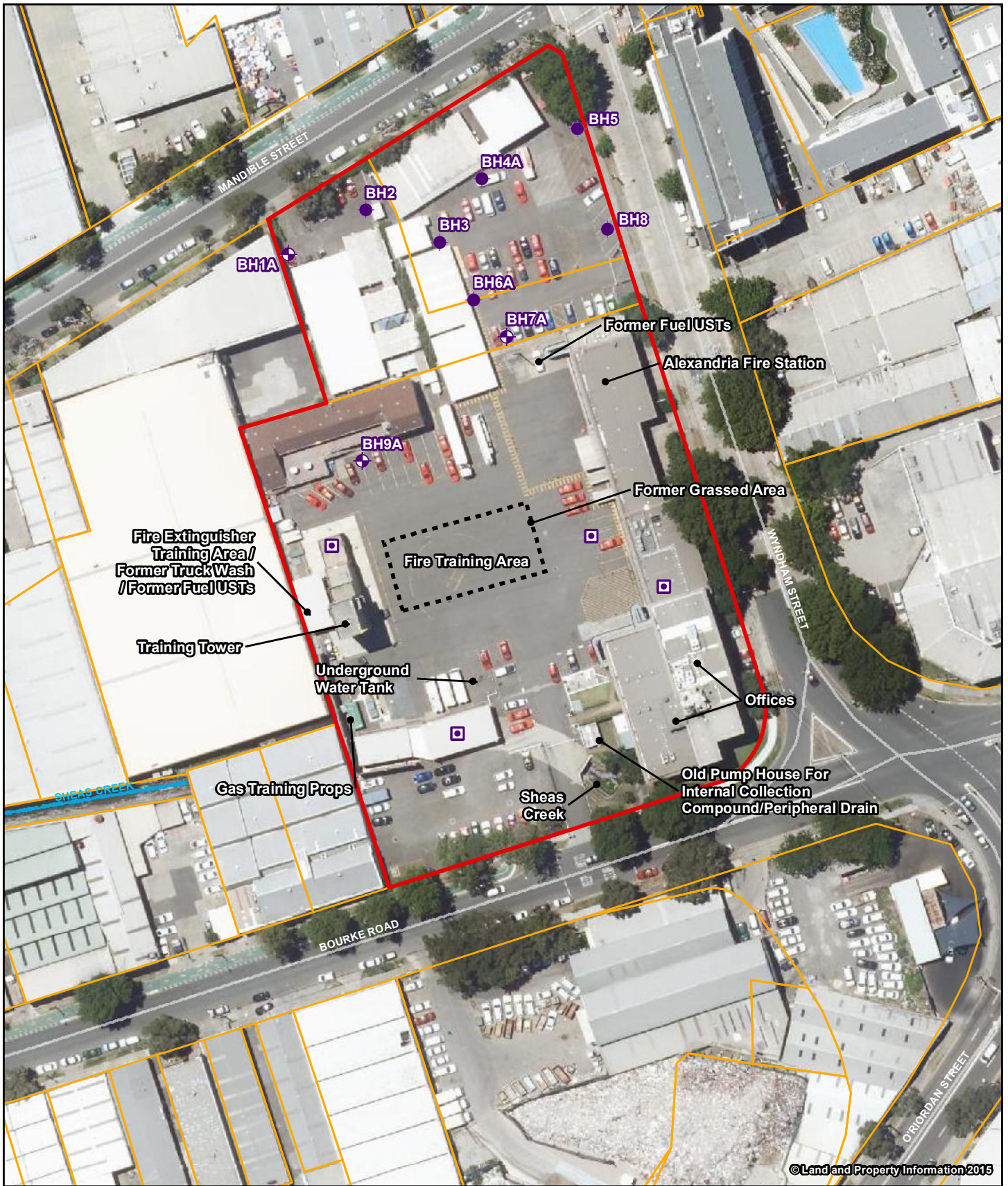
US EPA, 2014; *Emerging Contaminants – Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA), Emerging Contaminants Fact Sheet – PFOS and PFOA*

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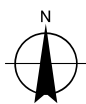
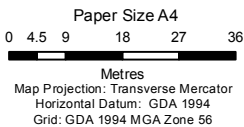
Appendices

Appendix A – Figures



LEGEND

- Historical Foam Storage Areas
- Cadastre
- BestImageryDates
- Borehole (DP, 2015)
- Monitoring Well (DP, 2015)
- Site Boundary
- Streets
- Major Waterways
- Minor Waterways



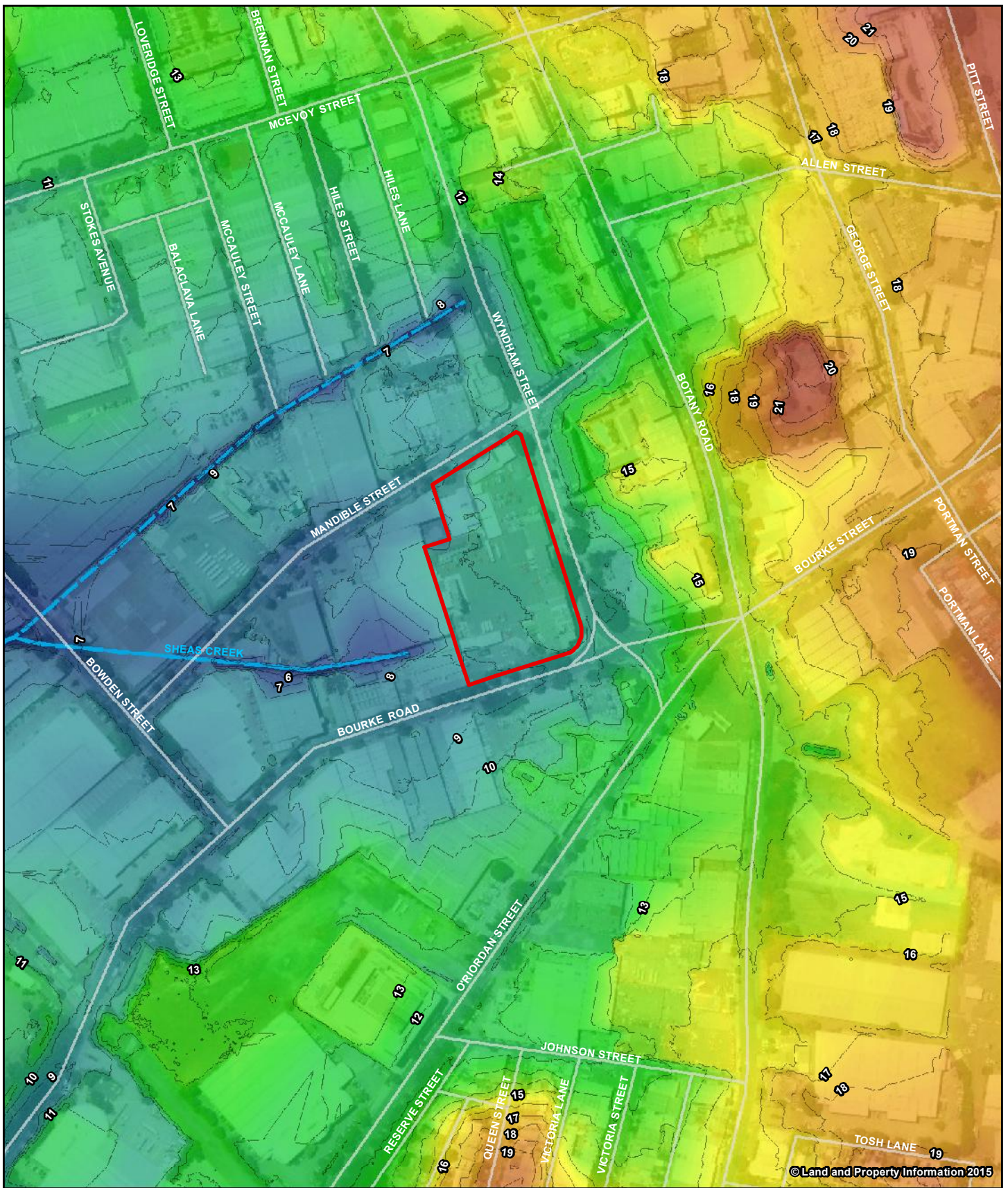
Fire & Rescue NSW
Alexandria Site Investigation

Job Number | 21-25583
Revision | A
Date | 16 Aug 2016

Site Layout

Figure 2

G:\21\25583\GIS\Maps\Deliverables\Alexandria\21_25583_Z002_Alexandria_SiteLayout.mxd Level 15, 133 Castlereagh Street Sydney NSW 2000 T 61 2 9239 7100 F 61 2 9239 7199 E sydmall@ghd.com.au W www.ghd.com.au
© 2016. Whilst every care has been taken to prepare this map, GHD and NSW LPI make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.
Data source: Imagery - ©Land and Property Information (Extracted: 16/08/16); Streets, Waterways - NSW LPI 2012 DTDB. Created by:mweber



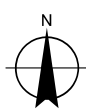
© Land and Property Information 2015

LEGEND

- Site Boundary
 - Streets
 - Contours
 - Major Waterways
 - Minor Waterways
- Elevation (mAHD)**
 High : 24.305
 Low : 4.365

Paper Size A4
 0 12.5 25 50 75 100

Metres
 Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



Fire & Rescue NSW
 Alexandria Site Investigation

Job Number | 21-25583
 Revision | A
 Date | 12 Aug 2016

Elevation

Figure 3

G:\21\25583\GIS\Maps\Deliverables\Alexandria\21_25583_Z003_Alexandria_Elevation.mxd Level 15, 133 Castlereagh Street Sydney NSW 2000 T 61 2 9239 7100 F 61 2 9239 7199 E sydmall@ghd.com.au W www.ghd.com.au
 © 2016. Whilst every care has been taken to prepare this map, GHD and NSW LPI make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: Imagery - ©Land and Property Information (Extracted: 12/08/16); Streets, Waterways - NSW LPI 2012 DTDB; LIDAR - NSW LPI. Created by:mweber

EAST

WEST

SOURCES

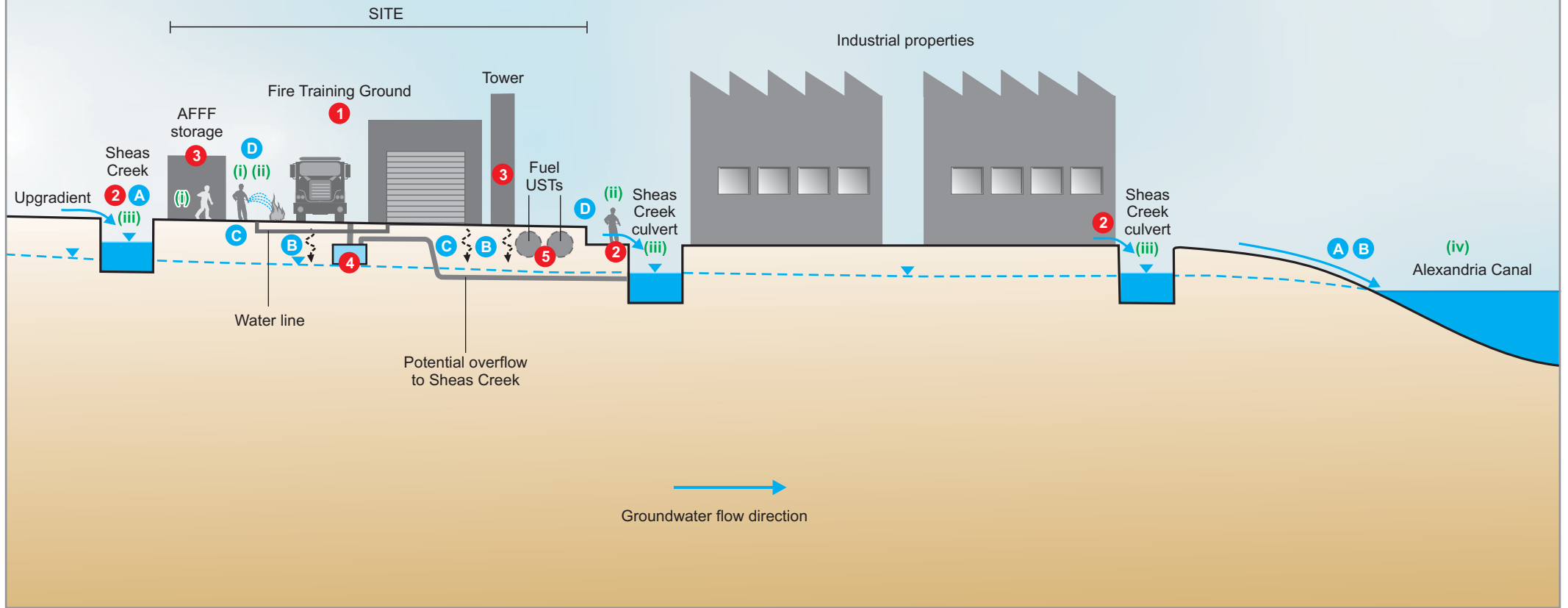
- 1 Fire training ground
- 2 Sheas Creek up / down gradient of site
- 3 Storage of AFFF
- 4 Underground water tank
- 5 Former fuel underground storage tanks

EXPOSURE PATHWAYS

- A Surface water runoff / drains
- B Groundwater migration
- C Impacted soils / sediment
- D Ingestion / dermal contact and inhalation of soil, dust and groundwater

RECEPTORS

- (i) Onsite users and visitors
- (ii) Maintenance workers on and off site
- (iii) Sheas Creek ecological
- (iv) Alexandria Canal ecological



Conceptual diagram only - not to scale

LEGEND

- Sand
- Surface water flow
- Groundwater table
- Vapour migration



Fire & Rescue NSW
Alexandria Training Facility

Conceptual Site Model

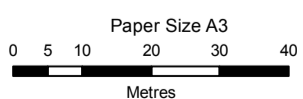
Job Number	21-25583
Revision	A
Date	14 Aug 2016

Figure 4

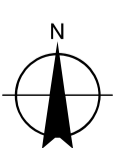


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- LEGEND**
- ▭ Site Boundary
 - Streets
 - Major Waterways
 - - - Minor Waterways
 - ◆ Borehole (DP, 2015)
 - ◆ Monitoring Well (DP, 2015)
 - ◆ Proposed Monitoring Well (1)
 - Proposed Soil Bore (4)
 - Proposed Surface Water Sample (3)



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56



Fire & Rescue NSW
Alexandria Site Investigation

Job Number | 21-25583
Revision | A
Date | 12 Aug 2016

Proposed Sample Locations

Figure 5

Appendix B – Desk Study Information



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[customise](#)

All Groundwater

[find a site](#)

[All Groundwater](#)

bandwidth high
 low
[glossary and metadata](#)

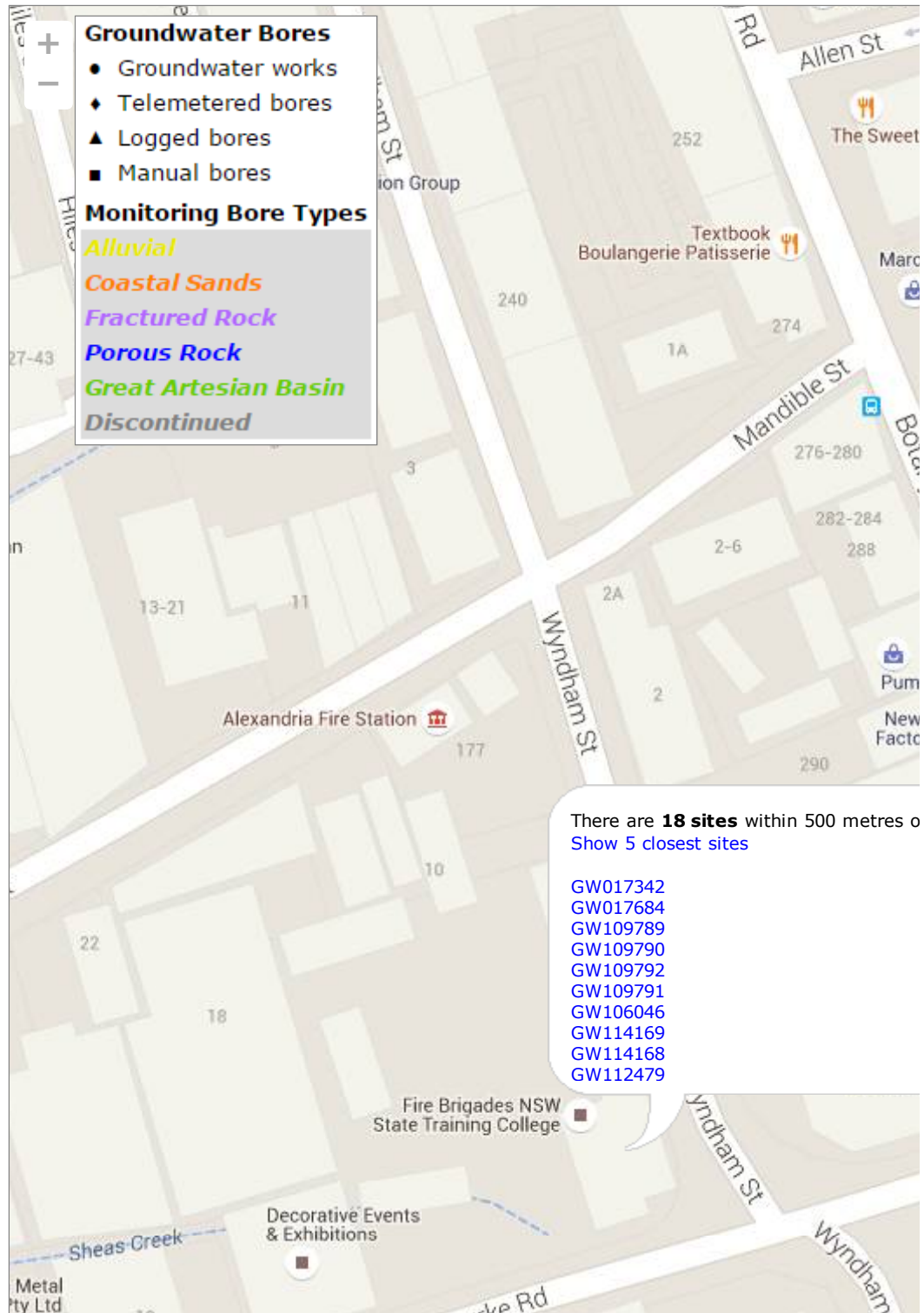
All Groundwater

All Groundwater Map

[bookmark this page](#)

All data times are Eastern Standard Time

Map Info



There are **18 sites** within 500 metres of
[Show 5 closest sites](#)

- GW017342
- GW017684
- GW109789
- GW109790
- GW109792
- GW109791
- GW106046
- GW114169
- GW114168
- GW112479

NSW Office of Water

Work Summary

GW017342

Licence: 10BL008345

Licence Status: CANCELLED

Authorised Purpose(s): INDUSTRIAL
Intended Purpose(s): INDUSTRIAL

Work Type:

Work Status:

Construct.Method: Cable Tool

Owner Type: Private

Commenced Date:

Completion Date: 01/12/1946

Final Depth:

Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: N/A

Standing Water Level

(m):

GWMA: 018 - BOTANY BAY SAND BEDS
GW Zone: -

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County	Parish	Cadastre
Form A: CUMBE	CUMBE.001	99999
Licensed: CUMBERLAND	ALEXANDRIA	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246789.0
Easting: 333739.0

Latitude: 33°54'22.3"S
Longitude: 151°12'06.2"E

GS Map: -

MGA Zone: 0

Coordinate Source: GD.,PR. MAP

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)
7.30	13.20	5.90	Unconsolidated						
14.30	15.50	1.20	Unconsolidated						

Geologists Log Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.30	0.30	Made Ground	Fill	
0.30	2.74	2.44	Sand Peaty	Sand	
2.74	2.89	0.15	Peat	Peat	
2.89	7.31	4.42	Sand Grey Oozy Wet	Sand	

7.31	10.05	2.74	Sand Water Supply	Sand	
10.05	13.25	3.20	Sand Grey Water Supply	Sand	
13.25	14.17	0.92	Peat	Peat	
14.17	14.32	0.15	Clay Grey	Clay	
14.32	15.54	1.22	Sand Grey Water Supply	Sand	

Remarks

19/02/1975: SITED BOURKE RD. ALEXANDRIA

***** End of GW017342 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW017684

Licence: 10BL008347

Licence Status: CANCELLED

Authorised Purpose(s): INDUSTRIAL
Intended Purpose(s): INDUSTRIAL

Work Type: Bore

Work Status:

Construct.Method: Cable Tool

Owner Type: Private

Commenced Date:
Completion Date: 01/09/1947

Final Depth: 14.90 m
Drilled Depth: 14.90 m

Contractor Name:

Driller:

Assistant Driller:

Property: N/A

Standing Water Level
(m):

GWMA: 018 - BOTANY BAY SAND BEDS
GW Zone: -

Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County	Parish	Cadastre
Form A: CUMBE	CUMBE.001	411
Licensed: CUMBERLAND	ALEXANDRIA	Whole Lot //

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246787.0
Easting: 333662.0

Latitude: 33°54'22.3"S
Longitude: 151°12'03.2"E

GS Map: -

MGA Zone: 0

Coordinate Source: GD.,PR. MAP

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing		0.00	11.00	203			

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)
2.40	6.30	3.90	Unconsolidated						
6.70	10.00	3.30	Unconsolidated						
10.60	11.50	0.90	Unconsolidated						
12.10	14.80	2.70	Unconsolidated						

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	2.43	2.43	Sand Peaty Fossils:peat	Sand	

2.43	6.40	3.97	Sand White Water Supply	Sand	
6.40	6.70	0.30	Sand Hard Cemented	Sand	
6.70	10.05	3.35	Sand Light Yellow Water Supply	Sand	
10.05	10.66	0.61	Clay White Grey	Clay	
10.66	11.58	0.92	Sand Grey Water Supply	Sand	
11.58	12.19	0.61	Clay Grey Some Peaty	Clay	
12.19	14.93	2.74	Sand Grey Water Supply	Sand	

Remarks

07/08/1974: SITED BOURKE RD. ALEXANDRIA

*** End of GW017684 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW106046

Licence: 10BL162628

Licence Status: CONVERTED

Authorised Purpose(s): DOMESTIC
Intended Purpose(s):

Work Type: Bore

Work Status:

Construct.Method:

Owner Type:

Commenced Date:
Completion Date: 07/06/2005

Final Depth:
Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: PERFECT AUTO BODY PTY LTD
22 O' RIORDAN ST ALEXANDRIA
2015

Standing Water Level:

GWMA: -
GW Zone: -

Salinity:
Yield:

Site Details

Site Chosen By:

County	Parish	Cadastre
Form A: CUMBE	CUMBE.1	1 1004389
Licensed: CUMBERLAND	ALEXANDRIA	Whole Lot 1//1004389

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246554.0
Easting: 333636.0

Latitude: 33°54'29.9"S
Longitude: 151°12'02.0"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

***** End of GW106046 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW109789

Licence: 10BL163543

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well

Work Status:

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 21/03/2004

Final Depth: 5.00 m
Drilled Depth: 5.00 m

Contractor Name: Macquarie Drilling

Driller: Unknown Unknown

Assistant Driller:

Property: MOBIL OIL 20 O' RIORDAN ST
ALEXANDRIA 2015

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County: CUMBE
Form A: CUMBE
Licensed:

Parish: CUMBE.1

Cadastre: 12/214410

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246662.0
Easting: 333709.0

Latitude: 33°54'26.4"S
Longitude: 151°12'04.9"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	5.00	100			Auger - Solid Flight

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	CONCRETE	Conglomerate	
0.10	2.00	1.90	FILL,MAINLY GRAVEL,COARSE SAND AND SILTY CLAY	Fill	
2.00	3.00	1.00	CLAY,SILTY,GREY,GREEN, SOFT, DAMP, LOW PLASTICITY	Clay	
3.00	5.00	2.00	WEATHERED SHALE,GREY,DARK RED,FIRM, DAMP	Unknown	

Remarks

***** End of GW109789 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW109790

Licence: 10BL163543

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well

Work Status:

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:

Completion Date: 27/03/2004

Final Depth: 4.00 m

Drilled Depth: 4.00 m

Contractor Name: Macquarie Drilling

Driller: Unknown Unknown

Assistant Driller:

Property: MOBIL OIL 20 O' RIORDAN ST
ALEXANDRIA 2015

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County: CUMBE
Form A: CUMBE
Licensed:

Parish: CUMBE.1
Cadastre: //99999

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246626.0
Easting: 333740.0

Latitude: 33°54'27.6"S
Longitude: 151°12'06.1"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.00	100			Auger - Solid Flight

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)
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Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.10	0.10	CONCRETE , TWO LAYERS	Conglomerate	
0.10	1.00	0.90	FILL,VARIOUS COLOURS/MATERIALS,DAMP,GRAVELLY SAND	Fill	
1.00	2.00	1.00	FILL,VARIOUS MATERIALS,DARK GREY,DAMP TO MOIST	Fill	
2.00	3.00	1.00	CLAY,LIGHT BROWN,GREY,DAMP,FIRM TO	Clay	

			SOFT		
3.00	4.00	1.00	WEATHERED SHALE.GREY/DARK RED,DAMP,FIRM	Unknown	

Remarks

*** End of GW109790 ***

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NSW Office of Water

Work Summary

GW109791

Licence: 10BL163543

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well

Work Status:

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:

Completion Date: 17/04/2004

Final Depth: 4.10 m

Drilled Depth: 4.10 m

Contractor Name: Macquarie Drilling

Driller: Unknown Unknown

Assistant Driller:

Property: MOBIL OIL 20 O' RIORDAN ST
ALEXANDRIA 2015

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County: CUMBE
Form A: CUMBE
Licensed:

Parish: CUMBE.1

Cadastre: 9/214410

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246619.0
Easting: 333721.0

Latitude: 33°54'27.8"S
Longitude: 151°12'05.3"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.10	100			Auger - Solid Flight

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)
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Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	CONCRETE	Conglomerate	
0.20	2.00	1.80	FILL, MAINLY SAND, SOME BRICK AND GRAVEL	Fill	
2.00	3.00	1.00	FILL, MAINLY SAND, SOME CLAY, BROWNISH YELLOW TO BLACK	Fill	
3.00	4.10	1.10	CLAY, YELLOWISH BROWN, DAMP, FIRM, MEDIUM PLATICITY	Clay	

Remarks

***** End of GW109791 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW109792

Licence: 10BL163543

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Well

Work Status:

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:

Completion Date: 17/04/2004

Final Depth: 4.20 m

Drilled Depth: 4.20 m

Contractor Name: Macquarie Drilling

Driller: Unknown Unknown

Assistant Driller:

Property: MOBIL OIL 20 O' RIORDAN ST
ALEXANDRIA 2015

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County: CUMBE
Parish: CUMBE.1
Cadastre: 9/214410
Form A: CUMBE
Licensed:

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246622.0
Easting: 333687.0

Latitude: 33°54'27.7"S
Longitude: 151°12'04.0"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.20	100			Auger - Solid Flight

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)
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Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	CONCRETE	Conglomerate	
0.20	1.00	0.80	FILL,BRICKS,SAND,GRAVELS,DAMP-WET	Fill	
1.00	1.50	0.50	FILL,MAINLY SAND,BROWN,LOOSE,DAMP	Fill	
1.50	2.50	1.00	FILL,SAND,GRAVEL,BROWN, DAMP TO MOIS	Fill	
2.50	3.50	1.00	SILT,SANDY,GREY,DAMP,SOFT	Silt	
3.50	4.20	0.70	CLAY,REDDISH BROWN,DAMP,FIRM,MEDIUM PLASTICITY	Clay	

Remarks

17/04/2004: Form A Remarks:
Class 18 PVC

***** End of GW109792 *****

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NSW Office of Water

Work Summary

GW112478

Licence: 10BL604489

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 15/02/2011

Final Depth: 4.50 m
Drilled Depth: 4.50 m

Contractor Name: Terratest

Driller: Patrick Tapper

Assistant Driller: Jason Peisley

Property: WORTHBROOK PTY LTD 340A
BOTANY ROAD ALEXANDRIA 2015
NSW

Standing Water Level: 3.700

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
2//1004389

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246549.0
Easting: 333824.0

Latitude: 33°54'30.1"S
Longitude: 151°12'09.3"E

GS Map: -

MGA Zone: 0

Coordinate Source: GIS - Geographic
Information System

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	4.50	120			Auger - Solid Flight
1		Annulus	Drill Cuttings	0.00	0.50	120	50		PL:Pouring/Shovelled
1		Annulus	Bentonite/Grout	0.50	1.00	120	50		PL:Pouring/Shovelled
1		Annulus	Waterworn/Rounded	1.00	4.50	120	50		Graded, PL:Pouring/Shovelled
1	1	Casing	Pvc Class 18	0.00	4.50	50	40		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	1.50	4.50	50		1	Mechanically Slotted, PVC Class 18, Screwed, A: 0.40mm

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)
2.50	4.50	2.00	Unknown	3.70					369.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.80	1.80	Fill; grey-brown, fine-medium graded, gravelly Sand	Fill	
1.80	4.50	2.70	Clay; sandy, grey-brown, stiff, high plasticity	Clay	

Remarks

15/02/2011: Form A Remarks:

Nat Carling, 15-July-2013; Coordinates based on location map provided by client/consultant.

***** End of GW112478 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW112479

Licence: 10BL604489

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 15/02/2011

Final Depth: 7.00 m
Drilled Depth: 7.00 m

Contractor Name: Terratest

Driller: Patrick Tapper

Assistant Driller: Jason Peisley

Property: WORTHBROOK PTY LTD 340A
BOTANY ROAD ALEXANDRIA 2015
NSW

Standing Water Level: 5.100

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
2//1004389

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246534.0
Easting: 333743.0

Latitude: 33°54'30.6"S
Longitude: 151°12'06.1"E

GS Map: -

MGA Zone: 0

Coordinate Source: GIS - Geographic
Information System

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.00	120			Auger - Solid Flight
1		Annulus	Drill Cuttings	0.00	4.50	120	50		PL:Pouring/Shovelled
1		Annulus	Bentonite/Grout	4.50	5.00	120	50		PL:Pouring/Shovelled
1		Annulus	Waterworn/Rounded	5.00	7.00	120	50		Graded, PL:Pouring/Shovelled
1	1	Casing	Pvc Class 18	0.00	7.00	50	40		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	4.00	7.00	50		1	Mechanically Slotted, PVC Class 18, Screwed, A: 0.40mm

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)
4.00	7.00	3.00	Unknown		5.10				613.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.70	3.70	Fill; gravelly clayey Sand, grey-brown, fine-medium grained, poorly sorted	Fill	
3.70	5.50	1.80	Fill; Sand, dark grey, fine-medium grained, well sorted, homogenous	Fill	
5.50	7.00	1.50	Clay, Silty; mottled grey & brown, stiff, high plasticity, homogenous	Clay	

Remarks

15/02/2011: Form A Remarks:

Nat Carling, 15-July-2013; Coordinates based on location map provided by client/consultant.

*** End of GW112479 ***

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NSW Office of Water

Work Summary

GW112480

Licence: 10BL604489

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 15/02/2011

Final Depth: 7.00 m
Drilled Depth: 7.00 m

Contractor Name: Terratest

Driller: Patrick Tapper

Assistant Driller: Jason Peisley

Property: WORTHBROOK PTY LTD 340A
BOTANY ROAD ALEXANDRIA 2015
NSW

Standing Water Level: 5.500

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
2//1004389

Region: 10 - Sydney South Coast

CMA Map: 9130-3S

River Basin: 213 - SYDNEY COAST -
GEORGES RIVER

Grid Zone:

Scale:

Area/District:

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

Northing: 6246528.0
Easting: 333781.0

Latitude: 33°54'30.8"S
Longitude: 151°12'07.6"E

GS Map: -

MGA Zone: 0

Coordinate Source: GIS - Geographic
Information System

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.00	120			Auger - Solid Flight
1		Annulus	Drill Cuttings	0.00	2.70	120	50		PL:Pouring/Shovelled
1		Annulus	Bentonite/Grout	2.70	2.90	120	50		PL:Pouring/Shovelled
1		Annulus	Waterworn/Rounded	2.90	7.00	120	50		Graded, PL:Pouring/Shovelled
1	1	Casing	Pvc Class 18	0.00	7.00	50	40		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	4.00	7.00	50		1	Mechanically Slotted, PVC Class 18, Screwed, A: 0.40mm

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)
4.00	7.00	3.00	Unknown	5.50					584.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	3.20	3.20	Fill; gravelly clayey Sand, grey-brown, heterogeneous, damp, fine-medium grained, poorly sorted	Fill	
3.20	4.60	1.40	Fill; Sand, grey-rown, homogenous, damp, fine-medium grained, well sorted	Fill	
4.60	7.00	2.40	Clay, Silty; grey & brown, mottled, homogenous, stiff, high plasticity	Clay	

Remarks

15/02/2011: Form A Remarks:

Nat Carling, 15-July-2013; Coordinates based on location map provided by client/consultant.

***** End of GW112480 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW113035

Licence: 10BL602801

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 17/11/2008

Final Depth:

Drilled Depth:

Contractor Name:

Driller: Unkown Unknown

Assistant Driller:

Property: CALTEX - ALEXANDRIA CNR OF
WYNDHAM ST & MCEVOY STS
ALEXANDRIA 2015 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
1/542373

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6247205.0
Easting: 333571.0

Latitude: 33°54'08.7"S
Longitude: 151°11'59.9"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

23/07/2014: Nat Carling, 22-July-2014; Added status, drill method & depth, updated work type.

***** End of GW113035 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW113036

Licence: 10BL602801

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 17/11/2008

Final Depth:

Drilled Depth:

Contractor Name:

Driller: Unkown Unknown

Assistant Driller:

Property: CALTEX - ALEXANDRIA CNR OF
WYNDHAM ST & MCEVOY STS
ALEXANDRIA 2015 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County **Parish** **Cadastre**
Form A: CUMBE CUMBE.1 1 542373
Licensed:

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6247220.0
Easting: 333566.0

Latitude: 33°54'08.2"S
Longitude: 151°11'59.7"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

23/07/2014: Nat Carling, 22-July-2014; Added status, drill method & depth, updated work type.

***** End of GW113036 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW113037

Licence: 10BL602801

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:
Completion Date: 17/11/2008

Final Depth:
Drilled Depth:

Contractor Name:

Driller: Unkown Unknown

Assistant Driller:

Property: CALTEX - ALEXANDRIA CNR OF
WYNDHAM ST & MCEVOY STS
ALEXANDRIA 2015 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
1/542373

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6247245.0
Easting: 333582.0

Latitude: 33°54'07.4"S
Longitude: 151°12'00.3"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

23/07/2014: Nat Carling, 22-July-2014; Added status, drill method & depth, updated work type.

***** End of GW113037 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW113038

Licence: 10BL602801

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 17/02/2009

Final Depth:

Drilled Depth:

Contractor Name:

Driller: Unkown Unknown

Assistant Driller:

Property: CALTEX - ALEXANDRIA CNR OF
 WYNDHAM ST & MCEVOY STS
 ALEXANDRIA 2015 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
 CUMBE.1

Cadastre
 1/542373

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6247239.0
Easting: 333577.0

Latitude: 33°54'07.6"S
Longitude: 151°12'00.1"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

23/07/2014: Nat Carling, 22-July-2014; Added status, drill method & depth, updated work type.

***** End of GW113038 *****

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NSW Office of Water

Work Summary

GW113039

Licence: 10BL602801

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:
Completion Date: 17/10/2013

Final Depth:
Drilled Depth:

Contractor Name:

Driller: Unkown Unknown

Assistant Driller:

Property: CALTEX - ALEXANDRIA CNR OF
 WYNDHAM ST & MCEVOY STS
 ALEXANDRIA 2015 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County **Parish** **Cadastre**
Form A: CUMBE CUMBE.1 1//542373
Licensed:

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6247245.0
Easting: 333561.0

Latitude: 33°54'07.4"S
Longitude: 151°11'59.5"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

23/07/2014: Nat Carling, 22-July-2014; Added status, drill method & depth, updated work type.

***** End of GW113039 *****

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NSW Office of Water

Work Summary

GW114167

Licence: 10BL604100

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:
Completion Date: 26/08/2010

Final Depth:
Drilled Depth:

Contractor Name: Terratest
Driller: Trevor Higgs

Assistant Driller:

Property: BUDGET RENT A CAR 944
BOURKE STREET ZETLAND 2017
NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
CUMBE.1

Cadastre
1//136026

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246974.0
Easting: 334028.0

Latitude: 33°54'16.5"S
Longitude: 151°12'17.5"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

04/08/2014: Nat Carling, 4-Aug-2014; Added status, drill method, depth & updated work type.

***** End of GW114167 *****

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NSW Office of Water

Work Summary

GW114168

Licence: 10BL604100

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:
Completion Date: 26/08/2010

Final Depth:
Drilled Depth:

Contractor Name: Terratest
Driller: Trevor Higgs

Assistant Driller:

Property: BUDGET RENT A CAR 944
 BOURKE STREET ZETLAND 2017
 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
 CUMBE.1

Cadastre
 1//136026

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246943.0
Easting: 334022.0

Latitude: 33°54'17.5"S
Longitude: 151°12'17.3"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

04/08/2014: Nat Carling, 4-Aug-2014; Added status, drill method, depth & updated work type.

***** End of GW114168 *****

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NSW Office of Water

Work Summary

GW114169

Licence: 10BL604100

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 11/03/2014

Final Depth:

Drilled Depth:

Contractor Name: Terratest

Driller: Trevor Higgs

Assistant Driller:

Property: BUDGET RENT A CAR 944
 BOURKE STREET ZETLAND 2017
 NSW

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: CUMBE
Licensed:

Parish
 CUMBE.1

Cadastre
 1//136026

Region: 10 - Sydney South Coast

CMA Map:

River Basin: - Unknown
Area/District:

Grid Zone:

Scale:

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

Northing: 6246958.0
Easting: 334006.0

Latitude: 33°54'17.0"S
Longitude: 151°12'16.7"E

GS Map: -

MGA Zone: 0

Coordinate Source: Unknown

Construction

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

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details

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)

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments

Remarks

04/08/2014: Nat Carling, 4-Aug-2014; Added status, drill method, depth & updated work type.

***** End of GW114169 *****

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Search results

Your search for: **POEO Licences** with the following criteria

Suburb - ALEXANDRIA

returned 20 results

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Number	Name	Location	Type	Status	Issued date
11121	ANGLO METALS PTY LTD	373-377 Belmont Street, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	28 Jul 2000
6086	AUSTRALIAN METAL CO PTY LTD	15 BOURKE ROAD, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	07 Feb 2000
1108	AUSTRALIAN REFINED ALLOYS PTY LTD	202-212 EUSTON ROAD, ALEXANDRIA, NSW 2015	POEO licence	Issued	26 Jun 2000
520	BIRD BROS PTY LTD	69-73 O'RIORDAN STREET, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	19 Apr 2000
4994	CARDINAL GROUP PTY LTD	3-7 O'RIORDAN ST, ALEXANDRIA, NSW 2015	POEO licence	Revoked	02 May 2000
3428	CONCRITE PTY LTD	25 MANDIBLE STREET, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	14 Apr 2000
838	CSR VIRIDIAN LIMITED	8-40 EUSTON ROAD, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	20 Jun 2001
4679	DIAL A DUMP INDUSTRIES PTY. LTD.	76-82 BURROWS ROAD, ALEXANDRIA, NSW 2015	POEO licence	Issued	16 Oct 2000
6522	DIAMOND PRESS AUSTRALIA PTY LIMITED	118-124 BOURKE ROAD, ALEXANDRIA, NSW 2015	POEO licence	Revoked	27 Mar 2000
6941	FUJI XEROX AUSTRALIA PTY. LIMITED	546 GARDENERS ROAD, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	26 Jun 2000
3140	FULTON HOGAN INDUSTRIES PTY LTD	40-42 BURROWS ROAD, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	22 Sep 2000
4532	GOOD RIVER PROPERTIES PTY LTD	34 BURROWS ROAD, ALEXANDRIA, NSW 1435	POEO licence	Surrendered	18 Apr 2000
5665	HANNANPRINT NSW PTY LIMITED	55 DOODY STREET, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	26 Jun 2000
979	HOLCIM (AUSTRALIA) PTY LTD	122-132 EUSTON ROAD, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	14 Mar 2000
6801	LEGRAND AUSTRALIA PTY LTD	298 BOTANY ROAD, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	23 Mar 2000
1107	METROMIX PTY. LIMITED	131 WYNDHAM STREET, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	27 Jun 2000
1005	METROMIX PTY. LIMITED	169 EUSTON ROAD, ALEXANDRIA, NSW 2015	POEO licence	No longer in force	06 Sep 2000
155	MONROE SPRINGS (AUSTRALIA) PTY LTD	52 O'RIORDAN STREET, ALEXANDRIA, NSW 2015	POEO licence	Issued	29 Mar 2000
6787	MORGANITE AUSTRALIA PTY LTD	65 BOURKE ROAD, ALEXANDRIA, NSW 2015	POEO licence	Surrendered	28 Aug 2000
6162	SCHERING PTY LTD	27-31 DOODY	POEO	Surrendered	17 Jan 2000

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STREET, ALEXANDRIA, licence
NSW 2015

23 June 2016



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Search results

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Matched 4 notices relating to 3 sites.

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Suburb	Address	Site Name	Notices related to this site
ALEXANDRIA	Off Huntley STREET	Alexandra Canal Sediments	2 current
ALEXANDRIA	10-24 Ralph STREET	Australia Post	1 current
ALEXANDRIA	49-59 O'Riordan STREET	Former Cadbury Schweppes	1 former

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17 June 2016

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ALEXANDRIA	Formerly Gas N Go Alexandria 10-20 Botany ROAD	Service Station	Under assessment
ALEXANDRIA	Australia Post 10-24 Ralph STREET	Other Industry	Contamination being managed via the planning process (EP&A Act)
ALEXANDRIA	Caltex Alexandria Service Station 133 Wyndham St, cnr McEvoy STREET	Service Station	Under assessment
ALEXANDRIA	Alexandria Gardens 146-156 Wyndham St & 146-156 Botany Rd	Unclassified	Under assessment
ALEXANDRIA	Perry Park 1B Maddox STREET	Landfill	Regulation under CLM Act not required
ALEXANDRIA	Former Mobil Service Station 20 O'Riordan STREET	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Australian Refined Alloys 202-212 Euston ROAD	Metal Industry	Regulation under CLM Act not required
ALEXANDRIA	Mascot Developments 494-504 Gardeners ROAD	Other Industry	Regulation under CLM Act not required
ALEXANDRIA	Former Cadbury Schweppes 49-59 O'Riordan STREET	Other Industry	Contamination formerly regulated under the CLM Act
ALEXANDRIA	Alexandria GoGas 562 Botany ROAD	Service Station	Regulation under CLM Act not required
ALEXANDRIA	Alexandra Canal Sediments Off Huntley STREET	Unclassified	Contamination currently regulated under CLM Act



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Alexandria Town Hall Including Interior

Item details

Name of item:	Alexandria Town Hall Including Interior
Type of item:	Built
Group/Collection:	Community Facilities
Category:	Hall Town Hall
Primary address:	73 Garden Street, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
73 Garden Street	Alexandria	Sydney			Primary Address

Statement of significance:

Alexandria Town Hall is a representative example of a Victorian Town Hall modified with an Inter-war Free Classical style façade. It is representative of the work of two relatively prominent architectural practices of the nineteenth and twentieth centuries although that of the DT Morrow and Gordon predominate. It has important historical associations with the local community and local government in the area and serves as a representative indicator of the small inner-city Council areas which were subsumed into larger municipalities after World War II.

Date significance updated: 23 Aug 05

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Ferdinand Reuss Snr (1881) and DT Morrow and Gordon (1928)
Construction years:	1881-1928
Physical description:	Two storey brick building with hipped corrugated iron roof. Has an Inter-War Free Classical style façade that is largely intact. The façade is finished in facebrick relieved by cement render ornament around windows and the main entry, emphasized by a balcony overhead and recessed slightly back into the façade itself. A heavy projecting cornice and stepped cornice topped off the composition whilst a coursed base ties the façade to the street. The northern and southern sides of the building show that the Garden Street façade was added to the earlier Victorian structure, for it extends back for only bay - the decorative cornices and moldings of the earlier portion then extend back to the rear of the building. A continuous parapet conceals much of the building's roof.
Physical condition and/or Archaeological potential:	As a result of the April 1999 Sydney hailstorm, 8 windows were broken and there was minor water damage to the building. All damage was subsequently repaired.
	Date condition updated: 21 May 07
Modifications and dates:	Major alterations took place in 1928 to the design of DT Morrow and Gordon

1949 - ground floor alterations when the town hall was converted into a library

1953-53 - Modification to first floor lavatory and erection of a new section for toilets between the Town Hall and former Mayor's house - works documented by Eric Nichols

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that

items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes:

The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. .

With European occupation of the Sydney region from 1788, the Cadigal and Wangal people were largely decimated but there are descendants still living in Sydney today.

The site is part of William Hutchinson's 1400 acre grant. William Hutchinson came to New South Wales as a convict in 1799. In 1814 he was appointed Principal Superintendent of Convicts and Public Works. Hutchinson, Daniel Cooper and others established a water powered flour mill on Crown land in an area named Waterloo around 1818. Botany Road was constructed by Governor Macquarie to access the flour mills. In 1823, 1400 acres of the surrounding district was granted to Hutchinson by Governor Brisbane in recognition of his public service. Hutchinson sold his Waterloo Estate to Daniel Cooper and Solomon Levey in 1825. When Solomon Levey died in 1833 all property went to Daniel Cooper. Cooper's Estate at Waterloo passed to his great nephew on his death in 1853, and was locally managed by Mr Gerard Phillips.

The subject area was originally part of the Municipality of Redfern from 1858. In 1860, Waterloo Municipality was formed with Alexandria forming the west ward. Alexandria was named after Princess Alexandria in 1863. A petition for formation of a new Municipality was produced following rapid growth in the area in the 1860s and the Municipality of Alexandria was incorporated in 1868.

The Alexandria Park area was occupied by Chinese Market Gardeners in the nineteenth century encouraged by fresh water supply. An area of 10 acres south of Buckland Street was resumed for Public Park on November 14th 1882. The park was proclaimed in 1889 and in 1897, two hundred trees were sent to the Park by the Sydney Botanic Gardens. Mitchell's Road was an important early route through the area.

The area consolidated in the 1870s with workers housing and the site for a Town Hall was acquired in Garden Street in 1879. In 1881 a building to the design of Ferdinand Reuss Snr was completed. By 1893 a two storey terrace, serving as as The Mayor's Residence, was constructed on a vacant lot to the north of the Town Hall and aligned with the front of the hall. Major alterations to the Town Hall, which included a new façade to the design of the prominent practice of DT Morrow and Gordon took place in 1928.


The Town Hall has been used for a wide range of community uses over time. This included being used for a Public School in the 1880s and 1890s. In 1919 it fulfilled the functions of a temporary hospital, soup kitchen and general haven during the great influenza epidemic which swept the world. From the 1940s to the 1990s part of the ground floor was used for the Women's Library.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
4. Settlement- Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Community facilities-

Assessment of significance

- SHR Criteria a)** [Historical significance] It is directly associated with the growth and development of the former Municipality of Alexandria. Its site is part of the early Cooper Estate, having being purchased for the purpose of a town hall in 1879. It is also historically significant as a representative indicator of the small inner-city Council areas which were subsumed into larger municipalities after World War II.
- SHR Criteria b)** [Associative significance] The remnants of the 1881 section of the Town Hall are thought to be an uncommon example of a civic building designed by Ferdinand Reuss Senior, an architectural practitioner more notable for his activities as a surveyor. The 1928 works are representative of the works of architects DT Morrow and Gordon, a relatively prominent firm in the inter-war period.
- SHR Criteria c)** [Aesthetic significance] The façade is a representative example of the Inter-war Free Classical style of architecture which contributes to the character of the streetscape.
- SHR Criteria d)** [Social significance] Represents a community focus.
- SHR Criteria g)** [Representativeness] Representative of a Victorian Town Hall modified with an Inter-war Free Classical style facade.
- Integrity/Intactness** Intact

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

Review and update existing CMP. The overall form of the building should be retained and conserved. A Heritage Impact Statement, in accordance with the policies and recommendations of the Conservation Management plan prepared for the building, is to be prepared prior to works being undertaken, unless of a minor nature and which will not impact on the significance of the building. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. Internally, significant details and layout of primary rooms and spaces to be retained and conserved. Any alterations should be confined to the rear in areas of lesser significance, provided any future work does not compromise significant aspects of the building. Surfaces intended for painting should continue to be painted in appropriate colours. Any future development to preserve the existing form, external surfaces, fenestration and materials of the primary facades.

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I15	14 Dec 12		
Heritage study					

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
South Sydney Heritage Study	1993		Tropman & Tropman Architects		Y e s

References, internet links & images

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Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Rod Howard Heritage Conservation Pty Ltd	1998	Heirtage Impact Statement and Conservation Management Plan	

Note: internet links may be to web pages, documents or images.

Data source

The information for this entry comes from the following source:

Name: Local Government

Database number: 2420816

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Alignment Pin, Alexandria

Item details

Name of item:	Alignment Pin, Alexandria
Type of item:	Built
Group/Collection:	Transport - Land
Category:	Other - Transport - Road
Primary address:	In front of 298 Botany Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
In front of 298 Botany Road	Alexandria	Sydney			Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Roads and Maritime Services	State Government	

Statement of significance:

This alignment pin, installed after 1882, is of Local significance. Alignment pins took the form of wooden posts, wrought stones, cement blocks or more commonly iron castings, and these were identifiable through the presence of a broad arrow marked on the upper surface. Those in use on Botany Road consisted of iron castings placed in the kerb or footpath by Lands Department surveyors for the purpose of marking the road alignment. This alignment pin remains an active survey mark for the purpose of confirming cadastral boundaries.

Date significance updated: 04 Mar 05

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Department of Lands
Builder/Maker:	Department of Lands
Construction years:	1882-
Physical description:	Cast iron alignment pin embossed with a broad arrow pointing to a survey mark, used by surveyors to show where the alignment of a road changed. Measures approximately 10cm x 10cm across top, set within gutter.
Physical condition and/or Archaeological potential:	Original condition assessment: 'Good condition.' (Last updated: 18/02/2005.) 2007-08 condition update: 'Fair (kerb) Good (pin).' (Last updated: 17/4/09.) Date condition updated: 17 Apr 09
Current use:	Survey mark
Former use:	Survey mark

History

Historical notes:	In 1882, a tramline opened from the Redfern Railway Terminal via Devonshire, Chalmers, Castlereagh, Redfern and Regent Streets, then Botany Road to a Depot at the Terminus in Banksmeadow Park. Following the construction of the tramway Botany Road Trust undertook a program of pavement and kerbing construction along the route. The tram service ceased
--------------------------	--

operations in 1949 and was replaced by government operated diesel buses.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Transport-Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	(none)-
4. Settlement-Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] The alignment pin represents the expansion of the NSW road network and the updating of an earlier link in that network. The pin represents direct evidence of the formalisation of the road boundary of Botany Road some time after 1882. The alignment pin has been assessed as being of low local significance by this criterion.

SHR Criteria b) [Associative significance] The construction of the alignment pin does not have any special association with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history. The alignment pin has been assessed as being of no significance under this criterion.

SHR Criteria c) [Aesthetic significance] Surviving road-side details such as this alignment pin give character and interest to the modern road and provide important reminders of the early ancestry and historic importance of the modern Botany Road. The alignment pin has been assessed as being of low local significance by this criterion.

SHR Criteria d) [Social significance] Survey marks by their very nature are of little relevance to the wider community. The specific function of the alignment pin is not readily apparent amongst the many other service pit hatches that line the pavement in the area directly adjacent to the pin. The alignment pin has been assessed as being of no significance under this criterion.


SHR Criteria e) [Research potential] The presence of this alignment pin enables survey plans from its period of installation to be readily oriented, thus providing direct evidence of the evolving road network. The alignment pin has been assessed as being of low local significance by this criterion.

SHR Criteria f) [Rarity] While alignment pins were once widespread and numerous as a matter of necessity for the purpose of confirming cadastral boundaries, kerb and intersection upgrades have resulted in their gradual removal and replacement with other, less distinct, survey marks. The alignment pin has been assessed as being of low local significance by this criterion.

SHR Criteria g) [Representativeness] The integrity of its design enables the alignment pin to demonstrate the defining aspects of this type of survey mark. However, alignment pins in the form of iron castings were the most numerous in use and it has been assessed as being of no significance under this criterion.

Integrity/Intactness Intact and upright. In original location.

:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

Prior to any activity being undertaken in the vicinity of the alignment pin position the Lands Department should be informed and permission granted from the Surveyor General and Botany Bay Council. This pin should then be "recovered", that is its correct position in relation to the property boundary identified and then reinstated within the reconstructed kerb by a suitably qualified survey party. Should the pin be identified as being unsuitable for reinstatement once removed from the kerbing, advice should be sought from the Lands Department as to what would be a suitable replacement. This should be reinstated in the place of the existing alignment pin that would be made available to Botany Bay Council.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register			27 Sep 05		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
Botany RTA Sub-Region Heritage Study (Phase 1)	2004		Austral Archaeology Pty Ltd		Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Ian Berger, Environmental Technology Branch, RTA	2004	Heritage Assessment of Alignment Pin, Alexandria	

Note: internet links may be to web pages, documents or images.



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Cottage Including Interior

Item details

Name of item:	Cottage Including Interior
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	Cottage
Primary address:	54 Jennings Street, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
54 Jennings Street	Alexandria	Sydney			Primary Address

Statement of significance:

Of aesthetic and historical significance as a good example of a Federation detached working class cottage associated with the adjacent early local industries and the Eveleigh Railway Workshops. It has high integrity as part of a unique small group of weatherboard buildings in the area and for its own intact form and detailing.

Date significance updated: 29 Mar 07

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Single storey small weatherboard cottage attached on the left hand side only. Gable end facing the street has wide horizontal weatherboards with timber vent. Main roof and separate verandah roof are corrugated iron. Verandah roof is supported by timber beam with decorative timber frieze on square timber posts on a timber base. Front façade consists of narrow horizontal weatherboards; a timber panelled front door with highlight over and a pair of timber casement windows with highlight over. Small front garden with a large tree and shrubs. Picket fence along the boundary.

Physical condition and/or Archaeological potential: Good. Roof renewed. Timber recently painted.

Date condition updated: 29 Mar 07

Modifications and dates: Corrugated iron roof, gutters and down pipes have been renewed. All timber has been recently painted. Front façade weatherboards may have been replaced. Steel grilles added to door and windows. Front picket fence replaces original fence. No intrusion to the streetscape.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There

is no written record of the name of the language spoken and currently there are debates as whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the European invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>).

Jennings Street was part of William Hutchinson's 1823 land grant - the Waterloo Estate - which was sold to Daniel Cooper and Solomon Levey (real estate speculators throughout Sydney during this period) in 1825. The Estate was retained by the Cooper family until opened up by the 1884-1889 residential subdivisions and construction of the Alexandra Canal in 1887-1900.

Newton Street, nearby, was a late 19th century industrial street, and Jennings Street has a historical link with local industries. Established in the late 19th century, it was also one of the streets that linked the Eveleigh Railway Workshops and the Sheas Creek industrial area.

The weatherboard cottage at No. 50 Jennings Street appears to have been constructed circa 1900.

Historic themes


Australian theme (abbrev)	New South Wales theme	Local theme
4. Settlement- Building settlements, towns and cities	Accommodation-Activities associated with the provision of accommodation, and particular types of accommodation – does not include architectural styles – use the theme of Creative Endeavour for such activities.	(none)-
4. Settlement- Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Community facilities-

Assessment of significance

SHR Criteria a) [Historical significance] Of historical significance for its association with working class housing for early local industries near Sheas Creek and the Eveleigh Railway Workshops.

SHR Criteria c) [Aesthetic significance] Of aesthetic significance as a simple early Federation working class cottage with intact form and detail.

SHR Criteria g) [Representativeness] Of the variety of working class housing in the early 20th century in the southern industrial area of Sydney.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any

additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I19	14 Dec 12		
Heritage study	South Sydney Weatherboard Buildings Study				

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Muscapede, D. Leslie, L. Goldstein, M. Robinson, J. Mathias	2005	South Sydney Weatherboard Buildings Study	

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Cricketers Arms Hotel Including Interior

Item details

Name of item:	Cricketers Arms Hotel Including Interior
Type of item:	Built
Group/Collection:	Commercial
Category:	Hotel
Primary address:	56-58 Botany Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
56-58 Botany Road	Alexandria	Sydney			Primary Address

Statement of significance:

it represents a good example of its architectural style on a prominent corner site. It makes strong contribution to the streetscape of Botany Rd and Henderson St.

Date significance updated: 22 Dec 11

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Three storey Federation Free style hotel. It features with rendered parapet, moulded widow surroundings and tiled ground floor walls.

Modifications and dates: A photo dating from 1926 shows a two storey Victorian Regency style building with an iron-post verandah. Henderson St was widened in 1928 and it is likely that the current three storey building was built then.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)


Possibly previously Sycamore Tree Hotel (1876-1885). On 1880s maps as Criketer's Rest. In 1918 listed as hannan's Hotel.

Assessment of significance

SHR Criteria a) [Historical significance] The hotel is associated with the residential settlement and commercial establishment in the local area. Botany Rd is among Sydney's earliest thoroughfare.

SHR Criteria c) [Aesthetic significance] The hotel addresses the corner site and contributes to the streetscape.

SHR Criteria d) [Social significance] The hotel was mainly patronised by workers in Eveleigh workshop.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I4	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Chritine Edney	2006	Where have all the drinking holes gone? An hisotrical surey of hotels and similar premises in the city of Sydney Council area South of Cleveland St	

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Electricity Substation No. 20

Item details

Name of item:	Electricity Substation No. 20
Other name/s:	#20 'Buckland Street' Substation
Type of item:	Built
Group/Collection:	Utilities - Electricity
Category:	Electricity Transformer/Substation
Primary address:	151 Buckland Street, Alexandria, NSW 2015
Local govt. area:	Sydney

Whole site

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
151 Buckland Street	Alexandria	Sydney			Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Ausgrid	State Government	

Statement of significance:

The Buckland Street substation is a modified but well-preserved example of a Municipal Council of Sydney substation dating from the earliest period of suburban expansion of the electricity network.

Date significance updated: 23 Apr 07

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Municipal Council of Sydney
Builder/Maker:	Municipal Council of Sydney
Construction years:	1911-1911

Physical description: The Buckland Street substation is a single storey tuck pointed face brick structure with a symmetrical façade designed in the Federation Free Style. This is evidenced by the unusual partly gabled parapet with small ventilator, and the use of segmented arched doors and windows. A central plant access door is flanked by double hung windows. Bullnose bricks are used in the window sills. It is located in the Alexandria Urban Conservation Area as listed by the National Trust.

The Buckland Street substation is constructed in load bearing tuck pointed face brick and features segmented arch openings. The entrance door is a steel roller shutter.

Physical condition and/or Archaeological potential: Generally good.

Date condition updated: 23 Apr 07

Modifications and dates: Entire façade painted white. Gutters and downpipes replaced. Roof repalced. Roller door and front vents replaced. Former overhead high voltage mains conduits infilled.

Current use: Electricity Substation

History

Historical notes: The Buckland Street substation is a purpose designed and built structure constructed c1911 by the Municipal Council of Sydney. It dates from the earliest period of suburban expansion of the electricity network. The overhead high voltage mains which previously supplied this substation were undergrounded in the 1930s.

The Minutes of the Electric Lighting Committee, Municipal Council of Sydney (CRS 14) record the following information about this site:

Vol 5:

24/7/1911 pg 322 land purchased at Buckland Street nr Mitchell Street Alexandra for £100. substation to cost £375

Vol 7:

16/3/14 pg 297 Additional 100kVA transformer installed

Vol 9:

30/8/15 pg 144 additional 200kVA transformer installed

Vol 10:

23/7/17 pg 364 recommendation to connect extensions to Buckland Street substation equipment

Vol 11:

13/5/18 pg 195 high tension cables at Buckland Street substation to be rearranged

Vol 14:

19/6/22 pg 361-2 addition of 2 high tension feeder panels

Vol 19:

22/10/30 pg 88 - 2 low tension distribution panels from #31 Huntley Street relocated to Buckland Street substation

Vol 20:

16/10/35 pg 226 high tension switch panel removed and reused

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
4. Settlement-Building settlements, towns and cities	Utilities-Activities associated with the provision of services, especially on a communal basis	Distribution of electricity-

Assessment of significance


SHR Criteria a) [Historical significance] Historically important as an example of the infrastructure constructed by the Municipal Council of Sydney during the earliest period of expansion of the electricity network into the suburbs.

SHR Criteria c) [Aesthetic significance] A simple but elegant purpose built industrial building located in a residential area.

SHR Criteria g) [Representativeness] Typical in terms of scale, function and technical arrangement to many electrical distribution substation located throughout Sydney.

Integrity/Intactness Modified but externally intact.

:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

This item contributes to local character and should be conserved. Original details should be maintained including doors, windows and original signage. New materials should be sympathetic to the nature and character of the original building. In the event of major proposed changes, prepare a Conservation Management Strategy and undertake an archival recording. Wherever possible, changes should be restricted to the interior of the building. Routine maintenance of existing fabric is essential.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register	Ausgrid Heritage Register	3430381	12 Sep 06		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
Sydney Electricity S170 Heritage and Conservation Register	1994	PMIS 2964	Schwager Brooks and Partners Pty Ltd		N o
EnergyAustralia Heritage Register Review	2007		MacLaren North	M North	Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Wilkenfeld and Spearitt	2004	Electrifying Sydney	

Note: internet links may be to web pages, documents or images.



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Electricity Substation No. 117

Item details

Name of item:	Electricity Substation No. 117
Other name/s:	#117 'Euston Road', 'Mc of S Electricity Substation No. 117'
Type of item:	Built
Group/Collection:	Utilities - Electricity
Category:	Electricity Transformer/Substation
Primary address:	16 Euston Road, Alexandria, NSW 2015
Local govt. area:	Sydney

Building and transformer yard

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
16 Euston Road	Alexandria	Sydney			Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Ausgrid	State Government	

Statement of significance:

The Euston Road substation is a representative example of an unusual and simply detailed purpose designed and built Interwar Art Deco styled building. It was built by the Municipal Council of Sydney during the period of rapid expansion of the electricity network to the suburbs.

Date significance updated: 27 Apr 07

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Municipal Council of Sydney
Builder/Maker:	Municipal Council of Sydney
Construction years:	1921-1921
Physical description:	The Euston Road substation is an unusually detailed and simple single storey tuck pointed face brick structure designed in the Interwar Art Deco style. Stylistic elements include a central entrance with a cement rendered Art Deco stepped and fluted architrave surround. Decorative elements include motifs incorporated into the cement render and patterned brickwork of the parapet.

The Euston Road substation is constructed in load-bearing face brick with cement render applied to the entry cornice and architraves. The entry doors and gates are steel.

Physical condition and/or Archaeological potential:	Bullnose roof sheeting rusting. Minro cracking to left corner of masonry due to addition of later gate support. Decorative columns and coping have been overpainted. Poor quality timber gate to transformer yard. Minor spalling to concrete steps.
Modifications and dates:	Date condition updated: 27 Apr 07 Roller door replaced.
Current use:	Electricity Substation

History

Historical notes: The Euston Road substation is a purpose designed and built structure constructed in 1921. A metal plaque above the entrance reads "MC of S ELECTRICITY SUBSTATION No. 117". It was built by the Municipal Council of Sydney during the period of rapid expansion of the electricity network to the suburbs.

The Minutes of the Electric Lighting Committee, Municipal Council of Sydney (CRS 14) record the following information about the site:

Vol 19:

8/10/30 p78 - recommend acquisition of site at Euston Road Alexandria. Temporary distribution centre erected.

14/1/31 p139 - proposed acquisition of substation site at Euston Road Alexandria, part of site of Australian Window Glass P/L. Notes the company intends to use the land for housing skilled glassworkers being brought out from Belgium.

22/11/33 p665 - tenders called for Euston Road substation Alexandria.

Historic themes


Australian theme (abbrev)	New South Wales theme	Local theme
4. Settlement-Building settlements, towns and cities	Utilities-Activities associated with the provision of services, especially on a communal basis	Distribution of electricity-

Assessment of significance

SHR Criteria a) [Historical significance] Historically important as an example of the infrastructure constructed by the Municipal Council of Sydney during the rapid expansion of the electricity network into the suburbs.

SHR Criteria c) [Aesthetic significance] The Euston Road substation is a representative example of an unusual and simply detailed purpose designed and built Interwar Art Deco styled building.

SHR Criteria g) [Representativeness] Typical in terms of scale, function and technical arrangement to many electrical distribution substation located throughout Sydney.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

This item contributes to local character and should be conserved. Original details should be maintained including doors, windows and original signage. New materials should be sympathetic to the nature and character of the original building. In the event of major proposed changes, prepare a Conservation Management Strategy and undertake an archival recording. Wherever possible, changes should be restricted to the interior of the building. Routine maintenance of existing fabric is essential.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register	Ausgrid Heritage Register	3430491	01 Nov 94		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
Sydney Electricity S170 Heritage and Conservation Register	1994	PMIS 3031	Schwager Brooks and Partners Pty Ltd		No
EnergyAustralia Heritage Register Review	2007		MacLaren North	M North	Yes

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Wilkenfeld and Spearitt	2004	Electrifying Sydney	

Note: internet links may be to web pages, documents or images.



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Former Alexandria Spinning Mills including interiors of west part and internal structure of east part

Item details

Name of item:	Former Alexandria Spinning Mills including interiors of west part and internal structure of east part
Other name/s:	Opera Australia Store, Colonial Combing Spinning and Weaving Company Ltd
Type of item:	Built
Group/Collection:	Manufacturing and Processing
Category:	Factory/ Plant
Primary address:	40A-42 Maddox Street, Alexandria, NSW 2015
Local govt. area:	Sydney

Excluding the office building fronting Euston Road, as described in Sydney Local Environmental Plan

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
40A-42 Maddox Street	Alexandria	Sydney			Primary Address
58-68 Euston Road	Alexandria	Sydney			Alternate Address

Statement of significance:

Built for the Alexandria Spinning Mills from 1924, this complex represents one of Australia's largest wool and cotton mills from the first half of the twentieth century. The complex demonstrates the twentieth-century industrial development of Alexandria and provides evidence of the formerly widespread textiles industry in the City of Sydney.

The mills are historically significant for their connection to the Australian production of textiles from the time when Australian-made textiles first began to compete with foreign imports. The scale of the site, spanning two properties, and its buildings demonstrate the importance of the wool and cotton industry to Sydney and Australia. The construction of these mills provide evidence of the rapid growth of the Australian textile manufacturing industry during the 1920s as the range of production extended to finer qualities of yarn and cloth. Its subsequent expansion demonstrates the growth of the textiles industry to support the war effort for World War II.

The complex has significant associations with the Alexandria Spinning Mills from the 1920s to the 1960s and the knitting wool, knitting books, Australian military clothing used in World War II, and other products made at this site during this period.

As a major major employer, in particular for girls and women, infamous for its poor working conditions, the former mills are also significant for their connection to the history of

employment of women and the development of the labour movement in Sydney. These mills represent the site of major strikes during the 1930s and 1940s, which were a significant event in Sydney's twentieth century movement for improved rights and conditions for the working class, better conditions for women in the workforce and the growth of unions. For this reason, the site is likely to have social significance to the community of former workers and their descendants.

Dating from 1924 to the 1960s, the collection of buildings on two adjoining sites represent a good example of a large industrial precinct from the early twentieth century. The buildings demonstrate the distinctive modular building form of inter-war and post-war industrial buildings, characterised by repeated bays of sawtooth roofs containing southern roof lights, load-bearing brick walls and internally exposed timber or steel-framed construction.

The former mills complex forms part of one of the largest known collections of industrial and warehouse buildings of its kind in Australia, which records City of Sydney's past as one of only two historic industrial heartlands in Australia. This collection of buildings provides evidence of Australia's twentieth century transformation through industrialisation when Sydney became one of the largest industrialised cities in the South Pacific.

The former Alexandria Spinning Mills, spanning two properties, is of local heritage significance in terms of its historical, aesthetic and representative value.

Date significance updated: 21 Jan 16

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: Robertson & Marks (1963-1966 alterations and additions)

Builder/Maker: Unknown

Construction years: 1924-1966

Physical description: The Former Alexandria Spinning Mills precinct contains a number of former industrial buildings dating from 1924 to the 1960s, located adjacent to the stormwater channel and behind other buildings addressing Euston Road and Maddox Street. The former mills site is located across two sites; the western part accessed from Euston Road, and the eastern part accessed from Maddox Road.

The collection of buildings within this site demonstrate the distinctive modular building form of inter-war and post-war industrial buildings, characterised by repeated bays of sawtooth roofs containing southern roof lanterns to light the interiors, load-bearing brick walls and internally exposed timber or steel-framed construction. Eight bays of connected sawtooth roofs extend across the length of the two joined sites, running parallel to Maddox Street from the north-west Euston Road boundary to the south-east boundary with the stormwater channel.

The buildings on the western site accessed from Euston Road include an unusual sawtooth-roofed factory and warehouses in several interconnected sections. Former industrial buildings located to the rear of these buildings on the eastern site accessed from Maddox Street, are of post and beam construction with timber roof trusses and slant purlins sitting on the beams. The roof forms are an unusual combination of sawtooth and gabled roof construction with the mostly gabled roof lifted on the south-west face to form roof lanterns, similar to a sawtooth roof.

Buildings on this site shown in historic records as constructed by the 1920s include a brick factory and engine rooms. By the 1930s, site offices, a dye room, boiler house, spinning and twisting rooms, a two-storey brick warehouse, a brick weaving mill, and an extension to the brick factory had been added. Alterations and additions constructed from 1963-1966 were designed by Robertson and Marks.

The buildings have been adaptively re-used, including use of the eastern buildings as a photographic studio and opera warehousing for the western buildings.

Alterations to the western buildings accessed from Maddox Road include partial demolition of the southern-most bay. The office building fronting Euston Road is a late twentieth-century construction, which has been excluded from the listing boundary.

Alterations from 2003-2007 for the new uses for the eastern buildings include changes to openings, new fit-outs, mezzanines and new facilities in some bays, structural or other repairs to the south wall and roof structure. While some timber structural members been removed, replaced, repaired or reinforced, a number of original posts and beams remain. The overall form and footprint of the eastern building over 8 bays also remains, consistent with early aerial photographs. The connecting southern bay between the eastern and western parts of the former mills site has been demolished.

Modifications and dates:

Category: Precinct. Style: Inter-war and post-war. Walls: Brick. Roofs: Sawtooth and gabled. Timeline of known dates for changes to the site:

4 February 1924

Certificate of title issued to the Colonial Combing Spinning and Weaving Company Ltd for 7½ acres with frontage to Euston Road, Maddox Street and Huntley Street

November 1924

Valuation card shows brick factory with galvanised iron roof, engine room etc owned by Colonial Combing Spinning and Weaving Company Ltd

4 March 1927

Ownership transfer to the Alexandria Spinning Mills Ltd

8 December 1931

Factory has offices, dye room, boiler house, spinning and twisting rooms, warehouse of brick with iron roof, partly on 2 floors and partly in basement plus brick weaving mill with iron roof

15 May 1934

Factory enlarged with brick extension with corrugated fibro roof

February 1939 - June 1942

Additions to factory

15 February 1945

Additions to factory

25 March 1957

Application by Alexandria Spinning Mills for alterations to entrance worth £800

29 May 1962

Application for alterations worth £8,000 by E A & J M Scott

27 June 1962

Application for alterations to part of factory for dyeing and finishing textiles by Gibbs Runge (NSW) Pty Ltd

24 April 1963

Application for use for stationery manufacture and printing by W Neville & Co Ltd

6 May 1963

Application by Robertson and Marks for new doorway to No 68 worth £400

22 October 1963

Application by Robertson and Marks for alterations to toilet block worth £8,000

21 November 1963

Application by Robertson and Marks for alterations worth £20,000

28 November 1963

Application by Robertson and Marks for alterations worth £4,000

3 February 1964

Application by Robertson and Marks for roller shutter doors worth £5,000

14 February 1964

Application by Robertson and Marks for amenities worth £1,000

16 April 1964

Application by Robertson and Marks for alterations worth £1,500

20 March 1964

Application by Robertson and Marks for office building at No 66 worth £40,000

15 July 1964

Application by Robertson and Marks for alterations and additions worth £7,000

11 December 1964

Application by Robertson and Marks for gatehouse worth £300

11 December 1964

Application by Robertson and Marks for entrance gates worth £800

13 April 1965

Application by Robertson and Marks for alterations and additions to Number 66 worth £2,000

29 December 1966

Application by Nationwide Food Services (Catering) Pty Ltd to use Number 66 as a smallgoods shop, refreshment room and for selling ice cream

29 April 1966

Application by Robertson and Marks for alterations and additions worth \$1,200

30 August 1966

Application by Robertson and Marks for alterations and additions to kitchen worth \$8,000

4 October 1966

Application by Robertson and Marks for alterations and additions to No 68 worth \$1,000

17 January 1990

Application by Gagt Architects to replace existing roof and roof frames

20 September 1990

Application by Gagt Architects for alteration and additions worth \$600,000

29 January 2007

Application approved for alterations and additions worth \$975,000 to Maddox Street building for use as photography studios (D/2006/1859), including fitouts and changes to openings.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Commercial, warehouse

Former use: Factory, warehouse

History

Historical notes: Early development of the locality:

This site forms part of the land of the Gadigal people, the traditional custodians of land within the City of Sydney council boundaries. For information about the Aboriginal history of the local area see the City's Barani website: <http://www.sydneybarani.com.au/>

The suburb of Alexandria was once part of a vast sand dune system covered by heath, low

scrub, creeks and freshwater wetlands that dominated the landscape of the southern suburbs of Sydney. It provided a habitat for a range of fauna such as birds, fish and eels, and was a good food source for the Gadigal, the local Aboriginal people.

The land that today incorporates the areas of Alexandria, Waterloo, Zetland and Rosebery was originally one large estate. Originally granted to former convict and public servant William Hutchinson in 1823, the estate, its buildings and water mill, were then sold to Daniel Cooper and Solomon Levy in 1825 before Cooper became its sole owner in 1833.

For a large part of the nineteenth century, the area was semi-rural low-lying land with swamps. The principal activities were market gardening, dairying and wool-washing. A number of dams were built in this area, including the Little Waterloo Dam, the Big Waterloo Dam and the Upper Dam, as shown on 1885-1890 Higinbotham and Robinson maps of Alexandria and Waterloo.

Waterloo Council was formed in 1860. The municipality of Alexandria was separated from Waterloo and became the Borough of Alexandria in 1868. The area was connected to the city through a network of trams extending along Botany Road and Elizabeth Street.

The land of the Cooper Estate was progressively subdivided into small acreages and sold for residential purposes in 1872 and 1884 with the final sale taking place in 1914. The release of the Cooper Estate opened up large tracts of land for industrial uses at a time when surrounding areas had become more densely populated. This resulted in the relocation of many industrial establishments from Redfern and Surry Hills to the Alexandria and Waterloo area.

This intensive period of industrial development increased land value in the area and forced out all but a few of the remaining market gardeners. Fellmongering, tanning and wool-washing industries were typical of Alexandria. The wetlands of the area offered ideal features for these industries which needed to be located close to a plentiful water supply.

By 1943 an Alexandria Council celebratory publication claimed that Alexandria was the largest industrial municipality in Australia, proudly proclaiming that 'an area of 1,024 acres has been crowded not less than 550 factories' (Alexandria Municipal Council 1943, p78). Secondary industries declined in the area from the 1970s as industry expanded to the outer suburbs.

Industrial history:

As one of only two major centres for historic Australian industry during the period when industry was centred in cities, Sydney's industrial development is part of the national history of industrialisation. Australia's industrialisation formed part of the 'second industrial revolution' which began during the mid-nineteenth century. This second revolution was driven by major technological innovations including the invention of the internal combustion engine and the assembly line, development of electricity, the construction of canals, railways and electric-power lines.

Sydney's twentieth century industrial development records when and how Sydney became one of the largest industrialised cities in the South Pacific and the diversification of Australia's economy beyond primary industry. Together with Melbourne, Sydney's twentieth century industrial boom expanded Australia's economy from the 'sheep's back' to the 'industry stack' or from primary production to manufacturing. By 1947 more Australians were working in city industries than in farms or mines.

Sydney's industrial development not only impacted on the national economy. Twentieth-century industry in Sydney also played a major role in developing Australia's self-sufficiency, growth, urbanisation, society and its contribution to the war effort for World War II. Sydney's industrial development has affected the lives of many Australians directly and indirectly, whether through the number of workers employed, goods and technology produced, the

prosperity it engendered, or the social change and urban environments it generated.

Robertson & Marks history:

The prominent Sydney architects, Robertson & Marks, was established in 1892 and continues to practice today as Robertson & Marks Pty Ltd. The original partners were George Birrell Robertson and Theodore John Marks. Struan Robertson inherited both partners' shares upon their deaths in 1913 and 1941. John Trevor Guy joined the practice in 1940.

Much of the practice's early work was connected with racing due to the connections of the partner, Theodore Marks. Marks was a member of the Australian Jockey Club (AJC) from 1893, an original shareholder in the Victoria Park Racing and Recreation Grounds Co Ltd for pony-racing, and chairman of the Rosehill Racing Club between 1919-41. Marks designed many of the buildings and alterations at Randwick and Warwick Farm Racecourses for the AJC in 1922 and the since demolished Leger Stand at Rosehill (1920), amongst others.

Robertson & Marks designed a large number of significant buildings in Sydney. Between 1892 and 1941 these works included the: Edwards Dunlop & Dunlop Warehouses, Kent Street (1901); Briscoe & Co Ltd bulk store, Ultimo (1901); W. Horace Friend Warehouse, Clarence Street (1906); Oswald Sealy Building, Clarence Street (1906); Richardson & Co Emporium, Armidale (1908); the original Challis House, Martin Place (1908); Perpetual Trustee Co, Hunter Street (1917); Daily Telegraph Building, King Street, with Samuel Lipson (1912-16, 1934); Prouds Ltd, Pitt Street (1920); Hotel Australia Rowe Street wing (1923); Warwick Farm Racecourse grandstand (1925), Bank of NSW head office, Martin Place (1927-32); Mercantile Mutual Building, Pitt Street (1929); Asbestos House, York Street, with John Reid & Sons (1930-5); and the AWA Building, York Street, as Robertson, Marks & McCredie with Morrow & Gordo (1937-39).

In its earlier days, the practice also designed numerous houses for the elite of Sydney society, including: 'Goondee', Wahroonga (1897); 'Glensley', Turramurra (1897); 'Gorawin', Killara (1903); Brunton house, Bellevue Hill (1904); 'Heverlee', Wahroonga (1904); and 'Wanstead' (Gowing), Lindfield (1911).

The architectural styles of the firm changed both with time and the building type. Their major commercial buildings in the early years of the century were bold Federation warehouses with Romanesque arches at either ground or top floor level. The arches gave way to a simple rectilinear, trabeated facade treatment in later warehouses and offices. During the inter-war period, the firm's large Sydney buildings demonstrated a number of inter-war styles including the commercial palazzo style (Farmer & Co. department store, Market Street, 1920, and Gowings Bros Building, Market Street, 1912-29, with C.H. Mackellar), inter-war functionalist (S.H. Hoffnung & Co. Building, 1939, with Samuel Lipson) and restrained inter-war Mediterranean styles (Bondi Surf Pavilion, Bondi Beach, 1930 with L. McCredie). (Robertson, 2011)

Historical summary of site:

The Alexandria Spinning Mills Ltd was one of the nation's largest spinners and weavers of cotton and woollen goods in the first half of the twentieth century. The Alexandria Spinning Mills employed a large workforce. Relationships between management and the workers were often poor due to infamous working conditions. The factory in Alexandria was the scene of major strikes in the 1930s and 1940s.

The construction of these mills reflect the rapid growth of the Australian textile manufacturing industry in the 1920s as the range of production extended to finer qualities of yarn and cloth. Cotton spinning began in Sydney in 1923. Australian manufacturers focussed on displacing the imported cloth and producing woollen yarn for knitting mills. In the twenties, the main products of cotton weaving were towels and cotton tweeds. By the end of the twenties, textile imports had been reduced to a minor portion of the market. Import tariffs had played a role in the success of local manufacturers. Australia's cotton manufacturing was a new emerging industry throughout the twenties (http://www.kooriweb.org/cland/textile.html#_ftn20,

accessed 15 January 2015).

After the firm purchased land from the Cooper Estate, a Certificate of Title was issued on 4 February 1924 to the Colonial Combing Spinning and Weaving Company Ltd for 7½ acres with frontages to Euston Road, Maddox Street and Huntley Street (Certificate of Title 3555 f 219).

A valuation in November 1924 showed that a brick factory with a galvanised iron roof and engine room had been constructed by that time (Valuer-General, Valuation Cards, Alexandria, SRNSW 13/7448, Euston Rd).

In December 1924, the company was advertising for girls to work in its spinning factory (SMH, 22 Dec 1924, p 16).

In October 1926, fire damaged the interior of the Colonial Combing Spinning and Weaving Company's other works in Lord Street, Botany, causing damage estimated at £15,000 (SMH, 21 Oct 1926, p 11).

The new company named Alexandria Spinning Mills Ltd was registered on 9 November 1926 (ASIC database search, 5 Sept 2014). On 4 March 1927, the property in Euston Road and 40A-42 Maddox Street was formally transferred to the Alexandria Spinning Mills Ltd (CT 3555 f 219).

The valuation of 8 December 1931 recorded that the woollen mill then had offices, a dye room, boiler house, spinning and twisting rooms, a warehouse of brick with an iron roof, partly on 2 floors and partly in a basement plus a brick weaving mill with an iron roof. By 15 May 1934, the factory had been enlarged with a brick extension with a corrugated fibro roof (Valuer-General, Valuation Lists, Alexandria, SRNSW 19/8590, no 292).

In January 1934, the workers went on strike. The problems did not end there. Numerous disputes between management and its employees followed during 1940-1. Those disputes were not confined to the Alexandria Spinning Mills, but were part of a more general industry-wide strike during the second world war. The workers of the Alexandria Spinning Mills lead the fray for strikes in the textiles industry.

In 1940 and 1941, more than 1900 of the mostly female workforce went on strike. Strikers from here and other mills including the Bradford Cotton Mills in Newtown demanded pay increases against the recommendations of the union officials who argued for a no strike policy for the 'war effort'.

As a major spinner and weaver, Alexandria Spinning Mills was busy during the war years. They made khaki cloth, socks and

underwear for the Australian military forces (The West Australian, 26 September 1940, p 8). Between February 1939 and 9 June 1942, the factory was enlarged. Further additions had been made by the time the next valuation occurred on 15 February 1945 (Valuer-General, Valuation Lists, Alexandria, SRNSW 19/8590, no 292).

The mill made Twinprufe hand knitting wools, Sunbeam and Sun-glo knitting books, amongst other products.

The 1945 workplace survey listed Alexandria Spinning Mills Pty Ltd, Euston Road, as conducting the business of textile spinning and weaving. It was recorded in this survey as using machinery rated at 1,504 horsepower and employing 644 employees at that time (Workplace Survey, Alexandria, SRNSW 7/6847).

The Alexandria Spinning Mills continued as the proprietor of the land until the mid-1960s (CT 8011 f 199). Additions and improvements continued to be made to the factory until that time. Between 1963 and 1966, the prominent architectural firm of Robertson and Marks designed various alterations and additions (58-68 Euston Rd, Street Cards, NSCA).

From 2003-2007, alterations to the eastern building for new uses included changes to openings, new fit-outs, mezzanines and new facilities in some bays, repairs to the south wall, structural reinforcing and alterations to some timber members of the structural frame.

The buildings were subsequently converted to other uses including storage and photography studios.

Recommended management:

The inter-war and post-war buildings should be retained and conserved, including the interiors of the west building and internal structure of the east building.

A Statement of Heritage Impact should accompany development applications affecting these features.

All conservation, adaptive reuse and future development should be undertaken in accordance with the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter).

Archival and photographic recording, in accordance with Heritage Council guidelines, should be undertaken before major changes.

Retain the modular bay form of sawtooth and gabled roofs, surviving internal timber structural elements, where possible.

Consider new uses for the buildings that will re-use and expose their historic features to retain their former industrial character as an integral part of the new use. Alterations for a new use, including changes for compliance with Australian building standards, should allow the essential form of the buildings to remain readily identifiable.

The appropriate form of new development will be determined through the development application process.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney Local Environmental Plan 2012	I2233, I2234	22 Jan 16		
Heritage study	City of Sydney Industrial and Warehouse Buildings		01 Oct 14		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
City of Sydney Industrial & Warehouse Buildings Heritage Study	2014		City Plan Heritage	City Plan Heritage & JCIS	Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Dr Terry Kass	2014	Industrial and warehouse buildings research - site history	
Written	Scott Cumming	2004	Chimneys and Change: Post European Environmental Impact in Green Square', in G Karskens and M Rogowsky (eds.), Histories of Green Square, pp.36-37	
Written	Sydney Morning Herald	1941	Textile workers outside mill	
Written	Sydney Morning Herald	1940	Deadlock in textile workers' strike	
Written	The Mercury, Hobart	1940	Returning to Work; Spinning Mill Strikers	

Note: internet links may be to web pages, documents or images.



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Former CBC Bank Including Interior

Item details

Name of item: Former CBC Bank Including Interior
Type of item: Built
Group/Collection: Commercial
Category: Bank
Primary address: 60 Botany Road, Alexandria, NSW 2015
Local govt. area: Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
60 Botany Road	Alexandria	Sydney			Primary Address

Statement of significance:

it represents a good example of the Victorian Italianate style by prominent government architect Mansfield. It is a landmark building on a prominent corner site.

Date significance updated: 22 Dec 11

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: Mansfield Brothers
Physical description: Two storey Victorian Italianate style building.
Date condition updated: 12 Oct 12

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as to whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)


Assessment of significance

SHR Criteria a) [Historical significance] it remarks the commercial establishment on Botany Rd and the southern suburb of Sydney.

SHR Criteria b) [Associative significance] It was designed by the government architect Mansfield.

SHR Criteria c) [Aesthetic significance] It is a landmark building on a prominent corner site.

SHR Criteria g) [Representativeness] It is representative of financial establishment on outskirt but main artillery road of Sydney town.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I5	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	

Note: internet links may be to web pages, documents or images.



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Former Electric Light Substation No. 89 including interiors

Item details

Name of item:	Former Electric Light Substation No. 89 including interiors
Type of item:	Built
Group/Collection:	Utilities - Electricity
Category:	Electricity Transformer/Substation
Primary address:	212-214 Wyndham Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney

As described in Sydney Local Environmental Plan

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
212-214 Wyndham Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Statement of significance:

Built in 1917, Electric Light Substation No. 89 represents a surviving example of the original network of more than 360 substations built by Sydney Municipal Council from 1904 to 1936, which first supplied electricity to Sydney's industries and houses. The period and location of the substation records the expansion of Sydney's electricity network and the growth of electricity use in Alexandria. The building also marks the major changes electricity brought for Alexandria's growth, development and population.

Aesthetically, the building demonstrates the characteristic modest overall form, quality of design and construction for Sydney's substations, which were designed to a higher standard than required for their function in order to integrate into their established urban contexts by reflecting neighbouring architecture or popular styles of the time.

Electricity Substation No. 89 represents a good example of a simply detailed, purpose-designed and built substation from the inter-war period. It demonstrates typical characteristics of this architectural period applied to a utilitarian building including the heavy geometric massing, symmetry of the main building, parapet to the gabled roof, face brickwork, original signage, pattern of small windows openings with brick arch lintels and an emphatic centrally-placed entrance.

The building contributes to the streetscape and is a significant example of civic architecture in the area. The building's conversion to offices and some earlier alterations have retained its architectural integrity as a recognisable former substation.

Substation No. 89 is also rare in the locality as an example of a two-storey substation and the oldest known surviving in Alexandria. The different form and earlier period of the building compared to other substations in the local area reflect its additional original functions to accommodate workers and storage, mostly on the second level.

Substation No. 89 forms part of one of the largest known collections of industrial and warehouse buildings of its kind in Australia, which records City of Sydney's past as one of only two historic industrial heartlands in Australia. This collection of buildings provides evidence of Australia's twentieth century transformation through industrialisation when Sydney became one of the largest industrialised cities in the South Pacific.

Substation No. 89 and the other surviving substations demonstrate the fundamental role that electricity played in powering Australia's industrialisation and how technological innovations of the time, specifically electricity, defined Sydney's industrial development during the twentieth century. Often constructed to service the high energy demands of factories in the near vicinity, the number, concentration and location of substations provide markers of twentieth century industrial centres and factories in the way that chimney stacks mark the location of factories predating electricity.

The larger number of substations in Alexandria demonstrates its history as a major industrial area mostly developed after the advent of electricity and before substations of this kind were no longer needed for supplying electricity. Alexandria's Wyndham Street contained a number of industries during the first half of the twentieth century, as well as housing to the north near Alexandria Park.

Electric Light Substation No. 89 is of local heritage significance in terms of its historical, aesthetic, rarity and representative value.

Date significance updated: 21 Jan 16

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: Sydney Municipal Council

Builder/Maker: Sydney Municipal Council

Construction years: 1917-1917

Physical description: Former Electric Light Substation No. 89 was built by Sydney Municipal Council in 1917. The substation comprises a two-storey brick building contained under a gabled roof with a parapet wall facing the street.

This simply detailed, purpose-designed and built substation from the inter-war period exhibits typical characteristics of inter-war architecture applied to a utilitarian building including the heavy geometric massing, symmetry of the main building, parapet to the gabled roof, face brickwork, original signage, pattern of small window openings with multi-paned sashes, brick arch lintels on the side wall, and an emphatic centrally placed entrance. The recessed rendered section of the street facade, pilasters between the bank of three windows on the upper level, and documented former decoration over the entrance demonstrate some classical references typical of a number of inter-war styles.

A large identity plaque surmounts the main entrance. Some of the lettering and other original decoration around this entrance has been removed and the entrance door replaced.

The two-storey scale and building form is rare for substations in the local area, which reflects its additional original functions to also accommodate workers and storage, mostly on the second level. The larger sash windows and loading dock with attached hoist located on the upper level of the side northern elevation reflect the original use of the upper level for workers and storage. By comparison, the smaller elevated windows on the ground floor of the same elevation reflect the design of this level for mostly containing the substation machinery.

The building's conversion to offices and some earlier alterations have retained its architectural integrity as a recognisable former substation.

The former side transmission yard with its ancillary buildings of the same period and materials are set back from the street.

Internally, the roof, foundations and floor structures have not been inspected by the authors.

Category: Individual building. Style: Inter-war. Storeys: 2. Facade: Face brick and render. Side/Rear walls: Unpainted brick. Roof: Gabled parapet.

Modifications and dates:

Timeline of known dates for changes to the site:

1920s

Roller shutter opening in the front wall of the building enlarged, resulting in the removal of the leading-in block and decorative lintel bearing the Sydney Municipal Council monogram

1997 (approx)

Building decommissioned and replaced by small kiosk-style unit constructed in close proximity for supply of low-voltage electricity

2012

Substation adaptively reused as commercial premises

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Current use: Commercial

Former use: Electricity substation

History

Historical notes: Early development of the locality:

This site forms part of the land of the Gadigal people, the traditional custodians of land within the City of Sydney council boundaries. For information about the Aboriginal history of the local area see the City's Barani website: <http://www.sydneybarani.com.au/>

The suburb of Alexandria was once part of a vast sand dune system covered by heath, low scrub, creeks and freshwater wetlands that dominated the landscape of the southern suburbs of Sydney. It provided a habitat for a range of fauna such as birds, fish and eels, and was a good food source for the Gadigal, the local Aboriginal people.

The land that today incorporates the areas of Alexandria, Waterloo, Zetland and Rosebery was originally one large estate. Originally granted to former convict and public servant William Hutchinson in 1823, the estate, its buildings and water mill, were then sold to Daniel Cooper and Solomon Levy in 1825 before Cooper became its sole owner in 1833.

For a large part of the nineteenth century, the area was semi-rural low-lying land with swamps. The principal activities were market gardening, dairying and wool-washing. A number of dams were built in this area, including the Little Waterloo Dam, the Big Waterloo Dam and the Upper Dam, as shown on 1885-1890 Higinbotham and Robinson maps of Alexandria and Waterloo.

Waterloo Council was formed in 1860. The municipality of Alexandria was separated from Waterloo and became the Borough of Alexandria in 1868. The area was connected to the city through a network of trams extending along Botany Road and Elizabeth Street.

The land of the Cooper Estate was progressively subdivided into small acreages and sold for residential purposes in 1872 and 1884 with the final sale taking place in 1914. The release of the Cooper Estate opened up large tracts of land for industrial uses at a time when surrounding areas had become more densely populated. This resulted in the relocation of many industrial establishments from Redfern and Surry Hills to the Alexandria and Waterloo area.

This intensive period of industrial development increased land value in the area and forced out all but a few of the remaining market gardeners. Fellmongering, tanning and wool-washing industries were typical of Alexandria. The wetlands of the area offered ideal features for these industries which needed to be located close to a plentiful water supply.

By 1943 an Alexandria Council celebratory publication claimed that Alexandria was the largest industrial municipality in Australia, proudly proclaiming that 'an area of 1,024 acres has been crowded not less than 550 factories' (Alexandria Municipal Council 1943, p78). Secondary industries declined in the area from the 1970s as industry expanded to the outer suburbs.

Industrial history:

As one of only two major centres for historic Australian industry during the period when industry was centred in cities, Sydney's industrial development is part of the national history of industrialisation. Australia's industrialisation formed part of the 'second industrial revolution' which began during the mid-nineteenth century. This second revolution was driven by major technological innovations including the invention of the internal combustion engine and the assembly line, development of electricity, the construction of canals, railways and electric-power lines.

Sydney's twentieth century industrial development records when and how Sydney became one of the largest industrialised cities in the South Pacific and the diversification of Australia's economy beyond primary industry. Together with Melbourne, Sydney's twentieth century industrial boom expanded Australia's economy from the 'sheep's back' to the 'industry stack' or from primary production to manufacturing. By 1947 more Australians were working in city industries than in farms or mines.

Sydney's industrial development not only impacted on the national economy. Twentieth-century industry in Sydney also played a major role in developing Australia's self-sufficiency, growth, urbanisation, society and its contribution to the war effort for World War II. Sydney's industrial development has affected the lives of many Australians directly and indirectly, whether through the number of workers employed, goods and technology produced, the prosperity it engendered, or the social change and urban environments it generated.

Substations history:

One of the major innovations in industry during the nineteenth century was the development of electricity as a power and lighting source, which rivalled and then replaced water and steam power. The mills and workshops of the earlier Industrial Revolution in Britain and North

America were mainly water and steam powered, whereas Australia's twentieth century industrial buildings were powered by electricity.

As part of supplying electricity to Sydney's houses and industries for the first time, Sydney Council built Sydney's first power stations and substations during the first half of the twentieth century. Sydney Council, then known as Sydney Municipal Council or the Municipal Council of Sydney, was charged with supplying electricity to Sydney city and surrounding areas in 1896 through the law named the Municipal Council of Sydney Electric Lighting Bill passed on 16th October 1896. Electricity supply was managed through the council's department known by a number of names: the Electric Lighting Committee, the Electric Light Department and the Electricity Department from 1920 to 1935. From 1936 the electricity undertaking was named Sydney County Council when it was reformed as a separate authority as a result of the Gas & Electricity Act of 1935. The various names for the council and subsequent electrical authority are recorded in the initials and building names inscribed in substation facades.

Sydney's first power station at Pyrmont began operating in 1904. The large network of substations were constructed in strategic locations to supply power from these power stations to individual customers and other electricity networks. Their specific purpose was to house machinery to convert high voltage electricity for industrial or domestic use. Substations were often erected in close proximity to factories to service their high energy demands. Consequently the number, concentration and location of substations provide markers of twentieth-century factories and industrial centres in the way that chimney stacks marked factories pre-dating electricity.

Alexandria demonstrates this pattern with its larger number of substations reflecting its history as a major industrial area mostly developed after the advent of electricity and before substations of this kind were no longer needed for supplying electricity.

Alexandria's Wyndham Street contained a number of industries during the first half of the twentieth century. By 1956, these surrounding industries included the Hollywood Textile Co. to the immediate south, the National Biscuit Co. to the east and W. Cooper Carrier opposite, as well as housing, mostly terraced rows to the north.

The period and location of surviving substations record the progressive extension of Sydney's electrical network from the centre of Sydney to surrounding areas, the scale and importance of this network, and the fundamental changes electricity brought for Sydney's growth, development and society. Sydney Municipal Council built its first substations at Town Hall, Taylor Square, Woolloomooloo and Ultimo, followed by Glebe, Newtown, Camperdown and surrounding areas. From 1904 to 1935, Sydney Council built more than 360 substations and almost 400 pole transformers throughout Sydney and surrounding suburbs. More continued to be built in the following decades. The Energy Australia (AusGrid) heritage and conservation register records that 33 of the surviving substations are located within the City of Sydney. This number excludes those no longer owned or operated by the electricity supplier, including this Substation No. 89.

Each substation has its own number inscribed on the building facade, which reflects its role in the broader electrical network and generally the total number, sequence and period of construction, with some exceptions where disused numbers were reallocated. Most substations were constructed in established urban areas on a small portion of land acquired or subdivided specifically for this purpose. These buildings, while modest in scale and different in function to surrounding buildings, were designed and constructed to a good standard, in a style designed to harmonise with surrounding architecture, in order to reduce community fears or resistance to the incursion of this new technology and impacts on the appearance of streets.

The rise of electricity during the late nineteenth century, and in particular small motors for driving machinery and electrical lights, changed the configuration of industrial buildings and machinery. Electricity meant that factories could be designed with a more flexible layout because small electric motors eliminated the need for belt and shaft drives from the steam plant. Factory building design became less reliant on windows for natural light and gas lighting ventilation because of the advent of electric lighting. Electricity also created a new market for factories to produce the new consumer goods reliant on electric power, such as fridges, washing machines, telephones, stoves, ice cream, and the engineering for electric lights, trains and trams.

Site history:

The land for this substation was acquired in mid 1916. The building was constructed and equipped by early 1917.

As well as transforming mains electricity to low-voltage for use in the immediate area, the building was also designed to accommodate personnel working on the mains and as a store for their construction materials. These facilities occupied the rear portion of the ground floor, the entire top floor and the remainder of the substation site.

Likely during the 1920s, the roller shutter opening in the front wall of the building was enlarged to allow installation of a large induction voltage regulator. This resulted in the removal of the leading-in block and the decorative lintel bearing the Sydney Municipal Council monogram and the substation number.

During the early 1950s, the transformers were moved outside of the switch room within the building to a new wire mesh enclosure on the opposite side of the driveway leading to the rear yard.

In 1996 the electrical load of the substation was transferred to a new small kiosk-type substation in the forecourt of the existing building. The depot facilities were also relocated and the substation decommissioned at that time.

In September 2012 the property was sold and subsequently converted for use as offices.

(Pennington 2012: 45, 276)

Recommended management:

The building should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement should be prepared for the building prior to any major works being undertaken.

Archival and photographic recording, in accordance with Heritage Council guidelines, should be undertaken before major changes.

No vertical additions should be made to the building.

Face brickwork, original signage, windows, openings, hoist and other original building features should be conserved and maintained.

New uses for the building are to complement and enhance the internal and external character of the building by conserving and interpreting significant fabric and spatial qualities.

Alterations for a new use, including changes for compliance with Australian building standards, should allow the essential form of the building to remain readily identifiable.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage	Listing Title	Listing	Gazette	Gazette	Gazette
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Listing		Number	Date	Number	Page
Local Environmental Plan	Sydney Local Environmental Plan 2012	I2240	22 Jan 16		
Heritage study	City of Sydney Industrial and Warehouse Buildings		01 Oct 14		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
City of Sydney Industrial & Warehouse Buildings Heritage Study	2014		City Plan Heritage	City Plan Heritage & JCIS	Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Graphic	City of Sydney	1949	Aerial Survey of the City of Sydney	
Graphic	City of Sydney/ City Building Surveyors Department	1956	City Building Surveyors Detail Sheets	
Written	Frances Pollon	1996	The book of Sydney suburbs	
Graphic	Higinbotham & Robinson	1890	Alexandria Sydney	
Graphic	Higinbotham & Robinson	1890	Waterloo Sydney	
Written	James Pennington	2012	Electricity Substations of the Sydney Municipal Council, pp.45, 276.	
Graphic	RTA	1943	Aerial Photographs of Sydney May-June 1943.	
Written	Scott Cumming	2004	Chimneys and Change: Post European Environmental Impact in Green Square', in G Karskens and M Rogowsky (eds.), Histories of Green Square, p.36-37	
Written	TZG Architects and Orwell & Peter Phillips Architects	2002	Conservation Management Plan: Substation No. 6 and Underground Mens Conveniences, Taylor Square	

Note: internet links may be to web pages, documents or images.



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Former Electricity Substation No. 152 including interiors

Item details

Name of item:	Former Electricity Substation No. 152 including interiors
Type of item:	Built
Group/Collection:	Utilities - Electricity
Category:	Electricity Transformer/Substation
Primary address:	124 McEvoy Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney

As described in Sydney Local Environmental Plan

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
124 McEvoy Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Statement of significance:

Built in 1924, Electricity Substation No. 152 represents a surviving example of the original network of more than 360 substations built by Sydney Municipal Council from 1904 to 1936, which first supplied electricity to Sydney's industries and houses. The period and location of the substation records the expansion of Sydney's electricity network and the growth of electricity use in Alexandria. The building also marks the major changes electricity brought for Alexandria's growth, development and population.

Aesthetically, the building demonstrates the characteristic modest form, quality of design and construction for Sydney's substations, which were designed to a higher standard than required for their function in order to integrate into their established urban contexts by reflecting neighbouring architecture or popular styles of the time.

Electricity Substation No. 152 represents a good example of a simply detailed, purpose-designed and built substation from the inter-war period. It demonstrates typical characteristics of this architectural period applied to a utilitarian building including the heavy geometric massing, symmetry of the main building, roof form concealed behind a parapet wall, face brickwork, original signage, multi-paned timber windows and an emphatic portal accentuated by surrounding decoration, including a classical bracketed cornice.

The building contributes to the streetscape and is a significant example of civic architecture in the area. Its conversion into a cafe has retained the architectural integrity of the building as a recognisable former substation.

Electricity Substation No. 152 forms part of one of the largest known collections of industrial and warehouse buildings of its kind in Australia, which records City of Sydney's past as one of only two historic industrial heartlands in Australia. This collection of buildings provides evidence of Australia's twentieth century transformation through industrialisation when Sydney became one of the largest industrialised cities in the South Pacific.

Electricity Substation No. 152 and the other surviving substations demonstrate the fundamental role that electricity played in powering Australia's industrialisation and how technological innovations of the time, specifically electricity, defined Sydney's industrial development during the twentieth century. Often constructed to service the high energy demands of factories in the near vicinity, the number, concentration and location of substations provide markers of twentieth century industrial centres and factories in the way that chimney stacks mark the location of factories predating electricity.

The larger number of substations in Alexandria demonstrates its history as a major industrial area mostly developed after the advent of electricity and before substations of this kind were no longer needed for supplying electricity. Alexandria's McEvoy Street was mostly occupied by industries during the first half of the twentieth century.

Substation No.152 is of local heritage significance in terms of its historical, aesthetic and representative value.

Date significance updated: 21 Jan 16

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: Sydney Municipal Council

Builder/Maker: Sydney Municipal Council

Construction years: 1924-1924

Physical description: Substation No. 152 was built by Sydney Municipal Council in 1924. The substation comprises a single-storey brick building contained under a pitched roof concealed behind parapet walls. The street elevation is constructed of face brickwork with the upper portion rendered and painted, except for the brick-on-edge detailing for the parapet wall.

The substation exhibits typical characteristics of the inter-war architectural period applied to a utilitarian building, including the heavy geometric massing, symmetry of the main building, roof form concealed behind a parapet wall, face brickwork and an emphatic portal. The central entrance is accentuated through surrounding decoration, including the classical bracketed cornice and signage. Original multi-paned timber windows flank the entrance.

Original signage integrated into the facade through relief lettering above the entrance records the origins of the building and the substation's number within Sydney's electricity network. The removal of the "SMC" reflects the transfer of the electrical network from Sydney Municipal Council to Sydney County Council.

The front corrugated iron fence and timber gate which accessed the former transmission yard have been replaced.

The building has been converted into a cafe, while maintaining its architectural integrity and recognisable form as a former substation.

Internally, the roof, foundations and floor structures have not been inspected by the authors.

Category: Individual building. Style: Inter-war. Storeys: 1. Façade: Face brick. Side/Rear Walls: Face brick. Windows: Timber multi-paned.

Modifications and dates:

Timeline of known dates for changes to the site:

During the Sydney County Council era the cement-finished areas of the exterior were painted and the "SMC" lettering on the name panel above the doorway removed (Pennington 2012).

2003-4

Substation use ceased

2012-13

Building altered for change of use to a cafe, including new front door, painted signs and deck with awning in side courtyard (former transmission yard)

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use:

Cafe

Former use:

Electricity substation

History

Historical notes:

Early development of the locality:

This site forms part of the land of the Gadigal people, the traditional custodians of land within the City of Sydney council boundaries. For information about the Aboriginal history of the local area see the City's Barani website: <http://www.sydneybarani.com.au/>

The suburb of Alexandria was once part of a vast sand dune system covered by heath, low scrub, creeks and freshwater wetlands that dominated the landscape of the southern suburbs of Sydney. It provided a habitat for a range of fauna such as birds, fish and eels, and was a good food source for the Gadigal, the local Aboriginal people.

The land that today incorporates the areas of Alexandria, Waterloo, Zetland and Rosebery was originally one large estate. Originally granted to former convict and public servant William Hutchinson in 1823, the estate, its buildings and water mill, were then sold to Daniel Cooper and Solomon Levy in 1825 before Cooper became its sole owner in 1833.

For a large part of the nineteenth century, the area was semi-rural low-lying land with swamps. The principal activities were market gardening, dairying and wool-washing. A number of dams were built in this area, including the Little Waterloo Dam, the Big Waterloo Dam and the Upper Dam, as shown on 1885-1890 Higinbotham and Robinson maps of Alexandria and Waterloo.

Waterloo Council was formed in 1860. The municipality of Alexandria was separated from Waterloo and became the Borough of Alexandria in 1868. The area was connected to the city through a network of trams extending along Botany Road and Elizabeth Street.

The land of the Cooper Estate was progressively subdivided into small acreages and sold for residential purposes in 1872 and 1884 with the final sale taking place in 1914. The release of the Cooper Estate opened up large tracts of land for industrial uses at a time when surrounding areas had become more densely populated. This resulted in the relocation of

many industrial establishments from Redfern and Surry Hills to the Alexandria and Waterloo area.

This intensive period of industrial development increased land value in the area and forced out all but a few of the remaining market gardeners. Fellmongering, tanning and wool-washing industries were typical of Alexandria. The wetlands of the area offered ideal features for these industries which needed to be located close to a plentiful water supply.

By 1943 an Alexandria Council celebratory publication claimed that Alexandria was the largest industrial municipality in Australia, proudly proclaiming that 'an area of 1,024 acres has been crowded not less than 550 factories' (Alexandria Municipal Council 1943, p78). Secondary industries declined in the area from the 1970s as industry expanded to the outer suburbs.

Industrial history:

As one of only two major centres for historic Australian industry during the period when industry was centred in cities, Sydney's industrial development is part of the national history of industrialisation. Australia's industrialisation formed part of the 'second industrial revolution' which began during the mid-nineteenth century. This second revolution was driven by major technological innovations including the invention of the internal combustion engine and the assembly line, development of electricity, the construction of canals, railways and electric-power lines.

Sydney's twentieth century industrial development records when and how Sydney became one of the largest industrialised cities in the South Pacific and the diversification of Australia's economy beyond primary industry. Together with Melbourne, Sydney's twentieth century industrial boom expanded Australia's economy from the 'sheep's back' to the 'industry stack' or from primary production to manufacturing. By 1947 more Australians were working in city industries than in farms or mines.

Sydney's industrial development not only impacted on the national economy. Twentieth-century industry in Sydney also played a major role in developing Australia's self-sufficiency, growth, urbanisation, society and its contribution to the war effort for World War II. Sydney's industrial development has affected the lives of many Australians directly and indirectly, whether through the number of workers employed, goods and technology produced, the prosperity it engendered, or the social change and urban environments it generated.

Substations history:

One of the major innovations in industry during the nineteenth century was the development of electricity as a power and lighting source, which rivalled and then replaced water and steam power. The mills and workshops of the earlier Industrial Revolution in Britain and North America were mainly water and steam powered, whereas Australia's twentieth century industrial buildings were powered by electricity.

As part of supplying electricity to Sydney's houses and industries for the first time, Sydney Council built Sydney's first power stations and substations during the first half of the twentieth century. Sydney Council, then known as Sydney Municipal Council or the Municipal Council of Sydney, was charged with supplying electricity to Sydney city and surrounding areas in 1896 through the law named the Municipal Council of Sydney Electric Lighting Bill passed on 16th October 1896. Electricity supply was managed through the council's department known by a number of names: the Electric Lighting Committee, the Electric Light Department and the Electricity Department from 1920 to 1935. From 1936 the electricity undertaking was named Sydney County Council when it was reformed as a separate authority as a result of the Gas & Electricity Act of 1935. The various names for the council and subsequent electrical authority are recorded in the initials and building names inscribed in substation facades.

Sydney's first power station at Pyrmont began operating in 1904. The large network of

substations were constructed in strategic locations to supply power from these power stations to individual customers and other electricity networks. Their specific purpose was to house machinery to convert high voltage electricity for industrial or domestic use. Substations were often erected in close proximity to factories to service their high energy demands. Consequently the number, concentration and location of substations provide markers of twentieth-century factories and industrial centres in the way that chimney stacks marked factories pre-dating electricity.

Alexandria demonstrates this pattern with its larger number of substations reflecting its history as a major industrial area mostly developed after the advent of electricity and before substations of this kind were no longer needed for supplying electricity.

Alexandria's McEvoy Street was mostly occupied by industries during the first half of the twentieth century. By 1956, these surrounding industries included the large Acme Bedstead Co. factory site on which the substation was located, Pioneer Heals to the immediate west, Kia Ora Industries to the east, and J. McCarthy & Co located on the opposite side of McEvoy Street.

The period and location of surviving substations record the progressive extension of Sydney's electrical network from the centre of Sydney to surrounding areas, the scale and importance of this network, and the fundamental changes electricity brought for Sydney's growth, development and society. Sydney Municipal Council built its first substations at Town Hall, Taylor Square, Woolloomooloo and Ultimo, followed by Glebe, Newtown, Camperdown and surrounding areas. From 1904 to 1935, Sydney Council built more than 360 substations and almost 400 pole transformers throughout Sydney and surrounding suburbs. More continued to be built in the following decades. The Energy Australia (AusGrid) heritage and conservation register records that 33 of the surviving substations are located within the City of Sydney. This number excludes those no longer owned or operated by the electricity supplier, including the subject substation.

Each substation has its own number inscribed on the building facade, which reflects its role in the broader electrical network and generally the total number, sequence and period of construction, with some exceptions where disused numbers were reallocated. Most substations were constructed in established urban areas on a small portion of land acquired or subdivided specifically for this purpose. These buildings, while modest in scale and different in function to surrounding buildings, were designed and constructed to a good standard, in a style designed to harmonise with surrounding architecture, in order to reduce community fears or resistance to the incursion of this new technology and impacts on the appearance of streets.

The rise of electricity during the late nineteenth century, and in particular small motors for driving machinery and electrical lights, changed the configuration of industrial buildings and machinery. Electricity meant that factories could be designed with a more flexible layout because small electric motors eliminated the need for belt and shaft drives from the steam plant. Factory building design became less reliant on windows for natural light and gas lighting ventilation because of the advent of electric lighting. Electricity also created a new market for factories to produce the new consumer goods reliant on electric power, such as fridges, washing machines, telephones, stoves, ice cream, and the engineering for electric lights, trains and trams.

Site history:

This substation was constructed by the end of 1924 and began operating during the following year.

During the later Sydney County Council era, the cement-finished areas of the exterior were painted and the "SMC" lettering for Sydney Municipal Council on the name panel above the doorway was removed.

The substation remained in service until August 2003. The property was sold in June 2004. The

building has been retained and re-used as a cafe.

(Pennington 2012)

Recommended management:

The building should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement should be prepared for the building prior to any major works being undertaken.

Archival photographic recording, in accordance with Heritage Council guidelines, should be undertaken before major changes.

Do not render or paint face brickwork.

No vertical additions should be made to the building.

Ensure original architectural detailing, windows, signage and other original features of the substation are maintained.

New uses for the building are to complement and enhance the internal and external character of the building by conserving and interpreting significant fabric and spatial qualities.

Alterations for a new use, including changes for compliance with Australian building standards, should allow the essential form of the building to remain readily identifiable.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney Local Environmental Plan 2012	I2236	22 Jan 16		
Heritage study	City of Sydney Industrial and Warehouse Buildings		01 Oct 15		

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
City of Sydney Industrial & Warehouse Buildings Heritage Study	2014		City Plan Heritage	City Plan Heritage & JCIS	Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Frances Pollon	1996	The book of Sydney suburbs	
Graphic	Higinbotham & Robinson	1890	Alexandria Sydney	
Graphic	Higinbotham & Robinson	1890	Waterloo Sydney	

Written	James Pennington	2012	Electricity Substations of the Sydney Municipal Council, p.67, 324	
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Former industrial building including interior

Item details

Name of item:	Former industrial building including interior
Other name/s:	McPhersons Pty Ltd, Aci
Type of item:	Built
Group/Collection:	Commercial
Category:	Warehouse/storage area
Primary address:	111-117 McEvoy Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
111-117 McEvoy Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Statement of significance:

The building is a good example of a Post-War Functionalist industrial building on a prominent location. It was designed as a showroom and warehouse and had a rooftop car park which was on use until 1970s. The building represents the later phase of industrial establishment in the South Sydney area.

Date significance updated: 29 Apr 13

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Construction years: 1953-1954

Physical description: A three storey streamlined industrial/warehouse building with unusual tiled façade metal windows and parapet roof. Reinforced concrete frame grids dominate the facades with full width windows and top glaze tile clad spandrels. The second level is much taller than other levels for the dedicated showroom use. The internal columns appear to have mushroom capitals and were casted on-site. The vehicle ramp leading to the rooftop car park is through a opening at north-east corner of the building.

The building is dominant in the streetscape on a prominent corner with curved façade addressing the surrounding streets.

Physical condition and/or Archaeological potential:

Deteriorated but original condition.

Date condition updated: 21 Sep 01

Modifications and dates:

Shopfront alterations at ground floor level.

The building is likely to have been built in 1953. Council archival records suggest an application by McPhersons Ltd (a machinery Merchant, a supplier for engineers, manufacturers) was lodged in 1953 for construction of a machine and tool showroom and warehouse with rooftop car parking.

An interim application was lodged in 1949 for erection of two storey building for store and

machinery warehouse by the same company.

The site was shown vacant in the 1943 aerial photograph

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Retail/Commercial

Former use: Industrial/Warehouse

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population.

The site was originally part of a grant to William Hutchinson in 1823 and was previously a timber yard owned by George Hudson of Redfern.

The building is likely to have been built in 1953. Council archival records suggest an application by McPhersons Ltd (a machinery Merchant, a supplier for engineers, manufacturers) was lodged in 1953 for construction of a machine and tool showroom and warehouse with rooftop car parking.

An interim application was lodged in 1949 for erection of two storey building for store and machinery warehouse by the same company.

The site is shown vacant on the 1943 aerial photograph.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Industry-Activities associated with the manufacture, production and distribution of goods	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] It dates from a later layer industrial development in the South Sydney area, which demonstrates the continuing industrial expansion post World War II.

SHR Criteria b) [Associative significance] The building is associated with McPherson's Ltd, a housewares producer and merchant.

SHR Criteria c) [Aesthetic significance] The building is a good example of a post-war functionalist industrial building, demonstrating many of the key elements of this architectural style, and which is prominent element within the streetscape.


SHR Criteria f) [Rarity] The tiled façade and incorporating a car park accessible via ramps is relatively rare for a large industrial building in the LGA.

SHR Criteria g) it is a representative example of a post-war functionalist style industrial building.

[Representativeness]

Integrity/Intactness Intact externally

:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken.

All conservation, adaptive reuse and future development should be undertaken in accordance with the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter)

There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features.

The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved.

Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I22	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	View details

Note: internet links may be to web pages, documents or images.



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Former Mayor;s Residence Including Interior

Item details

Name of item:	Former Mayor;s Residence Including Interior
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	Terrace
Primary address:	71 Garden Street, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
71 Garden Street	Alexandria	Sydney			Primary Address

Statement of significance:

The terrace at 71 Garden Street has important historical associations with the Alexandria Town hall as the Mayor's Residence and then Caretakers's quarters. It also has aesthetic associations with the Town Hall as a pair of related buildings in the streetscape. It is a good example of a Victorian Filigree terrace which makes a positive contribution to the streetscape.

Date significance updated: 01 Sep 05

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Two storey Victorian Filigree style terrace house. The building is constructed of rendered brickwork with timber windows and doors and a 2 storey verandah with cast iron filigree detailing. An elaborately detailed parapet with classical motifs and pilasters filigree detailing and urns and a rectangular name plate screens a pitched corrugated iron form.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora.

With European Occupation of the Sydney region from 1788, the Cadigal and Wangal people were largely decimated but there are descendants still living in Sydney today.

The site is part of William Hutchinson's 1400 acre grant. William Hutchinson came to New South Wales as a convict in 1799. In 1814 he was appointed Principal Superintendent of Convicts and Public Works. Hutchinson, Daniel Cooper and others established a water

powered flour mill on Crown land in an area named Waterloo around 1818. Botany Road was constructed by Governor Macquarie to access the flour mills. In 1823, 1400 acres of the surrounding district was granted to Hutchinson by Governor Brisbane in recognition of his public service. Hutchinson sold his Waterloo Estate to Daniel Cooper and Solomon Levey in 1825. When Solomon Levey died in 1833 all property went to Daniel Cooper. Cooper's Estate at Waterloo passed to his great nephew on his death in 1853, and was locally managed by Mr Gerard Phillips.

The subject area was originally part of the Municipality of Redfern from 1858. In 1860, Waterloo Municipality was formed with Alexandria forming the west ward. Alexandria was named after Princess Alexandria in 1863. A petition for formation of a new Municipality was produced following rapid growth in the area in the 1860s and the Municipality of Alexandria was incorporated in 1868.

The Alexandria Park area was occupied by Chinese Market Gardeners in the nineteenth century encouraged by fresh water supply. An area of 10 acres south of Buckland Street was resumed for Public Park on November 14th 1882. The park was proclaimed in 1889 and in 1897, two hundred trees were sent to the Park by the Sydney Botanic Gardens. Mitchell's Road was an important early route through the area.

The area consolidated in the 1870s with workers housing and the site for a Town Hall was acquired in Garden Street in 1879. In 1881 a building to the design of Ferdinand Reuss Snr was completed. By 1893 a two storey terrace, serving as as The Mayor's Residence, was constructed on a vacant lot to the north of the Town Hall and aligned with the front of the hall. Major alterations to the Town Hall, which included a new façade to the design of the prominent practice of DT Morrow and Gordon took place in 1928.


Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
4. Settlement- Building settlements, towns and cities	Accommodation-Activities associated with the provision of accommodation, and particular types of accommodation – does not include architectural styles – use the theme of Creative Endeavour for such activities.	(none)-
7. Governing- Governing	Government and Administration-Activities associated with the governance of local areas, regions, the State and the nation, and the administration of public programs - includes both principled and corrupt activities.	(none)-

Assessment of significance

- SHR Criteria a)** [Historical significance] The building has historic significance as it dates from the key period of development of Alexandria.
- SHR Criteria b)** [Associative significance] The building has associations with the Alexandria Town hall as the Mayor's Residence and then Caretakers's quarters.
- SHR Criteria c)** [Aesthetic significance] The building has aesthetic significance as a good example of a Victorian terrace which demonstrates many of the key aspects of the style. It also has aesthetic associations with the Town Hall as a pair of related buildings in the streetscape.
- SHR Criteria f)** [Rarity] The building is not rare.
- SHR Criteria g)** [Representativeness] The building is a representative example of a Victorian Filigree terrace found in Alexandria and the inner suburbs of Sydney.

Integrity/Intactness High
:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the facade of the

building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, shall not be visibly prominent and shall be in accordance with the Sydney City Council Development Control Plan. The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I14	14 Dec 12		
Heritage study					

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
South Sydney Heritage Study	1993		Tropman & Tropman Architects		Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Rod Howard Heritage Conservation Pty Ltd	1998	Heritage Impact Statement - Alexandria Town Hall	

Note: internet links may be to web pages, documents or images.

Data source

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Former Standard Telephones & Cables industrial building including interiors

Item details

Name of item:	Former Standard Telephones & Cables industrial building including interiors
Other name/s:	STC, Alcatel Australia Ltd
Type of item:	Built
Group/Collection:	Manufacturing and Processing
Category:	Factory/ Plant
Primary address:	1-3 Mandible Street, Alexandria, NSW 2015
Local govt. area:	Sydney

As described in Sydney Local Environmental Plan

Boundary:

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
1-3 Mandible Street	Alexandria	Sydney			Primary Address

Statement of significance:

Built in 1945 for communications manufacturers, Standard Telephone & Cables, this building represents the industrial development of Alexandria during the mid-twentieth century. It is historically significant for its connection to Australian manufacturing of radios, cables, and telephones. As the place where these products were made for Standard Telephone & Cables, this building provides evidence of major technological advancements in communications and the high demand for these products during the twentieth century.

The building represents the only remaining intact building erected for Standard Telephones & Cables Pty Ltd at Alexandria. Standard Telephones & Cables was a well-known technology company which provided communications equipment for World War II and became the backbone of Australia's communications during peace-time. The building at 1-3 Mandible Street demonstrates the later expansion of this company likely as a result of the high demands of World War II.

Architecturally, the building represents a late example of an inter-war functionalist industrial building. It exhibits typical features of this architectural style including its simple geometric massing, polychromatic face brickwork, parapet wall, horizontally-proportioned multi-paned steel windows, chamfered corner, and continuous lintels, brickwork of the spandrel, piers and string courses expressing the horizontality of facades. The prominent corner site and robust building form give the building landmark qualities in the local neighbourhood, where it marks the junction of Wyndham and Mandible streets. The building makes an important contribution to the streetscapes of Wyndham and Mandible streets, and is visible from a number of near and distant vantage points. The tapered skylight roof form is relatively rare for the Sydney local government area.

As one of southern Sydney's major employers of the time, which invested in the welfare and working conditions of its employees, the building is likely to have social significance to the former employees of Standard Telephones and Cables.

The site may also hold significance to the Australian community and former Australian military personnel for its connection to the radios, telephones and other communications technology manufactured at this site, which were found in many Australian households during the twentieth century and were used by the Australian Army, Navy and Air Force and the United States force in the Pacific during World War II. These devices represented major technological advancements of their time for Australian households and the war effort, as well as major social change through improved long-distance communications.

The former Standard Telephone & Cables building forms part of one of the largest known collections of industrial and warehouse buildings of its kind in Australia, which records City of Sydney's past as one of only two historic industrial heartlands in Australia. This collection of buildings provides evidence of Australia's twentieth century transformation through industrialisation when Sydney became one of the largest industrialised cities in the South Pacific.

The building is of local heritage significance in terms of its historical, associations, social, and representative value.

Date significance updated: 21 Jan 16

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: Likely to have been designed by Robertson & Marks

Construction years: 1945-1945

Physical description: The building was constructed in 1945 for Standard Telephones and Cables on the prominent corner site at the junction of Mandible and Wyndham Streets, along the south bank of the Shea's Creek stormwater channel. The building is two-storeys in height, constructed of face brick, with no setback from the two street frontages. The building is contained under seven joined sawtooth roofs of an unusual tapered form with south-facing lanterns. The sawtooth roofs are partly concealed by high parapet walls along all elevations.

The building represents a late example of an industrial building designed in the inter-war functionalist architectural style. It exhibits typical features of this architectural style including its simple geometric massing, polychromatic face brickwork, parapet wall, horizontally-proportioned multi-paned steel framed windows, chamfered corner, and continuous lintels, brickwork of the spandrel, piers and string courses expressing the horizontality of facades.

The main access is located on the chamfered corner, featuring a pair of decorative metal doors, polychromatic brick surrounds. A stair tower is located along the northern side elevation, contained under a gabled roof. A small wing is located along the western elevation, setback from Mandible Street.

Internally, the roof, foundations and floor structures have not been inspected by the authors.

Category: Individual building. Style: Inter-war functionalist. Storeys: Two. Facade: Face brick. Windows: Rectangular steel framed. Roof: Saw-tooth with tapered skylights.

Further information: Heritage inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Commercial
Former use: Industrial / commercial

History

Historical notes: Early development of the locality:

This site forms part of the land of the Gadigal people, the traditional custodians of land within the City of Sydney council boundaries. For information about the Aboriginal history of the local area see the City's Barani website: <http://www.sydneybarani.com.au/>

The suburb of Alexandria was once part of a vast sand dune system covered by heath, low scrub, creeks and freshwater wetlands that dominated the landscape of the southern suburbs of Sydney. It provided a habitat for a range of fauna such as birds, fish and eels, and was a good food source for the Gadigal, the local Aboriginal people.

The land that today incorporates the areas of Alexandria, Waterloo, Zetland and Rosebery was originally one large estate. Originally granted to former convict and public servant William Hutchinson in 1823, the estate, its buildings and water mill, were then sold to Daniel Cooper and Solomon Levy in 1825 before Cooper became its sole owner in 1833.

For a large part of the nineteenth century, the area was semi-rural low-lying land with swamps. The principal activities were market gardening, dairying and wool-washing. A number of dams were built in this area, including the Little Waterloo Dam, the Big Waterloo Dam and the Upper Dam, as shown on 1885-1890 Higinbotham and Robinson maps of Alexandria and Waterloo.

Waterloo Council was formed in 1860. The municipality of Alexandria was separated from Waterloo and became the Borough of Alexandria in 1868. The area was connected to the city through a network of trams extending along Botany Road and Elizabeth Street.

The land of the Cooper Estate was progressively subdivided into small acreages and sold for residential purposes in 1872 and 1884 with the final sale taking place in 1914. The release of the Cooper Estate opened up large tracts of land for industrial uses at a time when surrounding areas had become more densely populated. This resulted in the relocation of many industrial establishments from Redfern and Surry Hills to the Alexandria and Waterloo area.

This intensive period of industrial development increased land value in the area and forced out all but a few of the remaining market gardeners. Fellmongering, tanning and wool-washing industries were typical of Alexandria. The wetlands of the area offered ideal features for these industries which needed to be located close to a plentiful water supply.

By 1943 an Alexandria Council celebratory publication claimed that Alexandria was the largest industrial municipality in Australia, proudly proclaiming that 'an area of 1,024 acres has been crowded not less than 550 factories' (Alexandria Municipal Council 1943, p78). Secondary industries declined in the area from the 1970s as industry expanded to the outer suburbs.

Industrial history:

As one of only two major centres for historic Australian industry during the period when industry was centred in cities, City of Sydney's industrial development is part of the national history of industrialisation. Australia's industrialisation formed part of the 'second industrial revolution' which began during the mid-nineteenth century. This second revolution was driven by major technological innovations including the invention of the internal combustion engine and the assembly line, development of electricity, the construction of canals, railways and

electric-power lines.

Sydney's twentieth century industrial development records when and how Sydney became one of the largest industrialised cities in the South Pacific and the diversification of Australia's economy beyond primary industry. Together with Melbourne, Sydney's twentieth century industrial boom expanded Australia's economy from the 'sheep's back' to the 'industry stack' or from primary production to manufacturing. By 1947 more Australians were working in city industries than in farms or mines.

Sydney's industrial development not only impacted on the national economy. Twentieth-century industry in Sydney also played a major role in developing Australia's self-sufficiency, growth, urbanisation, society and its contribution to the war effort for World War II. Sydney's industrial development has affected the lives of many Australians directly and indirectly, whether through the number of workers employed, goods and technology produced, the prosperity it engendered, or the social change and urban environments it generated.

Site history:

This building was constructed by Standard Telephones and Cables Pty Ltd (STC) in 1945 as part of the World War II period of expansion when its major factory complex site on Botany Road, on the opposite side of Wyndham Street, reached capacity.

Standard Telephones & Cables Pty Ltd was a well-known communications technology company that provided communication equipment during war-time and subsequently became the backbone of Australia's communications during peace-time.

The company was established in Australia in the 1920s as an independent subsidiary of the British Standard Cables and Telephones to manufacture radio receivers, transmitters and telephone equipment. The Australian subsidiary of this company was established by engineer Sandy McPhee who set up a new factory in Chippendale in the early 1920s. Radios from 1923 to 1926 were imported from Britain under the brand "Western Electric". From 1926 the company brand became known as "STC". Radio transmission equipment was sold to 2FC and 2BL in Sydney and 2CY in Canberra, amongst other regional and interstate radio stations.

The business later expanded to manufacture valves (tubes) and military equipment. The Standard Telephones & Cables contributed to the World War II effort through the production of radio and communication apparatus. As well as manufacturing communications equipment for the Australian Army, Navy and Air Force in World War II, the company supplied communications equipment to the United States forces in the Pacific under the Lend-Lease agreement (STC, 50 years, 1895-1945).

The company had outgrown its earlier site in Chippendale by the 1930s. By 1936 the business commissioned a new factory at Botany Road, designed by the prominent architects Robertson & Marks. This merged its Redfern and Chippendale factories together with the administration staff at the city office in a single location on a site dedicated to manufacturing telecommunications equipment and systems. Originally the factory extended over a large complex of 30,000 square feet (STC, 50 years, 1895-1945, p 9). By 1939, the factory floor had grown to 75,000 square feet. During the 1940s, the company continued enlarging. By 1943 it occupied a site of approximately 200,000 square feet.

The subject corner building at 1-3 Mandible is likely to have been designed by the prominent architectural firm, Robertson & Marks, due to design similarities with the rest of the industrial complex. The land for this building was purchased by Standard Telephones and Cables Pty Ltd on 26 September 1944 on the site located directly opposite the company's main works on Botany Road (Old System Deed, No 261 Bk 1951). Records show that a brick factory was under construction in 1945 when this land was valued on 23 March 1945 (Valuer-General, Valuation Lists, Alexandria, SRNSW 19/8587, No 307).

STC was a major employer of the area, employing over 2,000 people. In 1943, the company's payroll is estimated to have reached over half a million pounds, indicating the scale of its workforce. They were also noted to have exceptional working conditions, with no expenses being spared for good working conditions and natural light.

In 1941, the size of the workforce, its mostly female demographic and the company patriotism during World War II was demonstrated in photos of the ceremony when STC workers, all in STC uniform, donated an ambulance to the war effort.

The buildings of Standard Telephones & Cables were designed with optimal natural lighting and highly efficient artificial lighting. They were recognised in the trade as one of the most outstanding examples of modern artificial lighting in Sydney.

The company history published in approximately 1945 included a retouched photo of these offices. The offices were then shown as a two-storey brick building with sawtooth roofs containing south-facing windows (STC, 50 years, 1895-1945, p 34-5).

By the end of the war, there was no further room to expand the factory at Botany Road. STC therefore expanded to land it purchased at Villawood (STC, 50 years, 1895-1945, p 9).

On 24 March 1950, Standard Telephones and Cables Pty Ltd applied to convert the Old System Title to Torrens Title (RPA 37355). The land remained in the ownership of Standard Telephones and Cables Pty Ltd until approximately 1970 (CT 6415 f 42).

In 1987 the company was purchased by Alcatel Australia Limited.

Recommended management:

The building should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement should be prepared for the building prior to any major works being undertaken.

All conservation, adaptive reuse and future development should be undertaken in accordance with the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter).

Archival photographic recording, in accordance with Heritage Council guidelines, should be undertaken before major changes.

Do not paint or render face brick finishes.

Face brickwork, lintels and string courses, saw-tooth roofs, parapet wall, multi-paned steel-framed windows, chamfered corner, early signage, metal entrance doors, polychromatic brickwork surrounds to the main entrance and other original building features should be maintained and conserved.

Consider new uses for the building that will re-use and expose its industrial features to retain the building's former industrial character as an integral part of the new use. Alterations for a new use, including changes for compliance with Australian building standards, should allow the essential form of the building to remain readily identifiable.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page

Local Environmental Plan	Sydney Local Environmental Plan 2012	I2235	22 Jan 16		
Heritage study	City of Sydney Industrial and Warehouse Buildings		01 Oct 14		

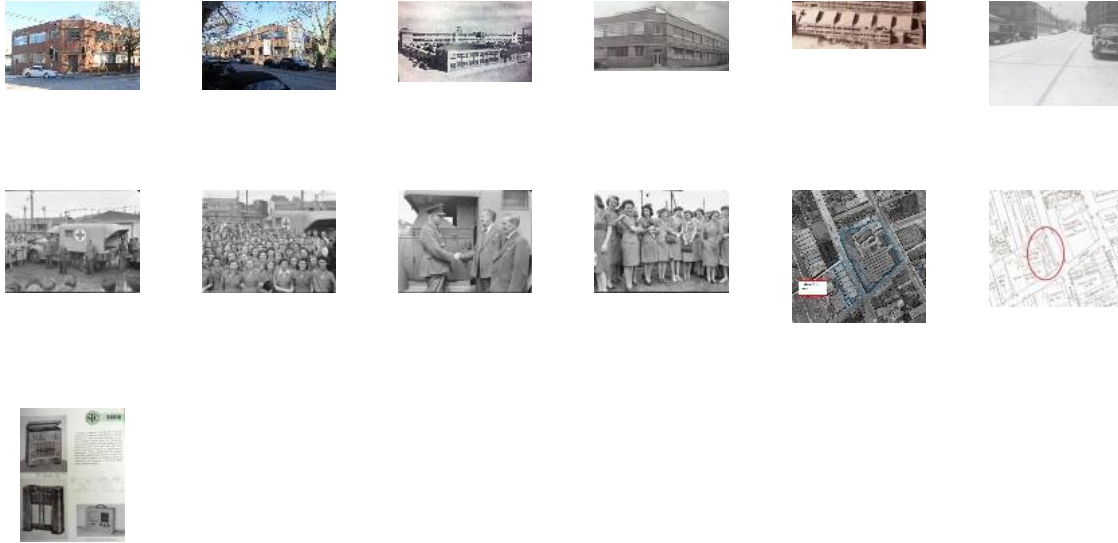
Study details

Title	Year	Number	Author	Inspected by	Guidelines used
City of Sydney Industrial and Warehouse Buildings	2014		City Plan Heritage	City Plan Heritage and JCIS Consultants	Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links
Written		1907	The Cyclopaedia of New South Wales, p416-417	
Written	Alexandria Municipal Council	1943	Alexandria, "the Birmingham of Australia" 75 years of progress, 1868-1943	
Graphic	City of Sydney	1949	Aerial Survey of the City of Sydney	
Map	City of Sydney/ City Building Surveyors Department	1956	City Building Surveyors Detail Sheets	
Written	Dr Terry Kass	2014	Industrial and warehouse buildings research - site history	
Written	Frances Pollon	1996	The book of Sydney suburbs	
Written	Higinbotham & Robinson	1890	Alexandria / Waterloo, Sydney	
Written	Land Titles Office	1825	Book A No.49, 25 January 1825	
Photograph	RTA	1943	Aerial Photographs of Sydney May-June 1943	View details
Written	Scott Cumming	2004	Chimneys and Change: Post European Environmental Impact in Green Square', in G Karskens and M Rogowsky (eds.), Histories of Green Square, p.36-37	
Written	Standard Telephones and Cables Pty Ltd	1945	Standard Telephones and Cables Pty Ltd, 50 years, 1895-1945: being the establishment and development in Australia and New Zealand of Standard Telephones and Cables Pty Ltd	

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HABS - stonemasonry tools & machinery

Item details

Name of item:	HABS - stonemasonry tools & machinery
Type of item:	Movable / Collection
Group/Collection:	Government and Administration
Category:	Other - Government & Administration
Primary address:	92 Burrows Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
92 Burrows Road	Alexandria	Sydney			Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Department of Commerce	State Government	

Statement of significance:

Collection: The collection of significant tools and machinery at the Stoneyard demonstrate changes in stonemasonry technology over time. There are only limited masonry tools in public ownership as traditionally stonemasons purchase and maintain their own tools.

Gang Saw: The gang saw is a remarkable piece of machinery which has been in use for some 120 years and is still providing a valuable function in the work undertaken at the Stoneyard. The gang saw demonstrates the changes to stone cutting processes over time. The gang saw has associations with Old Sydney Town, where it was located prior to being bought for use at the State Stoneyard. The machine is held in esteem by the OPWS teams at the Stoneyard and at the GAO Heritage Group.

Date significance updated: 29 Apr 09

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Unknown
Builder/Maker:	Gang saw: W Newton, Engineers, Sydney
Physical description:	HABS Collection of Significant Tools & Machinery:

Currently the only item to be described in the collection is the Gang Saw. It is possible that further tools and items of machinery will be added to this list when the Department of Commerce Heritage and Conservation Register undergoes future review.

Gang Saw:

The Gang Saw is a large piece of machinery approximately 1110mm long, 2700mm wide and 3350mm high. It was originally powered by steam, before being converted to electric operation.

It comprises a cast iron frame within which the stone to be cut is placed. There is a small concrete reservoir below floor level on one side of the saw, within which the pump is located,

which contains water and shot. Various different sized spacers are hung along a railing on the other side of the machine. The spacers for the size of slab required from the stone are selected and put in place. The machine then pumps water and shot up into a distribution tank on the top of the gang saw which then distributes water and shot out under each blade. The water and shot under the blades cut the stone.

The gang saw has a plaque indicating the maker, as follows:

W Newton

Engineers

Sydney

The plaque is undated.

Physical condition and/or Archaeological potential:

Gang Saw: The gang saw has been kept in good working condition.

Modifications and dates:

Date condition updated:29 Apr 09

Gang Saw: At some stage, the gang saw was converted from steam to electrical operation. The gang saw has been serviced, upgraded and cleaned as required over the years to maintain it in operating order. The gang saw pump has recently been restored.

Further information:

The OPWS Movable Heritage Collection - HABS stonemasonry tools & machinery was identified in the Department of Commerce Audit of Art and Collectibles in February 2006 Item - No. 41 Collection of various stonemasonry tools and equipment (i.e. 100-year old gang saw).

Current use:

Gang Saw: The Gang Saw is able to cut large pieces of stone to the desired size,

Former use:

As above

History

Historical notes:

HABS Stoneyard: The current workshop for Heritage and Building Services (HABS) is at 92 Burrows Road, and has Sheas Creek as the rear (eastern) boundary. The site was initially developed as a depot for the Department of Public Works Building Construction and Maintenance Branch (BC&M) in the 1950s and 1960s. In 1994 the site was adapted as a sandstone processing facility (92 Burrows Rd) and a scaffold storage and hire depot (92A Burrows Rd). The heritage sandstone works (known as The Stoneyard) provides skilled services in the conservation of heritage buildings. (DPWS 1999: 45). Stone processing works were previously located at Homebush Bay connected with the State Brickworks which was in operation from 1912 until 1988 (although closed during WW2). The Stoneyard continued at Homebush until its move to Alexandria in the 1990s.

The collection of significant tools and machinery at the Stoneyard demonstrate changes in stonemasonry technology over time. There are only limited stonemasonry tools in public ownership as traditionally stonemasons purchase and maintain their own tools.


Gang Saw: The earliest knowledge of the Gang Saw was in a stonemasonry yard located just around the corner from the Burrows Road Stoneyard in Alexandria, possibly Actons Stoneyard in Belmont Street. It was then moved to Old Sydney Town in the 1970s, where it was operated for display purposes. The Gang Saw was bought by the Stoneyard for \$25,000 from Old Sydney Town in 1986, and was installed at the yard at Homebush by George Proudman. It was then moved to Heritage and Building Services (HABS) at Alexandria when the Stoneyard was moved there in 1995.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Industry-Activities associated with the manufacture, production and distribution of goods	(none)-
3. Economy-Developing local, regional and national economies	Technology-Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	(none)-

5. Working-Working	Labour-Activities associated with work practises and organised and unorganised labour	(none)-
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Assessment of significance

- SHR Criteria a)** [Historical significance] Gang Saw: The gang saw is a remarkable piece of machinery which has been in use for some 120 years, and is still providing a valuable function in the work undertaken at the Stoneyard.
- SHR Criteria b)** [Associative significance] Gang Saw: The gang saw has some historically associations with Old Sydney Town, and with the OPWS Stoneyard (particularly master stonemason George Proudman).
- SHR Criteria d)** [Social significance] Gang Saw: The gang saw is held in esteem by the OPWS Stoneyard and by the Heritage Group within the NSW Government Architect's Office because of its historical, associational and technical values.
- SHR Criteria e)** [Research potential] Gang Saw: The gang saw has research potential in that it demonstrates a method of cutting stone which has been in use since the late 1900s. The gang saw also has the potential as an educational resource to demonstrate the development of machinery to cut stone from very large blocks to required sizes.
- SHR Criteria f)** [Rarity] Gang Saw: The gang saw is quite a rare piece of machinery. Meloccos Quarry at Marulan have a gang saw half the size of this one while Gosford Quarries have four saws, a bit bigger than that at the Stoneyard and also about 120 years old. Bundanoon Quarries at Bundanoon may still have one and there may be one or two similar saws in Victoria. (Source: Philip Brown Gosford Quarries 0419 996 403, verbal advice on 21 July 2008).
- SHR Criteria g)** [Representativeness] Gang Saw: Not assessed.
- Integrity/Intactness** : Gang Saw: At some stage, the gang saw was converted from steam to electrical operation. The gang saw has been serviced, upgraded and cleaned as required over the years to maintain it in operating order. The gang saw pump has recently been restored.
- Assessment criteria:** Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - s.170 NSW State agency heritage register			07 Jul 09		

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Brown, Philip (Pers. Comm)	2008	Gosford Quarries	
Management Plan	Fletcher, Bill (Pers. Comm)	2008	HABS employee State Stoneyard	
Management Plan	Pires, Alfie (Pers. Comm)	2008	HABS employee State Stoneyard	

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Industrial Building "Eclipse House" Including Interior

Item details

Name of item:	Industrial Building "Eclipse House" Including Interior
Other name/s:	Websdale Printing, Envelope Manufacturer's, Australian Drop Forging Co., Rerkins
Type of item:	Built
Group/Collection:	Manufacturing and Processing
Category:	Other - Manufacturing & Processing
Primary address:	8-22 Bowden Street, Alexandria, NSW 2000
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
		Sydney			
8-22 Bowden Street	Alexandria	Sydney			Primary Address
10 Bowden Street	Alexandria	Sydney	Alexandria	Cumberland	Alternate Address

Statement of significance:

This Interwar Functionalist style industrial/commercial building is historically and aesthetically significant. It represents later industrial/commercial developments that occurred in the late 1940s. The building is a good representative example of the Interwar Functionalist architectural style.

Date significance updated: 20 Oct 04

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Single storey rendered Inter-War Functionalist style factory building with a monumental entrance.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Printers

Former use: Envelope manufactures, printers, drop forging???

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today.

Alexandria was made up from a number of land grants and part land grants. They included a: 30 acre grant made in 1822 to J. King known as the 'King's Clear' grant; part of William Hutchinson's 1400 acre grant; part of Newnham's grant of 45 acres; and I.J. Cambell's grant of 185 acres.

This building was formerly part of the 'Waterloo Estate' and the original Crown grant of 1400 acres to William Hutchinson dated 27th May 1823.

Historic themes


Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Industry-Activities associated with the manufacture, production and distribution of goods	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] Historically significant as it represents later industrial/commercial development that occurred in the late 1940s.

SHR Criteria c) [Aesthetic significance] The building is a good representative example of the Interwar Functionalist architectural style.

SHR Criteria g) [Representativeness] Representative of the Interwar Functionalist style.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I9	14 Dec 12		
Heritage study		6.16			

Study details

Title	Year	Number	Author	Inspected by	Guidelines used
South Sydney Heritage Study	1993	6.16	Tropman & Tropman Architects		Y e s

References, internet links & images

Type	Author	Year	Title	Internet Links

Written	Anita Heiss	Aboriginal People and Place, Barani: Indigenous History of Sydney City	
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Industrial Building "Frank G Spurway" Including Interior

Item details

Name of item:	Industrial Building "Frank G Spurway" Including Interior
Other name/s:	Fgs Building
Type of item:	Built
Group/Collection:	Manufacturing and Processing
Category:	Industrial Office/Admin Building
Primary address:	20-30 Maddox Street, Alexandria, NSW 2000
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
20-30 Maddox Street	Alexandria	Sydney			Primary Address
48 Euston Road	Alexandria	Sydney			Alternate Address
20-28 Maddox Street	Alexandria	Sydney			Alternate Address

Statement of significance:

The Frank G. Spurway building is historically significant as it represents mid-twentieth century industrial/commercial development (1940). The building is of aesthetic significance as it represents a good example of the Inter-War Functionalist architectural style showing Dudock influences, and is representative of the work of Stafford Moore & Farrington.

Date significance updated: 07 Aug 06

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Stafford Moore & Farrington
Physical description:	Two storey brick Inter-War Functionalist style industrial building on the corner of Maddox St and Euston Road, Alexandria, with a tower defining the corner.
Physical condition and/or Archaeological potential:	Good condition overall. Date condition updated: 07 Aug 06
Modifications and dates:	Converted to 94 small-scale industrial units in 2002 (D2001/1015).
Further information:	Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes:	The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local
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government area, the traditional owners are the Cadigal and Wangal bands of the Eora.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today.

Built circa 1940.


Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
5. Working-Working	Labour-Activities associated with work practises and organised and unorganised labour	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] The Frank G. Spurway building is historically significant as it represents later industrial/commercial development c. 1940.

SHR Criteria c) [Aesthetic significance] The building represents a good example of the Inter-War Functionalist architectural style showing Dudock influences.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I20	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	

Note: internet links may be to web pages, documents or images.

Data source

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Lord Raglan Hotel including interior

Item details

Name of item:	Lord Raglan Hotel including interior
Type of item:	Built
Group/Collection:	Commercial
Category:	Hotel
Primary address:	12 Henderson Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
12 Henderson Road	Alexandria	Sydney			Primary Address
Henderson Road & Wyndham St Corner	Alexandria	Sydney			Alternate Address

Statement of significance:

The Lord Raglan Hotel has local historic, social and aesthetic significance.

The site has been the location of a hotel since the late nineteenth century onwards. The Lord Raglan Hotel is part of a large group of Sydney hotels owned and rebuilt by Tooths & Co. during the inter-war period. Along with rival brewery, Tooheys, Tooths & Co. dominated the Sydney hotel trade during this period. The hotel is typical of the standard of building constructed by Tooths & Co. at this time.

Designed by Sydney architect Sidney Warden, F.I.A., and constructed c.1924, the existing hotel building has aesthetic significance as a representative example of a modest, yet handsome, two storey Inter-war Stripped Classical Style building. The building contributes to the streetscape by virtue of its architectural style, corner location and relationship to three nearby hotels of a similar period.

Date significance updated: 19 Feb 16

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker:	Sidney Warden, F.I.A., for Tooth & Company
Builder/Maker:	W.E. Chidzey (?)
Physical description:	The Hotel is located on the south-eastern corner of Henderson and Wyndham Roads. The site is surrounded by light industrial and commercial buildings, with some residential. There are three other hotels of the Late Federation-/Inter-war period within close proximity, the Alexandria Hotel, The Abbots and Cricketers Arms. Wyndham Road and Henderson Road carry high traffic volumes.

Exterior: Two storey face brick building with rendered details. The ground floor to both street frontages is tiled (modern tiles) and has modern aluminium framed doors and windows. This part of the elevation is protected by a suspended awning. At first floor level, the elevation continues into a high parapet with a rendered cornice and, at ceiling height, a wide and rendered cornice supported by closely spaced corbel brackets. At the centre of the northern elevation (to Henderson Street) is a rendered panel, corresponding to a recessed verandah. The panel continues into the parapet and rises above it in a stepped line. The inset verandah has a concrete railing. Rendering is also used to define the corners of the first floor. There are two symmetrically spaced double hung (multi-pane) windows to each side of the verandah.

The side elevation to Wyndham Street is shorter and simpler. It contains four evenly spaced double hung timber windows.

Interior: Not examined. Main bar, ground floor, refitted.

**Physical condition
and/or
Archaeological
potential:**

Good

Date condition updated: 27 Jul 06

**Modifications and
dates:**

From Council records:

+ Alterations and small extension to existing building by Sidney Warden (three separate applications made in 1956). Tooth & Co. records indicate that the total cost of these works was £22,034/8/8.

+ Reduce awning (1979).

+ Fire upgrade (1988).

+ Alterations to value of \$10,000 (1989).

Also records for signage, maintenance and installation of eg. refrigeration.

Further information: The site was first listed by Council with the gazettal of Sydney Local Environmental Plan 2012 on 14/12/2012.

Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes:

The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. (Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

The Lord Raglan Hotel stands on land once occupied by the Cadigal people, whose territory extended from Sydney Cove to the southern side of Port Jackson and south to modern day Petersham.

The subject property is located upon on land grant made to William Hutchinson on 23 May, 1823 and known as the Waterloo Estate. In 1825, Hutchinson sold this land to the business partnership of Daniel Cooper and Solomon Levey for £2,700. The main feature of the area at this time was its extensive swamps, the most important being the Waterloo Swamp on the east of what later became Botany Road and Shea's Creek Swamp to the west. Prior to intervention, the area was prone to flooding and persistent marshy conditions. While this did not discourage farming, it did little to promote permanent development. Botany Road (1821) would remain the only main road through the area for some time to come. Cooper and Levey also acquired the adjoining Mount Lachlan Estate of 185 acres in 1829. Combined, the two estates created what was known as Waterloo Estate or the Cooper Estate, given that it was solely acquired by Daniel Cooper following Levey's death in 1833. By these means, most of the area now Alexandria, Waterloo, Zetland and Rosebery became, and remained for much of the nineteenth century, the property of a single owner.

Under the terms of Daniel Cooper's will, the Waterloo and Mount Lachlan Estates were transferred to William Charles Cooper (later Sir William), the second son of his principal heir, Daniel Cooper the Younger. The Estate was held in trust until William came of age in October 1872. During the 1850s, the trustees began offering 99 year leases (with building covenants) for a nominal ground rent. In 1858, the area became part of the newly incorporated Municipality of Redfern. Two years later, the area was separated to create the Borough of Waterloo. Eight years later, it was split into Boroughs of Waterloo and Alexandria. This split deprived the Borough of half its former lands and population and hence rates.

Political upheavals aside, improved transportation into the area acted as a stimulant for local development. From 1868 a system of horse drawn omnibuses operated as far as Alexandria; trams began operation twenty years later. Local industries, such as the Waterloo and Buckland Mills, Alderson's Woolwash, Forsythe's Ropeworks and numerous brickworks opened, providing important employment opportunities for the Sydney worker who typically lived close to his/her place of work.

The most significant feature of the Cooper's long period of ownership of the Waterloo and Lachlan Estates was that very little of the area was disposed of by sale. The practice of granting 99 year leases continued into the 1880s, after William Charles Cooper had acquired full control of his estate (1872). By the 1880s, the Waterloo Estate had undergone substantial changes. The water reserves had largely dried up, the original vegetation had been removed and the ground had been scoured by fire. The whole area had been 'converted from a great sponge' to a 'tract of barren sand hills.'

Waterloo began to developed in earnest during the closing decades of the nineteenth century. With the exception of ribbon development along Botany Road, for most of the nineteenth century, residential occupation of was concentrated on the northern part of the estate, south of Redfern. In addition to the official leases, the practice of squatting was widespread. The area was well known for its Chinese market gardens, with gardens appearing in Wyndham Road, Buckland Street and Garden Street in the Sands Directories of the 1870s and 1880s. Paradoxically, noxious industries, such as fell mongering, also appeared in the latter part of the century.

The sale of small sections of the Waterloo Estate began in the 1880s and continued through into the twentieth century. Waterloo was actively promoted as a suburb for the 'working man.' The small residential subdivisions of the mid 1880s (lease and freehold) included Beaconsfield, Hill View, Chester, Waterloo freehold and Waterloo suburb Estates. Most of these subdivisions were located near (or on) Botany Road.

Early maps and plans include Henderson Road as part of Raglan Street. When the street name was changed is not known. The street, and later the hotel, were most likely named for James Henry Somerset FitzRoy, Lord Raglan (1788-1855), who gave the order that lead to the Charge of the Light Brigade during the Crimean War (1854-56).

The existing Lord Raglan Hotel is not the first building to be located on the site. While it is difficult to identify the site in municipal rate records of the late nineteenth century, the Metropolitan Detail Series plan of 1895 indicates the presence of a hotel, also called the Lord Raglan Hotel, on the site at this time (Figure 1). This hotel is described in the first clearly identifiable rate record for the property (for the year ending February 1904) as a 'brick hotel'. The Lord Raglan Hotel is not, however, listed in John Sands Suburban Directories until 1901. There are no known photographs of this building.

At an unknown time, one of Sydney's largest breweries, Tooth & Co., acquired an interest in (and later the freehold) for the Lord Raglan Hotel. Tooth & Co. Street Card records for the hotel start in the 1920s. The Alexandria Rate Books, however, indicate that they were the lessee from the Cooper Estate from at least 1904. Tooth & Co. had been founded in 1835 by John Tooth and his brother-in-law Charles Newman. The Company remained a separate entity (with the addition of Resches in 1929) until acquired by Carlton and United Breweries in 1983. The Lord Raglan Hotel was operated by sub-leases or managed by a licensee for the Company and remained in their ownership until at least the late 1960s. The hotel was one of numerous hotels that Tooth & Co. owned or leased in the Sydney area. Between 1898 and 1940, Toth's & Co. and their rival, Tooheys, acquired the freeholds of hundreds of pubs, largely taking control of the liquor trade in Sydney.

Surviving correspondence from the Tooth Company records indicates that the Lord Raglan Hotel was rebuilt around 1924. In this year the architect Sidney Warden wrote of a proposal for an

'..entirely new Building consisting of two stories..The building will be constructed of brick throughout. The elevations will have O.K. (sic) brick facings relieved with cement cornices, balcony and ornament etc. A suspended awning is to be erected over the footpath to the full extent in Wyndham Street and to the Private Entrance in Henderson Road, and a tiled dado will be formed under the awning...The Public Bar will be modernly appointed with suspended canopy..and the whole of the building to be finished in a first class manner..To erect by building according to my sketch plan would cost approximately eight thousand pounds (£8,000).'

Warden later notes that the new building will cover more of the site than the earlier one. Plans held by the State Archives (Liquor Licensing Board, Plans 69564 and 69565) may well be Warden's plans for the hotel.

Warden's practice concentrated on the design of hotel buildings in a variety of styles. In 1941 Warden designed the County Clare Hotel for Tooth & Co in 1941, a fine example of the Interwar Functionalist Style which still stands on Broadway. Warden also designed the Royal Hotel, on the corner of Queen Street and Auburn Road in Auburn (c.1940s), this time in the P & O. Style. The Lord Raglan Hotel provides a modest example of the Interwar Stripped Classical Style. The finest examples of this style of architecture are provided by the government buildings constructed in Canberra during the interwar period, including the Provisional Parliament House (Old Parliament House). An example of a hotel in the City of Sydney also built in this style is provided by the Bat and Ball Hotel, on the corner of Cleveland and South Dowling Street. This building is listed as a heritage item on the LEP.

Seventeen tenders were received for Warden's proposal (September, 1924) to rebuild the Lord Raglan Hotel. The new building was evidently finished by September 1927, as indicated by a complaint made concerning a leaking parapet. The cost of construction is not known. The building was photographed for the Tooth & Co. Company records in August 1930 (Figure 2) and again in the mid 1940s (Figure 3) At this time, the surrounding area was described as 'industrial, poor class residential'. A foot print of the building as it stood in 1951 is provided by Figure 4.

A major renovation was carried out in 1956 to plans prepared by the original architect of the building, Sidney Warden. A copy of these plans is held by the City of Sydney Archives. The cost of the new works was placed at £22,034.8.8. The work involved new doors and windows to the ground floor, new doors onto the first floor balcony overlooking Henderson Road and internal alterations (Figure 5).

More recently, at an unknown date, the tiling was redone to the ground floor elevations and new doors provided.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Commerce-Activities relating to buying, selling and exchanging goods and services	(none)-
4. Settlement-Building settlements, towns and cities	Towns, suburbs and villages-Activities associated with creating, planning and managing urban functions, landscapes and lifestyles in towns, suburbs and villages	Community facilities-

5. Working-Working	Labour-Activities associated with work practises and organised and unorganised labour	(none)-
8. Culture- Developing cultural institutions and ways of life	Creative endeavour-Activities associated with the production and performance of literary, artistic, architectural and other imaginative, interpretive or inventive works; and/or associated with the production and expression of cultural phenomena; and/or environments that have inspired such creative activities.	(none)-
8. Culture- Developing cultural institutions and ways of life	Leisure-Activities associated with recreation and relaxation	(none)-
9. Phases of Life-Marking the phases of life	Persons-Activities of, and associations with, identifiable individuals, families and communal groups	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] The site has been the location of a hotel since the late nineteenth century, with the existing building dating from c.1924.

SHR Criteria b) [Associative significance] The Lord Raglan Hotel has significance for its long association with Tooths & Co., one of Sydney's major breweries. The hotel was one of many owned by Tooths & Co. within the Sydney metropolitan area during the period 1890 to 1940. It is among a number of hotels rebuilt by the brewery during the inter-war period.

The Lord Raglan Hotel has significance under this criterion for its association with the architect Sidney Warden who designed hotels in a variety of styles, including P.& O. Style and Inter-war Functionalist Style.


SHR Criteria c) [Aesthetic significance] A modest, yet handsome, example of the Inter-war Stripped Classical Revival Style, occupying a corner site, which has a natural prominence within an otherwise mixed streetscape. It forms part of an interesting group of late Federation/Inter-war hotels within the immediate vicinity with the Alexandria Hotel, The Abbots and Cricketers Arms

SHR Criteria d) [Social significance] The hotel is held in high esteem as a social and recreational venue particularly for nearby residents.

SHR Criteria f) [Rarity] The building is not rare.

SHR Criteria g) [Representativeness] The Lord Raglan Hotel is representative of a modest yet handsome Inter-war era Stripped Classical Revival style hotel of the type and standard built by Tooths & Co. throughout the suburbs of Sydney at this time.

Integrity/Intactness : The Lord Raglan Hotel displays a mixed degree of integrity. While the basic form and external appearance of the hotel remained unaltered, the 1956 works were quite extensive. These alterations were, however, designed by the original architect for the building. In more recent times, the front walls have been retiled, the doors changed and the bar refitted. This has had a negative impact on the external presentation of the ground floor of the hotel as an Inter-war hotel.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved.

A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken.

All conservation, adaptive reuse and future development should be undertaken in accordance with the Australia ICOMOS Charter for Places of Cultural Significance (The Burra Charter).

There shall be no vertical additions to the building and no alterations to the façades of the building other than to reinstate original features particularly at ground floor level.

The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring, wall tiles and the main stair should be

retained and conserved.

Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Recommendations

Management Category	Description	Date Updated
Statutory Instrument	Nominate for State Heritage Register (SHR)	17 Mar 16

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I16	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Graphic		1951	Sydney Civic Survey, Zetland, Frame 19 (27)	
Written	Christine Edney	2006	Where have all the drinking holes gone? An hisotrical surey of hotels and similar premises in the city of Sydney Council area South of Cleveland St	
Graphic	NSW Lands Department	1895	Sydney Metropolitan Detail Series, Waterloo Section 8	
Written	Tooth & Co.		Tooth & Co. Company Records: Yellow Series: Lord Raglan Hotel	
Graphic	Warden, Sidney	1956	Alterations and additions to the Lord Raglan Hotel, Corner Henderson Road and Wyndham Street, Alexandria	

Note: internet links may be to web pages, documents or images.



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Terrace Group (17A-29 Retreat Street) Including Interiors

Item details

Name of item:	Terrace Group (17A-29 Retreat Street) Including Interiors
Other name/s:	Chinese Victorian Terrace House Group
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	Terrace
Primary address:	16-29 Retreat Street, Alexandria, NSW 2000
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
16-29 Retreat Street	Alexandria	Sydney			Primary Address
17A-29 Retreat Street	Alexandria	Sydney	Alexandria	Cumberland	Alternate Address

Statement of significance:

These terraces are of historical and social significance to a section of Sydney's Chinese community. For approximately 130 years, the precinct has provided practical assistance and spiritual support for community members seeking to establish themselves in Australia. The Temple and terraces symbolically represent the Chinese Market gardening community who occupied a large portion of this area thereby representing a focus for the Chinese community within the Sydney area.

Date significance updated: 17 Jul 01

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: The precinct consists of two distinct architectural components: a row of ten, two storey, late nineteenth century brick workers' terraces and a temple that opens onto a walled garden (see Inventory Sheet: Yiu Ming Temple). One end of the street has been enclosed by a high tile-capped brick wall and the other end by a gate forming an internal courtyard. The precinct is approached through a 'pailou', or ceremonial gate-way that was constructed in May 1981.

The two storey, rendered brick terraces are in two rows facing each other, 6 on the northern side and 4 on the southern side adjacent to the temple. They frame the street and form sides of an internal courtyard which is the main social space used by the residents and visitors.

Physical condition and/or Archaeological potential: Good physical condition.

Date condition updated: 31 Aug 01

Modifications and dates: 1998/9: refurbishment of terraces including the demolition of single storey rear additions.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Nine residences and one store room/meeting area/office.

Former use: Residences

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as to whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

Alexandria was made up from a number of land grants and part land grants. They included a: 30 acre grant made in 1822 to J. King known as the 'King's Clear' grant; part of William Hutchinson's 1400 acre grant; part of Newnham's grant of 45 acres; and I.J. Cambell's grant of 185 acres.

These houses were part of the Waterloo Estate, and part of the original Crown land grant of 1400 acres to William Hutchinson, dated 27/05/1823.

Maps of Alexandria from the 1880s show extensive market gardens worked by Chinese on the surrounding land, extending south from Retreat Street into marsh land along Sheas Creek. By 1890, it was estimated that about 100 Chinese community members lived in Retreat street. The Chinese leased the houses in Retreat Street until July 1908 when the Society- then known as the Hung Fook Tong- purchased the rectangular block of land.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy- Developing local, regional and national economies	Agriculture-Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	(none)-
4. Settlement- Building settlements, towns and cities	Accommodation-Activities associated with the provision of accommodation, and particular types of accommodation – does not include architectural styles – use the theme of Creative Endeavour for such activities.	(none)-
7. Governing- Governing	Welfare-Activities and process associated with the provision of social services by the state or philanthropic organisations	(none)-

Assessment of significance

SHR Criteria a) [Historical significance] The site is historically significant as it has recorded the history of continuous Chinese occupation since the 1870s.

SHR Criteria b) [Associative significance] The Temple and terraces symbolically represent the Chinese Market gardening community who occupied a large portion of this area thereby representing a focus for the Chinese community within the Sydney area.

SHR Criteria c) [Aesthetic significance] The terraces frame the street forming the sides of an internal courtyard which is the main social space used by the residents and visitors - thus adopting a Sydney streetscape to the traditional enclosed communal spaces of Chinese villages.

SHR Criteria d)

[Social significance]

The precinct continues to provide a social and cultural centre for the Sydney community of Cantonese speaking Chinese-Australians who come from Gaoyao and Gaoming counties in the southern province of Guangdong in mainland China. The society plays an important role in providing low rent accommodation, financial support and employment opportunities for its elderly members and new arrivals housing them in nine of the ten terrace houses adjacent to the temple. This support was especially important when government policy meant that many community members were forced to live with only irregular contact with partners and families who were still in China.

The precinct is also significant as an inner Sydney streetscape which has adapted to form the traditional enclosed communal space of a Chinese village.

SHR Criteria f)

[Rarity]

Rare in terms of social significance.


SHR Criteria g)

[Representativeness]

Retreat street represents a community approach to survival and adaptation to life in a new country.

Integrity/Intactness Medium

:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I29	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	A joint project of the Powerhouse Museum and the Yiu Ming Society	1996	Yiu Ming Temple Precinct: A conservation report on its architecture and objects.	
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Stephen, Ann (Editor)	1997	The Lions of Retreat Street: a Chinese temple in inner Sydney.	
Written	Townley, Pat	1999	NSW State Heritage Inventory form	

Note: internet links may be to web pages, documents or images.



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Data source

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Terrace Group Including Interiors

Item details

Name of item:	Terrace Group Including Interiors
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	Terrace
Primary address:	79-89 Mitchell Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
79-89 Mitchell Road	Alexandria	Sydney			Primary Address

Statement of significance:

78-89 Mitchell Street is of historical significance as early residential development after the land subdivision. They have aesthetic significance, as a group of intact single storey Victorian terraces, which contribute to the streetscape and character of the local area.

Date significance updated: 07 Feb 13

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Single storey Victorian terrace house group for working class people. Features plain front parapet, ogee verandah roof, twin-arched windows and rectangular doorways, palisade fences. Front walls are rendered. Skillion roofs behind parapet wall and rear wings are paired.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as to whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I25	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	

Note: internet links may be to web pages, documents or images.

Data source

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Terrace Group Including Interiors

Item details

Name of item:	Terrace Group Including Interiors
Type of item:	Built
Group/Collection:	Residential buildings (private)
Category:	Terrace
Primary address:	91-95 Mitchell Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
91-95 Mitchell Road	Alexandria	Sydney			Primary Address

Statement of significance:

91-95 Mitchell Road is of local historical and aesthetic significance. It comprises three terraces built at the turn of 20th century as workers housing likely to be associated with the nearby factories. They contribute to the character of the streetscape.

Date significance updated: 07 Feb 13

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: A group of 3 Single storey Victorian terrace houses, featuring pitched roof and bull-nose verandah roof. A central gablet presents on the front.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as to whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I26	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	

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The Glenroy Hotel Including Interior

Item details

Name of item:	The Glenroy Hotel Including Interior
Other name/s:	Salutation Inn
Type of item:	Built
Group/Collection:	Commercial
Category:	Hotel
Primary address:	246-250 Botany Road, Alexandria, NSW 2015
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
246-250 Botany Road	Alexandria	Sydney			Primary Address

Statement of significance:

The Glenroy Hotel is of historical significance as an early hotel use on the site (1858), though the current hotel appears to be circa 1910. It is associated with Tooth's breweries. It is of aesthetic significance as a good representative example of a Federation Arts & Crafts style hotel.

Date significance updated: 07 Feb 13

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Designer/Maker: John Hellyer - 1941 alterations

Physical description: The Glenroy Hotel is a compact, two storey building set on a corner site. It makes reference to the "Olde English" Mock Tudor style, still fashionable at the time of construction. Originally square in plan, alterations in the 1960s extended the building to the west along Retreat Street.

The hipped roof is defined by a high ridge line, Marseilles tile cladding, and exposed rafters. A faux crenulated turret, with a tudoresque chimney is set between a symmetrical pair of projecting half-timbered gables facing each street.

Both elevations are treated in identical fashion, constructed of rendered and painted brick. Set under each gable is a shingled timber awning sheltering pairs of double hung timber frame windows set on bracketed sills. Between the awnings a further three windows are set into a crenulated turret.

There is a curved cantilevered awning with a 'Wunderlich' pressed metal soffit.

There are glazed ceramic tiles to the ground floor facade, with wall-mounted poster cases. Inset doors and joinery appear original. The ground floor interior contains an impressive pressed metal ceiling.

Physical condition and/or Archaeological potential: Very intact. In the 1930s the hotel was altered including ground floor façade tiling. There were building applications in 1956 and 1960 for alterations and additions including a BA to renovate the public bar.

Date condition updated: 12 May 06

Modifications and dates: c1941: alterations including awning and ground floor façade tiling.

C. 1960s: low scale addition..

Prominent external signage detracts from the item's visual integrity and from an immediate appreciation of the item's original style.

Overall, alterations and additions do not overly detract from the general presentation of the

building

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: Hotel

Former use: Hotel

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today.

The first hotel at this site is listed in the 1858 Sands Directory and was named Salutation Hotel - licensee Thomas B Goldfinch. Sands does not show any listing in 1865, 1868 or 1876, however the Hotel appears in Sands again in 1882 and 1885 as Salutation Inn, licensee William Hawkshaw. In 1886 the Licensed Victualler's directory shows the licensee as John E Gibbons. In the 1880s and 1890s maps shows the hotel called Salutation Hotel, but by 1900 it has been renamed Glenroy Hotel. The premises were a Tooth's hotel. In 1892 the licensee was James Cull. In 1990 and 1910 the licensee was Charles Glendenning. It is suspected that Glendenning, as a long-term licensee in the relevant period, may have been responsible for the Federation Arts & Crafts appearance of the hotel. In 1920, Mrs Harriet Buckingham. The 1927 in Sands was Walter Swales, in 1910 and 1920 Sands listed the hotel as at 242 Botany Road. In 1948 the hotel is listed as 242 Botany Road, licensee Mary A Glasheen. In 1956 the licensee is listed as RE Munro in a Building Inspector's survey. There were building applications in 1956 and 1960 for alterations and additions including a BA to renovate the public bar. [sourced from Christine Edney's "Where did the drinking holes go: an historical survey of City of Sydney hotels south of Cleveland Street", 2006].

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Commerce-Activities relating to buying, selling and exchanging goods and services	(none)-
8. Culture-Developing cultural institutions and ways of life	Leisure-Activities associated with recreation and relaxation	(none)-


Assessment of significance

SHR Criteria a) [Historical significance] It is of historical significance as an early hotel use on the site (1858), though the current hotel appears to be circa 1910.

SHR Criteria b) [Associative significance] Associated with Tooth's breweries.

SHR Criteria c) [Aesthetic significance] The Glenroy Hotel is of aesthetic significance as a good representative example of a Federation Arts & Crafts style hotel.

SHR Criteria g) [Representativeness] Representative example of a Federation Arts & Crafts style hotel.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. As the building has an early history, despite its Federation Arts & Crafts style appearance, the building would warrant a Conservation Management Plan to determine whether parts of the building pre-date the Federation period, prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I6	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Christine Edney	2006	Where did the drinking holes go: an historical survey of City of Sydney hotels south of Cleveland Street	

Note: internet links may be to web pages, documents or images.



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Warehouse Including Interior

Item details

Name of item:	Warehouse Including Interior
Type of item:	Built
Group/Collection:	Commercial
Category:	Warehouse/storage area
Primary address:	32-42 McCauley Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
32-42 McCauley Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Statement of significance:

The façade of the building is representative of the small-scale industrial development in the inter-war period. It is a good example of an Art deco façade and contributes to the streetscape.

Date significance updated: 15 May 12

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: Single storey brick Inter-War Art Deco style warehouse built in face brickwork and with decorative details.

Date condition updated: 28 Jun 01

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as to whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government

legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

Assessment of significance


SHR Criteria a) [Historical significance] it dates from c1930, an important industrial development period in the local area

SHR Criteria c) [Aesthetic significance] The façade is a good example of Art Deco Style and the repetitive pattern is impressive.

SHR Criteria g) [Representativeness] The warehouse group is representative of the small scale industrial establishments in South Sydney area.

Integrity/Intactness intact

:

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Local Environmental Plan	Sydney LEP 2012	I21	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	

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Yiu Ming Temple

Item details

Name of item:	Yiu Ming Temple
Other name/s:	Yiu Ming Hung Fook Tong Temple, Chinese Temple, Hong Sheng Gong, Hung Sheng Gong
Type of item:	Built
Group/Collection:	Religion
Category:	Shrine
Location:	Lat: -33.9024702864 Long: 151.2007268590
Primary address:	16-22 Retreat Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney
Local Aboriginal Land Council:	Metropolitan

Property description

Lot/Volume Code	Lot/Volume Number	Section Number	Plan/Folio Code	Plan/Folio Number
LOT	1		DP	197155

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
16-22 Retreat Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Owner/s

Organisation Name	Owner Category	Date Ownership Updated
Yiu Ming Society	Religious Organisation	

Statement of significance:

The temple is of historical, architectural, religious and social significance to a section of Sydney's Chinese community. The Yiu Ming is one of the oldest and largest Chinese Societies. For approximately 130 years, the temple and its community and environment have provided practical assistance and spiritual support for community members seeking to establish themselves in Australia.

Architecturally, the building is significant for its blending of traditional design, local materials and Federation detailing. The building has not been significantly modified since construction. The most significant modifications, following recent fire damage, replicated original form and materials as much as possible. The elaborate fittings of the temple provide evidence of community commitment to the temple and also demonstrate the skill of Chinese artisans at the beginning of the 20 th century.

As many village temples in China no longer exist, this fine, intact example is considered to be of both local and international significance.

Date significance updated: 30 Jun 99

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Physical description: The temple remains much as it was when originally built. Most of the internal fittings date from this time. The temple walls are of red-faced brick, originally tuck pointed. The internal floor is of tessellated tiles with a white marble edging. Many internal details are of timber. The area is

lit and ventilated by a 'roof lantern' over a sunken floor section designed for burning incense and oil. Doors and fittings, including the main altar, are original.

Physical condition and/or Archaeological potential:

The physical condition of the Temple is sound and most associated objects are in stable condition.

Date condition updated: 30 Jun 99

Modifications and dates:

The following modifications to the temple and objects have been identified:

Following fire damage (Dec '96) the temple and some associated objects were restored (during 1997). The temple roof was replicated using imported Chinese tiles. Damaged timber panels from the temple interior were restored. Undamaged wooden items were cleaned. The main light fitting of the temple was reconstructed around the original frame. The altar table, which was completely destroyed, was replaced. The altar itself was cleaned and the central painting was re-painted. The temple was re-wired and repainted. The garden was tiled. The main burner of the temple has been moved outside to minimise smoke damage and the sunken floor area which housed it has been filled in by the addition of removable timber panels.

A number of earlier modifications have also been identified:

The roof of the temple was repaired, incorporating quad and square metal downpipes on the east and West sides, addition of concrete angled tiles and decorative ceramic tiles over the gateway. This is estimated to have been done in the 1950' Or 60's. Electricity was fitted to the temple, most likely in the 1960's or 70's

Cracks in the external brickwork of the temple appear to have been repaired and patched, perhaps a number of times. The tiled surfaces of the temple show evidence of repair. Cement was used at some stage to repair the decorative ridge tiles. The community room and kitchen, built as an extension to the rear of the terrace closest to the temple, shows evidence of repeated modification, in 1930's, 1950's 1970's and most recently in 1996, when the kitchen area was refurbished. The building was documented before the last modification. The pailou and tile capped perimeter wall were added in 198. The terrace houses and street are currently being refurbished 1998-9.

Further information: Associated objects that were not restored after fire damage in 1996, still show evidence of oil and smoke staining as a result of long exposure to burning oil and incense.

Current use: The temple is a place of worship, community activity and celebration.

Former use: Temple

History

Historical notes: 1870's Earliest temple records (of the Yiu Ming Hung Fook Tong) list members. Members then, as now, come from two counties, Gaoyao/Gouyiu and Gaoming/Gouming, in the province of Guangdong (formerly known as Canton). 1880's Alexandria council rate books list many Chinese community members. By 1890 it was estimated that about 100 Chinese community members lived in Retreat Street. In 1908, construction of the temple begins. In 1907, 1909 and 1917, the commissioned works for the interior of the temple date from these years. Two private companies, Tiy Loy and Co. and Wah Hing and Co. were established by society members, with premises on Botany Road, adjacent to Retreat Street. In 1910 Society records list members in Rose Bay, Botany, Waterloo, Kogarah, Northern Sydney, Canberra, Bombala and Newcastle. The figurative ceramic roof tiles were imported from Foshan ceramic works. In 1949 Chinese Revolution bans return of the bones of Chinese who die overseas. In 1950 Society members are able to apply for Naturalisation and are able to bring family members to live in Australia. 15 years residency in Australia is a prerequisite. In 1980's Society membership increases dramatically as a result increasing immigration. This growth pattern continues. In May 1981 Addition of pailou and tile capped wall, enclosing Retreat Street. In 1990 Committee for the Yiu Ming Society is formed and the committee members are elected. Previously officials were not elected. The name of the Society was changed and shortened from Yiu Ming Hung Fook Tong Society to Yiu Ming Society. In 1995/6 Conservation documentation of the Temple and Retreat Street is done. In December 1996 fire at temple is quickly extinguished and smoke and water damage minimised by fire brigade crew who recognise the special nature of the building and associated objects. In 1996 the Women's Committee is formed and members are selected/ elected by the Yiu Ming Committee. In 1997/8 building and associated objects are restored and cleaned. Project worked on by community artisans and architects as well as Powerhouse Museum staff. Conservation documentation informs this work. In 1998/99 temple re-opened around Chinese New Year. The terrace houses are refurbished, improving living conditions for the elderly residents.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
2. Peopling-Peopling the continent	Ethnic influences-Activities associated with common cultural traditions and peoples of shared descent, and with exchanges between such traditions and peoples.	Chinese religious practices-
7. Governing-Governing	Welfare-Activities and process associated with the provision of social services by the state or philanthropic organisations	(none)-
8. Culture-Developing cultural institutions and ways of life	Religion-Activities associated with particular systems of faith and worship	(none)-

Assessment of significance

SHR Criteria a)

[Historical significance]

The site has a recorded history of continuous Chinese occupation since the 1870's.

The temple and many fittings and associated objects have remained substantially intact. The site and the temple are associated with many significant Chinese community members. These include Sam Warley, who operated a large import business with branches in Perth and Hong Kong, John Hoe, who operated a large timber business and formed the NSW Chinese Chamber of Commerce and Deen Bong, a successful cabinet maker who was an early manager of Tiy Loy and Co.

Many society members have been influential in the introduction, growing, marketing and distribution of Chinese vegetables and food. Society members have also helped to maintain Chinese festivals and celebrations, including the lion dance

SHR Criteria c)

[Aesthetic significance]

It represents a unique blend of Chinese temple design and Federation detailing. It seems likely that Federation detailing drew heavily on the decorative elements of the Chinese building tradition. The building is an example of the aesthetic of village temples. Standardised building codes and systems meant that temples built outside China strongly resemble those built within China. Exposed rafters and purlins demonstrate traditional Chinese roof structure and demonstrate the flexibility of this system. The highly coloured decorative paintwork used throughout is a very strong aesthetic statement the figurative ceramic roof ridge tiles are a very strong element of the external architecture of the temple. The interior fittings and objects, commissioned from China, represent excellent examples of Chinese decorative arts at the time the temple was built. Many similar pieces have been destroyed in China so that the aesthetic significance of this material is very high.

SHR Criteria d)

[Social significance]

The complex has remained a cultural, religious and social centre for the community.

The temple Society has assisted community members, especially those newly arrived in Australia, by providing low cost housing, financial support and employment opportunities. This support was especially important when government policy meant that many community members were forced to live with only irregular contact with partners and families, who were still in China. Before the practice was banned, following the Chinese Revolution of 1949, Society members also arranged to return the bones of dead members to China for burial. Painted panels inside the temple list donors at the time of construction of the temple. These panels often refer to loyalty, brotherhood and the wish for happiness, prosperity and longevity. Many current Society members are able to identify the names of grandfathers, great uncles and other forebears on these panels and in the written records of the Society. The temple strongly communicates a sense of community identity and continuity. The Yiu Ming temple siting, orientation and layout follow principles of Chinese cosmology commonly known as feng shui. The main deity of the temple is Hong Sheng. "god of the southern seas". Hong Sheng is not a common deity either for Chinese Australians or for people from southern China. Cai Shen and Guan Di are other gods represented in the temple. The temple iconography includes much Daoist symbolism, including representations of the 8 Immortals and 8 precious things. There is also reference to Buddha.

SHR Criteria e)

[Research potential]

The temple illustrates various technical adaptations to local conditions and materials. It also demonstrates the internationally recognised versatility and innovative skills of Chinese carpenters during the late 19th and early 20th centuries.

Given the scarcity of examples of this scale of 'village' temple, even in China, the general adherence to traditional design principles is also of technical interest.

Inscriptions on the painted panels inside the temple provide much information about society members enabling further research into the history of the Society and its members. The records and documents of the Society appear to have been maintained. The Society's relationship to business, market gardening and the Chinese cemetery area at Rookwood are all significant areas for further research.

SHR Criteria f)

This temple is one of only a small number (9?) of Chinese temples that survive in Australia. It

[Rarity]


also illustrates traditional Chinese architecture in transition, displaying various adaptations to local conditions and materials. The temple houses a range of movable objects that were specially commissioned by the community from artists and craftsmen in Guandong at the time that the temple was constructed. In mainland China, many village temples of this period have either been destroyed or are used for other purposes.

SHR Criteria g)

[Representativeness]

The building is an example of Chinese village temple design with distinctive local elements. Retreat Street represents a community approach to survival and adaptation to life in a new country.

Integrity/Intactness The physical fabric of the temple and its associated objects retain evidence of the historical, architectural, social and spiritual significance of this site.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Procedures /Exemptions

Section of act	Description	Title	Comments	Action date
57(2)	Exemption to allow work	Standard Exemptions	<p>SCHEDULE OF STANDARD EXEMPTIONS</p> <p>HERITAGE ACT 1977</p> <p>Notice of Order Under Section 57 (2) of the Heritage Act 1977</p> <p>I, the Minister for Planning, pursuant to subsection 57(2) of the Heritage Act 1977, on the recommendation of the Heritage Council of New South Wales, do by this Order:</p> <p>1. revoke the Schedule of Exemptions to subsection 57(1) of the Heritage Act made under subsection 57(2) and published in the Government Gazette on 22 February 2008; and</p> <p>2. grant standard exemptions from subsection 57(1) of the Heritage Act 1977, described in the Schedule attached.</p> <p>FRANK SARTOR</p> <p>Minister for Planning</p> <p>Sydney, 11 July 2008</p> <p>To view the schedule click on the Standard Exemptions for Works Requiring Heritage Council Approval link below.</p>	Sep 5 2008

 **Standard exemptions** for works requiring Heritage Council approval

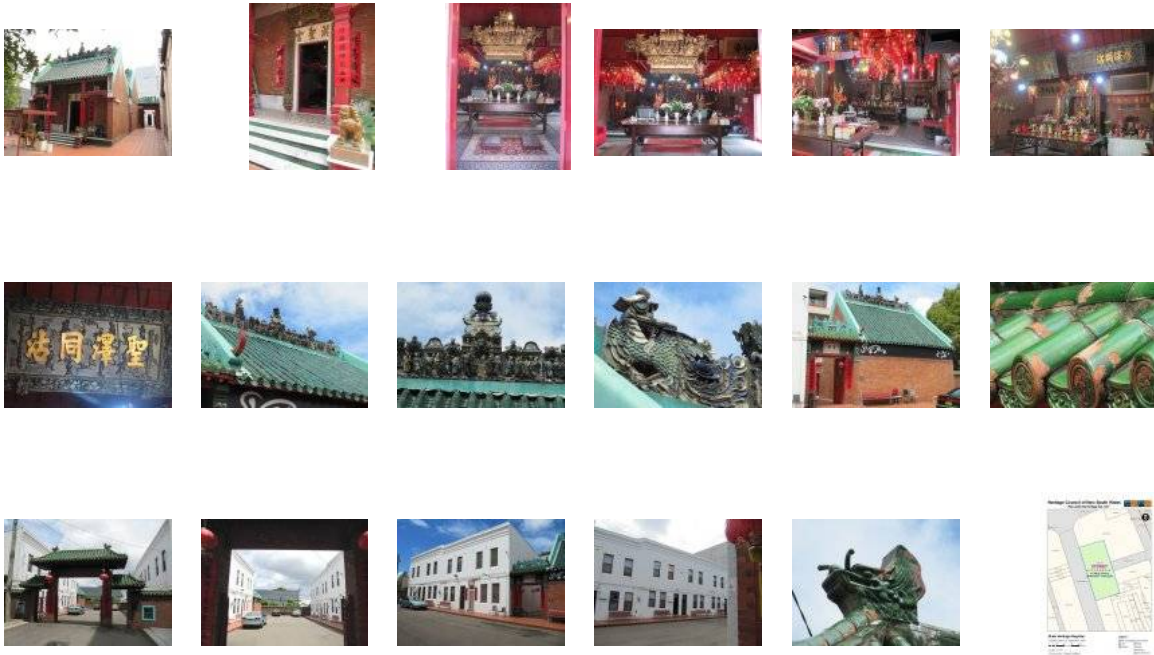
Listings

Heritage Listing	Listing Title	Listing Number	Gazette Date	Gazette Number	Gazette Page
Heritage Act - State Heritage Register		01297	24 Sep 99	111	9209

References, internet links & images

None

Note: internet links may be to web pages, documents or images.



(Click on thumbnail for full size image and image details)

Data source

The information for this entry comes from the following source:

Name: Heritage Office
Database number: 5044695
File number: H99/00041

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Yiu Ming Temple Including Building, Interior and Front Court

Item details

Name of item:	Yiu Ming Temple Including Building, Interior and Front Court
Type of item:	Built
Group/Collection:	Religion
Category:	Other - Religion
Primary address:	16-22 Retreat Street, Alexandria, NSW 2015
Parish:	Alexandria
County:	Cumberland
Local govt. area:	Sydney

All addresses

Street Address	Suburb/town	LGA	Parish	County	Type
16-22 Retreat Street	Alexandria	Sydney	Alexandria	Cumberland	Primary Address

Statement of significance:

The temple is of historical, architectural, religious and social significance to a section of Sydney's Chinese community. The Yiu Ming is one of the oldest and largest Chinese Societies. For approximately 130 years, the temple and its community and environment have provided practical assistance and spiritual support for community members seeking to establish themselves in Australia. Architecturally, the building is significant for its blending of traditional design, local materials and Federation detailing. The building has not been significantly modified since construction. The most significant modifications, following recent fire damage, replicated original form and materials as much as possible. The elaborate fittings of the temple provide evidence of community commitment to the temple and also demonstrate the skill of Chinese artisans at the beginning of the 20th century. As many village temples in China no longer exist, this fine, intact example is considered to be of both local and international significance.

The Yiu Ming Temple is an excellent example of traditional Chinese architecture displaying various adaptations to local conditions and materials. It is one of only nine surviving early Chinese Temples in Australia.

Date significance updated: 20 Oct 04

Note: There are incomplete details for a number of items listed in NSW. The Heritage Division intends to develop or upgrade statements of significance and other information for these items as resources become available.

Description

Construction years: 1908-1910

Physical description: The precinct consists of two distinct architectural components: a row of ten, two storey, late nineteenth century brick workers' cottages (see 'Chinese Victorian Terrace House Group, Alexandria') and a temple that opens onto a walled garden. One end of the street has been enclosed by a high brick wall and the other end by a gate forming an internal courtyard. The precinct is approached through a 'pailou', or ceremonial gate-way that was constructed in May 1981.

The Temple is designed as a 2 block layout. The front and the rear blocks are set at different heights and are separated by a small enclosed sunken courtyard. The area is top lit by a pyramidal 'roof lantern' incorporating large fixed windows by a mosaic of alternating coloured glass. Both the covered courtyards and stained glass are an usual tradition for Chinese temples (illustrating the Australian influence) (Stephen, 1997: 32). The temple remains much as it was when originally built. Most of the internal fittings date from this time. The temple walls are of red-faced brick, originally tuck pointed. The internal floor is of tessellated tiles with a white marble edging. Many internal details are of timber. The area is lit and ventilated by a 'roof lantern' over a sunken floor section designed for burning incense and oil. Doors and

fittings, including the main altar, are original.

The Temple and the surrounding site follow certain principles of Chinese cosmology known as feng shui (wind and water). For example the Temple's entrance faces south reflecting the belief that the south embodies the sun-orientated principle of yang while a solid north wall is built to deflect the cold yin principle.

Before the present structure existed, a timber shrine surrounded by timber huts were on the site. In 1904, the Yiu Ming Society members met and supported the rebuilding of a new temple (the present structure)

Physical condition and/or Archaeological potential:

The physical condition of the Temple is sound and most associated objects are in stable condition. Date Condition Updated: 30 Jun 99

Date condition updated: 20 Oct 04

Modifications and dates:

The following modifications to the temple and objects have been identified: Following fire damage (Dec '96) the temple and some associated objects were restored (during 1997). The temple roof was replicated using imported Chinese tiles. Damaged timber panels from the temple interior were restored. Undamaged wooden items were cleaned. The main light fitting of the temple was reconstructed around the original frame. The altar table, which was completely destroyed, was replaced. The altar itself was cleaned and the central painting was re-painted. The temple was re-wired and repainted. The garden was tiled. The main burner of the temple has been moved outside to minimise smoke damage and the sunken floor area which housed it has been filled in by the addition of removable timber panels. A number of earlier modifications have also been identified: The roof of the temple was repaired, incorporating quad and square metal downpipes on the east and West sides, addition of concrete angled tiles and decorative ceramic tiles over the gateway. This is estimated to have been done in the 1950' Or 60's. Electricity was fitted to the temple, most likely in the 1960's or 70's Cracks in the external brickwork of the temple appear to have been repaired and patched, perhaps a number of times. The tiled surfaces of the temple show evidence of repair. Cement was used at some stage to repair the decorative ridge tiles. The community room and kitchen, built as an extension to the rear of the terrace closest to the temple, shows evidence of repeated modification, in 1930's, 1950's 1970's and most recently in 1996, when the kitchen area was refurbished. The building was documented before the last modification. The pailou and tile capped perimeter wall were added in 198. The terrace houses and street are currently being refurbished 1998-9.

Further Information: Associated objects that were not restored after fire damage in 1996, still show evidence of oil and smoke staining as a result of long exposure to burning oil and incense.

Further information: Heritage Inventory sheets are often not comprehensive, and should be regarded as a general guide only. Inventory sheets are based on information available, and often do not include the social history of sites and buildings. Inventory sheets are constantly updated by the City as further information becomes available. An inventory sheet with little information may simply indicate that there has been no building work done to the item recently: it does not mean that items are not significant. Further research is always recommended as part of preparation of development proposals for heritage items, and is necessary in preparation of Heritage Impact Assessments and Conservation Management Plans, so that the significance of heritage items can be fully assessed prior to submitting development applications.

Current use: The temple is a place of worship, community activity and celebration.

History

Historical notes: The "Eora people" was the name given to the coastal Aborigines around Sydney. Central Sydney is therefore often referred to as "Eora Country". Within the City of Sydney local government area, the traditional owners are the Cadigal and Wangal bands of the Eora. There is no written record of the name of the language spoken and currently there are debates as whether the coastal peoples spoke a separate language "Eora" or whether this was actually a dialect of the Dharug language. Remnant bushland in places like Blackwattle Bay retain elements of traditional plant, bird and animal life, including fish and rock oysters.

With the invasion of the Sydney region, the Cadigal and Wangal people were decimated but there are descendants still living in Sydney today. All cities include many immigrants in their population. Aboriginal people from across the state have been attracted to suburbs such as Pyrmont, Balmain, Rozelle, Glebe and Redfern since the 1930s. Changes in government legislation in the 1960s provided freedom of movement enabling more Aboriginal people to choose to live in Sydney.

(Information sourced from Anita Heiss, "Aboriginal People and Place", Barani: Indigenous History of Sydney City <http://www.cityofsydney.nsw.gov.au/barani>)

Alexandria was made up from a number of land grants and part land grants. They included a: 30 acre grant made in 1822 to J. King known as the 'King's Clear' grant; part of William Hutchinson's 1400 acre grant; part of Newnham's grant of 45 acres; and I.J. Cambell's grant of 185 acres.

Maps of Alexandria from the 1880s show extensive market gardens worked by Chinese on the surrounding land, extending south from Retreat Street into marsh land along Sheas Creek. The Chinese leased the houses in Retreat Street until July 1908 when the Society- then known as the Hung Fook Tong- purchases the rectangular block of land. 1870's Earliest temple records (of the Yiu Ming Hung Fook Tong) list members. Members then, as now, come from two counties, Gaoyao/Gouyiu and Gaoming/Gouming , in the province of Guangdong (formerly known as Canton). 1880's Alexandria council rate books list many Chinese community members. By 1890 it was estimated that about 100 Chinese community members lived in Retreat Street. In 1908, construction of the temple begins. In 1907, 1909 and 1917, the commissioned works for the interior of the temple date from these years. Two private companies, Tiy Loy and Co. and Wah Hing and Co. were established by society members, with premises on Botany Road, adjacent to Retreat Street. In 1910 Society records list members in Rose Bay, Botany, Waterloo, Kogarah, Northern Sydney, Canberra, Bombala and Newcastle. The figurative ceramic roof tiles were imported from Foshan ceramic works. In 1949 Chinese Revolution bans return of the bones of Chinese who die overseas. In 1950 Society members are able to apply for Naturalisation and are able to bring family members to live in Australia. 15 years residency in Australia is a prerequisite. In 1980's Society membership increases dramatically as a result increasing immigration. This growth pattern continues. In May 1981 Addition of pailou and tile capped wall , enclosing Retreat Street. In 1990 Committee for the Yiu Ming Society is formed and the committee members are elected. Previously officials were not elected. The name of the Society was changed and shortened from Yiu Ming Hung Fook Tong Society to Yiu Ming Society. In 1995/6 Conservation documentation of the Temple and Retreat Street is done. In December 19996 fire at temple is quickly extinguished and smoke and water damage minimised by fire brigade crew who recognise the special nature of the building and associated objects. In 1996 the Women's Committee is formed and members are selected/ elected by the Yiu Ming Committee. In 1997/8 building and associated objects are restored and cleaned. Project worked on by community artisans and architects as well as Powerhouse Museum staff. Conservation documentation informs this work. In 1998/99 temple re-opened around Chinese New Year. The terrace houses are refurbished, improving living conditions for the elderly residents.

Historic themes

Australian theme (abbrev)	New South Wales theme	Local theme
3. Economy-Developing local, regional and national economies	Agriculture-Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	(none)-
4. Settlement-Building settlements, towns and cities	Land tenure-Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	(none)-
7. Governing-Governing	Welfare-Activities and process associated with the provision of social services by the state or philanthropic organisations	(none)-
8. Culture-Developing cultural institutions and ways of life	Religion-Activities associated with particular systems of faith and worship	(none)-

Assessment of significance

SHR Criteria a)

[Historical significance]

The site is historically significant as it has recorded the history of continuous Chinese occupation since the 1870s. The temple and many fittings and associated objects have remained substantially intact. The site and the temple are associated with many significant Chinese community members. These include Sam Warley, who operated a large import business with branches in Perth and Hong Kong, John Hoe, who operated a large timber business and formed the NSW Chinese Chamber of Commerce and Deen Bong, a successful cabinet maker who was an early manager of Tiy Loy and Co. Many society members have been influential in the introduction, growing, marketing and distribution of Chinese vegetables and food. Society members have also helped to maintain Chinese festivals and celebrations, including the lion dance

SHR Criteria c)

The Temple is aesthetically significant as it represents a unique blend of Chinese temple

[Aesthetic significance] design and Federation detailing. It seems likely that Federation detailing drew heavily on the decorative elements of the Chinese building tradition. The building is an example of the aesthetic of village temples. Standardised building codes and systems meant that temples build outside China strongly resemble those built within China. Exposed rafters and purlins demonstrate traditional Chinese roof structure and demonstrate the flexibility of this system. The highly coloured decorative paintwork used throughout is a very strong aesthetic statement the figurative ceramic roof ridge tiles are a very strong element of the external architecture of the temple. The interior fittings and objects, commissioned from China, represent excellent examples of Chinese decorative arts at the time the temple was built. Many similar pieces have been destroyed in China so that the aesthetic significance of this material is very high.

SHR Criteria d)
[Social significance] The precinct continues to provide a social and cultural centre for the Sydney community of Cantonese speaking Chinese-Australians who come from Gaoyao and Gaoming counties in the southern province of Guangdong in mainland China.


The precinct is also significant as an inner Sydney streetscape which has adapted to form the traditional enclosed communal space of a Chinese village. The complex has remained a cultural, religious and social centre for the community. The temple Society has assisted community members, especially those newly arrived in Australia, by providing low cost housing, financial support and employment opportunities. This support was especially important when government policy meant that many community members were forced to live with only irregular contact with partners and families, who were still in China. Before the practice was banned, following the Chinese Revolution of 1949, Society members also arranged to return the bones of dead members to China for burial. Painted panels inside the temple list donors at the time of construction of the temple. These panels often refer to loyalty, brotherhood and the wish for happiness, prosperity and longevity. Many current Society members are able to identify the names of grandfathers, great uncles and other forebears on these panels and in the written records of the Society. The temple strongly communicates a sense of community identity and continuity. The Yiu Ming temple siting, orientation and layout follow principles of Chinese cosmology commonly known as feng shui. The main deity of the temple is Hong Sheng. "god of the southern seas". Hong Sheng is not a common deity either for Chinese Australians or for people from southern China. Cai Shen and Guan Di are other gods represented in the temple. The temple iconography includes much Daoist symbolism, including representations of the 8 Immortals and 8 precious things. There is also reference to Buddha.

SHR Criteria e)
[Research potential] The temple illustrates various technical adaptations to local conditions and materials. It also demonstrates the internationally recognised versatility and innovative skills of Chinese carpenters during the late 19th and early 20th centuries. Given the scarcity of examples of this scale of 'village' temple, even in China, the general adherence to traditional design principles is also of technical interest. Inscriptions on the painted panels inside the temple provide much information about society members enabling further research into the history of the Society and its members. The records and documents of the Society appear to have been maintained. The Society's relationship to business, market gardening and the Chinese cemetery area at Rookwood are all significant areas for further research.

SHR Criteria f)
[Rarity] The Temple is one of only nine surviving Chinese Temples in Australia. It also illustrates traditional Chinese architecture in transition, displaying various adaptations to local conditions and materials. The temple houses a range of movable objects that were specially commissioned by the community from artists and craftsmen in Guangdong at the time that the temple was constructed. In mainland China, many village temples of this period have either been destroyed or are used for other purposes.

SHR Criteria g)
[Representativeness] The building is an example of Chinese village temple design with distinctive local elements. Retreat Street represents a community approach to survival and adaptation to life in a new country.

Integrity/Intactness The physical fabric of the temple and its associated objects retain evidence of the historical, architectural, social and spiritual significance of this site.

Assessment criteria: Items are assessed against the  **State Heritage Register (SHR) Criteria** to determine the level of significance. Refer to the Listings below for the level of statutory protection.

Recommended management:

The building should be retained and conserved. A Heritage Assessment and Heritage Impact Statement, or a Conservation Management Plan, should be prepared for the building prior to any major works being undertaken. There shall be no vertical additions to the building and no alterations to the façade of the building other than to reinstate original features. The principal room layout and planning configuration as well as significant internal original features including ceilings, cornices, joinery, flooring and fireplaces should be retained and conserved. Any additions and alterations should be confined to the rear in areas of less significance, should not be visibly prominent and shall be in accordance with the relevant planning controls.

Listings

Heritage Listing	Listing Title	Listing	Gazette	Gazette	Gazette

		Number	Date	Number	Page
Local Environmental Plan	Sydney LEP 2012	I28	14 Dec 12		
Heritage study					

References, internet links & images

Type	Author	Year	Title	Internet Links
Written	A joint project of the Powerhouse Museum and the Yiu Ming Society	1996	Yiu Ming temple precinct: a conservation report its architecture and objects	
Written	Anita Heiss		Aboriginal People and Place, Barani: Indigenous History of Sydney City	
Written	Edited by Ann Stephen	1997	The Lions of Retreat Street: a Chinese temple in inner Sydney.	
Written	Pat Townley	1999	NSW State Heritage Inventory form	

Note: internet links may be to web pages, documents or images.

Data source

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Name: Local Government

Database number: 2420396

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Appendix C – Historical Aerial Photographs



1943


Approximate location of investigation area



North



1956

Approximate location of investigation area 



North



1970

Approximate location of investigation area



North



1986

Approximate location of investigation area

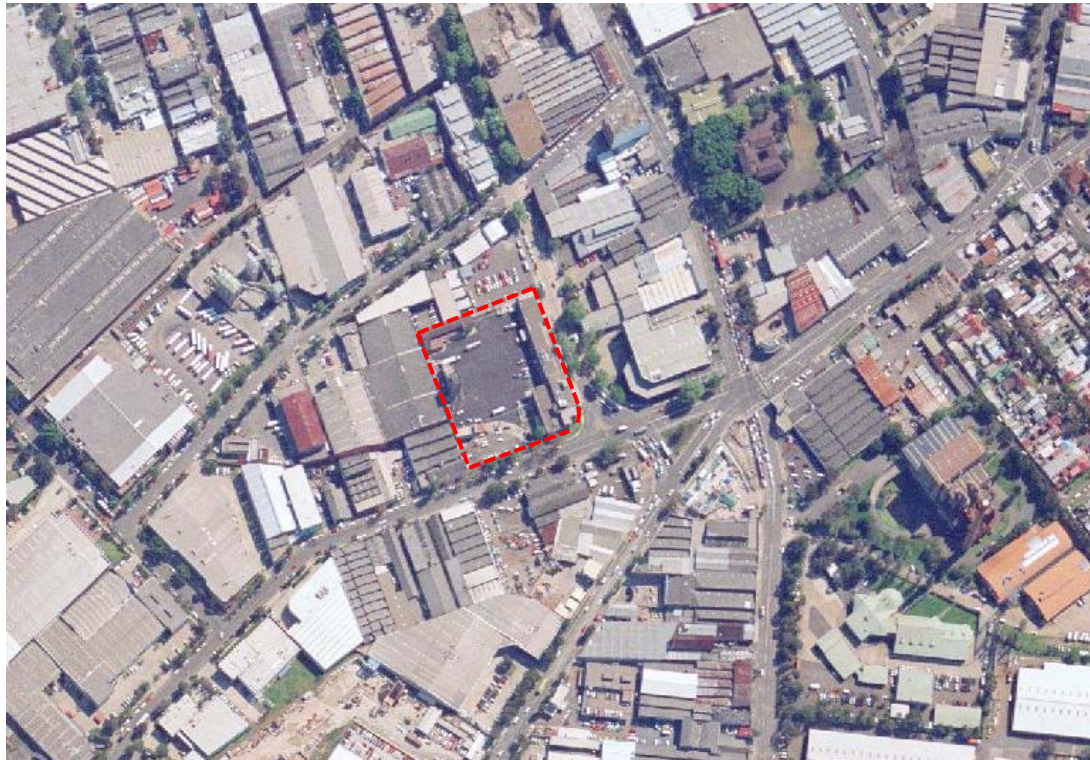


North



1998

Approximate location of investigation area



North



2005

Approximate location of investigation area

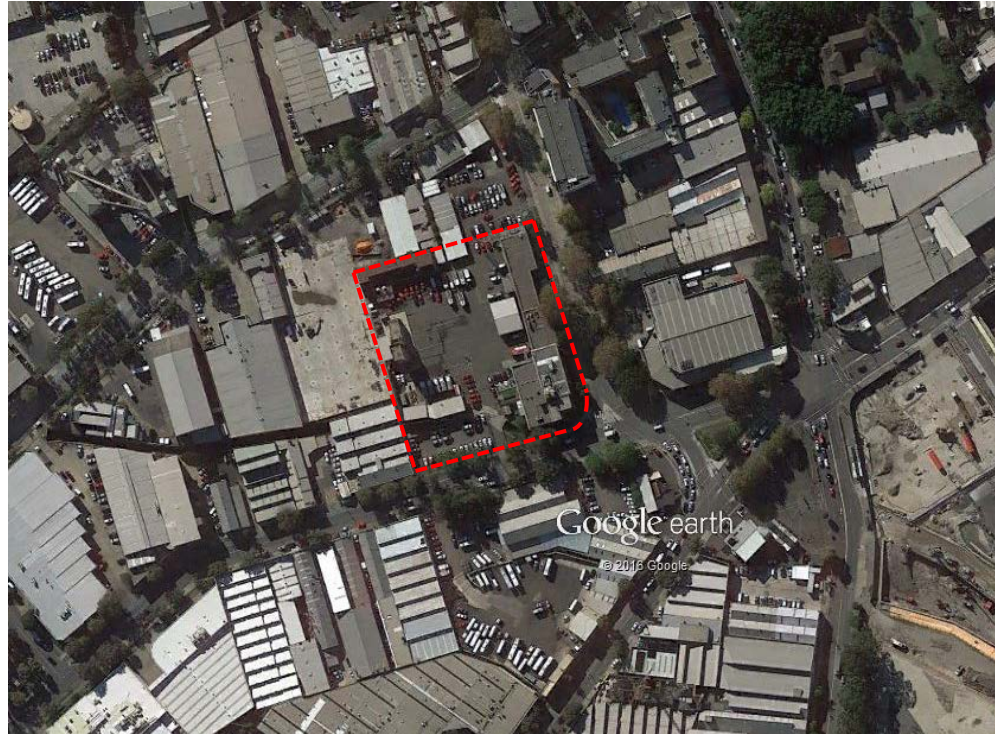


North



2016

Approximate location of investigation area



North

Appendix D – Dial Before You Dig Services Utility Search

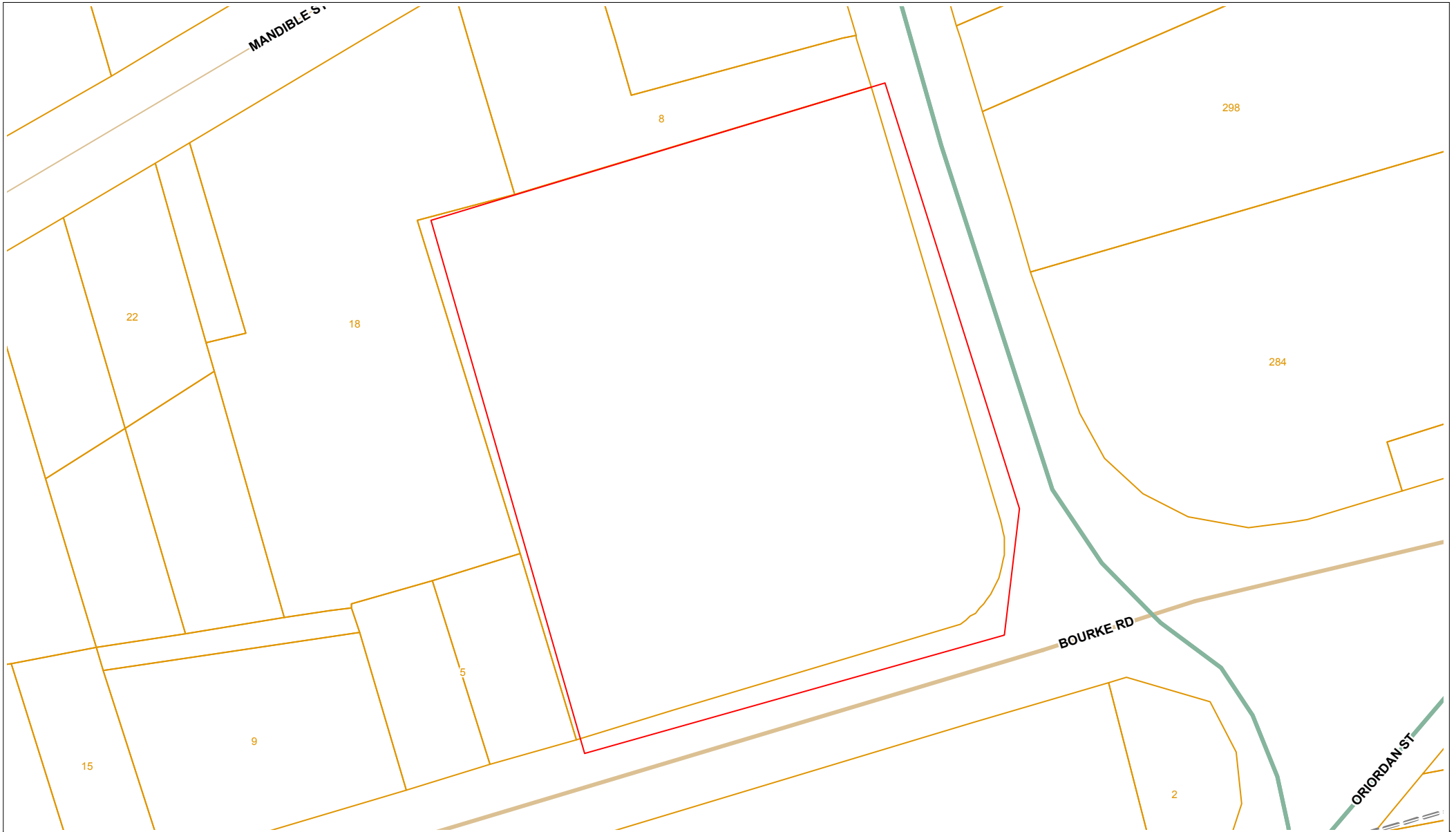


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Sequence Number: 53665624

Date: 20/06/2016

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LEGEND

- | Digsite | | Assets | |
|---|-------|---|----------------|
|  | Point |  | Cable |
|  | Line |  | 3rd Party Duct |
|  | Area |  | Marker Post |

Only PIPE Networks' duct displayed.

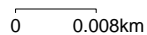
For location of PIPE Networks cable in third-party duct, please contact third-party named on attached cover letter.



Enquiry Number: 53665625

Map Sheet: 1

Scale: 1:750



LEGEND

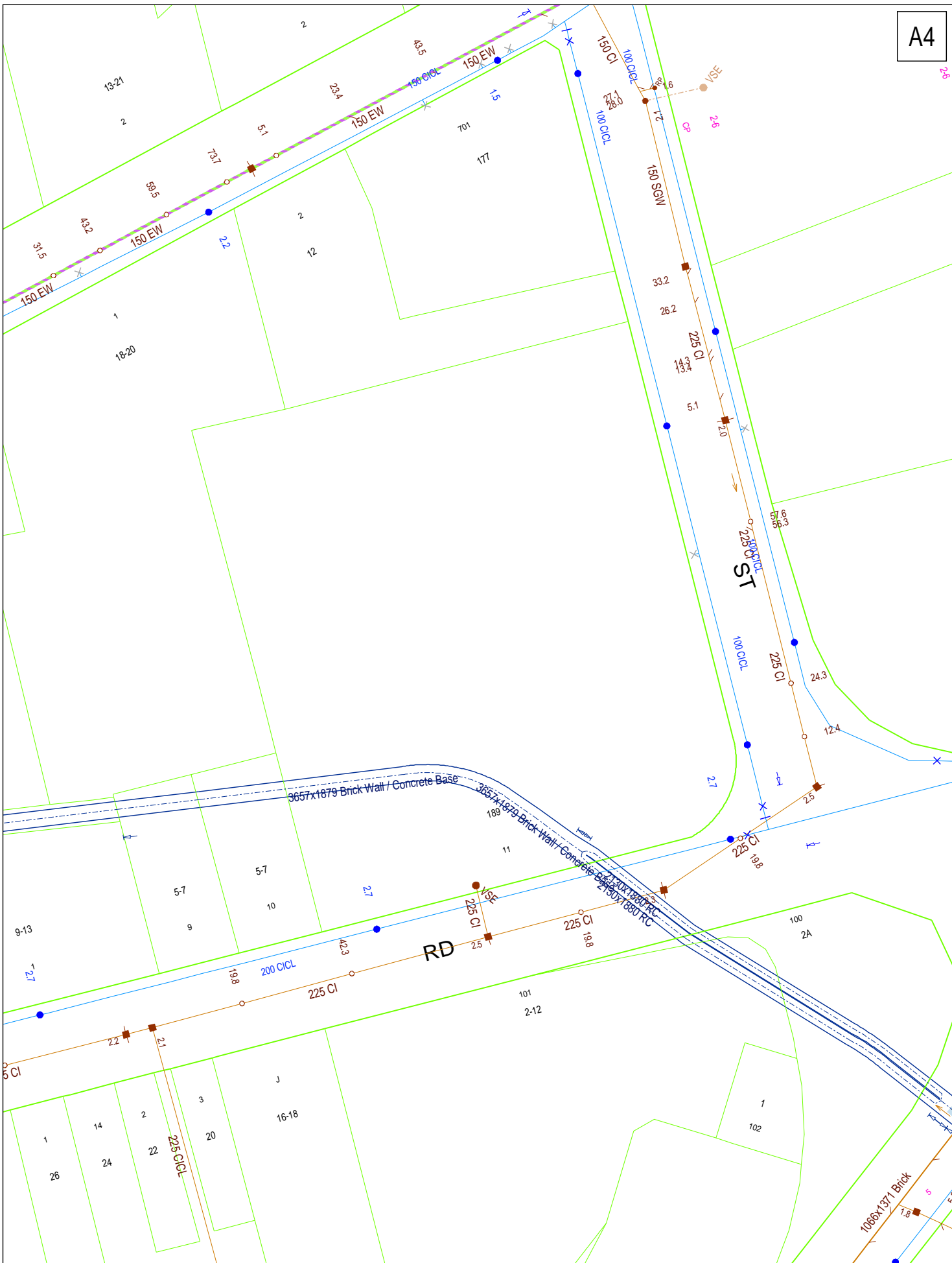
DBYD Request Area Asset

-  Line
-  Area
-  Manhole
-  Duct



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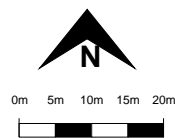
Note: If the works fall in an area that is adjacent to PIPE Networks infrastructure, a pre-inspection is required prior to commencement of works. Contact PIPE Networks to arrange an inspection time. **NO WORKS TO COMMENCE PRIOR TO INSPECTION.**



DBYD Address:
 n/a Wyndham Street
 Alexandria NSW 2015
 DBYD Job No: 10848465
 DBYD Sequence No: 53665629

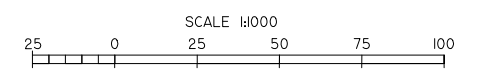
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 SYDNEY WATER CORPORATION
 Scale: 1:1000

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 Plan 1 of 1





SYDNEY 7AA



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LE6DD	S4CC	S4CD
LE9BB	S7AA	S7AB
LE9BD	S7AC	S7AD

ADJOINING MAPS

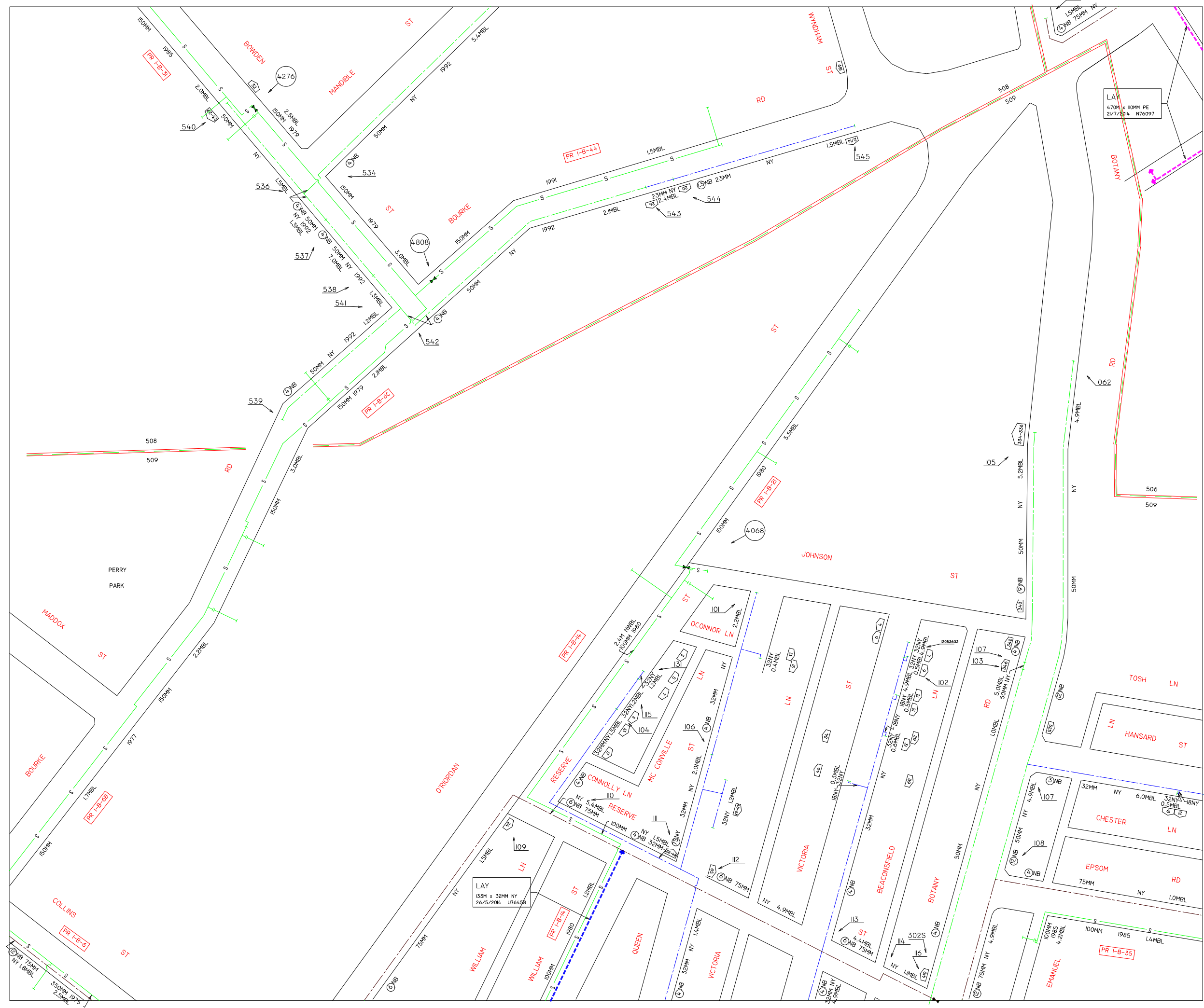


Jemena

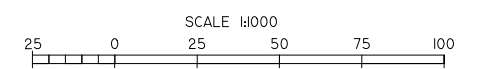
KEY

MAX ALLOWABLE OPERATING PRESSURE	
T	TRUNK PIPELINE 7000 kPa
P	PRIMARY MAIN 3500 kPa
S	SECONDARY MAIN 1050 kPa
4-00	NETWORK MAIN 400 kPa
3-00	NETWORK MAIN 300 kPa
2-10	NETWORK MAIN 210 kPa
1-00	NETWORK MAIN 100 kPa
30	NETWORK MAIN 30 kPa
7	NETWORK MAIN 7 kPa
2	NETWORK MAIN 2 kPa
PR II-2-3	PROPOSED MAINS

- PR II-2-3 STEEL MAIN PROJECT NUMBER
- PRESSURE MONITORING STATION
- VALVE
- SYSTEM PRESSURE REGULATOR
- SIPHON
- NETWORK NODE
- NETWORK VALVE NODE
- VALVE NUMBER
- 6NB 6 INCH CAST IRON MAIN
- 150MM 150MM STEEL MAIN
- 110MM PE/NY 110MM POLYETHYLENE/NYLON MAIN
- 50NB 50MM NY 50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN
- 1.2MBL DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE
- 1957 YEAR LAID
- MUNICIPALITY BOUNDARY
- NETWORK BOUNDARY
- HOUSE NUMBER



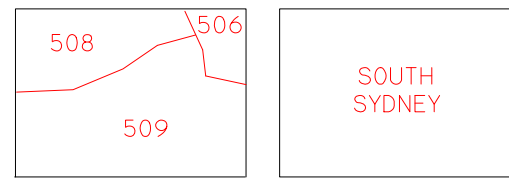
SYDNEY 7AC



THIS MAP UPDATED ON 05/04/16
 THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES
 SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

LE9BB	S7AA	S7AB
LE9BD	S7AC	S7AD
LE9DB	S7CA	S7CB

ADJOINING MAPS



NETWORK AREA MUNICIPALITY AREA

Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE

- T — TRUNK PIPELINE 7000 kPa
- P — PRIMARY MAIN 3500kPa
- S — SECONDARY MAIN 1050 kPa
- 400 — NETWORK MAIN 400 kPa
- 300 — NETWORK MAIN 300 kPa
- 210 — NETWORK MAIN 210 kPa
- 100 — NETWORK MAIN 100 kPa
- 30 — NETWORK MAIN 30 kPa
- 7 — NETWORK MAIN 7 kPa
- 2 — NETWORK MAIN 2 kPa
- + + + — PROPOSED MAINS
- PR II-2-3 STEEL MAIN PROJECT NUMBER
- PRESSURE MONITORING STATION
- VALVE
- SYSTEM PRESSURE REGULATOR
- SIPHON
- NETWORK NODES
- NETWORK VALVE NODE
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- 1.2MBL DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE
- 1957 YEAR LAID
- - - - - MUNICIPALITY BOUNDARY
- = = = = = NETWORK BOUNDARY
- HOUSE NUMBER

SYDNEY 7AC



LEGEND

	VERIZON DUCT
	VERIZON DUCT
	TELSTRA DUCT
	VERIZON PIT
	TELSTRA PIT

PROJECT	Verizon Southern Cross South
PROJECT TITLE	Southern Cross South
SHEET OF	9
DRAWING NUMBER	C1
SCALE	1:500
N.T.S.	AI

REV	DATE	DESCRIPTION	BY	CHECKED	APPROVED
C1	22/11/11				
A2	16/08/06				
A1	26/10/06				

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Verizon Southern Cross South

VERIZON CONDUIT
55 MENTMORE AVE

VERIZON PS PIT

GHD

133 Castlereagh St Sydney NSW 2000

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T: +61 2 9239 7100 F: +61 2 9239 7199 E: sydmail@ghd.com.au

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		Name	Signature	Name	Signature	Date
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